The Institute of Chartered Accountants of Bangladesh (ICAB)

VOLUME - II

STRATEGIC BUSINESS MANAGEMENT

STUDY MANUAL

CA Advanced Level



CA BANGLADESH

THE INSTITUTE OF CHARTERED ACCOUNTANTS OF BANGLADESH

ICAEW THE INSTITUTE OF CHARTERED ACCOUNTANTS IN ENGLAND AND WALES

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CHAPTER 11

Finance awareness

Introduction

Topic List

1 Financial strategy
2 Impact of financial crises
3 Recent developments in the Eurozone
4 Other current issues in finance
5 Social responsibility and environmental matters

Summary and Self-test

Technical reference

Answers to Interactive questions

Answers to Self-test

Introduction

Learning objectives

	Tick off
• Demonstrate and explain the financing alternatives for projects and assets, and make informed choices as to which alternative is most compatible with the overall financial strategy of the entity, showing the corporate reporting consequences	☐
• Explain how financial crises, which have occurred in the past over a long time period, may impact on approaches and attitudes to financial risks and may inform corporate reporting practice	☐
• Assess and explain current and emerging issues in finance	☐
• Identify social responsibility, sustainability and environmental factors for a range of financial stakeholders, and assess assurance and corporate reporting issues relating to such factors	☐
• Explain the role of boards in determining and evaluating an entity's policy for social responsibility, sustainability and environmental matters and advise on corporate reporting disclosures relating to these policies	☐

Knowledge brought forward

We start with a reminder of the key finance decisions that a business needs to make.

Syllabus links

The last part of Section 1 is a very important part of the financial strategy section of the manual, since it relates the main requirements of financial reporting standards to their business context. This reflects one of the main themes of the syllabus, which is to cover the implications for corporate reporting of business decisions.

Examination context

The quick list of factors affecting the choice of financial strategy at the start of Section 1 may be a useful checklist for questions.

Scenarios will include real-life issues and concerns related to finance, and also new developments in finance; the middle sections in this chapter set these scenarios in context. The final section brings together corporate social responsibility issues that range across all aspects of the syllabus. You were introduced to these issues in *Business Strategy*, and some of them are mentioned briefly earlier in this text, while certain topics receive more coverage in Chapters 17 and 19. Section 5 of this chapter addresses the possibility that a question could focus on social responsibility, including business strategy, costs, corporate reporting and assurance issues.

1 Financial strategy

Section overview

- We begin coverage of the financial strategy element of the syllabus by briefly revising the key financial decisions a business must make and the interaction between them. All of these decisions will be covered in more detail in later chapters, but you should keep them in mind throughout this section of the text.
- We also begin looking at the financial standards that cover areas affected by financial strategy decisions. Coverage of the standards is selective – we only include relevant financial reporting issues. Comprehensive coverage of all standards is contained in the *Corporate Reporting* text.

1.1 Financial strategy decisions

Definition

Strategic financial management: The identification of the possible strategies capable of maximising an organisation's net present value, the allocation of scarce capital resources among the competing opportunities and the implementation and monitoring of the chosen strategy so as to achieve stated objectives.

Strategy depends on stated **objectives.** We discussed objectives generally in Chapter 1, but here we focus on financial objectives and non-financial objectives that could well have a major impact on financial strategy.

1.1.1 Financial objectives

If a company's shares are **traded on a stock market**, the wealth of shareholders is increased when the **share price goes up**. The price of a company's shares should go up when the company is expected to make **additional profits**, which it will pay out as dividends or re-invest in the business to achieve future profit growth and dividend growth.

Maximising the wealth of shareholders generally implies maximising profits consistent with long-term stability. Sometimes short-term gains must be sacrificed in the interests of the company's long-term prospects. In addition, to increase the share price the company should achieve its profits without taking excessive **business risks** and **financial risks** that worry shareholders.

1.1.2 Non-financial objectives

Non-financial objectives that may significantly impact upon financial strategy include the following:

Non-financial objectives	
Customer satisfaction	A key target, because of the adverse financial consequences if businesses switch suppliers
Welfare of employees	Competitive wages and salaries, comfortable and safe working conditions, good training and career development
Welfare of management	High salaries, company cars, perks
Welfare of society	Concern for environment
Provision of service to minimum standard	For example, regulations affecting utility companies (water, electricity providers)
Responsibilities to suppliers	Not unscrupulously exploiting power as buyer
Leadership in research and development	Failure to innovate may have adverse long-term financial consequences
Maintaining competitive position and market share	Preventing rivals from becoming too large and enjoying benefits of size such as economies of scale

1.2 Factors affecting choice of financial strategy

The following general considerations will have significant impacts upon the strategies chosen.

1.2.1 Profits

The effect of **strategies chosen on profits** will be a critical influence on how strategies are perceived, as a business's accounts present the public face of its financial strategies.

1.2.2 Cash

Though financial strategies should hopefully enhance long-term profitability, **cash flow considerations** will often be shorter-term but possibly more pressing. It's easy to just concentrate on operating and investing cash flows and ignore financing cash flows (interest and dividends). However a critical, and often finely balanced, question will be whether operating cash flows will be sufficient to pay the servicing costs of finance.

1.2.3 Shareholders

Enhancing shareholder value is of course a key objective. Although this is connected with dividend policy, you also need to assess the effect on **value of shares** (which we shall see later is not just a function of current and future dividends).

1.2.4 Other stakeholders

Many financial strategies will have major impacts upon stakeholders other than shareholders with whom the organisation wishes to maintain good relations. These include:

- **Managers and employees**, who will be affected by any fundamental decision about a business's direction such as a merger or acquisition
- **Other suppliers of finance**, who will be affected by decisions on capital structure
- The **government**, who might be concerned that major investment decisions have an adverse impact upon the outside environment (not just the natural environment but also the competitive environment)
- **Customers.** Businesses need to be sensitive not only to actions which directly affect customers (product pricing) but how other actions may indirectly impact (for example redundancies meaning that fewer staff are available to deal with customer demands)

1.2.5 Economic and market considerations

Business decisions are never taken in isolation in a perfect world. Therefore you have to evaluate the impact of factors such as **key economic indicators**. For this paper as well you need to consider the **international implications**, including exchange rates and conditions for investment abroad.

In addition, the organisation's achievements may be assessed from distorted viewpoints that place excessive emphasis upon certain factors and do not have all the necessary information. Thus an assessment of **market efficiency** will often be helpful. Assessing market efficiency involves considering to what information the market is responding.

1.2.6 Restrictions

Bear in mind that a business may not always be able to do what it wants. **Legal** restrictions may be a powerful restraining force, and also restrictions imposed by **suppliers of finance** (restrictions imposed by loan arrangements or the need to maintain dividend levels to keep shareholders happy). Particularly for small companies, there may also be **restrictions** on the **funds available** to the business.

1.2.7 Risks

Remember that it is not necessarily just financial risk you are considering. Another area where risks should be considered is investment in information technology.

Firms also need to be aware of **risk issues** such as **limited data** and how the **changing environment** can be **measured**, and also the impact of **uncertainty** (how difficult it is to measure the likelihood of outcomes).

Various measures of risk may need to be considered (possible outcomes, likelihood of an unsatisfactory outcome, worst possible outcome).

The organisation's (and its directors') **attitude to risk** will also be important. It may be a good textbook answer to say that the business should obtain debt finance, but the current directors may be unwilling to put the business at risk by taking on extra debt.

1.2.8 Timescale

We've already mentioned timescale, but it's worth considering separately:

- Strategy is primarily concerned with long-term direction. **Businesses** have to maximise shareholder value in the **long-term**. However, you also should consider what objectives or conditions have to be fulfilled in the **short-term** (such as making enough money to carry on trading!).
- Decisions relating to a particular strategy are not always made at a single time. In Chapter 17 we shall look at **real option theory**, which takes into account that businesses may choose one course, and then later decide on a different course of action depending on how the first course of action has gone.

1.3 Financial management decisions

We discussed the main decisions (**investment financing** and **dividend** decisions) in Chapter 1. We shall look at investment decisions in greater detail in Chapters 16 and 17, sources of finance and financing decisions in Chapters 13 and 14 and dividend strategy in Chapter 14.

1.4 Financial strategy decision-making

In Chapter 2 we revised the checklist for assessing strategic options, provided by Johnson, Scholes and Whittington:

- **Suitability**: Is this option appropriate considering the strategic position and outlook of the business?
- **Acceptability:** Will the option gain stakeholder support?
- **Feasibility:** Does the firm have the resources and competences required to carry out the strategy? Are the assumptions of the strategy realistic?

Here we shall look briefly at how these elements apply to financial strategy decisions. In Chapter 14 we discuss in detail their application to the capital structure decision.

Financial strategies must also be clear, which means they need to specify certain things.

1.4.1 Suitability

Suitability relates to the **strategic logic** of decisions. Financial strategy should fit the situation of the business. The financial decisions taken should help businesses **generate and maintain competitive advantages**, **seize opportunities** and **exploit company strengths and distinctive competences**.

When considering the suitability of an option, you might also think about whether there are any better **alternatives** not specified in the question. For example, if a business is looking to acquire another, would it be better off trying to grow internally instead? It may be necessary to create a **framework** for ranking alternatives.

1.4.2 Acceptability

Shareholders will obviously be concerned with how far the chosen strategy contributes to meeting the dominant objective of increasing shareholder wealth. Other suppliers of finance will be concerned with whether the organisation is able to meet its commitments to them.

All stakeholders may be concerned with the potential **risks** of the strategies.

Financial acceptability will need to be **demonstrated** by **investment appraisal** and by **analysis** of the effect on **profitability**, **liquidity** and **gearing** indicators. These may need to be supplemented by risk analysis.

Don't forget the other conditions (legal, loan covenant etc) imposed by other stakeholders. Acceptability may not be just a matter of fulfilling a set of rules, but also being a good citizen (acting sensitively towards the natural environment, paying suppliers on time).

1.4.3 Feasibility

Specification of required **resources** is a key aspect of clear strategy exposition. These resources have to be available in order for strategies to be **feasible.** Obviously for financial strategy decisions, financial resources will be critical, but businesses will also need to have access to **technology**, **materials** and **other natural resources**.

Businesses must also be able to **generate sufficient returns** to compensate resource providers for the resources consumed. They will need to be able to **supply sufficient goods and services** and be able to withstand competitor threats.

Again it will be important to demonstrate **financial feasibility** with supporting financial data. **Cash and funds flow forecasts** will be central to this.

Feasibility also relates to the **conditions** that must be fulfilled if a strategic decision is to be successful. If, for example, the success of an acquisition depends upon the key staff of the acquired company staying, how feasible is it that they will?

1.4.4 Clarity

The considerations listed below will apply to strategies of **investment**. The focus of **financing strategies** will be on the provision of sufficient resources, although the resources required must also be spelt out for **investment strategies**.

(a) **Benefits**

The benefits to the **organisation** and **principal stakeholders** of strategies need to be spelt out – for example, higher revenues or falling interest commitments meaning more funds available for distribution to shareholders.

(b) **Direction**

The **activities** required to **implement the strategy** must be **directed** towards providing the benefits. Direction also means setting **financial targets**, enabling better control when the strategy is implemented.

(c) **Resource specification and management**

The **financial resources needed** to implement investment strategies should be specified in detail. Remember also the need to ensure that **resources** are **managed carefully**. In your previous studies you encountered the concept of **over-trading**, where a business expands too quickly and fails to manage its working capital and cash flows properly.

(d) **Changes in the environment**

The strategy chosen should enable the business to cope with **environmental changes** and **complexity**. If environmental changes are likely to be a significant factor, it may be important to specify the responses that may be required, for example obtaining contingency funding.

(e) **Timescale**

The strategy chosen should be **relevant for the long-term** that is going beyond short-term profit targets. What constitutes long-term will vary, but for an investing strategy it is likely to mean the **life-time of the investment**, and for a financing strategy perhaps the **duration of long-term debt instruments**.



Interactive question 1: Financial strategy **[Difficulty level: Intermediate]**

As a general illustration of the principles we've just discussed, consider the following outline scenario.

Getfitquick operates leisure clubs in a number of countries in Europe. The company is a major presence in the leisure club market, specialising in high care, good facility operations. However, this market is highly competitive and over the last few years a number of chains that have not been growing have been taken over. Getfitquick's performance over the last couple of years has been stagnant, with falling membership in existing clubs and newly-opened clubs taking time to become profitable.

The company is listed on a major European stock exchange, with a significant percentage of its shares being held both by its founders and by institutional investors. It also has significant loan finance, with loan creditors holding title deeds to some of the clubs, and in the past some of its loan commitments have had to be rescheduled.

Requirements

Getfitquick is considering whether to open a number of new clubs over the next few years. Draft notes suggesting how an expansion strategy would be judged against the criteria outlined above.

See **Answer** at the end of this chapter.

1.5 Strategic cash flow planning

Strategic cash flow planning ensures that **sufficient funds** are available for investment and that **surplus funds** are used to best advantage.

In order to survive, any business must have an adequate inflow of cash. Cash flow planning at a strategic level is similar to normal cash budgeting, with the following exceptions:

(a) The **planning horizon** (the furthest time ahead plans can be quantified) is longer.

(b) The **uncertainties** about future cash inflows and cash outflows are much greater.

(c) The business should be able to respond, if necessary, to an **unexpected need** for cash. Where could extra cash be raised, and in what amounts?

(d) A company should have planned cash flows that are consistent with:

(i) Its dividend payment policy, and
(ii) Its policy for financial structuring, debt and gearing

1.5.1 New investments and product developments

Investments in new projects, such as new product developments, use up cash in the short term. It will not be for some years perhaps that good profits and cash inflows are earned from them.

One aspect of strategic cash flow planning is to try to achieve a balance between the following:

(a) **Making and selling products** that are still in their **early stages of development**, and are still 'soaking up' cash

(b) **Making and selling products** that are **'cash cows'** – ie established products that are earning good profits and good cash inflows

1.5.2 Cash surpluses

A company should try to plan for adequate cash inflows and be able to call on 'emergency' sources of cash in the event of an unforeseen need, but it might be unwise to hold too much cash.

When a company is **cash-rich** it can invest the money, usually in short-term investments or deposits such as the money market, to earn interest. However, for companies which are not in financial services or banking, the main function of money is to be spent. A cash-rich company could do one of the following:

(a) **Plan to use the cash**, for example for a project investment or a takeover bid for another company

(b) **Pay out the cash** to shareholders as **dividends** and let the shareholders decide how best to use the cash for themselves

(c) **Re-purchase its own shares**

1.6 Strategic fund management

Strategic fund management involves asset management to make assets available for sale if cash deficiencies arise.

Strategic fund management is an extension of cash flow planning that takes into consideration the ability of a business to overcome unforeseen problems with cash flows, recognising that the assets of a business can be divided into three categories:

(a) Assets that are needed to carry out the **'core' activities** of the business. A group of companies will often have **one or several main activities**, and in addition will carry on several peripheral activities. The

group's strategy should be primarily to develop its main activities. There has to be enough cash to maintain those activities and to finance their growth.

(b) Assets that are **not essential for carrying out** the main activities of the business and could be **sold off** at **fairly short notice**. These assets will mainly consist of short-term marketable investments.

(c) Assets that are not essential for carrying out the main activities of the business and could be **sold off to raise cash**, although it would probably take time to arrange the sale and the amount of cash obtainable from the sale might be uncertain. These assets would include: long-term investments (for example, substantial shareholdings in other companies); subsidiary companies engaged in 'peripheral' activities, which might be sold off to another company or in a management buyout; and land and buildings.

If an unexpected event takes place which threatens a company's cash position, the company could also meet the threat by:

(a) **Working capital management** to **improve cash flows** by reducing stocks and debtors, taking more credit, or negotiating a higher bank overdraft facility

(b) **Changes to dividend policy**

1.7 Corporate reporting implications of investment and financing decisions

The investment and financing decisions will have a number of consequences for the contents of its accounts. In this chapter we provide an overview on how investment and financing decisions relate to the requirements of financial reporting standards. In later chapters, where relevant, we will cover some of the corporate reporting consequences in more detail. The consequences of many decisions will be significant for the financial statements, equity and profits of a company, affecting in turn analysts' measures of return and gearing that investors will use to make financial decisions themselves.

As mentioned above, the *Corporate Reporting* Study Manual discusses fully the accounting issues that this text treats selectively. This section also revises topics that were covered in the *Financial Accounting* and *Financial Reporting* Study Manuals.

For the purposes of this chapter, we shall group the accounting requirements under the following headings:

- Investment in entities
- Other investment issues
- Financing
- Other issues

1.8 Investment in entities

The economic reality is that many businesses take on complex forms, often establishing themselves as a number of companies that act coherently, or are centrally directed and managed. Large groups of companies emerge. Investors need to know, if their investments are at group level, exactly how the group as a whole is performing. Financial statements normally set out the financial position and performance of a single entity. If that entity is controlled by another entity (its parent) and there are intra-group transactions, then its financial statements may not reveal a true picture of its activities. As a consequence, consolidated financial statements are prepared by aggregating the transactions, assets and liabilities of the parent and all its subsidiaries on the basis that the group is a single economic entity.

Without consolidated financial statements, the shareholders in the parent entity would receive its single entity financial statements, which would recognise the income of subsidiaries only to the extent of the dividends receivable from them. The information provided to such shareholders would not reflect the economic realities. Consolidated financial statements provide useful information about all of the activities carried out by the management of the parent entity. Their preparation is an application of the *BASB's Conceptual Framework* requirement that transactions are accounted for in accordance with their substance, not just their legal form.

The introduction to IFRS 12, *Disclosure of Interests in Other Entities* highlights the importance that financial statement users place on disclosure of interests in other entities to help identify the profit or loss and cash flows available to the investor company.

As you will remember from earlier studies, the extent of **control** that an investor has over its investment will determine how it is treated in the investor's accounts.

1.8.1 Subsidiaries

If an investment has subsidiaries, it is subject to the requirement of IFRS 10 to prepare consolidated financial statements. A parent-subsidiary relationship is based on control, which an investor has if it has:

- **Power over the investment –** existing rights that give the investor the ability to direct the activities of the investment that significantly affect its returns. These may come through voting rights, the power to govern financial and operating policies or the power to appoint and remove a majority of the board of directors
- **Exposure or rights to variable returns** from the investment
- **Ability** to **use the power over the investment to affect the returns it obtains**

1.8.2 Joint ventures

Investments can take a number of different forms. It is not always appropriate to acquire the majority of the voting rights of another entity in order to gain control. In some industries and in particular circumstances, it is more beneficial to share such investment and control with other parties. By sharing the investment each investor brings with them different skills. Consequently the arrangement may benefit all parties through reduced costs. Such arrangements are commonly known as joint ventures.

If a firm makes an investment jointly with another party, it may be subject to the requirements of IFRS 11 *Joint Arrangements* to recognise the rights and obligations arising from the investment.

The standard only applies to **joint arrangements** where the parties have **joint control**. Joint control is the contractually agreed sharing of control where strategic decisions require the unanimous consent of the parties sharing control (majority control, where decisions require the consent of a majority of owners, is not joint control).

Joint arrangements are of two types, depending on the rights each party has:

- **Joint operations** include, but are not confined to, arrangements that are not structured through a separate entity (a separately identifiable financial structure, for example a limited liability company). The parties share their activities and pool their resources. In joint operations the parties provide and have rights to their own assets, and obligations for the liabilities relating to the arrangement. The accounts include the reporting entity's own assets and liabilities, its share of the revenues and the expenses it incurs relating to its interest in the joint operation (known as gross accounting).
- **Joint ventures** are arrangements where the parties that have joint control have rights to the net assets of the arrangement. The arrangement holds assets and incurs liabilities on its own account and the parties to the arrangement are only liable to the extent of their investment. Each party treats its interest in the joint venture as an investment in the arrangement using the equity method of accounting, in accordance with the requirements of IAS28 *Investments in Associates and Joint Ventures*.

1.8.3 Associates

Outright control is not always the most appropriate form of investment for an entity to have. There may be circumstances where although an entity does not control another entity, the business operated by that other entity is still of significant importance to it. In such circumstances an investor may obtain sufficient ownership of the entity to have the power to i**nfluence** decisions of its governing body (eg its board of directors) but not to have control over it.

Investments that meet these criteria will generally be classed as associates. As the investor has significant influence over such an investee, it is appropriate to report its share of the investee's results rather than just the dividends receivable. After all, it is partly answerable for the investee's performance. Such accounting requirements provide more useful information about the financial performance and position of the investor.

Interests in associates are common in real-life, particularly where a controlling interest is built up over time rather than being purchased in one step. As you will remember, the accounting treatment of associates differs from subsidiaries, even if the investor eventually wishes to gain control.

IAS28 also applies to investments in associates. Remember that holding 20% of voting power creates a presumption of significant influence.

The equity method means that the investment will be recognised initially at cost and then adjusted for the **post-acquisition change** in the share of the investment's net assets. Distributions will reduce the carrying value of the investment.

A firm may make an associate investment in a business whose viability and success will play an integral part in an entity's own success. For example, where an entity uses distributors or agents in foreign countries, it may wish to take an equity stake in them. This strengthens the relationship between the parties and allows a level of influence and communication greater than could be obtained through a contractual agreement alone. Alternatively, a non-controlling stake may be the initial stage of a larger plan to obtain control of the target entity. The investor is able to gain board representation and strengthen its business relationships with the target. If the relationship is successful, further investment can be facilitated.

1.8.4 Business combinations

Entities may increase their market share, diversify their business or improve vertical integration of their activities in a number of ways, including by organic growth or through acquisitions. The acquisition of a competitor may offer rapid expansion or access to new markets and is often seen as more attractive than expansion through organic growth.

To ensure that users of financial statements are able to distinguish between organic growth and growth through acquisition, detailed financial reporting requirements should be applied and comprehensive disclosures should be presented.

The process of acquisition will mean that the investor is subject to IFRS 3 *Business Combinations.* The accounting consequences will be that the investor recognises the assets acquired and liabilities assumed, including those that may not have been recognised by the entity being acquired, such as brand names. Since the assets and liabilities being acquired are recognised at **fair value,** the investment is included at an amount that reflects the market's expectation of the value of its future cash flows.

We shall look at the requirements of this standard in more detail in Chapter 12.

1.8.5 Discontinued operations

A key business event arises when an entity closes or discontinues a part of its overall business activity. Management will have assessed the impact of the closure on its future profitability, but users of the financial statements, be they investors or other stakeholders, will want to make their own assessment. IFRS 5 *Non-current assets held for sale and discontinued operations* provides an analysis not of future profit but of the contribution of the discontinued element to the current year's profit (or loss), ie the part that will not be included in future years' profits.

Showing separate information about discontinued operations allows users of financial statements to make relevant future projections of cash flows, financial position and earnings-generating capacity.

In addition, an asset is held for sale when the entity does not intend to use it as part of its on-going business, but instead intends to sell it. The separate identification of assets that are held for sale, rather than to generate continuing economic benefits for the entity on an ongoing basis, substantially improves the information made available to users as it provides information on the entity's plans and likely future performance.

If at the end of the accounting period some business assets are no longer needed, they will be classified as held for sale in accordance with IFRS 5 if their carrying amount will be recovered principally through a sale transaction, they are available for immediate sale and the sale is highly probable. Abandoned assets cannot be classified as held for sale. If the assets fulfil the definition of held for sale, they will be subject to the requirements of IFRS 5 and not depreciated. They will be held at the lower of fair value less costs to sell and carrying amount.

1.8.6 Disclosure of interests

Investments in any subsidiaries, joint arrangements, associates or unconsolidated structured entities will mean that the investor has to apply the requirements of IFRS 12 *Disclosure of Interests in Other Entities.* As well as interests (including non-controlling interests in subsidiaries) IFRS 12 has other disclosure requirements depending on the nature of the investments. These include disclosure of restrictions on assets, liabilities and the movement of funds and details about the nature of, and changes in, risks associated with the investments.

1.8.7 Separate financial statements

In jurisdictions where an entity must present separate financial statements in addition to the consolidated financial statements, or if an entity chooses to do so voluntarily, the requirements of IAS27 *Separate Financial Statements* apply. The entity making the investment in subsidiaries, joint ventures or associates must account for these either at cost or in accordance with the fair value requirements of IFRS 9 *Financial Instruments*.

1.8.8 Segments

Most large entities sell different products and services in a number of different markets or geographical locations, which may be regarded as different business segments. The total profitability of the entity will depend upon the performance of each of these segments. For some entities the key segments will be based on products and services; for others it will be by geographical area. In each case, the separate management and performance measurement of individual segments is essential, as while one product or geographical area may be performing well, another may be failing.

While management will have access to management accounting performance data on each separate part of the business, the published accounts, in the absence of segmental reporting, would only report the aggregate performance of the entity. Overall profitability is important, but additional information is needed by external users to fully understand the separate businesses hidden below this top level reporting.

IFRS 8 *Operating Segments* provides a link between the business operations and the main components of the financial statements by requiring information to be disaggregated. Investors can therefore make better assessments of the performance of each part of the business, leading to a better understanding of the business as a whole.



Definition

Operating segment: This is a component of an entity:

(a) That engages in business activities from which it may earn revenues and incur expenses (including revenues and expenses relating to transactions with other components of the same entity)

(b) Whose operating results are regularly reviewed by the entity's chief operating decision maker to make decisions about resources to be allocated to the segment and assess its performance, and

(c) For which discrete financial information is available

Significant new investments, for example a large diversification into a new geographical area or product, may mean that a listed company becomes subject to the requirements of IFRS 8. The standard will apply if there is separate financial information available about the investment and senior management regularly evaluates it as part of the overall process of deciding how to allocate resources and also when assessing performance.

Under IFRS 8 information must be given about determination of the operating segments, the products and services they provide, profit or loss, significant income and expense items and segment assets and liabilities.

1.9 Other investment issues

Even if a company does not invest in another entity, a major investment may include substantial investment in non-current assets.

1.9.1 Tangible assets

Businesses operating in certain industries, for example manufacturing, typically have ownership of substantial property, plant and equipment (PPE). PPE are tangible assets such as freehold and leasehold land and buildings, plant and machinery, fixtures and fittings, which are held for use in the production or supply of goods or services or for administrative purposes. The management of these resources underpins the continued viability of businesses and therefore represents a key feature of business prosperity. It is important that users of financial statements understand how businesses utilise their PPE and how such assets are accounted for.

Any investment in tangible assets will be subject to the requirements of IAS16 *Property, Plant and Equipment* relating to capitalisation, depreciation, revaluation and measurement of fair value and impairment. In order to be capitalised, it has to be probable that future economic benefits associated with the item will flow to the entity. Therefore if the asset purchase is part of a project, the entity has to expect that the project will be successful.

Under IAS16 costs include:

- **Purchase price**
- **Costs directly attributable to bringing the asset to the location and condition required for operation** including employee costs in construction or acquisition, site preparation costs, initial delivery and handling costs, installation and assembly costs, testing costs and professional fees
- **Costs of dismantling and removing the item and site restoration costs**

Depreciation policy will depend on the use to which the asset is put, based on the expectations of how economic benefits will be derived from it. Factors that will determine the useful life that is used in calculating depreciation include:

- Expected usage of the asset
- Expected physical wear and tear
- Possible technical or commercial obsolescence
- Limits on the use of the asset

1.9.2 Intangible assets

Brand names, such as Coca-Cola or Microsoft, are in many cases an entity's most valuable asset but they are extremely difficult to value when they have been generated internally and over a long period of time. Brands are one example of an intangible asset. If they cannot be reliably measured, they cannot be recognised in the financial statements. Such a problem calls into question the quality of information financial statements contain and, consequently, potentially diminishes the power of financial statements in providing information for a business on which economic and investment decisions are made.

However, an entity that has acquired, as opposed to internally generated, an equally valuable brand will recognise it, since a fair value can be attributed to it. An intangible asset may be recognised by the acquirer **that was not recognised by the acquiree,** for example an internally generated brand may be recognised by the acquirer. This is because the acquisition provides sufficient evidence that:

- There will be future economic benefits attributable to it – otherwise, why would the acquirer buy it?
- The cost can be measured reliably; the acquirer will have built up the total purchase consideration by estimating values (= costs) for each asset.

This inconsistent treatment has led to difficulties in valuing entities and assessing their performance.

An investment in a major IT project, for example, may involve investment in intangibles such as computer software or licences. These will be subject to the requirements of IAS38 *Intangible assets.* They can only be carried on the statement of financial position if it is probable there will be future economic benefits from the assets.

Their useful life may be determined by the life of the investment. It may be difficult to decide whether the firm has control of some intangible assets and it may also be problematic to assess their fair value or impairment, particularly if there is no active market for them and they are part of a specific investment.

1.9.3 Impairment of assets

Asset availability and usage in a business is one of the key drivers in business success. Any assessment of assets, therefore, should consistently reflect their worth to the business and financial reporting of their value should be accurate, particularly when there exists the possibility that an asset may have diminished in value. At the very least, an asset recognised in the statement of financial position should not be reported at a value above the amount that could be recovered from it. During periods where general prices increase there is an assumption that recoverability of the reported value of such assets will not be an issue. However, it is important that all the assets are considered in relation to business decisions that are made by the entity. For example, some intangible assets which are highly technical in nature may attract premium valuations which may not be recoverable as technology continues to be developed or competitors enter the market.

Assets will be subject to the requirements of IAS36 *Impairment of Assets* if their carrying amounts exceed the amount expected to be recovered from their use or sale. The firm must reduce the carrying amount of the asset to its recoverable amount and recognise an impairment loss.

The recoverable amount is the higher of fair value less costs of disposal and value in use.

Definition

Value in use: The present value of the future cash flows expected to be derived from an asset or cash-generating unit.

The following elements should be reflected in the calculation of an asset's value in use:

- An **estimate of the future cash flows** the entity expects to derive from the asset
- Expectations about **possible variations in the amount or timing** of those future cash flows
- The **time value of money** (represented by the current market risk-free rate of interest)
- The price for bearing the **uncertainty inherent in the asset**
- **Other factors** that market participants would reflect in pricing the future cash flows the entity expects to derive from the asset

The standard could therefore apply if the expected future cash flows associated with the asset are worse than was forecast when the initial investment was made. The cash flow projections used to assess whether impairment has occurred should be the most recent management-approved budgets or forecasts, generally covering a maximum period of five years. The net cash flows expected to arise on the asset's ultimate disposal should be taken into account.

Indicators of impairment include the following:

External

- Significant decline in market value of the asset below that expected due to normal passage of time or normal use
- Significant changes with an adverse effect on the entity in:
  - Technological or market environment
  - Economic or legal environment
- Increased market interest rates or other market rates of return affecting discount rates and thus reducing value in use
- Carrying amount of net assets of the entity exceeds market capitalisation

Internal

- Evidence of obsolescence or physical damage
- Significant changes with an adverse effect on the entity:
  - The asset becomes idle
  - Plans to discontinue/restructure the operation to which the asset belongs
  - Plans to dispose of an asset before the previously expected date
  - Reassessing an asset's useful life as finite rather than indefinite
- Internal evidence available that asset performance will be worse than expected

1.10 Financing

A number of standards are linked to the decisions managers make about how operations and investments should be financed.

1.10.1 Financial instruments

All companies have financial instruments in their statements of financial position. Receivables and cash are, after all, financial instruments. In particular, there are trillions of dollars of financial instruments outstanding in the financial markets. Prior to the standards on financial instruments, many were off balance sheet until the gain or loss became realised. Users can now better judge the impacts on future profits and liquidity and the risks businesses face as a result of the following standards being implemented:

- IAS32 *Financial Instruments: Presentation*
- IAS39 *Financial Instruments: Recognition and Measurement*
- IFRS 7 *Financial Instruments: Disclosures*
- IFRS 9 *Financial Instruments*

Relevant requirements of these standards are covered in more detail in Chapters 14 to 16, but for now you should keep the following principal points in mind.

- The **requirement to split financial instruments into financial assets, financial liabilities and equity instruments**, with the distinction between liabilities and equity being that liabilities are instruments that embody an obligation to deliver cash whereas equity instruments contain residual interests in net assets
- **Classification as a liability or equity** determines whether interest, dividends, losses or gains are treated as income and expense (liability) or as changes in equity
- **Special hedge accounting requirements**, recognising the offsetting effects of changes in value of a hedged item and an instrument that hedges it may apply to hedges of asset or liability fair value, hedges of variable cash flows and hedges of net investments
- Under IFRS 7, the firm needs to explain the **significance of financial instruments** for its financial position and performance, and provide qualitative and quantitative disclosures about exposures to risk and risk management

1.10.2 Foreign investment and finance

Business is becoming increasingly international in terms of trading goods and services and in the operation of capital markets. One measure of the significance of globalisation is that most developed countries have external trade in the range 15% to 30% of their gross domestic product.

International activity can vary enormously from relatively straightforward import and export transactions through to financing arrangements in multiple currencies or maintaining operations overseas, for example, in the form of a subsidiary or branch.

Operating in multi-currency locations presents a number of accounting challenges, including:

- **Conversion** – accounting for transactions where one currency has been physically changed into another currency
- **Translation** – restating assets/liabilities initially recognised in more than one currency into a common currency
- **Exchange gains and losses** – where relative currency values change, gains and losses arise which need to be appropriately measured and accounted for

Carrying on any trade abroad, making investments or seeking finance in other currencies will mean that the firm is subject to IAS21 *The effects of changes in foreign exchange rates*. We looked at some requirements of this standard in Chapter 2 and will return to it again in Chapter 16. For now, the standard allows exchange differences on monetary items (loans) relating to a net investment in a foreign operation to be treated as other comprehensive income in the statement of comprehensive income. They are treated as a component of equity and only taken to profit or loss on disposal of the investment.

1.10.3 Borrowing costs

Inventories that require a number of manufacturing processes and the construction of non-current assets such as manufacturing plant or investment properties can take a significant time to complete. These activities may be financed by borrowings on which the entity incurs finance costs during the manufacturing/construction periods. These finance costs can be considered as part of the cost of the asset.

The requirements of IAS23 *Borrowing costs* may apply to this type of investment (qualifying asset). If borrowing costs can be directly attributed to the acquisition, construction or production of a qualifying asset, then the borrowing costs should be **capitalised.** Borrowing costs eligible for capitalisation are those that would have been **avoided** otherwise. Judgement will be required when the firm uses a range of debt instruments for general finance. In these circumstances the amount of borrowing costs to be capitalised should be calculated by reference to the weighted average cost of the general borrowings.

1.10.4 Leasing

Businesses may obtain financing from a number of different sources. Such financing arrangements may vary significantly in nature, from a simple bank overdraft to a complex sale and leaseback transaction.

Leases can be a major source of finance to a business. The accounting treatment adopted must thus provide sufficient information for users of the financial statements to be able to understand the substance of such transactions. The accounting treatment for leases has caused much debate among national standard setters, with important issues such as gearing and off-balance sheet (ie 'hidden') financing at the centre of the debate.

IAS17 *Leases* sets out the accounting treatment for reporting lease transactions and provides a framework for investors to understand how an entity deals with the financing it accesses in the form of leases.

The debate on the accounting for lease transactions is continuing, with the BASB currently reconsidering lease accounting. The outcome of the current debate is expected to result in a fundamental change in the accounting treatment for leases.

Currently, if a business decides to lease assets it uses, the requirements of IAS17 *Leases* will apply. You will remember the distinction IAS17 draws:

- **Finance leases** – where substantially all the risks and rewards of ownership of the leased asset are transferred to the lessee and the asset is a resource for which future economic benefits will flow Both the asset acquired and the obligation to make lease payments are recognised in the statement of financial position and the effective 'interest' expense is taken to profit or loss.
- **Operating leases** – other leases where the transfer of risks and rewards does not take place. Lease payments are recognised in profit or loss and the lessee does not recognise the asset or obligation in the statement of financial position.

1.11 Other issues

A number of other standards may be of general relevance, whatever strategic decisions the firm makes.

1.11.1 Fair values

Investments and financial liabilities are now subject to the requirements of IFRS 13 *Fair value measurement*.

Generally fair value should be determined on a market basis, making maximum use of observable market prices. It may alternatively be determined using a cost approach or income approach. The cost approach reflects the amount that would currently be required to replace the service capacity of an asset. A number of techniques could be employed if the income approach is used, for example present value techniques, option pricing models and the multi-period excess earnings model.

1.11.2 Events after the reporting period

In assessing business performance, pertinent information sometimes arises following the cut-off date for which financial statements are prepared and may have important implications for judging financial position and performance in the year just gone. The end of the reporting period is a cut-off date and events that happen after this point in time should not generally be recognised in the financial statements of the period just ended. However, information that comes to light after the reporting date sometimes provides additional information about events that actually occurred before the end of the reporting period, in which case it is appropriate to recognise it.

The objective is to prepare a set of financial statements that reflect the most up to date information about events that existed at the end of the reporting period. However, it is sometimes difficult to establish whether the event happening after the end of the reporting period is new information about an existing event or a new event. Guidance is therefore provided to ensure there is consistency of treatment of such events across all financial statements.

IAS10 *Events after the reporting period* includes a number of examples of investment and financing issues for which accounts would need to be adjusted or for which disclosure would need to be made. These disclosures provide investors with additional important information that may significantly impact upon investment decisions.

Examples of issues which would require accounts to be adjusted include:

- Subsequent evidence of impairment of assets
- Subsequent determination of the costs of assets

Examples of events requiring disclosure include:

- A major business combination
- Announcing a plan to discontinue an operation
- Major purchases of assets
- Destruction of assets
- Abnormally large changes in asset prices or foreign exchange rates

1.11.3 Provisions and contingencies

One of the key creative accounting devices used in the past by businesses that wish to manipulate their financial results has been to 'smooth' earnings and thus provide a false indication that the business was more stable than was the case. One way this has been undertaken in the past has been through the creation of a provision. For example, in periods where performance exceeded expectations an entity might be tempted to make what has been commonly referred to as a 'rainy day' provision. The provision set up during prosperous times would be released in periods where results were not quite up to expectations. This provided management with some flexibility over the smoothing of results. Also a number of unrelated provisions could be grouped together to form a 'big bath' provision which provided some flexibility over its release or reversal.

As a consequence IAS37 *Provisions, Contingent Liabilities and Contingent Assets* restricted entities from making large 'general' provisions which can have a significant impact on the results of an entity. Guidance is provided on the type of provisions that can be made and on the general principles surrounding recognition. In so doing, the requirements of IAS37 limit the provisions that can be made.

No provision can be made for future losses of an investment, as these do not represent obligations of the firm at the period-end. However, expectations of losses may be an indication of an impairment of value of assets used in an investment.

If the firm is to undertake a major restructuring of an investment, it can only make a provision for that restructuring if it has a detailed formal plan and has either started to implement the plan or announced its main features to those affected.

Contingent liabilities or assets that relate to investments should be disclosed in the accounts.



Interactive question 2: Developments in financial reporting [Difficulty level: Intermediate]

What general impacts might developments in financial reporting have on financial strategy?

See **Answer** at the end of this chapter.

2 Impact of financial crises



Section overview

- Inevitably financial crises impact on other businesses as financial institutions reduce lending to limit their own exposures and fulfil stricter regulations. However, businesses may be able to learn lessons from history to limit the damage to their own position.

2.1 History of financial crises

The outcome of the recent credit crunch has been called the most serious recession since the 1930s. Financial crises go back at least to the 18th century and the South Sea bubble.

The most serious financial crisis in the 20th century was the Wall Street crash in 1929. This was triggered by panic selling of shares in Autumn 1929 after a long speculative boom in the years up to 1929. There had been a smaller crash earlier in 1929 and other signs of economic problems, including declines in the US steel and construction sectors and consumers building up high debt because of easy credit. After the crash there was a prolonged period of volatility, with the stock market reaching a 20th century low in July 1932.

The crash was followed by the Great Depression and mass unemployment in the US in the 1930s, although how big a contribution the crash made to the Depression has been debated since. Some commentators have argued that a bigger contributory factor was the collapse of the US banking system in a number of panics in the early 1930s.

Perhaps as much as anything the crash contributed to a fall in business confidence that finance would be available for investments. This in turn fuelled job insecurity and a fall in consumer spending, which was also affected by the ending of the credit boom.

The Asian contagion was a series of currency devaluations and other problems that many Asian markets experienced in 1997. The crisis initially started in Thailand, when the government decided to float the baht and no longer peg it to the US dollar. Thailand at the time had a severe foreign debt burden and large exposure to foreign exchange risk.

Currency devaluations then spread through other countries, resulting in stock market declines and reduced imports. Although intervention by the International Monetary Fund mitigated the crisis, contagion was felt in market declines in Europe and America.

Many financial crises are not only followed by a period of retrenchment but a period of increased regulation, reining back what have become regarded as excesses, particularly in the financial sector. The Wall Street crash resulted in the Glass-Steagall Act of 1933, limiting commercial bank activities in securities' markets and affiliations between commercial banks and securities firms. The Enron crisis prompted the Sarbanes-Oxley Act of 2002 in the United States, increasing compliance costs for internal controls and, some argue, reducing flexibility in corporate decision-making. The recent banking crisis prompted, amongst others, the UK Vickers report and legislation requiring banks to ringfence their domestic-retail operations from their wholesale and investment operations.



Case example: Reaction of financial institutions to regulation

The response by institutional investors in the UK to the Vickers report on the banking sector (covered in Chapter 7) raised questions about their attitudes towards wider stakeholder concerns. The UK Daily Telegraph reported in September 2011 that a 'secret' meeting between the leading investors and members of the Treasury Select Committee had taken place. At this meeting investors had apparently demanded that the provisions of the Vickers report should be watered down, stating that they would prevent the market value and return on equity of banks improving from unacceptably low levels. Investors alleged that the proposals would put UK banks at a significant disadvantage compared with competitors in America and Europe.

Concerns were also expressed by those working within the banking sector. On the morning of 14 September 2011 Carsten Kengeter, the head of UBS's investment bank, voiced concerns about the costs of ringfencing retail banking operations from investment banking activities. Hours later he was briefed on a very large rogue trading scandal at UBS (discussed further in Chapter 13), a scandal which, some commentators suggested vindicated proposals for separating different banking functions.

2.2 Impact on businesses of credit crunch

As banks' confidence reached an all-time low during 2007-8, they stopped lending to each other, causing a liquidity problem. Inter-bank lending funds bank operations; without it banks have insufficient funds to lend to businesses and individuals. 2008 was characterised by multi-billion dollar government bail-outs. By the end of the year the US central bank had cut interest rates to 0 – 0.25% in a bid to stem the economic freefall.

With bank lending so low, businesses were unable to obtain funding for investments, resulting in large reductions in output and general business confidence. This lack of confidence had a spiralling effect. As businesses cut back on production and provision of services, workers started to fear for their jobs and thus reduced spending on non-essential items. This led to businesses reducing output further to avoid excessive investment in inventories, and workers were made redundant which led to even less consumer spending and so the spiral continued.

To try to combat the problem, some companies increased prices to recoup some of their lost sales revenue. Consumers facing austerity measures in the form of pay cuts or freezes, or more expensive essential services, were unable to afford these higher prices and reduced their spending, with companies then suffering further reductions in sales revenue and the spiral will continue until either confidence grows again or they go out of business.

Currency fluctuations caused by the crisis also had a significant effect on company performance. The euro has weakened against the dollar due to the crisis. Therefore Eurozone companies purchasing goods from the US face increased prices.



Case example: The impact of low interest rates

The Bank of England reduced its lending rate in the UK to 0.5% in March 2009 and has not raised it since in order to help the UK economy recover from recession. Although the rate of UK inflation was between 4-5% by the summer of 2011, the Bank has not used increases in interest rates to bring the rate down. By contrast, in the early 1990s interest rates were maintained at much higher levels with the aim of a long-term reduction in inflation, despite other adverse impacts on the economy.

Predictions in the summer of 2011 suggested that the Bank's lending rate was unlikely to rise until 2013 at the earliest. Economic decisions were being made in the context of a situation where significant rises in interest rates in the short and medium-term looked very unlikely.

However, doubts have been expressed since 2009 about whether low rates have done much to improve the UK economy. Banks wishing to improve their statements of financial position have limited the availability of loan finance. UK government measures to reduce the budget deficit appear to have had an adverse impact on confidence, with many fearing unemployment. Pay increases have also fallen behind inflation. In April 2011 average pay rose at an annual rate of just 1.8% a year compared with an increase in the consumer prices index of 4.5%. Banks have been reluctant to approve new mortgages, with mortgage approvals in 2011 about half the average in the previous 10 years. Low interest rates appeared to have helped mortgage holders, with arrears and home repossessions falling during the first half of 2011. However, a survey suggested that almost one in four Britons were concerned that they wouldn't be able to afford their interest payments if mortgage rates did increase.

In the US it has seemed that many consumers and investors have been unwilling to take the kind of risks that could stimulate economic growth. Many consumers have appeared to be primarily concerned about paying off existing debt rather than making expensive purchases and taking on new debt. Companies have appeared to be reluctant to hire workers on a large scale. Many investors have not speculated on shares and instead have made safer investments in gold or farmland.

The opinions of economic commentators about the desirability of low rates have varied for some time. In June 2011 the Bank for International Settlements (BIS) stated that central banks should start raising interest rates to curb inflation, and governments should act to reduce budget deficits even if economic growth slowed down as a result. Similarly, policymakers should have low expectations of growth because growth rates prior to 2008 had been unsustainable. The BIS stated that rates needed to increase to facilitate necessary adjustments in household and bank finance. The BIS was also concerned that low interest rates in major economies could lead to international distortion and instability, with an undesirable increase in credit growth without changes in domestic saving.

However, governor of the Bank of England at the time, Sir Mervyn King, remained concerned that an increase in interest rates could result in a deep recession in the UK. Other commentators stressed the need for low interest rates to be maintained to encourage consumer spending, even if it meant that savers faced low income. Charlie Bean, the deputy governor of the Bank of England, pointed out that many older savers have benefited from large capital gains on their houses, these gains being fuelled by the indebtedness younger house-buying borrowers took on in the credit expansion prior to 2007. Higher rates would mean that unemployment would rise, the number of defaults would increase and banks would face more difficulties.

Figures released in 2012 highlighted problems that final salary pension schemes faced as a result of low gilt yields. Falling yields have meant that the discounted value of pension scheme liabilities have risen, increasing deficits. Pension spokesperson Ros Altmann highlighted the possible existence of a 'death spiral' for pension schemes. Increasing deficits mean that trustees are trying to reduce risk, but the obvious risk-free option is to buy gilts. The situation is exacerbated by the fact that schemes are in competition with the Bank of England, which is implementing quantitative easing by buying gilts. As a result in the period 2011-2012 pension deficits more than doubled, despite companies pumping millions into their schemes to reduce their pension shortfalls.

Ros Altmann highlighted the general impact on investment, with firms spending money to reduce deficits rather than creating jobs and expanding operations. In addition the size of their pension deficits was making it more difficult for some companies to borrow from banks.

2.3 A longer-term perspective

Writing in *Harvard Business Review*, John Seaman and George David Smith highlighted the needs for organisations to find in their history their 'usable past.'

One part of this is to use history constructively but be prepared to jettison the parts that no longer serve your purpose.



Case example: Handelsbanken

Handelsbanken, the Swedish bank, keeps 140 years of board minutes in its basement. The chief executive commented that this archive is maintained to teach young managers to beware periodic crises.

Companies can also draw on their traditions to gain confidence, particularly during tough periods, and enhance staff commitment. However they must also be prepared to develop variations on their traditions to sustain success.

History can provide patterns in different types of data. Even a list of failures may include possible successes whose time had not yet come, and which might be ripe for reinvention, particularly in the light of technological advances.

Above all though, Seaman and Smith argue that history can contribute to a sense of present corporate purpose. Conversely, though, history is not valuable if it becomes just an excuse for celebrations or irrelevant values.

3 Recent developments in the Eurozone



Section overview

- The problems faced by various countries in the Eurozone have brought into question whether it can survive in its current form.

3.1 Introduction of the Euro

3.1.1 Maastricht treaty 1991

The main points of the Maastricht Treaty on Economic and Monetary Union (EMU) were:

- Agreement to economic and monetary union by 1999 for countries which fulfilled the economic criteria
- The establishment of the European Central Bank (ECB)

The Maastricht Treaty established three basic principles regarding fiscal policy:

1 No excessive budget deficits
2 No monetary financing of budget deficits, ie unlimited credit from the central bank
3 No bail outs of bankrupt governments

These principles were intended to ensure that fiscal mismanagement by one or more member states did not happen in the future. It was accepted that fiscal profligacy could undermine the monetary union.

The Maastricht Treaty laid down the following official convergence criteria for member state participation:

- **Inflation** – No more than 1.5% above the average of the lowest three country rates in the European Union
- **Stable exchange rates** – To be within exchange rate mechanism bands for the previous two years
- **Sustainable government finances** – Budget deficit within 3% of gross domestic product and total government debt within 60% of gross domestic product
- **Interest rates** – No more than 2% above the average on government bonds in the three EU countries enjoying lowest inflation

The convergence criteria were essential to ensure that participants' economies were operating as a single economy regarding inflation, interest rates and budgetary position. Any new or existing EU members wishing to join the Eurozone had to meet the above convergence criteria.

3.1.2 Introduction of the Euro

At the Brussels summit in May 1998, the EU decided that 11 member states qualified as first wave participants – Germany, France, Italy, Spain, Portugal, Belgium, Holland, Luxembourg, Austria, Finland and Ireland. Greece initially did not meet the convergence criteria, Denmark and the UK exercised their opt-out clauses, and Sweden decided against participation in the first wave. The selection reflected the economic performance of member states for 1997. The European Commission and the ECB prepared convergence reports which formed the basis of the selection process.

As regards budgetary deficits, the Maastricht Treaty allowed for leniency if countries were seen to be moving in the right direction towards sustainable government finances. The key judgement was which countries were ready to operate within a single exchange rate and uniform monetary policy climate indefinitely.

On 1 January 1999 the exchange rates between participating currencies turned into 'conversion rates', so that national currencies and the euro became different expressions of what was economically the same currency. The euro came into being as the currency for the 11 participating members at the time.

EMU participants irrevocably fixed their exchange rates against each other and the euro. National currencies were units of account against the euro.

3.1.3 Benefits and costs

Benefits

Prior to the establishment of the Eurozone in 1999, the European Commission's economic/financial experts identified five specific advantages in relation to EMU:

1 **Growth and efficiency**

It was believed that reduced transaction costs for business via the elimination of costs associated with changing currencies would generate a gain of 0.4% of EMU GDP on a once and for all basis.

It was also expected that the removal of exchange risk within the Eurozone would encourage more intra-trade and investment between EMU participants and increased inward investment into the Eurozone. However, exchange rate uncertainty was not completely eliminated since the euro still fluctuates against non-member currencies. However, this was partially offset by external trade being a far lower percentage of GDP post-EMU than it was for individual EMU countries.

Completion of the single market was to be assisted by use of the euro, as it reduced the possibility of differential product pricing between countries. It makes prices more transparent and hopefully adds to competitive downward pressure on prices in high-cost countries. An additional benefit of closer trading links via EMU is that it should increase the correlation of business cycles between participating countries in the Eurozone and thereby assist further economic convergence.

2 **Price stability**

Low inflation is advantageous for efficient resource allocation. It is also associated with low variability of prices.

3 **Public finance**

The Stability and Growth Pact was expected to enhance budgetary discipline so that excessive budget deficits financed by inflationary increases in money supply were not permitted. At the same time, it was hoped that increased budgetary stringency would encourage governments to improve the efficiency of tax collection and the provision of public goods and services.

4 **Adjustment without exchange rate changes**

Exchange rate changes with the rest of the world were expected to influence the competitiveness of the Eurozone in relation to the USA, Japan and emerging economies. Within EMU, real exchange rates (competitiveness between participants) would still be possible even with the use of a single currency if individual countries experienced and permitted wage/price flexibility to offset differentials in productivity gains between member states such as Germany and Italy.

5 **Reserve currency status**

It was anticipated that the euro would become a major vehicle/reserve currency in the global economy, which was expected to benefit EMU participants. More euro-denominated trade and finance transactions should generate gains via reduced foreign exchange risk and hedging costs. The Eurozone countries might also have more influence in international financial institutions such as the International Monetary Fund.

Costs

Despite the above benefits, the European Commission's experts recognised that certain specific disadvantages could have a profound effect on EMU participants.

1 **Loss of exchange rate flexibility**

This is the most complex issue raised by EMU and is probably the most 'political'. When allowed to float freely, an exchange rate will tend to respond to economic shocks. In theory, such movement is helpful. An uncompetitive country, due to inflation above other union members or a decline in a major industry, will be unable to restore its competitiveness via devaluation in a single currency zone. Such member state imbalances could damage growth and cause high unemployment over a prolonged time period, with resultant political pressures leading to a breakdown of the monetary union. Only real economic convergence could avoid such a possibility in the Eurozone.

However, while devaluation may be a useful economic tool to deal with some specific economic shocks, it is less than successful in dealing with cost price differentials arising from higher inflation. In the latter situation, the benefits of devaluation tend to be short lived due to cost push inflation rapidly eroding any price advantage. In the past, competitive currency devaluations by the UK and Italy did not make them more successful in growth terms than countries which stuck to an exchange rate and used alternative methods to improve their competitiveness.

2 **No independent interest rate policy**

Adopting a single currency entailed countries giving up control of monetary policy to the ECB which sets interest rates and other aspects of monetary policy for the Eurozone rather than for any one country.

This has two implications:

- A loss of power by EMU countries to choose their own short term inflation/unemployment trade-off.
- An inability to deal with country-specific economic shocks via monetary policy. The ECB only responds to shocks affecting all or most members.

3 **Fiscal adjustment limited**

In theory, EMU prevents countries using excessive budget deficits and borrowing to try and cure unemployment. Another longer term constraint on fiscal policy is that EMU is likely to increase pressure for tax harmonisation throughout the Eurozone.

4 **Transition costs**

This was the most readily quantifiable cost of establishing EMU. However, transition costs were a one-off EMU expense that was expected to be quickly offset by the anticipated benefits of having a single currency.

5 **Lack of adjustment**

It was widely acknowledged that the EU and Eurozone were beset by structural issues such as large-scale state ownership, excessive subsidies, high structural unemployment and too much regulation. Labour mobility is restricted by culture and language, and national labour markets have been rigid. Despite such problems, no machinery exists for transferring income from countries whose demand is high to countries where it is weak, apart from very limited EU regional/cohesion funds.

If adjustment through the EU budget, wage flexibility and migration is limited, then it must come through variations in employment levels. Such adjustment could be prolonged and highly painful via associated economic and social costs. The alternative is EMU participants reforming their labour markets to promote greater mobility and real wage flexibility.

3.2 The European sovereign debt crisis

Although the European debt crisis has no single cause, its roots are in the introduction of the European single currency. This meant that member countries were able to borrow at a cheaper rate than they previously could. This was due to the assumption that these countries were following the economic rules of the single currency. This effectively meant that the good credit rating of Germany was improving the credit rating of countries such as Greece, Portugal and Italy.

Some of the European countries used the increased credit offered to increase consumption and build up large balance of payments deficits. The increased borrowing was based on the assumption of certain levels of growth which then did not occur due to the financial crisis of 2007. Governments also securitised future government revenues to avoid violating debt and deficit targets.

With the onset of the banking/financial crisis and subsequent recession in 2008-09, the financial markets began to worry about the size of some Eurozone countries' debts and their ability to service them. This was reflected in widening interest rate spreads on ClubMed (Italy, Spain, Portugal, Greece) bonds offered in auctions to global investors.

The Eurozone debt problem started in the first half of 2010 when the Greek government found it difficult to raise funds. It had to offer ever higher interest (coupon) rates on its bonds in exchange for funds from international investors. Where bond yields hit 6% it is seen by investors as a warning signal that a country may not be able to service its external debt. Once 7% is breached, the market's perception is that a debt default or restructuring with IMF assistance is likely to occur. Greece, along with Portugal and Ireland, sought IMF/EU assistance in 2010-11.The IMF/EU provided financial assistance and the Greek government introduced austerity and privatisation programmes, while the ECB propped up the Greek banking system for almost two years by providing loans secured by Greek bonds.

Finally, in October 2011, a €130 billion bail-out package was put in place which involved a debt write-off of up to 50%. Thus Greece became the first developed country to default on its debt since 1945. A default means a country is bankrupt and can no longer service its debt.

Such a large discount had an impact on European banks holding Greek debt in their asset portfolios. The total exposure of European banks to ClubMed countries is estimated at €1.5 trillion. Thus failure to resolve the debt problem and implement a plan for economic recovery could result in a new banking crisis. Banks could be frozen out of wholesale money markets, which would instigate a new credit crunch and thereby reduce lending to industry and commerce. Such a scenario could deepen the recession in the Eurozone and EU.



Case example: Credit spreads in Eurozone

In November 2011 the credit spreads of 10 year French government bonds over equivalent German bonds widened to 195 basis points, a record since the euro was introduced as the common currency for both countries. The wide spread reflected concerns about large French exposure to problems in the Greek, Spanish and Italian economies. Around 20% of France's exports go to struggling countries in Southern Europe and about 50% to the Eurozone. Germany's pattern of exporting is much more diversified. Moody's also felt that the UK economy was more vulnerable to external shocks, such as a worsening crisis in the Eurozone.

3.2.1 Austerity measures

Throughout Europe, and indeed globally, countries have been putting austerity measures in place in an attempt to reduce their spiralling debts. The table below summarises certain European countries' financial positions and some of the austerity measures in place.

Country	Recent position and austerity measures
Bangladesh	The central bank has re-fixed the repo interest rate from 6.75 percent to 6 percent -- the first move since January 2016 -- and announced a new cash reserve requirement (CRR) of 5.5 percent in an effort to combat the liquidity crisis in the banking sector.
Greece	Frozen out of international credit markets because of sovereign debt 'junk' status Pensions, tax thresholds and civil service jobs severely affected Budget for 2013 involving €9.4bn of spending cuts Unemployment at 17.7% in 2011

Country	Recent position and austerity measures
Irish Republic	EU/IMF bailout of €85 billion in December 2010 (length of time to repay loan extended from 7.5 years to 15 years in 2011)
	Two banks bailed out in 2011 at a cost of €5.8 billion
	Government deficit of 13.1% worse than the forecast of less than 10% (including bank bailout)
	Government spending slashed by €4 billion – all public servants' pay cut by at least 5% and social welfare reduced
Italy	Debt at 120% of Gross Domestic Product – $2.2 trillion
	Austerity measures were passed in July 2011 featured savings worth €70 billion, including increases in healthcare fees, cuts to regional subsidies, family tax benefits and pensions of high-earners
	Original target of balancing budget by 2013 likely to be missed
UK	Savings estimated at about £83 billion to be made over four years, including cutting 490,000 public sector jobs, increase in retirement age from 65 to 66 by 2020
Spain	Austerity budget for 2011 included tax rise for the rich and 8% spending cuts
	€27 billion cut from March 2012 government spending budget
	Additional July 2012 austerity budget including €65 billion additional spending cuts and tax increases
	Budget deficit of 8.5% in 2011
	Unemployment at 23% in 2012

Such austerity measures go back to times when ailing countries had to prop up their banks and needed to find money from somewhere to do so. In 2008, for example, £37 billion of UK taxpayers' money was used to bail out three major banks (Royal Bank of Scotland, Lloyds TSB and HBOS), after which the UK government was forced to borrow a record £44 billion to fund its spending. However, such expenditure could not continue without countries running the risk of bankruptcy, hence the severity of the current austerity measures.

3.2.2 Financial contagion

The European Sovereign Debt crisis is a classic example of financial contagion. The initial problems encountered by Greece and Portugal spread throughout Europe as confidence fell in other European economies. Inter-trading amongst European countries meant that as one country experienced financial difficulties and reduced its imports, those countries providing the imported goods also suffered due to a downturn in trade. For example, the value of Ireland's exports to the UK is approximately 10.6% of Irish Gross Domestic Product (GDP). If the UK cut its spending on exports by 20%, not only would Ireland lose income amounting to 2% of GDP, it would also be forced to reduce production of the goods and services that are exported to the UK. Economic growth is affected not just in the UK but also in Ireland. This will then have an effect on Ireland's spending on exports and so on.

However, it is not just Europe that is suffering. European countries trade worldwide. As their economic growth slows and austerity measures take effect, economies worldwide will be affected. This leads to greater borrowing to fund spending (due to less income from exports and a general slowdown in the economy), leading to increased interest payments on debt and eventually potential downgrade of debt.

3.3 Action taken in the Eurozone

3.3.1 European Financial Stability Facility

In May 2010 the European Union (EU) created the European Financial Stability Facility (EFSF) which is guaranteed by the Eurozone countries and provides bailout loans to countries in severe financial difficulty. In January 2011 the European Financial Stabilisation Mechanism (EFSM) was created to raise funds by using the EU budget as security. The funds raised can be lent to the IMF or the EFSF.

3.3.2 Eurozone rescue plan

At the 14th euro crisis summit in 21 months, the Brussels Accord was agreed on 26 October 2011. It was aimed at protecting the single currency union, preventing a deeper recession in the EU and stabilising the banking system. The Accord had three main financial elements plus a proposal to work towards fiscal union within the Eurozone.

1 **Greek debt**

It was agreed to write off 50% of Greek government debt. This is aimed at reducing Greek debt from 160% to 120% of GDP by 2020. It was acknowledged that Greece was effectively bankrupt and could never pay off its debt. Banks that had lent to Greece had incurred a 50% loss. Private investors in bonds in principle faced a similar loss.

2 **Bank protection**

It was agreed that European banks must raise about €115 billion in new capital by mid-2012 in order to insulate themselves against sovereign debt exposure to ClubMed countries. The fear was that a major default by one or all of these countries could result in a new banking crisis. If selling bank shares to investors failed, then government injections of capital will be required, which will entail the partial or full nationlisation of some major Eurozone banks.

Some commentators believe that the sum involved is inadequate in relation to potential problems faced

3 **EU bail-out fund**

The European Financial Stability Facility (EFSF), which was established at a previous euro summit meeting, was to have its funds increased to €1 trillion to deal with any future crises in big economies such as Italy and/or Spain.

3.3.3 Fiscal compact

The treaty establishing the fiscal compact was signed in March 2012 with only the UK and the Czech Republic opting out. The compact will be binding only on the countries that use the euro, while other countries can decide to comply with its guidelines.

The fiscal compact provides tighter budgetary rules to restrain government deficits with automatic penalties for spendthrift member states.

The fiscal compact is more intrusive than the Stability and Growth Pact as regards taxation and spending policies of the Eurozone members. If a deficit exceeds 3% of GDP, it will result in automatic penalties unless other euro member states vote against such action. Structural deficits are to be capped at 0.5% of GDP.

Any member state with a deficit will have to submit plans on how this is to be eliminated, and such plans will be monitored by the EU Commission.

3.3.4 ECB liquidity support

In mid-December 2011, the ECB took action to improve the liquidity position of Eurozone banks and try to avoid a new credit crunch. It provided €490 billion through a three year liquidity operation which resulted in 523 banks accepting cut-price loans (funding) secured against sovereign bonds in their asset portfolios.

In September 2012, the ECB announced a programme of unlimited buying of government bonds of economically-troubled countries such as Spain or Italy, aiming to depress the costs of borrowing in those countries. However, the ECB's terms put pressure on these countries to continue to impose austerity programmes. The ECB's actions appeared to have positive effects during the rest of 2012, with successful sovereign debt auctions in Ireland, Spain and Portugal.

3.3.5 Further support for Greece

On 21 February 2012, Eurozone finance ministers agreed upon another bail-out for Greece in an attempt to save the country from bankruptcy. Under this second bail-out, Greece will receive further loans of €110 billion (first bail-out €130 billion) through to 2014 from Eurozone governments and the International Monetary Fund (IMF). The latter's contribution is expected to be about €25 billion. Taken together, the bail-outs mean that every Greek citizen owes Eurozone governments and the IMF approximately €22,000 (£18,500). In return for these loans, the Greek government has promised to reduce its debt ratio from 160% of GDP in 2012 to 120% by 2020.

3.3.6 Bail-out of Spain

In May 2012 the Spanish government announced a €23bn bail-out of Bankia, Spain's largest mortgage lender. Bankia had suffered from a collapse in the property sector in Spain. In addition, regional governments in Spain were struggling to service unsustainable levels of debt. In June the Spanish government requested up to €100 billion from the EU to recapitalise its banks. The loans would come from the European Financial Stability Facility and the European Stability Mechanism. The Spanish government has subsequently been in negotiations with the troika about a bail-out package for the sovereign state and the economic recovery programme that would be required, but had not taken this package by the middle of 2013.

3.3.7 Crisis in Cyprus

In June 2012 Cyprus applied for bailout assistance for its undercapitalised banking sector. Cyprus was strongly linked and exposed to its neighbour Greece's problems. Like Spain, Cyprus also suffered from the deflation of a property bubble. Cyprus's situation was also complicated by having a large offshore banking sector. At the end of November 2012 the Cypriot government agreed to a bailout, including strong austerity measures such as cuts in public sector salaries, social benefits and pensions and higher taxes and health care charges.

3.4 The future of the Euro

3.4.1 Possible developments

Currently the Eurozone is dominated by its most populous country and strongest economy – Germany – which sets the agenda for crisis talks and resolution schemes. At the same time, the Eurozone has all but split into two groups of nations: the core countries and ClubMed.

Perhaps the central flaw is the exchange rate and interest rate philosophy/policy of 'one size fits all' which was always going to pose a problem among 18 diverse member states. The reality was that from 2001 to 2010 unit labour costs rose by 5% in Germany, whereas in the ClubMed countries it rose between 20% and 30%. Without the possibility of exchange rate depreciation, Germany got wealthier while Greece, Italy and others got poorer through their deteriorating balance of payments current account positions. The deficit-prone ClubMed countries borrowed to maintain their expenditure or finance house price bubbles.

One solution is to accept that a single currency requires a unified fiscal policy, ie a pan-European budget on public spending, taxation and government borrowing. However, such fiscal centralisation in Brussels for the survival of a crisis-free Eurozone in the future may not be matched by the democratic accountability of Brussels to the citizens of the 18 member states. This could prove to be troublesome from a political perspective as framing fiscal policy without political representation could question the legitimacy of Brussels edicts.

Banks outside Europe have already issued guides for their customers on how to handle legal disputes arising from countries seceding from the Eurozone. What is more likely – if the rescue packages fail to solve underlying debt problems – is a radical overhaul of EMU. This would probably involve the exit of weaker member states and thereby a smaller monetary union based on the core countries of Germany, France, Benelux and Austria. The euro would still exist as a single currency for a smaller geographical region, while the non-euro countries would manage their currencies in relation to the euro or allow them to float independently of it.

3.4.2 Exit from the Eurozone

With large external debts, a lack of competitiveness and a decline in economic activity, some peripheral Eurozone countries have two options: stay the course, which means austerity and high unemployment for the foreseeable future with all important economic decisions affecting them taken in Brussels or Berlin, or default on their debt, exit the euro and go back to their own national currency.

Austerity and reform packages need time to work. Thus in the meantime the recession will get worse in peripheral countries. At the same time, deflationary policies might make existing debt more unsustainable. Even debt restructuring will not restore economic growth and external competitiveness. What is required is a real currency depreciation, which cannot occur in the Eurozone as deflationary policies and structural reforms take too long to reduce unit labour costs. Therefore to achieve real depreciation, the only option for a country is to leave the euro, default on external debt and set an independent monetary policy to suit the needs of its economy. Obviously, if a number of countries resorted to this option it would destroy the Eurozone or reduce it to a few core countries.

The Maastricht Treaty did not incorporate a legal procedure for a country to exit the single currency area. In fact the EU Treaties mandate all members to eventually join the Eurozone as part of a deepening integration process towards completion of the single market. Leaving the Eurozone would be fraught with legal and non-legal difficulties for any country. It would involve renegotiation of large euro payments/receipts from Brussels. Euro-denominated domestic contracts (loans, salaries) would have to be redrafted into the local currency in the exit country. There would be litigation from foreign creditors refusing to accept repayment of cross-border obligations (loans/bonds) in a new currency with a value probably less than that of the euro against the dollar or sterling.

Loans from the EU and ECB in euros would become more expensive to service and repay in local currency terms, although hopefully higher economic growth and exports would ease this burden.

An exit strategy could involve a run on a country's banks as citizens sought to withdraw their euro deposits and transfer them to banks in Germany and Switzerland. Controls to limit withdrawals to a specific daily/weekly amount plus exchange controls to prevent euro transfers abroad could be used, but this would contravene EU rules on the free movement of capital. The printing and distributing of a new currency, initially in secret, would be no easy task. The introduction of the euro involved extensive planning over four years.

For peripheral countries, the risks of re-introducing a legacy currency, such as the drachma or lira etc, might be preferable to years of austerity and high unemployment. However, an exit country might have no access to the international bond market and would probably need long term assistance from the IMF. It would also weaken the EU concept. Although a weaker currency would boost exports, it might cause higher inflation, thereby wiping out any external competitiveness gains.

To avoid the exit of countries from the EMU, the ECB would have to become a lender of last resort to deeply indebted countries. This would involve printing money, zero interest rates and a competitive depreciation of the euro against other currencies. To ensure success of such action, a fiscal stimulus in Germany and a gradual equalisation of unit labour costs in the Eurozone would be essential. Only the implementation of such policies will prevent an exit disaster, as perceived by some, taking place in the future.

3.5 Impact on business

A survey by the ICAEW in May 2012 found that a worsening of the Eurozone crisis would be expected to have a negative impact extending beyond those companies with direct business contacts in the Eurozone. Predictably, larger companies with direct interactions with the Eurozone were the most concerned about the crisis, fearing loss of customers, reduction in consumer confidence and increased costs of supply. However, smaller companies feared the impact of a Eurozone collapse on UK customer confidence.

The ICAEW's survey also highlighted the contingency measures which companies had either already put in place, or had planned in the event that the Eurozone crisis worsened. These measures include:

- Building cash reserves
- Converting cash reserves back from euros to £ or $
- Reducing number of staff
- Exit strategy from the Eurozone countries
- Selling assets in the Eurozone countries
- Looking for new suppliers outside Eurozone countries
- Looking for new customers outside Eurozone countries
- Changing the payment terms for Eurozone customers

Guidance issued by PWC suggested a number of ways in which companies could try to minimise surprises caused by Eurozone uncertainties. Short-term measures to deal with problems in the business environment included reinforcing distressed vendors that may interrupt supply chains, updating IT architectures for flexibility if currencies change, and refining continuity plans for strikes, civil unrest or cyber attacks.

PWC also suggested that businesses need to try to forecast changes in the competitive landscape, and to try to find opportunities to build new revenue and develop new innovation models. Alongside this, businesses should continue to review operations and supply chains to assess whether there are opportunities for them to reduce costs.

Short-term steps recommended by PWC to deal with issues in the financial environment included assessing liquidity of Euro assets, updating credit and hedging strategies, addressing potential working capital strains, and revising contracts vulnerable to currency changes. Businesses should be aware of the tax implications of the currency gains or losses of activities they undertake to manage risks and should also manage exposures to

debt-reduction tax reforms. Over the longer-term businesses should prepare for financial market gyrations and should monitor Eurozone capital flows, since these are a key indicator of expectations of the ongoing investment environment.

4 Other current issues in finance



Section overview

- Most companies have faced the ramifications of the credit crunch over recent years, with banks being too nervous to lend money and charging a higher rate of interest if they do.
- Other recent developments include dark pool trading (trading without displaying quotes publicly) and the increased availability of Islamic finance.

4.1 Access to credit

The problems in the banking sector that begun in 2007 resulted in banks themselves finding it more difficult to borrow money, with the result that they have had less money to lend. Regulators require UK banks to hold more than twice the capital they were holding before the credit crunch. Banks will have to increase capital held in stages until 2019, under the requirements of the EU capital directive.

The limitations on bank lending have applied equally to public-owned banks and the private sector. Fully-nationalised Northern Rock was told to significantly reduce the risks associated with its lending activities, but subsequently came under government and media pressure to lend more generously.

Small businesses have faced particular problems in accessing bank finance in recent years, and these are discussed further in Chapter 14.

4.2 Dark pool trading

Dark pools are off-exchange facilities that allow trading of large blocks of shares. They allow brokers and fund managers to place and match large orders anonymously to avoid influencing the share price. The transactions are only made public after the trades have been completed. Their popularity has increased as electronic trading has resulted in the reduction of the average size of trades. Traders placing large orders on the transparent exchanges risk signalling that they are large buyers or sellers. Such signals could cause the markets to move against them and put the order at risk.

The proportion of trading that takes place outside the regulated exchanges is difficult to estimate. The Securities and Exchange Commission in the US estimates that dark pools and other alternative platforms accounted for approximately 22% of trade volumes in 2009. In the UK, the London Stock Exchange has lost more than 25% of the market to alternative platforms. In Asia, however, stricter regulation and structural differences in the markets mean that dark pools do not pose such a large threat and account for only 1 – 3% of trades in the larger, more liquid markets.

The main problem with dark pool trading is that the regulated exchanges do not know about the transactions taking place until the trades have been completed. As a result, the prices at which these trades are executed remain unknown until after the event.

Such a lack of information on significant trades makes the regulated exchanges less efficient. Although the prices in dark pools are based on those in the regulated exchanges, the dark pool trades do not contribute to the changes in prices as their liquidity is not displayed. Dark pools also take trade away from the regulated exchanges, resulting in reduced transparency as fewer trades are publicly exposed. Such a practice could reduce liquidity in the regulated exchanges and hinder efficient price-setting.

Transactions in dark pools can almost be viewed as 'over the counter' as prices are not reported and financial risks are not effectively managed. There is the danger that such risks spread in a manner similar to those attached to credit default swaps and collateralised debt obligations, which triggered the global financial crisis.

Dark pools and their lack of transparency arguably defeat the purpose of fair and regulated markets with large numbers of participants and threaten the healthy and transparent development of these markets. They could

lead to a two-tier system whereby the public would not have fair access to information regarding prices and volumes of shares that is available to dark pool participants.

Regulators in both Europe and the US are taking steps to protect market transparency. In 2009, the US Securities and Exchange Commission (SEC) proposed the following measures:

(a) Information about an investor's interest in buying or selling shares should be made publicly available, rather than just the participants in the dark pool (that is, dark pool trades will be treated in the same way as any other trade).

(b) Dark pools should publicly identify that it was their pool that executed the trade.

Such requirements are intended to enhance the transparency of transactions and promote fairer and more efficient markets for US shares.

The European Commission is conducting a review of how dark pools affect share price and market stability before putting forward any regulatory reforms.

4.3 Islamic finance

Islamic finance has undergone rapid growth over recent years up to the point today where it is an industry worth more than $1 trillion. Islamic financing is not only the preserve of Islamic banks, but it is also becoming an important revenue stream for some of the world's biggest lenders and many of the major conventional banks, including HSBC and Standard Chartered, have Islamic banking arms also known as 'Islamic Windows'.

Islamic finance may be used for either cultural/religious or commercial reasons. Commercial reasons include the fact that Islamic finance may be available when other sources of finance are not. Islamic finance may also appeal to companies due to its more prudent investment and risk philosophy.

Conventional banks aim to profit by taking in money deposits in return for the payment of interest (**Riba**) and then lending money out in return for the payment of a higher level of interest. Islamic finance does not permit the charging of interest and instead invests under arrangements which share the profits and losses of the enterprises.

Taken from the perspective of Sharia'a (Islamic religious law and moral code), the taking of deposits which are subsequently lent out for interest which is paid whether or not the project is profitable is not justifiable. The Islamic bank arranges its business in such a way that the bank's profitability is closely tied to that of the client. The bank stands to take profit or make loss in line with the projects it is financing and as such must be more involved in the investment decision making. The bank acts in some ways more like a fund manager than a conventional lending institution. Speculation is not allowed and conventional derivative products are deemed to be un-Islamic.

The main advantages of Islamic finance are as follows:

(a) Gharar (uncertainty, risk or speculation) is not allowed, reducing the risk of losses.
(b) Excessive profiteering is also not allowed; only reasonable mark-ups are allowed.
(c) Banks cannot use excessive leverage and are therefore less likely to collapse.

The use of Islamic finance does not remove all commercial risk. Indeed there may even be additional risk from the use of Islamic finance. There are the following drawbacks from the use of Islamic finance:

(a) There is no international consensus on Sharia'a interpretations, particularly with innovative financial products.

(b) There is no standard Sharia'a model for the Islamic finance market, meaning that documentation is often tailor-made for the transaction, leading to higher transaction costs than for the conventional finance alternative.

(c) Due to governmental and Sharia'a restrictions, Islamic finance institutions are subject to additional compliance work which can also increase transaction costs.

(d) Islamic banks cannot minimise their risks in the same way as conventional banks as hedging is prohibited.

5 Social responsibility and environmental matters



Section overview

- The interaction of financing decisions and corporate responsibility is stressed in the *Strategic Business Management* syllabus. Directors must be aware of their legal responsibilities and the interests of stakeholders.
- Social and environmental issues may have a number of impacts on management and financial accounts. We have already discussed (in Chapter 4) the increasing importance of social responsibility and sustainability in relation to corporate performance and performance reporting. We will also consider (in Chapter 17) how social and environment costs may affect investment appraisal decisions.

The Companies Act requires that:

> *… a director of a company must act in the way he considers, in good faith, would be most likely to promote the success of the company for the benefit of its members as a whole, and in doing so have (amongst other matters) regard to... the impact of the company's operations on the community and the environment.*

5.1 Corporate responsibility

We mentioned corporate responsibility (CR) or corporate social responsibility earlier in this chapter. Businesses face a number of pressures to widen the scope of their accountability.

(a) **Stakeholder pressures**

Businesses face pressures from different stakeholder groups to consider their wider responsibilities. Stakeholders include communities (particularly where operations are based), customers (product safety issues), suppliers and supply chain participants and competitors. Issues such as plant closures, pollution, job creation, sourcing, etc can have powerful **social effects** for good or ill on these stakeholders. Without the support of stakeholders a business will find its ability to operate is impaired and this will damage performance. Stakeholders also include governments facing political pressures. Adopting CR voluntarily may be more flexible, and in the end less costly, than having it imposed by statute.

(b) **Corporate reputation**

Increasingly a business must have the reputation of being a **responsible business** that enhances long-term shareholder value by addressing the needs of its **stakeholders –** employees, customers, suppliers, the community and the environment. Sponsorship and community involvement can reflect well on the business and attract ethical customers.

(c) **Staff motivation**

A commitment to CR helps establish values and mission within the organisation, which may help attract and retain staff.

(d) **Business issues**

CR initiatives may provide opportunities to enter new markets or build new core competencies. Businesses can achieve lower costs through using resources more efficiently, and not having to incur costs of remediation if they have negatively affected the environment.



Case example: Stakeholder pressures

Hermes Pensions Management Ltd, a leading UK institutional investor, introduced the Hermes principles in 2002. Hermes advocates that companies should be able to demonstrate that their investment decisions show ethical behaviour and have regard for the environment and society as a whole.

The Hermes principles stated that companies should effectively manage relationships with their employees, suppliers and customers and with others who have a legitimate interest in the company's activities. They also require companies to support voluntary and statutory measures that minimise the externalisation of costs to the detriment of society at large. Businesses should thus not seek success at society's expense. The later 2006

principles issued by Hermes stated that socially, ethically and environmentally responsible behaviour should be part of the management process that companies should carry out to maximise shareholder value.

The Association of British Insurers (ABI) also issues guidance on socially responsible investment. Its focus was managing risks that may affect business value arising from social, environmental and ethical issues. Effective risk management could have the upside of enhancement of value. The guidelines emphasise the importance of effective information flows, and performance measurement systems and appropriate remuneration systems being part of risk management. Policies and procedures should be disclosed within the annual report and not in a separately-published document.

5.1.1 Scope of corporate responsibility

The scope of CR varies from business to business. Factors frequently included are:

- **Health and safety**: This includes workplace injury, customer and supplier injury and harm to third parties
- **Environmental protection**: Energy use, emissions (notably carbon dioxide), water use and pollution, impact of product on environment, recycling of materials and heat
- **Staff welfare**: Issues such as stress at work, personal development, achieving work/life balances through flexibility, equal opportunities for disadvantaged or minority groups
- **Customer welfare**: Through content and description of products, non-exclusion of customer groups, fair dealing and treatment
- **Supply-chain management**: Insisting that providers of bought-in supplies also have appropriate CR policies, ethical trading, elimination of pollution and un-recycled packaging, eliminating exploitative labour practices amongst contractors
- **Ethical conduct:** Staff codes for interpersonal behaviour, prohibitions on uses of data and IT, management forbidden from offering bribes to win contracts, ensuring non-exploitation of staff
- **Engagement with social causes:** This includes secondment of management and staff, charitable donations, provision of free products to the needy, involvement in the local community, support for outreach projects such as cultural improvement or education

5.1.2 Strategic approaches to corporate responsibility

An organisation can adopt different strategic approaches to corporate responsibility:

Proactive strategy	A business is prepared to take full responsibility for its actions. For example, a company which discovers a fault in a product and recalls the product without being forced to, before any injury or damage is caused, acts in a proactive way.
Reactive strategy	This involves allowing a situation to continue unresolved until the public, government or consumer groups find out about it.
Defensive strategy	This involves minimising or attempting to avoid additional obligations arising from a particular problem.
Accommodation strategy	This approach involves taking responsibility for actions, perhaps when one of the following occurs: • Encouragement from special interest groups • Perception that a failure to act will result in government intervention

5.1.3 Corporate responsibility and stakeholders

Pressures on organisations to widen the scope of their corporate public accountability come from **increasing expectations of stakeholders** and **knowledge** about the **consequences of ignoring such pressures**. The South African King report stresses the importance of engagement with external stakeholders, and individual workers and stakeholders being able to communicate openly.

Whatever the organisation's view of its stakeholders, certain problems in dealing with them on corporate social responsibility may have to be addressed.

(a) Collaborating with stakeholders may be **time-consuming** and **expensive**.

(b) There may be **culture clashes** between the company and certain groups of stakeholders, or between the values of different groups of stakeholders with companies caught in the middle.

(c) There may be **conflict between company and stakeholders** on certain issues when they are trying to collaborate on other issues.

(d) **Consensus** between different groups of stakeholders may be difficult or impossible to achieve, and the solution may not be economically or strategically desirable.

(e) Influential stakeholders' **independence** (and hence ability to provide necessary criticism) may be compromised if they become too closely involved with companies.

(f) Dealing with certain stakeholders (eg public sector organisations) may be complicated by their being **accountable to the wider public**.



Case example: Approaching corporate responsibility

The Deloitte (2008) guide '*The risk intelligent approach to corporate responsibility and sustainability*' suggests that corporate responsibility can be approached from a perspective of risk management, ie seeing corporate responsibility issues as providing opportunities as well as dangers. This should in turn mean that the organisation's approach to these issues is aligned and integrated with strategic initiatives in other parts of the business.

Deloitte recommends a nine stage approach:

1 Understanding the present	This includes assessing regulatory trends, benchmarking against competitor activity, finding out what is important to stakeholders, understanding all the CR activity currently happening in the organisation
2 Envisioning the future	Assessing the legacy the organisation wishes to leave. This will mean integrating CR activities with business strategies, for example a publishing company sending its employees to libraries and schools, or donating books
3 Planning the journey	CR issues should be prioritised using gap analysis between current and future states, and the organisation and its competitors. Assess opportunities for action, risks of inaction and not achieving objectives
4 Planning and building	The human resource element is vital, including example set and oversight by senior management. CR achievements should be built into performance reviews and remuneration. Assess availability of grants and tax concessions for green behaviour. Also consider broadening stakeholder base and organisation's ethical culture
5 Execution	Develop in controlled fashion, enhancing governance procedures related to implementation
6 Review and revision	Develop metrics to measure activities. Use hard data rather than impressions, though stakeholder feedback is important
7 Reporting and communicating	A CSR development programme may mean reporting on CR needs to be revamped. The organisation could report in accordance with various external reporting standards or produce customised reports
8 Assuring internally	Adapt measures used internally to assess CR development to monitor how the organisation is doing. Use internal resources such as internal audit, legal, health and safety and human resources to assist in development
9 Assure externally	When CR reaches a certain level, seek verification from outside the organisation of assertions in CR report

Case example: Corporate responsibility programme

Scottish Power's corporate responsibility programme has been developed from multi-stakeholder consultation. The stakeholders emphasised the need for the company to prioritise its most significant social and environmental impacts. This consultation identified 12 impacts, and Scottish Power's corporate responsibility report detailed what had been done to address these:

(a) **Provision of energy**

Scottish Power was involved in a competition to develop carbon capture and storage. It spent £456 million in refurbishing its electrical network and committed £20 million investment to its hydroelectric plant.

(b) **Health and safety**

The 'Lost-Time Accident' rate fell for the fifth successive year. Its 'Children's Safety Education' programme won two major awards.

(c) **Customer experience**

Scottish Power achieved the highest satisfaction rating for online energy service in the market and was ranked the second UK gas supplier. Its customer base increased by 4%.

(d) **Climate change and emission to air**

Scottish Power's Green Energy Trust awarded £232,809 to 20 small renewable energy projects. It entered a contract to supply all Debenhams' properties with electricity generated from green sources and met 57% of its carbon emission reduction programme through its customer energy efficiency programme.

(e) **Waste and resource usage**

Scottish Power increased its investment in oil containment and received a Queen's Award in the Sustainable Development category.

(f) **Biodiversity**

The company took steps to allow the public to watch wildfowl. A cable pipeline was drilled below the Dovey Estuary to avoid disturbance to a site of Special Scientific Interest.

(g) **Sites, siting and infrastructure**

Scottish Power completed connections to more renewable energy sources and implemented a programme to keep parts of its network underground in Snowdonia.

(h) **Employee experience**

The company launched two new employee share plans. Staff participated in community development programmes that provided training for young people.

(i) **Customers with special circumstances**

Scottish Power contributed £1 million to the Scottish Power Energy People Trust. It launched a new social tariff that combined low prices with energy efficiency advice and measures to take vulnerable customers out of fuel poverty.

(j) **Community**

Over 58,000 primary schoolchildren benefited from Powerwise, Scottish Power's classroom safety education programme.

(k) **Procurement**

Scottish Power developed a group-wide responsible procurement policy and spent £74 million on customer energy efficiency measures.

(l) **Economic**

Scottish Power provided employability training to 68 Skillseekers during the year covered in its report.

5.2 Corporate citizenship

Corporate citizenship is the:

> *'business strategy that shapes the values underpinning a company's mission and the choices made each day by its executives, managers and employees as they engage with society. Three core principles define the essence of corporate citizenship, and every company should apply them in a manner appropriate to its distinct needs: minimising harm, maximising benefit, and being accountable and responsive to stakeholders.'*

(Boston College Carroll School of Management Center for Corporate Citizenship).

However, some argue that corporate citizenship should not be seen as a business strategy nor a way of developing the business. Instead, it should be seen as a matter of fact. A corporation has a legal personality and operates within a society which places rights and obligations upon its members (recognising them as citizens). Consequently, these rights and obligations also extend to corporate members.

Much of the debate in recent years about **corporate responsibility** has been framed in terms of corporate citizenship, partly because of unease about using words like ethics and responsibility in the context of business decisions. Discussion of corporate citizenship also often has political undertones, with corporations acting instead of governments that cannot – or will not – act to deal effectively with problems.



Case examples: Corporate citizenship

Companies have devised a number of different definitions of corporate citizenship.

Abbott Laboratories

Global citizenship reflects how a company advances its business objectives, engages its stakeholders, implements its policies, applies its social investment and philanthropy, and exercises its influence to make productive contributions to society.

At Abbott, global citizenship also means thoughtfully balancing financial, environmental and social responsibilities with providing quality health care worldwide. Our programmes include public education, environment, health and safety, and access to health care. These efforts reflect an engagement and partnership with stakeholders in the pursuit of sustainable solutions to challenges facing the global community.

Coca-Cola

Responsible corporate citizenship is at the heart of The Coca-Cola Promise: to benefit and refresh everyone who is touched by our (Coca-Cola's) business. The Promise is based on four core values – in the marketplace, the workplace, the environment and the community:

- **Marketplace**. We (Coca-Cola) will adhere to the highest ethical standards, knowing that the quality of our products, the integrity of our brands and the dedication of our people build trust and strengthen relationships. We will serve the people who enjoy our brands through innovation, superb customer service, and respect for the unique customs and cultures in the communities where we do business.
- **Workplace**. We will treat each other with dignity, fairness and respect. We will foster an inclusive environment that encourages all employees to develop and perform to their fullest potential, consistent with a commitment to human rights in our workplace. The Coca-Cola workplace will be a place where everyone's ideas and contributions are valued, and where responsibility and accountability are encouraged and rewarded.
- **Environment**. We will conduct our business in ways that protect and preserve the environment. We will integrate principles of environmental stewardship and sustainable development into our business decisions and processes.
- **Community**. We will contribute our time, expertise and resources to help develop sustainable communities in partnership with local leaders. We will seek to improve the quality of life through locally-relevant initiatives wherever we do business.

Texas Instruments

Beyond the bottom line, the worth of a corporation is reflected in its impact in the community. At Texas Instruments, our philosophy is simple and dates back to our founding fathers. Giving back to the communities

where we operate makes them better places to live and work, in turn making them better places to do business. Texas Instruments takes its commitment seriously and actively participates in community involvement through three ways – philanthropy; civic leadership and public policy; and grass roots efforts.

5.3 Sustainability

Much of the discussion about corporate responsibility has focused on businesses' commitment to sustainability, ensuring that development meets the needs of the present without compromising the ability of future generations to meet their own needs.

The influential Brundtland report of 1987 emphasised that sustainability should involve developing strategies so that the organisation only uses resources at a rate that allows them to be replenished (in order to ensure that they will continue to be available). At the same time emissions of waste should be confined to levels that do not exceed the capacity of the environment to absorb them.

The Brundtland report defined sustainable development as 'not a fixed state of harmony, but rather a process of change in which the exploitation of resources, the direction of investments, the orientation of technological development and institutional change are made consistent with future as well as present needs.'

One approach to sustainability is known as the **triple bottom line** (or TBL, 3BL, or People, Planet, Profit) approach.

- **People** means balancing up the interests of different stakeholders and not automatically prioritising shareholder needs
- **Planet** means ensuring that the business's activities are environmentally sustainable
- **Profit** is the accounting measure of the returns of the business

A similar approach to thinking about sustainability issues is to differentiate three different types of sustainability:

Issues	Examples
Social	Health and safety, workers' rights (in the business itself and its supply chain), pay and benefits, diversity and equal opportunities, impacts of product use, responsible marketing, data protection and privacy, community investment, and bribery/corruption
Environmental	Climate change, pollution, emissions levels, waste, use of natural resources, impacts of product use, compliance with environmental legislation, air quality
Economic	Economic stability and growth, job provision, local economic development, healthy competition, compliance with governance structures, transparency, long-term viability of businesses, investment in innovation/NPD



Case example: Measurement of sustainability

Dow Jones Sustainability Index

The Dow Jones Sustainability Index is one of a number of global indexes that have been developed to assess corporate sustainability. The creators of the index argue that corporate sustainability is attractive to investors because it aims to increase long-term shareholder value by gearing strategies and management to harness the potential for sustainability products and services while also reducing and avoiding sustainability costs and risks. Companies included in the index as sustainability leaders are expected to show superior performance and favourable risk and return profiles.

The index is designed to provide quantification of sustainability strategies and management of sustainability opportunities, risks and costs. A corporate sustainability assessment is carried out, and companies are ranked and selected for the index if they are among the sustainability leaders in their field. The assessment uses the following criteria:

Dimension	Criteria
Economic	Corporate governance
	Codes of conduct/Compliance
	Risk and crisis management
	Customer relationship management
	Innovation management
	Industry specific criteria
Environment	Environmental management system
	Climate strategy
	Product stewardship
	Biodiversity
	Industry specific criteria
Social	Human capital development
	Talent attraction and retention
	Occupational health and safety
	Stakeholder engagement
	Social reporting
	Industry specific criteria

Once the initial assessment has taken place, companies' performance is monitored. They are removed from the index if their performance is judged unsatisfactory. A key aspect of this monitoring is seeing how the company copes with crisis situations that carry a serious reputation risk.

Supersector leaders in the Dow Jones index in recent years have included Pearson, which has been the leader in the Media sector. Principal areas in which Pearson reports its environmental and sustainability performance include:

Property management	Pearson has targets to reduce energy use and is investing in renewable energy at some of its sites.
Business travel	Ways in which Pearson is trying to reduce air travel include upgrading video-conferencing facilities.
Climate neutrality	Initiatives include a carbon management programme focusing on energy efficiency in buildings, use of renewable energy sources and establishing partnerships that deliver carbon offsets.
Supply chain	Pearson has introduced various initiatives to improve resource efficiency, such as using the whole tree rather than part of the tree, reducing the base weight of papers used and custom publishing. Environmental responsibility is included in contracts between Pearson and its suppliers. Pearson collects environmental data on the papers it purchases. It holds training sessions for production teams around the world and discusses its approach to paper purchasing with various stakeholders. Pearson has also sought accreditation from the Forest Stewardship Council.
Employee engagement	Green messages are a regular part of Pearson's internal communications. It uses green teams – volunteers working to improve environmental practice. An intranet site offers ideas for carbon reductions, links to local green groups and performance reports. Pearson's books, magazines and newspapers cover climate change.

Case example: Issues in sustainability reporting



The 2009 ICAEW publication *Outside Insights: Beyond Accounting* by Graham Hubbard highlights a number of issues that must be addressed for sustainability reporting to be effective.

Who reports are for	Reports need to disclose which stakeholders they are aimed at, what the stakeholders seek and how any stakeholder conflicts are met.
Links to corporate/business strategy	The sustainability report must be made in the context of overall strategy.
Materiality of issues reported	As reporting develops, it needs to focus on a few very significant items that are linked to business strategy.
Validity of indicators	Indicators used should only show improvements if environmental and social performance is actually improving.
Reliability of indicators	Measurement processes ought to show the same results whoever is doing the measuring, but this is difficult to achieve in the social field.
Objectivity of reporting	Reports have been criticised for being bBASed towards reporting positive results.
Transparency of information	Information given must be tested and proved to be reliable if businesses are to build trust and credibility. If businesses are perceived as hiding information, then stakeholders are unlikely to trust the information that they do provide.
Comparability of information	Performance measured against absolute indicators truly demonstrates sustainability, though relative indicators may be useful as well.
Balance of information	The overall group of measures must provide a balanced perspective in the same way that the balanced scorecard does, but must also be understandable and comprehensible.
Understandability of the report	Issues affecting how understandability of reports include the wide range of indicators, the lack of rigid standards for reporting and the range of stakeholders.
Audit/assurance of the report and performance	Lack of assurance work on the reports undermines their credibility.
External stakeholder engagement	External involvement in the process or the assessment of results gives external parties a better understanding and enhances the reporting process and the credibility of the organisation.
Integration with financial reporting	Environmental information will only equal the influence of financial reporting if it is integrated with it to gain an overall perspective. Environmental reporting must thus include relevant economic results.
Addressing true sustainability	Reporting has been bBASed towards current environmental and social activities and has not fully addressed the needs of those alive in the **future**.

5.4 Control systems

Many companies have been forced to act on environmental issues because of shocks such as environmental disasters or attention from pressure groups. To reduce the chances of these happening, organisations must not only monitor their internal performance, but also include within their monitoring of the external situation assessment of the impact of environmental issues. It will be particularly important to monitor:

- Emerging environmental issues
- Likely changes in legislation
- Changes in industry best practice
- Attitudes of suppliers, customers, media and the general public
- Activities of environmental enforcement agencies
- Activities of environmental pressure groups

In *Accounting for the Environment*, Gray and Bebbington listed the functions that environmental management systems should cover:

Environmental review and policy development	A first review of environmental impacts of materials, issues and products and of business issues arising, also the development of a tailored in-house policy or measures to ensure adherence to external standards
Objectives and target development	As with all business objectives and targets, it is preferable that those set be unambiguous and achievable. Initiatives such as the World Wildlife Fund initiative encourage quantified targets within a specified time period eg reducing carbon dioxide emissions by X% within a specified time period
Life-cycle assessment	This aims to identify all interactions between a product and its environment during its lifetime, including energy and material usage and environmental releases. • Raw materials used have to be traced back to the biosphere and the company recognise impact on habitat, gas balance, the energy used in the extraction and transportation and the energy used to produce the means of extraction • For intermediate stages, emissions, discharges and co-products • At the consumer purchase stage, the impact of manufacture and disposal of packaging, transport to shops and ultimately impacts of consumers using and disposing of the product
Establishment and maintenance of environmental management systems	Key features of environmental management systems (as with other management systems) including information systems, budgeting, forecasting and management accounting systems, structure of responsibilities, establishment of an environmentally-friendly culture, considering impact on human resource issues such as education and performance appraisal
Regulatory compliance	Making sure that current legal requirements are being fulfilled and keeping up-to-date with practical implications of likely changes in legislation
Environmental impact assessment	A regular review of interactions with the environment, the degree of impact and an environmental SWOT analysis, also the impact of forthcoming major investments
Eco-label applications	Eco-labelling allows organisations to publicly identify products and services that meet the highest environmental standards. To be awarded an eco-label requires the product to be the result of a reliable quality management system
Waste minimisation	Whether waste can be minimised (or better still eliminated), possibility of recycling or selling waste
Pollution prevention programmes	Deciding what to target
Research, development and investment in cleaner technologies	How to bring desirable features into product development, bearing in mind product development may take several years, and opinion and legal requirements may change during that period. Desirable features may include minimum resource usage, waste, emissions, packaging and transport, recycling, disassembly and longer product life
Environmental performance and issues reporting	Consideration of the benefits and costs of reporting, how to report and what to include (policies, plans, financial data, activities undertaken, sustainability)

5.5 Management accounting and performance issues

Most **conventional accounting systems** are unable to apportion **environmental costs** to products, processes and services and so they are simply **classed as general overheads**. 'Consequently, managers are unaware of these costs, have no information with which to manage them and have no incentive to reduce them.' Environmental management accounting (EMA), on the other hand, attempts to make all relevant significant costs visible so they can be considered when making business decisions.

The major areas for the application of EMA are 'in the assessment of annual environmental costs/expenditures, product pricing, budgeting, investment appraisal, calculating costs and savings of environmental projects, or setting quantified performance targets'.

5.5.1 Input/output analysis

Input/output analysis records material flows and balances them with outflows on the basis that what comes in must go out, or be stored. This approach is similar to process costing where all materials in a process are accounted for either as good output or scrap/waste. This forces the business to look at how it uses its resources and focuses it on environmental cost.

The difficulty with adopting this technique is putting monetary values on waste, non-accounted materials and scrap if these previously haven't been accounted for. It also requires additional reporting of factors included, such as water use and energy, which may be difficult to attribute to individual units.

5.5.2 Flow cost accounting

Flow cost accounting takes material flows and combines them with the organisational structure. It evaluates material flows in terms of physical quantities, cost and value. Material flows are classified into material, system and delivery and disposal. The values and costs of each of these are then calculated. This system requires additional reporting which may be unavailable on existing systems and time consuming to accomplish.

5.5.3 Environmental activity-based costing

Traditional activity-based costing allocates all the internal costs of a business to cost centres and cost drivers on the basis of the activities that caused the costs. Environmental activity-based costing distinguishes between environment-related costs and environment-driven costs.

Environment-related costs are costs specifically attributed to joint environmental cost centres, such as a sewage plant, or a waste filtration plant.

By contrast, **environment-driven costs** are hidden in general overhead costs and do not relate specifically to a joint environmental cost centre, although they do relate to environmental drivers. For example, a company may shorten the working life of a piece of equipment in order to avoid excess pollution in the later years of its working life. As a result, the company's annual depreciation charge will increase. This is an environment-driven cost.

In order for environmental activity-based costing to provide 'correct' information, the choice of allocation basis is crucial. The difficulty in allocating costs correctly could be a major complication in using this method.

Four main bases of allocation are:

- Volume of emissions or waste
- Toxicity of emissions or waste
- Environmental impact added volume of the emissions treated
- The relative costs of treating different kinds of emissions

5.5.4 Life cycle costing

Life cycle costing records the complete costs of a product 'from cradle to grave' taking into account the environmental consequences across the whole life of the product. Organisations need to have the recording systems to capture all costs, especially those incurred **prior to production** and **after production ceases** (for example, the costs of cleaning and decontaminating industrial sites when they are decommissioned at the end of a profit). It is important that potential decommissioning costs and other post-production costs are identified at the start of a project, so that they can be included in the investment appraisal (or similar cost-benefit analysis) to determine whether or not to undertake the project.

5.5.5 Environmental concern and performance

Martin Bennett and Peter James (authors of 'The green bottom line: management accounting for environmental improvement and business benefit') looked at the **ways in which a company's concern for the environment can impact on its performance.**

(a) **Short-term savings** through waste minimisation and energy efficiency schemes can be substantial.

(b) Companies with poor environmental performance may face **increased cost of capital** because investors and lenders demand a higher risk premium.

(c) There are a number of **energy and environmental taxes**, such as the UK's landfill tax.

(d) **Pressure group campaigns** can cause damage to reputation and/or additional costs.

(e) Environmental legislation may cause the **'sunsetting'** of products and opportunities for **'sunrise' replacements**.

(f) The cost of processing input which becomes **waste** is equivalent to 5-10% of some organisation's revenue.

(g) The phasing out of CFCs has led to markets for alternative products.

5.5.6 Achieving business and environmental benefits

Bennett and James went on to suggest six main **ways in which business and environmental benefits can be achieved**.

(a) **Integrating the environment into capital expenditure decisions** (by considering environmental opposition to projects which could affect cash flows, for example). There is a feeling that most companies do not know about the extent of their environmental costs, and so tend to underestimate them. This can lead to distorted calculations in investment decisions.

(b) **Understanding and managing environmental costs**. Environmental costs are often 'hidden' in overheads and environmental and energy costs are often not allocated to the relevant budgets.

(c) **Introducing waste minimisation schemes.**

(d) **Understanding and managing life cycle costs.** For many products, the greatest environmental impact occurs upstream (such as mining raw materials) or downstream from production (such as energy to operate equipment). This has led to producers being made responsible for dealing with the disposal of products such as cars, and government and third party measures to influence raw material choices. Organisations therefore need to identify, control and make provision for environmental life cycle costs and work with suppliers and customers to identify environmental cost reduction opportunities.

(e) **Measuring environmental performance.** Business is under increasing pressure to measure all aspects of environmental performance, both for statutory disclosure reasons and due to demands for more environmental data from customers.

(f) **Involving management accountants in a strategic approach to environment-related management accounting and performance evaluation.** A 'green accounting team' incorporating the key functions should analyse the strategic picture and identify opportunities for practical initiatives. It should analyse the short-, medium- and long-term impact of possible changes.

5.6 Corporate reporting implications

Businesses face legal requirements in many jurisdictions to report on environmental matters, and environmental issues may impact upon a number of areas in their financial reports.

5.6.1 Business review

The UK Companies Act 2006 requires directors to report on environmental issues in the business review within the directors' report. This should include reporting the impact of the company's business on the environment as well as information about the company's employees and social and community issues. The main aspects of these disclosures are risks and uncertainties, policies and effectiveness and key performance indicators, including non-financial indicators. Previous guidance has suggested disclosures on spillage, emissions and waste.

5.6.2 Tangible assets

The valuation of tangible assets may be reduced by contamination, physical damage or non-compliance with environmental regulations. Their carrying amounts should be reduced to value in use or net realisable value.

Measurement of an environmentally-impaired asset can be affected by:

- Delayed disposal of the asset, due to the need to decontaminate it, resulting in cleanup costs and interest charges
- Uncertainties surrounding changes in technology or legislation
- Reputation risks including the risks of deterring potential purchasers resulting in a restricted market

5.6.3 Intangible assets

Intangible assets are subject to an impairment test on their carrying value if they exceed the recoverable amount from use or realisation. Goodwill, for example, may be impaired by environmental issues.

IFRIC 3 *Emission rights* required businesses to treat emission allowances as intangible assets, recorded at fair value. Actual emissions then would give rise to a liability. When allowances were given by the government for less than fair value, the difference would be treated as a government grant. IFRIC 3 was withdrawn by the IASB, but the accounting treatment it recommends remains acceptable. Other possible methods for accounting for emission rights include cost of settlement approach based on initial market value and cost of settlement approach where provision is only made for the costs of buying emission rights not covered by allowances. Whatever method is used, the market value of purchased emissions may become lower than their cost if there is a glut of allowances in the market.

5.6.4 Inventories

Inventories may be affected by environmental issues such as physical leakage or deterioration. Their valuation needs to be written down to net realisable value.

5.6.5 Provisions

Provisions may be required under IAS37 as a result of activities connected with the environment, including waste disposal, pollution, decommissioning and restoration expenses. Companies in certain industries such as vehicle manufacture may be involved in activities relating to that industry that give rise to the need for provisions.

5.7 Environmental and social reporting

As well as legal requirements, businesses face peer pressure to provide increasing amounts of information about environmental and social performance. Organisations such as Trucost benchmark companies' environmental disclosures.

Environmental and social reports generally include narrative and numerical information about impact. Narrative information includes objectives, explanations and reasons why targets have or have not been achieved. Reports can also address concerns of specific internal or external stakeholders. Useful numerical measures can include pollution amounts, resources consumed or land use.



Case example: Environmental and social reporting

BT's Social and Environmental Report for the year ended 31 March 2011 complies with the Global Reporting Initiative Guidelines (discussed below). To give an overview of the company's social and environmental performance, the report selects 12 non-financial key performance indicators.

(a) Customer service – 3% increase in service quality

(b) Employee engagement index (measure of success of BT's relationship with employees) – a small rise to 3.61 out of 5

(c) Diversity – BT maintains a top ten placement in four out of five major diversity benchmarks

(d) Health and safety lost time injury rate – up from 0.209 cases per 100,000 working hours to 0.225 cases per 100,000 working hours

(e) Health and safety sickness and absence rate – down from 2.46% calendar days lost due to sickness/absence to 2.41% calendar days lost

(f) Supplier relationship success – 86% satisfaction

(g) Ethical trading (a measure of the application of BT's supply chain human rights standard) – 70 risk assessments with 100% follow-up

(h) Community effectiveness (such as charity partnerships and support for learning and skills and helping people get on-line) rated at 98%

(i) BT's investment in community improvements is 1.9% of pre-tax profits

(j) Global warming CO2 emissions fell from 653,000 to 628,000 tonnes

(k) Waste to landfill and recycling (a measure of use of resources) – reduction of 69%

(l) Ethical performance – a small increase to 4.16 out of 5 in a measure designed to assess employee awareness and training, compliance with the company's ethical code and behaviour with integrity

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5.7.1 Global Reporting Initiative

Earlier papers covered The Global Reporting Initiative (GRI), a reporting framework that arose from the need to address the failure of current governance structures to respond to changes in the global economy.

The GRI aims to develop transparency, accountability, reporting and sustainable development. Its vision is that reporting on economic, environmental and social importance should become as routine and comparable as financial reporting.

The main section of the Guidelines sets out the framework of a sustainability report. It consists of five sections:

(a) **Strategy and analysis.** Description of the reporting organisation's strategy with regard to sustainability, including a statement from the CEO. In addition, there should be a description of key impacts, risks and opportunities. This section should focus firstly on key impacts on sustainability and associated challenges and opportunities, and how the organisation has addressed the challenges and opportunities. It should secondly focus on the impact of sustainability risks, trends and opportunities on the long-term prospects and financial performance of the organisation.

(b) **Organisational profile.** Overview of the reporting organisation's structure, operations, and markets served and scale.

(c) **Report parameters.** Details of the time and content of the report, including the process for defining the report content and identifying the stakeholders that the organisation expects will use the report. Details should also be given of the policy and current practice for seeking external assurance for the report.

(d) **Governance, commitments and engagement structure and management systems.** Description of governance structure and practice, and statements of mission and codes of conduct relevant to economic, environmental and social performance. The report should give a description of charters, principles or initiatives to which the organisation subscribes or which the organisation endorses. The report should also list the stakeholder groups with which it engages and detail its approaches to stakeholder engagement.

(e) **Performance indicators.** Measures of the impact or effect of the reporting organisation divided into integrated indicators.

5.7.2 Integrated reporting

In September 2011 the International Integrated Reporting Council launched a discussion document *Towards Integrated Reporting – Communicating Value in the 21st Century.* The International Integrated Reporting Council subsequently published a consultation draft on Integrated Reporting in April 2013.

The aim of integrated reporting is to demonstrate the linkage between strategy, governance and financial performance and the social, environmental and economic context within which the business operates. By making these connections, businesses should be able to take more sustainable decisions, helping to ensure the effective allocation of scarce resources. Providers of financial capital and other stakeholders should better understand how an organisation is really performing and creating value over time. In particular they should make a meaningful assessment of the long-term viability of the organisation's business model and its strategy.

Integrated reporting should also achieve the simplification of accounts, with excessive detail being removed and critical information being highlighted.

Integrated reporting is designed to make visible the capitals (resources and relationships) on which the organisation depends, how the organisation uses those capitals and its impact upon them.

Capital	
Financial	Funds available for use in production obtained through financing or generated through operations
Manufactured	Manufactured physical objects used in production or service provision: Buildings Equipment Infrastructure
Human	Skills, experience and motivation to innovate: Alignment and support for organisation's governance framework and ethical values Ability to understand and implement organisation's strategies Loyalties and motivations for improvements
Intellectual	Intangibles providing competitive advantage: Patents, copyrights, software and organisation systems Brand and reputation
Natural	Input to goods and services and what activities impact: Water, land, minerals and forests Biodiversity and eco-system health
Social	Institutions and relationships within each community stakeholder group and network to enhance well-being: Common values and behaviours Key relationships Social licence to operate
A number of guiding principles underpin the content and presentation of an integrated report:	
Strategic focus and future orientation	Insights into strategies and how those strategies relate to the ability to create value in the short, medium and long-term. Report also on how organisation uses and affects resources and relationships.
Connectivity of information	Links between different components of business model, focusing on the total picture of value creation. Integrated reporting aims to break down existing silos of information and extend the focus of reporting beyond financial and historical matters.
Stakeholder responsiveness	Insight into organisation's relationships with stakeholders and how organisation takes account of and responds to their needs.
Materiality and conciseness	Provision of important and reliable information with less significant information being disclosed elsewhere.
Reliability and completeness	Inclusion of all material matters, both positive and negative, in a balanced way without material error.
Consistency and comparability	Information should be presented on a consistent basis over time in a way that, if possible, enables comparison with other organisations.

The content elements follow on from the guiding principles:

- Organisational overview and external environment
- How the governance structure supports value creation
- Opportunities and risks that affect ability to create value over the short, medium and long-term, and how the organisation is dealing with them
- Strategy and resource allocation – where the organisation intends to go and how it intends to get there
- Business model
- Performance – the extent to which the business has achieved its strategic objectives and what the outcomes are in terms of the effects on capitals
- Future outlook: what challenges and uncertainties the organisation is likely to encounter in pursuing its strategy, and the potential implications of these for its business model and future performance

5.8 Auditing environmental issues

As well as audits and assurance reviews that focus specifically on environmental matters, auditors are likely to consider environmental matters in several areas of the audit of the financial statements. Guidance on the audit work required has been provided by the ICAEW and the Environment Agency in *Environmental issues and annual financial reporting.*

Environmental issues should be considered as part of audit planning if they are likely to have a significant impact on the financial statements. Environmental indicators may be used within initial analytical review processes. Potential impacts on the financial statements may arise from:

- The application of laws and regulations
- Participation in a carbon trading scheme
- Activities and processes of the business, particularly processes involving pollution, the use of hazardous substances or the avoidance of hazardous waste
- Holding an interest in land or buildings that could have been contaminated by a previous user
- Climate change and potential flood risks
- Fines or penalties
- Dependence on a major customer or segment whose business is threatened by environmental pressures

To obtain an understanding of the business, auditors may need to consider:

- Extent to which business is based on the use of environmentally sensitive materials
- Environmental obligations arising from laws and regulations affecting specific businesses
- Risks of carrying out construction work in flood plains
- Effects of market issues such as compliance with environmental legislation, customer perceptions of environmental performance or the impact of environmental pressures on suppliers

As part of the auditors' review of controls and systems, auditors should consider whether management is **competent** to deal with environmental issues and systems and processes designed to identify and monitor environmental risks. What constitutes adequate control systems will vary by company. Where exposure to environmental risk is high, companies may operate a specific environmental management system or deal with environmental issues within an integrated control system.

Although some environmental issues have clear financial outcomes, others will be dependent on the judgement of the directors. Work on **estimates** relating to environmental matters could therefore be a significant part of the audit.

Auditors will be particularly concerned with **environmental laws and regulations** if non-compliance would be central to the core operation of the business and irregularities could result in closure, either due to the loss of an operating licence or a huge fine.

If a company participates in an emissions trading scheme, the auditors will need to see that the company complies with the requirements of the scheme, systems are operating to measure emissions and process data and measurement and disclosures comply with international financial reporting standards.

Auditors may face a number of difficulties in assessing the effects of environmental matters in the financial statements:

- Delays between activities causing environmental issues such as contamination of a site due to industrial activity and its identification by the business or regulator
- Accounting estimates not having an established pattern and exhibiting a wide range of reasonableness because of the number and nature of assumptions underlying them
- Interpretation of evolving environmental laws may be difficult or ambiguous
- Liabilities can arise out of voluntary agreements as well as legal or contractural obligations

5.8.1 Environmental auditing

An environmental audit is an evaluation of how well an entity, its management and equipment are performing, with the aim of helping to safeguard the environment by facilitating management control of environmental practices and assessing compliance with entity policies and external regulations.

Environmental auditing is also used for auditing the truth and fairness of an environmental report rather than the organisation itself.

An environmental audit may be undertaken as part of obtaining or maintaining external accreditation, such as the BSI's ISO 14001 standard.

In practice, environmental audits may cover a number of different areas. The scope of the audit will depend on each individual organisation. Often the audit will be a general review of the organisation's environmental policy. On other occasions the audit will focus on specific aspects of environmental performance (waste disposal, emissions, water management, energy consumption) or particular locations, activities or processes.

There are other specific aspects of the approach to environmental auditing which are worth mentioning.

(a) **Environmental Impact Assessments (EBAS)**

These are required, under an EU directive, for all major projects which require planning permission and have a material effect on the environment. The EIA process can be incorporated into any environmental auditing strategy.

(b) **Environmental surveys**

These are a good way of starting the audit process, by looking at the organisation as a whole in environmental terms. This helps to identify areas for further development, problems, potential hazards and so forth.

(c) **Environmental SWOT analysis**

A 'strengths, weaknesses, opportunities, threats' analysis is useful as the environmental audit strategy is being developed. This can only be done later in the process, when the organisation has been examined in more detail.

(d) **Environmental Quality Management (EQM)**

This is seen as part of TQM (Total Quality Management) and it should be built into an environmental management system. Such a strategy has been adopted by companies such as IBM, Dow Chemicals and by the Rhone-Poulenc Environmental Index, which has indices for levels of water, air and other waste products.

(e) **Eco-audit**

The European Commission has adopted a proposal for regulation of a voluntary community environmental auditing scheme, known as the eco-audit scheme. The scheme aims to promote improvements in company environmental performance and to provide the public with information about these improvements. Once registered, a company will have to comply with certain ongoing obligations involving disclosure and audit.

(f) **Eco-labelling**

Developed in Germany, this voluntary scheme will indicate those EU products which meet the highest environmental standards, probably as the result of an EQM system. It is suggested that eco-audit must come before an eco-label can be given.

(g) **BS 7750 Environmental Management Systems**

BS 7750 also ties in with eco-audits and eco-labelling and with the quality BSI standard BS 5750. Achieving BS 7750 is likely to be a first step in the eco-audit process.

(h) **Supplier audits**

These ensure that goods and services bought in by an organisation meet the standards applied by that organisation.

5.8.2 Environmental audit stages

There are three main stages in most environmental audits.

(a) **Establishing the metrics**

The greater the variety of metrics, the more information provided. However, measuring against a number of metrics could result in a costly audit.

(b) **Measuring planned or desirable performance against actual performance**

This is an important aspect of a system. Some metrics will be objective, for example the level of carbon emissions or plastic bag issues can be measured. However other aspects, for example public perceptions, cannot be measured objectively and may therefore be difficult to measure precisely.

(c) **Reporting the results of the audit**

Important decisions will include the form of the report and how widely it should be distributed, in particular whether the organisation's annual report should include a report by the auditors.

5.8.3 Auditor concerns

(a) Board and management having good understanding of the environmental impact and related legislation of the organisation's activities in areas such as buildings, transport, products, packaging and waste

(b) Adoption and communication of adequate policies and procedures to ensure compliance with relevant standards and laws

(c) Adoption of appropriate environmental information systems

(d) Adoption and review of progress against quantifiable targets

(e) Assessment of whether progress is being made economically and efficiently

(f) Implementation of previous recommendations of improvements to processes or systems

(g) True, fair and complete reporting of environmental activities



Interactive question 3: Chemical company **[Difficulty level: Intermediate]**

Burtchester is a privately-owned company that manufactures chemicals. It is likely to seek a stock market listing in the next two years, and because of the higher profile that it will have once it is listed, its directors feel that the company must have a Corporate Social Responsibility programme. The chairman feels that the programme needs to concentrate in particular on manufacturing processes (which are noisy and smelly and produce a lot of waste), Burtchester's sourcing of raw materials from economically underdeveloped countries, the ethnic diversity of its workforce and compliance with the law.

Two years ago Burtchester acquired a manufacturing site, which now houses one of its largest plants. However, unlike its other factories which are situated on industrial estates, this factory is located in the middle of a residential area. Since it opened, there have been complaints from a group of local residents about the noise made by the factory's processes and by lorries loading and unloading at the start and end of the day. Two of the residents wrote to the Chief Executive three months ago to say that they intend to take legal action to stop the noise and claim compensation for distress previously caused. Nothing further has been heard from them since the original letter.

Requirements

(a) Advise Burtchester on what the main features of its CSR policy should be, dealing with its manufacturing process, procurement policy, labour force and compliance with the law.

(b) Briefly describe the contents of an environmental report that would be appropriate for Burtchester and briefly explain the main elements of the assurance work that could be carried out to verify the contents of this report.

(c) Discuss the corporate reporting implications of the claim by the residents.

See **Answer** at the end of this chapter.

Summary and Self-test

Summary

Financial strategy is based around investment, financing and dividend decisions, with strategic cash flow and fund management ensuring sufficient funds are available.

Financial strategy decisions, particularly investments in other entities, can have numerous financial reporting consequences.

The financial position of many firms has been affected by the credit crunch and problems in the Eurozone, particularly the debt crisis.

Increasingly business strategy is determined by corporate responsibility and sustainability issues, with firms wishing to demonstrate in their corporate reporting that they are good corporate citizens.

Self-test

Self-test question 1

Z

Z Ltd is a publicly quoted company. Its products are based on raw materials grown in tropical countries and processed either in these countries or in the eventual sales markets. Processing is undertaken partly by Z Ltd and partly by sub-contractors. The products are branded and sold worldwide, but mainly in the United Kingdom and North America. They are sold to consumers through a very large number of outlets.

The non-executive directors have for some time expressed concern that the company has not developed any systems of environmental or social reporting to shareholders, although many comparable companies already publish such information as part of their Annual Report. A government minister has now stated that legislation will be considered if all companies do not make progress on reporting on social and environmental policies.

The chief executive has always regarded reporting as ideally never exceeding legal requirements.

Requirements

(a) Construct a case for including a report on environmental and social issues in the annual report.

(b) Identify the main issues that could be covered in the environmental and social report.

(c) Analyse the impact of business partners and other stakeholders on the content of the environmental and social report.

Self-test question 2

Edgington

Edgington trades throughout Europe and has bank accounts holding significant sums in all the major European countries. Edgington's directors are, however, concerned about the risk implications for the company of the European Sovereign Debt Crisis and its impacts upon the countries where Edgington holds accounts.

Requirements

Discuss the origins of the European Sovereign Debt Crisis and its implications for many banks in the Eurozone, and recommend measures that Edgington could take to reduce its exposure to 'bank risk'.

IFRS 12, *Disclosure of Interests in Other Entities*

- IFRS 12 is a disclosure standard requiring a wide range of disclosures about an entity's interests in subsidiaries, joint arrangements (joint operations or joint ventures), associates and other unconsolidated 'structured entities'. The objective of IFRS 12 to require an entity to disclose information which enables users of financial statements to evaluate the nature of, and risks associated with, its interests in other entities; and the effect of those interests on its financial position, financial performance, and cash flows.

Overview

IFRS 10, *Consolidated Financial Statements*

- Outlines the requirements for the preparation and presentation of consolidated financial statements, with entities being required to consolidate other entities they control.

Overview

IFRS 11, *Joint Arrangements*

- Details the issues which should be considered when determining the appropriate financial reporting treatment for joint ventures and joint operations and specifies the accounting treatment for both kinds of joint arrangements.

Overview

IAS28, *Investments in Associates and Joint Ventures*

- Outlines the accounting for investments in associates, where an associate is an entity over which an investor has significant influence but not control or joint control or a joint venture as determined in IFRS 11.

Overview

IFRS 3, *Business Combinations*

- Outlines the accounting when an acquirer obtains controls of a business through an acquisition or merger. These business combinations are accounting for using the 'acquisition method' which generally requires the assets acquired, and the liabilities assumed, to be measured at their fair values at the acquisition date.

Overview

IFRS 5, *Non-current assets held for sale and discontinued operations*

- Outlines the accounting required for non-current assets held for sale (or for distribution to owners). In general terms, assets (or disposal groups) held for sale are not depreciated, are measured at the lower of carrying amount and fair value less costs to sell, and are presently separately in the statement of financial position.

Overview

IAS27, *Separate Financial Statements*

- Outlines the accounting and disclosure requirements for separate financial statements, which are financial statements prepared by a parent, or an investor in a joint venture or associate, where those investments are accounted for either at cost or in accordance with IAS39 or IFRS 9. The standard also outlines the accounting requirements for dividends.

Overview

IAS39, *Financial Instruments: Recognition and Measurement*

- Outlines the requirements for the recognition and measurement of financial assets, financial liabilities, and some contracts to buy or sell non-financial items. **Overview**

IAS32, *Financial Instruments: Presentation*

- IAS32 is a companion to IAS39 and outlines the requirements for the presentation of financial instruments, particularly the classification of such instruments into financial assets, financial liabilities and equity instruments. The standard also provides guidance on the classification of interest, dividends and gains or losses relating to the financial instruments. **Overview**

IFRS 9, *Financial Instruments*

- IFRS 9 is currently still a work in progress, but it will eventually form a complete replacement for IAS39. IFRS 9 sets out the recognition and measurement requirements for financial instruments and some contracts to buy or sell non-financial items. **Overview**

IFRS 7, *Financial Instruments: Disclosures*

- IFRS 7 prescribes disclosures about the significance of financial instruments to an entity's position and performance, and about the nature and extent of the risks arising from those financial instruments, in both quantitative and qualitative terms. **Overview**

IFRS 8, *Operating Segments*

- IFRS 8 requires entities with publicly traded securities to disclose information about their operating segments, products and services; the geographical areas in which they operate, and their major customers. Segment information is based on internal management reports, both in the identification of operating segments and the measurement of disclosed segment information. **Overview**

IAS16, *Property, Plant and Equipment*

- Outlines the accounting treatment for most types of property, plant and equipment. The principle issues are the recognition of assets, the determination of their carrying amounts, and the depreciation charges and impairment losses to be recognised in relation to them. **Overview**

IAS38, *Intangible Assets*

- Outlines the accounting requirements for intangible assets, which are non-monetary assets which are without physical substance but which re identifiable (either being separable or arising from contractual or other legal rights.) Intangible assets are capitalised and amortised on a systematic basis over their useful lives, unless an asset has an indefinite useful life, in which case it is not amortised. **Overview**

IAS36, *Impairment of Assets*

- Seeks to ensure that an entity's assets are not carried at more than their recoverable amount (being the higher of fair value less costs of disposal and value in use.) An annual impairment test is required for goodwill and certain intangible assets, but for the majority of assets an impairment test is only required where there is an indication of impairment of an asset. **Overview**

IAS21, *The effects of Changes in Foreign Exchange Rates*

- IAS21 prescribes how to include foreign currency transactions and foreign operations in the financial statements of an entity, and how to translate financial statements into a presentation currency. The principal issues are which exchange rate(s) to use, and how to report the effects of changes in exchange rates.

Overview

IAS23, *Borrowing Costs*

- The objective of IAS23 is to ensure that borrowing costs directly attributable to the acquisition or production of a qualifying asset are included in the cost of the asset. Other borrowing costs are to be recognised as an expense. Borrowing costs include interest on bank overdrafts and loans, finance charges on finance leases and exchange differences on foreign currency borrowing where they are regarded as an adjustment to interest costs.

Overview

IAS17, *Leases*

- IAS17 prescribes the accounting policies and disclosures applicable to leases. The standard applies to both lessees and lessors. Leases which transfer substantially all the risks and rewards of ownership, which give rise asset and liability recognition by the lessee and a receivable by the lessor must be treated as finance leases. Leases which result in expense recognition by the lessee with the asset continuing to be recognised by the lessor must be treated as operating leases.

Overview

IFRS 13, *Fair Value Measurement*

- Defines fair value as the price that would be received to sell as asset or would be paid to transfer a liability in an orderly transaction between market participants at the measurement date. IFRS 13 defines fair value on the basis of an 'exit price' notion and uses a 'fair value hierarchy' which results in a market-based measurement rather than an entity-specific one.

Overview

IAS10, *Events After the Reporting Period*

- IAS10 prescribes when events after the end of the reporting period should be adjusted in the financial statements for that period. Adjusting events are ones which provide evidence of conditions existing at the end of the reporting period, whereas non-adjusting events are ones which are indicative of conditions arising after the reporting period.

Overview

IAS37, *Provisions, Contingent Liabilities and Contingent Assets*

- Outlines the accounting for provisions (liabilities of uncertain timing or amount), contingent assets (possible assets) and contingent liabilities (possible obligations or present obligations which are not probable or which cannot be measured reliably). Provisions are measured at the best estimate of the expenditure required to settle the present obligation. The objective of IAS37 is to ensure that financial statements provide sufficient information to enable users to understand the nature, timing and amount of any provisions, contingent liabilities and contingent assets, but it is also underpinned by the key principle that a provision should only be recognised when a genuine liability exists.

Overview

Answers to Interactive questions

Answer to Interactive question 1

Factors to consider

(a) **Investment, finance and dividends**

A major investment is planned. There may be financing problems as equity holders may not subscribe if there is a prospect of low dividends.

(b) **Profit effects**

Growth in profit has to be sufficient to meet investor and market expectations. There may be problems initially with new clubs.

(c) **Cash effects**

There will be major expenditure on new clubs, paying finance providers, and possibly refurbishing old clubs. Again new clubs may not generate very much cash flow just after opening.

(d) **Shareholders**

There may be conflicts between initial investors who will accept a long-term return and want to retain active involvement in the business, and institutional shareholders with shorter-term interests who may be willing to accept a reasonably-priced takeover bid.

(e) **Other stakeholders**

Debt holders will be concerned whether investment will generate sufficient returns to guarantee sum lent and income. Managers will be worried about expansion/curtailment of their position. Employees will want to know how operational changes will affect their employment. Customers will be concerned with the fees charged and the services offered.

(f) **Economic and market factors**

The financial markets are not viewing the sector very positively. Investment in clubs that make initial losses may have an adverse effect on share price, if markets do not take potential long-term revenues into account.

(g) **Restrictions**

Takeover of another big sports chain may run into difficulties from competition authorities. Existing loan agreements may contain possible restrictions on taking on more debt or opening more clubs.

(h) **Risks**

Downturns in the economy may hit membership of sports clubs if it is perceived as a luxury item. The company may also be vulnerable to changes in property prices if it's investing in new sites, and changes in demand as leisure clubs become less popular. There may be some exposure to foreign exchange risks.

(i) **Time frame**

There's a potential conflict between the need for good short-term profits and cash flows, and longer-term returns.

Generating strategy

The strategy can be summed up as increasing profits and cash flows by opening X new clubs over the next X years throughout Europe.

(a) **Benefits**

Benefits may accrue to shareholders in terms of dividend and market price appreciation.

(b) **Direction**

Monitoring of investments should be by financial performance indicators for new and existing clubs and overall targets for returns on capital employed.

(c) **Resources**

The company will need to specify sources of finance, amounts expected to be raised, commitments (return to suppliers and security). Also the directors should consider the generation of increased returns from existing operations by increasing membership charges and savings in operating costs.

(d) **Environment changes**

The scale of investment in new clubs should be reconsidered if property prices rise beyond a certain level, or if demand for existing clubs falls beyond a certain level.

(e) **Timescale**

Short-term investments may be limited by current funding problems. Finance may be available on better terms only when the existing network has generated higher returns.

Judging strategy

(a) **Suitability**

A strategy of expansion will maintain the position as a market leader, necessary in a highly competitive market. Merely maintaining current position without any investment may leave the company vulnerable to takeover. However there may be better ways of achieving its goals, taking over existing clubs or diversifying into other less costly areas.

(b) **Acceptability**

Will founder stakeholders maintain sufficient control, or will they prefer any combination of investment and financing to being taken over? Will institutional shareholders be satisfied with resultant dividend levels and movements in market prices? How will creditors view possible threats to their position? Will savings in operating costs adversely affect the service given to customers?

(c) **Feasibility**

Will required finance be available from all sources to support investments, or are the uncertainties or likely restrictions unacceptable? Will existing and new clubs generate enough cash flows to pay providers of finance and make their own contribution to future investment? Does the company have the management, personnel and systems needed to run a much-expanded network of clubs?

Answer to Interactive question 2

General impacts might include:

(a) **Relations with stakeholders**

Companies have to consider how changes in standards will affect the key indicators for various stakeholders. Changes that affect the **calculation of profit** will **influence shareholders** if profits become significantly more volatile as a result. Shareholders and lenders who are concerned with financial stability will be influenced by changes in the **treatment** and **classification of capital instruments**, for example changes that force companies to include previously off-balance sheet items.

Other stakeholders may be affected by **new forms of accounting** or **increased disclosures**. Employees will be interested in developments in human resource accounting. Pressure groups and other interested stakeholders ('ethical investors') will be interested in how the organisation is reporting its impact upon the natural environment (considered further below).

(b) **Undertaking and form of transactions**

Changes in standards may also mean companies do **not undertake transactions** or stop doing what they previously have been doing. The introduction of more **volatility into accounts** may make certain transactions less attractive, for example granting of employee share options. Many companies in the United Kingdom have alleged that FRS 17 *Retirement benefits*, which introduced more onerous rules for accounting for pension liabilities, has forced them to close their final salary pension schemes and offer

less generous arrangements instead. However other factors would have had a major influence on this decision as well.

Alterations to standards can also affect the **form transactions take**. There is evidence that some acquisitions in the United Kingdom were structured in a certain way in order to be treated under the (more appealing) merger accounting rules than acquisition accounting rules. Prohibition of the merger accounting treatment removed the incentive to use unusual structuring arrangements.

(c) **Investments**

Having diverse requirements internationally arguably allows companies in some jurisdictions to shelter behind **doubtful arrangements**. Evidence from the USA suggests that having one set of strict standards forces companies to be more efficient and more competitive. It also lowers the risks of investment, reducing the cost of capital and hence making previously unattractive overseas investments feasible.

(d) **Costs of compliance**

In particular the costs of fundamental changes such as the introduction of international accounting standards may be significant. Not only will this impact upon companies' **financial accounting function**, but also may affect the **management accounting function's** work if compatibility between financial and management accounting is to be maintained.

Answer to Interactive question 3

(a) Burtchester's CSR policy needs to deal with the following matters:

Manufacturing process

Waste – The manufacturing process currently produces large quantities of waste, so Burtchester should aim to recycle as much of its waste as possible.

However, Burtchester should also try to reduce the levels of waste it produces, for example by making sure its manufacturing processes are as efficient as possible, and by reducing resource usage as far as possible.

Noise – The manufacturing process is currently very noisy, so the policy needs to identify how the noise levels may be reduced. In this respect, Burtchester needs to consider both the level of noise pollution for the local neighbourhoods around its manufacturing plants, and also the noise levels within the plants where staff have to work.

Smell – The manufacturing process is smelly as well as noisy, so the policy needs to address smell in a similar way to noise.

Procurement policy

Raw material procurement – As Burtchester sources some of its materials from economically underdeveloped countries, its policy needs to define the basis on which it does business with companies in those countries. In particular, Burtchester needs to highlight the importance of ensuring the price, terms and conditions it negotiates with suppliers are fair.

Labour force

There are two issues in relation to the workforce which the CSR policy needs to address:

Equality – Ensuring that **all members** of the workforce are treated fairly and equally.

Working conditions – Improving the conditions the staff have to work under. As well as the manufacturing process being noisy and smelly, there will also be health and safety requirements. The CSR policy should therefore highlight Burtchester's commitment to workplace safety.

Compliance

Burtchester has always tried to comply with its country's laws, and it should continue to do so. However, CSR involves more than simply complying with basic legal requirements, so Burtchester's policy should establish its basic principle of complying with the law before going on to highlight the other principles that will enable it to be a good corporate citizen.

(b) **Reports**

Reports are often referred to as 'triple bottom line reporting' on the following topics:

- **Economic** – Information provided should go beyond that required by law. It should demonstrate how Burtchester adds value in a wider sense, eg by creating human capital.
- **Environmental matters** – The report should include information on how Burtchester's activities impact on the environment, eg impact of sourcing chemicals, waste management, noise etc.
- **Social** – Information provided may be on a range of social issues – working hours, rates, policies on child employment, equal opportunities, disablement policies.

A number of companies are following the Global Reporting Initiative (GRI), which aims to deliver transparency, accountability, reporting and sustainable development.

Assurance

Suitable measures to monitor policies would include checking the appropriate documentation of policies and evidence that they are circulated to staff. The policies should, for example, form part of staff's induction training.

Burtchester should initiate internal audit procedures or employ external assurance providers to monitor implementation and check accuracy of reporting mechanisms and key performance indicators.

External evidence of, for example, the effectiveness of environmental policies should be obtained from expert third parties where appropriate.

(c) **Requirements of IAS37**

Although local residents have given notice that they would be taking legal action against Burtchester no claim appears to have been made. As yet there is no present obligation on Burtchester to make reparations for the disturbance caused and so certainly no provision needs to be made. Whether disclosure is required is questionable. As no notice of a claim has yet been received, the probability of a claim can be regarded as remote and no disclosure required under IAS37.

Answers to Self-test

Answer to Self-test question 1

(a) **Reasons for the inclusion of environmental and social issues in the Annual Report**

Competitor disclosure

As the non-executive directors have observed, **many comparable companies** already **do include such issues** in their Annual Report and Z may attract adverse publicity if it does not follow this trend.

Attracting investments

There may be **positive benefits** to reporting such issues too. For example, an increasing amount of attention is devoted to environmental and social issues. **'Green' and 'ethical' fund managers** have more funds available for investment and Z may be able to demonstrate that it is suitable for such investment, thereby increasing its share price. Disclosure may also demonstrate that Z is concerned about **maintaining good relations with shareholders**. By providing lots of information, Z demonstrates its commitment to **transparency.** Environmental disclosures can also give shareholders **greater assurance** by providing information about the **environmental risks** that Z faces and how it is managing them.

Strategic considerations

Moreover, the board should be constantly scanning the environment in which the organisation operates, including social and environmental areas, in order to assess the impact of any **changes on the future of the business.** Given that there is substantial interest amongst consumers and investment fund managers in doing business with companies which are environmentally and socially responsible, the board may intend to report on environmental and social issues as part of its competitive strategy.

Government pressure

There have also been recent comments by a government minister that 'if all companies do not make progress', legislation on environmental and social issues will be introduced. If Z was to include such issues in its Annual Report it would **avoid being forced into providing damaging disclosures required by a more stringent regime.**

(b) **The range of environmental and social issues to cover**

Consumption of raw materials

The greatest focus from an environmental point of view is likely to be on **consumption of raw materials from tropical areas**. The directors may wish to consider the concept of **'sustainability'** – is Z replanting at a rate equal to or greater than that at which it is harvesting? If so, it is likely to be viewed favourably.

Costs of processing

The **costs of processing** should also be considered, in particular the percentage of **energy** coming from renewable and non-renewable sources and the steps taken to increase the efficiency with which Z uses energy.

Packaging

Packaging is of increasing concern to many consumers. The proportion of both Z's products and their packaging made from recycled material should be measured, as should the ease with which they can be **recycled after use**.

Social issues

Social issues to cover include minimum rates of pay, the minimum age of child labour, working conditions and living conditions, such as the availability of health care and education. The public's interest in consumer markets tends to focus on the **discrepancies between 'living standards' in their affluent market compared to those in less developed countries**. In setting standards the board needs to gather

data about these issues in the source countries. Rates of pay expressed in relation to UK earnings may seem derisory but when expressed in relation to the local average they may seem much more acceptable. Using children aged just 14 as part of the labour force may seem less offensive if local schooling is provided up to the age of 12 and Z provides additional education as part of its benefits package.

Nature and extent of reporting

How well actual performance compares with what the board considers to be acceptable standards will determine the nature and extent of any reporting on these issues. If the board believes Z's performance is above average it may well make extensive disclosures in order to gain maximum benefit. The poorer the performance, the less it may choose to disclose. If there are any single issues that would lead to adverse publicity were they disclosed, it may choose to make no disclosures until these issues are resolved to an acceptable level.

(c) **Business partners**

Z also needs to consider **whether to report on the activities of Z alone or on those of all of its business partners**, including those from whom Z sources its raw materials and the sub-contractors it employs during production. It could be argued that Z cannot control its sub-contractors, and therefore should not include their activities within its report. For example, it could be deemed unfair if Z was held responsible for contractors employing young children without the board's knowledge.

It is **unlikely that 'we didn't know' would be accepted as a defence were damaging information made public**, however. Once the range of performance benchmarks is established, Z should therefore provide it to all of its sub-contractors and advise them that they are expected to conform to such standards. These could be included as a requirement in the **supplier tendering process**.

Impact of other stakeholders

Problems are likely to centre on **identifying those issues that will be of concern in the future to stakeholders**. Z will also need to balance the demands of shareholders for maintaining a profitable activity with the concerns of pressure groups over the activity in question.

Changing viewpoints

The **popularity** or otherwise of environmental and social issues moves constantly with **changes in public opinion and government policy**. The board should endeavor to **anticipate the demands of its stakeholders**, however, rather than appear to be simply reacting to the current 'popular' issues.

Answer to Self-test question 2

Edgington

European Sovereign Debt Crisis

The European Sovereign Debt Crisis originated from the rapid growth in government debt in Europe, particularly the eurozone. Unlike the UK, where the central bank is able to print money and devalue the currency if necessary to pay back sterling-denominated debt, sovereign debt in the eurozone is denominated in euros, an international currency. Eurozone countries cannot get out of their debt problems by means of currency devaluation.

Efforts by governments to reduce their debt, or even their annual budget deficit, were hampered by very **low economic growth or economic recession**. Investors in the financial markets were alerted to the debt problem, initially in Greece but subsequently in other countries, mainly in Southern Europe. Yields on government bonds in troubled countries rose, bond prices fell and some governments found it difficult to issue new debt except at a high interest rate.

In Spain and Ireland, the financial problems of the government were **compounded by a property market crash**, causing large defaults of property loans and large losses for banks.

Banks were involved in the crisis partly because of loan defaults, but also because many European banks were large investors in government securities and suffered losses from the falls in bond prices. They have also been required to increase their capital, to comply with the requirements of Basel III and their national regulators.

Because they have struggled to resolve their own financial difficulties, both solvency and liquidity problems, banks have restricted their lending. The shortage of capital for investment by business contributed to the problems of national economies.

Banks in countries such as Spain became **reliant on the European Central Bank** for liquidity.

The problems of sovereign debt have therefore had a knock-on effect for banks and the European economy in general.

Action by Edgington

Edgington should review its credit risk exposures to troubled European banks. It can do this by **monitoring the credit ratings of banks**, and may establish a policy of closing accounts and avoiding business with any bank whose credit rating is below an acceptable credit level. The financial position of banks can also be monitored by analysing new financial statements when these are issued and by checking the media for reports on banks.

Edgington should also **review its banking policy** and consider its dealings with European banks.

If Edgington is unable to avoid having an account with a bank in a country with debt problems, it should consider the imposition of limits on credit risk exposures to any bank in the country. This would involve limits on deposits and also limits on market transactions.

It may also be appropriate to transfer euro deposits from banks in the countries with debt problems to banks with stronger economies, such as Germany.



CHAPTER 12

Business and securities valuation

Introduction

Topic List

1 Valuation methods
2 Acquisitions and mergers
3 Unquoted companies and start-ups
4 Valuation of debt

Summary and Self-test

Technical reference

Answers to Interactive questions

Answers to Self-test

Introduction

Learning objectives

Tick off

- Explain, advise on and demonstrate appropriate valuation methods for businesses and securities using asset-based, adjusted-earnings-based and cash-based methods ☐
- Critically appraise business and securities valuation methods in the context of specified complex scenarios ☐
- Explain and demonstrate appropriate valuation techniques in the context of acquisitions and mergers; assess the contribution of due diligence procedures and show the impact on corporate reporting issues ☐
- Demonstrate and explain the techniques used to determine the valuation of debt ☐

Knowledge brought forward

This chapter contains more complex examples of valuation methods first covered in Financial Management.

Syllabus links

In Chapter 2 we covered why companies acquire or merge with other companies. We shall go on to look at debt as a means of finance in more detail in the next chapter.

Examination context

Particularly in the areas of acquisitions and mergers, a question on the material in this chapter could go right across the syllabus. You could be asked to value a target, but there may be various problems with the figures you are given, bringing in therefore the analysis skills covered in Chapter 8 or knowledge of accounting treatments. Due diligence work could well be required as part of the acquisition process. You may also need to discuss post-acquisition strategies and their associated risks, also whether the governance arrangements for the combined entity appear to be workable.

1 Valuation methods



Section overview

- Accountants can be involved in the valuation of shares for numerous purposes.
- The purpose for which a share is valued will determine the value that is placed on the share.

1.1 So what is a company worth?

There is no precise answer to this question. The value of the company will change depending on the purpose for which it is valued.

Companies could be worth:

- The tangible assets
- The assets plus goodwill
- Whatever someone is prepared to pay for them



Case example: BizStats.com

BizStats.com is a web site that provides useful financial ratios and statistics for company valuation. Industry statistics can be used for benchmarking purposes when undertaking valuations. Some rules of thumb for valuing companies in different industries are given by BizStats.com as follows:

Type of business	'Rule of Thumb' valuation
Accounting firms	100 – 125% of annual revenues
Book stores	15% of annual sales + inventory
Coffee shops	40 – 45% of annual sales + inventory
Petrol stations	15 – 25% of annual sales + equipment/inventory

1.1.1 What affects the value of a company?

Company value is not just affected by sales and profit forecasts. Value can be influenced by the type of industry the company operates in, the level of competition faced by the company and the customer base. If a company has a popular product or product range that the public will want to buy, its value will increase, provided of course that the people who want to buy it can actually afford to do so.

1.2 Distortions in accounting figures

Anyone undertaking a valuation using accounting figures will need to be aware of possible distortions in those figures. These may involve distortions in assets, liabilities, equity or earnings.

To combat problems with earnings, it may be necessary to produce a **normalised earnings** figure to reflect the sustainable earnings of a company. This figure excludes profits from discontinued operations, changes in estimates and fair values, profits/losses from the sale of non-current assets and start-ups, restructuring and redundancy costs amongst other adjustments.

1.3 Income and cash flow models

1.3.1 Dividend valuation model

This model states that a company's value is the present value of all the future cash flows to investors discounted at the investors' required rate of return for that company. There are two types of model – the constant annual dividends model and the constant growth model.

Constant annual dividends:

$$P_0 = \frac{D_0}{(1+k_e)} + \frac{D_0}{(1+k_e)^2} + \frac{D_0}{(1+k_e)^3} + ... = \frac{D_0}{k_e}$$

where P_0 = Ex dividend market value of the shares

D_0 = Constant annual dividend

k_e = Shareholders' required rate of return

Constant growth model (or Gordon growth model):

$$P_0 = \frac{D_0(1+g)}{(1+k_e)} + \frac{D_0(1+g)^2}{(1+k_e)^2} + ... = \frac{D_0(1+g)}{(k_e-g)} = \frac{D_1}{k_e-g}$$

where D_0 = Current year's dividend

g = Growth rate in earnings and dividends

$D_0(1+g)$ = Expected dividend in one year's time (D_1)

k_e = Shareholders' required rate of return

P_0 = Market value excluding any dividend currently payable



Interactive question 1: Dividend valuation models **[Difficulty level: Easy]**

Target has just paid a dividend of CU250,000. The current return to shareholders of companies in the same industry as Target is 12%, although it is expected that an additional risk premium of 2% will be applicable to Target, being a smaller and unquoted company. Compute the expected valuation of Target, if:

(a) The current level of dividend is expected to continue into the foreseeable future, or

(b) The dividend is expected to grow at a rate of 4% pa into the foreseeable future

See **Answer** at the end of this chapter.

1.3.2 Income – dividend yield

The dividend yield is calculated as follows:

$$\text{Dividend yield} = \frac{\text{Dividend per share}}{\text{Market price per share}} \times 100\ \%$$

With dividend yield we are looking at the effect of gearing on the market price of shares. If additional debt finance is expected to be used to generate good returns in the long-term, it is possible that the dividend yield might fall significantly in the short-term because of a drop in short-term dividends. However, the market price may rise to reflect expectations of enhanced long-term returns. How shareholders view this movement will depend on their preference between short-term and long-term returns.

1.3.3 Income – P/E ratio

The P/E ratio is the most important yardstick for assessing the relative worth of a share. The P/E ratio is calculated as:

$$\frac{\text{Market price of share}}{\text{EPS}} \text{ which is the same as } \frac{\text{Total market value of equity}}{\text{Total earnings}}$$

The value of the P/E ratio reflects the market's appraisal of the share's future prospects. It is an important ratio as it relates two key considerations for investors – the market price of a share and its earnings capacity. An EPS ratio that changes substantially and frequently may indicate an earnings volatility issue that could increase the perceived risk of the company. This can also impact on periodic P/E ratios.

IAS 33 *Earnings Per Share* prescribes principles for the determination and presentation of EPS. Before the EPS can be considered to be useful by analysts trying to value the company, the earnings figure must be adjusted to reflect the sustainable earnings of the company. The result of this process is a 'normalised earnings' figure.

Interactive question 2: Valuations [Difficulty level: Easy]

Flycatcher wishes to make a takeover bid for the shares of an unquoted company, Mayfly. The earnings of Mayfly over the past five years have been as follows.

20X0	CU50,000	20X3	CU71,000
20X1	CU72,000	20X4	CU75,000
20X2	CU68,000		

The average P/E ratio of quoted companies in the industry in which Mayfly operates is 10. Quoted companies which are similar in many respects to Mayfly are:

(a) Bumblebee, which has a P/E ratio of 15, but is a company with very good growth prospects

(b) Wasp, which has had a poor profit record for several years, and has a P/E ratio of seven

Requirements

What would be a suitable range of valuations for the shares of Mayfly?

See **Answer** at the end of this chapter.

1.3.4 Income – discounted cash flow

The value of a company is basically the present value of all its future expected cash flows. This method of valuation may be appropriate when one company intends to buy the assets of another company and to make further investments in order to improve cash flows in the future.

Interactive question 3: Discounted cash flow basis of valuation [Difficulty level: Intermediate]

Diversification Ltd wishes to make a bid for Tadpole Ltd. Tadpole makes after-tax profits of CU40,000 a year. Diversification believes that if further money is spent on additional investments, the after-tax cash flows (ignoring the purchase consideration) could be as follows.

Year	*Cash flow (net of tax)*
	CU
0	(100,000)
1	(80,000)
2	60,000
3	100,000
4	150,000
5	150,000

The after-tax cost of capital of Diversification is 15% and the company expects all its investments to pay back, in discounted terms, within five years. What is the maximum price that the company should be willing to pay for the shares of Tadpole?

See **Answer** at the end of this chapter.

1.4 Asset-based models

If the net asset method of valuation is used, the value of a share in a particular class is equal to the net tangible assets attributable to that class divided by the number of shares in the class.

The net assets basis of valuation might be used in the following circumstances:

(a) As a **'floor value'** for a business that is up for sale – shareholders will be reluctant to sell for less than the NAV. However, if the sale is essential for cash flow purposes or to realign with corporate strategy, even the asset value may not be realised.

(b) **As a measure of the 'security' in a share value**. The **asset backing** for shares provides a measure of the **possible loss** if the company fails to make the expected earnings or dividend payments. Valuable tangible assets may be a good reason for acquiring a company, especially freehold property which might be expected to increase in value over time.

(c) **As a measure of comparison in a business combination**. For example, if company A, which has a low asset backing, is planning a merger with company B, which has a high asset backing, the shareholders of B might consider that their shares' value ought to reflect this. It might therefore be agreed that something should be added to the value of the company B shares to allow for this difference in asset backing.

There are a number of issues with the net asset basis of valuation that assurance work done on valuation will need to consider:

(a) Do the assets need **professional valuation?** If so, how much will this cost?

(b) Have the **liabilities** been accurately quantified, for example deferred taxation? Are there any contingent liabilities? Will any balancing tax charges arise on disposal?

(c) How have the **current assets** been valued? Are all receivables collectable? Is all inventory realisable? Can all the assets be physically located and brought into a saleable condition? This may be difficult in certain circumstances where the assets are situated abroad.

(d) Can any **hidden liabilities** be accurately assessed? Would there be redundancy payments and closure costs?

(e) Is there an **available market** in which the assets can be realised (on a break-up basis)? If so, do the balance sheet values truly reflect these break-up values?

(f) Are there any **prior charges** on the assets?

(g) Does the business have a regular **revaluation and replacement** policy? What are the bases of the valuation? As a broad rule, valuations will be more useful the better they estimate the **future cash flows** that are derived from the asset.

(h) Are there factors that might indicate that the **going concern valuation** of the business **as a whole** is **significantly higher** than the valuation of the individual assets?

(i) **What shareholdings** are being sold? If a minority interest is being disposed of, realisable value is of limited relevance as the assets will not be sold.

1.4.1 Impact of IFRS 13

The main difficulty in an asset valuation method is establishing the asset values to use. Values ought to be realistic. The figure attached to an individual asset may vary considerably depending on what basis is used. One criticism of asset-based measures has been their reliance on historical cost, not representing market value and incorporating future earnings potential. However, IFRS 13 *Fair value measurement* now provides the yardsticks to be used in assessing the fair values of assets.

IFRS 13 defines fair value as '**the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date**'.

The standard requires that the following are considered in measuring fair value:

(a) The asset or liability being measured

(b) The principal market (ie that where the most activity takes place) or where there is no principal market, the most advantageous market (ie that in which the best price could be achieved) in which an orderly transaction would take place for the asset or liability

(c) The highest and best use of the asset or liability and whether it is used on a standalone basis or in conjunction with other assets or liabilities

(d) Assumptions that market participants would use when pricing the asset or liability

IFRS 13 states that valuation techniques must be those which are appropriate and for which sufficient data are available. Entities should maximise the use of relevant **observable inputs** and minimise the use of **unobservable inputs**.

The standard establishes a three-level hierarchy for the inputs that valuation techniques use to measure fair value:

Level 1 Quoted prices (unadjusted) in active markets for identical assets or liabilities that the reporting entity can access at the measurement date

Level 2 Inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly or indirectly, eg quoted prices for similar assets in active markets or for identical or similar assets in non active markets or use of quoted interest rates for valuation purposes

Level 3 Unobservable inputs for the asset or liability, ie using the entity's own assumptions about market exit value

The IFRS identifies three valuation approaches.

(a) **Income approach.** Valuation techniques that convert future amounts (eg cash flows or income and expenses) to a single current (ie discounted) amount. The fair value measurement is determined on the basis of the value indicated by current market expectations about those future amounts

(b) **Market approach.** A valuation technique that uses prices and other relevant information generated by market transactions involving identical or comparable (ie similar) assets, liabilities or a group of assets and liabilities, such as a business

(c) **Cost approach.** A valuation technique that reflects the amount that would be required currently to replace the service capacity of an asset (often referred to as current replacement cost)

The requirements of IFRS 13 are particularly relevant for valuing a business in a business combination, as discussed below.

1.5 Value-based models

1.5.1 Value-based management (VBM)

VBM starts with the philosophy that the value of a company is measured by its discounted future cash flows. Value is created only when companies invest capital at returns that exceed the cost of that capital. VBM extends this philosophy by focusing on how companies use the idea of value creation to make both major strategic and everyday operating decisions. So VBM is an approach to management that aligns the strategic, operational and management processes to focus management decision-making on what activities create value.

1.5.2 Value drivers

A value driver is any variable that affects the value of the company. They should be ranked in terms of their impact on value and responsibility assigned to individuals who can help the organisation meet its targets. Value drivers can be difficult to identify as an organisation has to think about its processes in a different way. Existing reporting systems are often not equipped to supply the necessary information. A good way of relating a range of value drivers is to use scenario analysis. It is a way of assessing the impact of different sets of mutually consistent assumptions on the value of a company or its business units.

1.5.3 Shareholder value analysis (SVA)

SVA is the process of analysing how certain decisions affect the net present value of cash to shareholders. At the corporate level it provides a framework for evaluating options for improving shareholder value by determining the trade-offs between reinvesting cash in the company, distributing cash to shareholders and investing in new businesses.

SVA consists of three primary analyses:

- **Determining the present value** of the costs of all investments using the appropriate cost of capital
- **Estimating the economic value** of the business by discounting its expected cash flows to find their present values
- **Determining the economic value** of the business by finding the difference between the above elements

1.5.4 Economic Value Added (EVA®)

Essentially, EVA® is an estimate of the amount by which earnings exceed or fall short of the required minimum rate of return for shareholders or lenders at similar risk. It can be used at divisional as well as corporate level. It

is based on the idea that a business must cover both its operating costs *and* its capital costs. It can be used for such purposes as capital budgeting, performance measurement and corporate valuation.

EVA® = Net Operating Profit after Tax (NOPAT) – WACC × Capital Employed

OR

EVA® = (ROIC – WACC) × Capital Employed (where ROIC = Return on invested capital)

The NOPAT figure should not be taken directly from the financial statements, but will contain numerous adjustments (eg current values rather than historic costs, R & D expenditure, unusual items) to make the figure more meaningful in the context of a valuation.



Case example: EVA

The derivation of EVA can be illustrated using an example.

Year	*20X5*	*20X6*
Sales		2,000
Expenses other than interest		800
Depreciation		300
Earnings before interest and taxes (EBIT)		900
Taxes on EBIT @ 24%		216
Earnings before interest and after taxes (NOPAT)		684
Current assets less excess cash and securities	400	380
Non-interest bearing current liabilities	100	120
Adjusted net working capital	300	260
Gross property, plant and equipment	3,200	3,500
Accumulated depreciation	1,000	1,300
Net property, plant and equipment	2,200	2,200
Invested capital	2,500	2,460
Return on invested capital (NOPAT/invested capital)		27.36%
Based on previous year's invested capital		

The calculation of EVA takes place as follows.

EVA calculation: Method 1	
Invested capital	2,500
Times cost of capital	12%
Capital charge	300
NOPAT	684
Less capital charge	(300)
EVA	384

EVA calculation: Method 2	
ROIC	27.36%
Less: cost of capital	–12%
Excess return	15.36%
Invested capital	2,500
Times: excess return	15.36%
EVA	384

1.5.5 Cash flow return on investment (CFROI)

This technique is an Economic Profit (Cash Flow) based valuation framework.

CFROI is a real rate of return measure (that is, it excludes inflation) that identifies the relationship between the cash generated by a business relative to the cash invested in it. It represents the discount rate at which the discounted future annual cash flows expected to be generated over the useful life of a firm's assets are equal to the current cash value of the firm's net operating assets.

CFROI can be used at divisional level and can also be applied to privately held firms.

1.5.6 Market value added (MVA)

The MVA of a company is defined as:

MVA = Market value of debt + Market value of equity – Book value of equity

The MVA shows how much the management of a company has added to the value of the capital contributed by the capital providers.

The MVA is related to EVA because MVA is simply the present value of the future EVAs of the company.

If the market value and the book value of debt is the same, then the MVA simply measures the difference between the market value of common stock and the equity capital of the firm.

A firm's equity MVA is sometimes expressed as a market to book ratio:

$$\frac{\text{MVA}}{\text{book value}}$$

The higher the MVA, the better for the company, as a high MVA indicates that the company has created wealth for its shareholders.

The main problem with MVA is that it does not take opportunity cost of capital into account, nor does it account for intermediate cash returns to shareholders.

1.5.7 Total shareholder return

This technique measures the change in capital value of a listed company over a period (typically at least one year) plus cash payouts to shareholders expressed as a percentage of the initial share price at the start of the period. The formula is:

$$\text{TSR} = \frac{(\text{Share price at end} - \text{share price at beginning}) + \text{Cash paid to shareholders}}{\text{Share price at beginning}}$$

The cash payouts to shareholders will include regular and special dividends, share buy-backs and any other cash payments.

Its very nature prevents TSR being used for organisations that are not listed. It can be easily compared across companies of different sizes and benchmarked against industry or market returns without the complication of size bias.

2 Acquisitions and mergers



Section overview

- This section looks at the various ways in which the target company in an acquisition or merger situation can be valued, and how to value the combined company after the acquisition or merger takes place.

2.1 Asset-based model

The asset-based approach to valuation was reviewed above. These models use the statement of financial position as the starting point in the valuation process.

Worked example: Asset-based model

The summary statement of financial position of Cactus is as follows.

	CU	CU	CU
Non-current assets			
Land and buildings			160,000
Plant and machinery			80,000
Motor vehicles			20,000
			260,000
Goodwill			20,000
Current assets			
Inventory		80,000	
Receivables		60,000	
Short-term investments		15,000	
Cash		5,000	
		160,000	
Current liabilities			
Payables	80,000		
Taxation	20,000		
		(100,000)	
			60,000
			340,000
12% loan notes			(60,000)
Deferred taxation			(10,000)
			270,000
Ordinary shares of CU1			80,000
Reserves			140,000
			220,000
4.9% preference shares of CU1			50,000
			270,000

Requirement

What is the value of an ordinary share using the net assets basis of valuation?

Solution

If the figures given for asset values are not questioned, the valuation would be as follows.

	CU	CU
Total value of assets less current liabilities		340,000
Less non-identifiable asset (goodwill)		20,000
Total value of assets less current liabilities		320,000
Less: preference shares	50,000	
loan notes	60,000	
deferred taxation	10,000	
		120,000
Net asset value of equity		200,000
Number of ordinary shares		80,000
Value per share		CU2.50

2.1.1 Fair values

The accounting rules affecting acquisitions are particularly important in the context of asset valuations.

The presumption in IFRS 3 *Business Combinations* is that:

- An acquirer carefully reviews the value of the net assets to be acquired as part of the process of deciding how much to offer for the acquiree.
- The purchase consideration is the result of a transaction between a willing buyer and a willing seller in an arm's length transaction, so it is at fair value.
- This fair value can be reliably allocated across the identifiable assets and liabilities assumed.

The general rule under IFRS 3 is that the subsidiary's assets and liabilities **must be measured at fair value** except in **limited, stated cases**. The assets and liabilities must:

(a) Meet the definitions of assets and liabilities in the *Conceptual Framework*

(b) Be part of what the acquiree (or its former owners) exchanged in the business combination rather than the result of separate transactions

As discussed above, IFRS 13 provides extensive guidance on how the fair value of assets and liabilities should be established.

2.1.2 Examples of fair values and business combinations

Non-current assets

For non-financial assets, fair value is decided based on the highest and best use of the asset as determined by a market participant.



Worked example: Land

Anscome Co has acquired land in a business combination. The land is currently developed for industrial use as a site for a factory. The current use of land is presumed to be its highest and best use unless market or other factors suggest a different use. Nearby sites have recently been developed for residential use as sites for high-rise apartment buildings. On the basis of that development and recent zoning and other changes to facilitate that development, Anscome determines that the land currently used as a site for a factory could be developed as a site for residential use (ie for high-rise apartment buildings) because market participants would take into account the potential to develop the site for residential use when pricing the land.

Required

How would the highest and best use of the land be determined?

Solution

The highest and best use of the land would be determined by comparing both of the following:

(a) The value of the land as currently developed for industrial use (ie the land would be used in combination with other assets, such as the factory, or with other assets and liabilities)

(b) The value of the land as a vacant site for residential use, taking into account the costs of demolishing the factory and other costs (including the uncertainty about whether the entity would be able to convert the asset to the alternative use) necessary to convert the land to a vacant site (ie the land is to be used by market participants on a stand-alone basis)

The highest and best use of the land would be determined on the basis of the higher of those values.

Restructuring and future losses

An acquirer **should not recognise liabilities for future losses** or other costs expected to be incurred as a result of the business combination.

IFRS 3 (revised) explains that a plan to restructure a subsidiary following an acquisition is not a present obligation of the acquiree at the acquisition date. Neither does it meet the definition of a contingent liability.

Therefore, an acquirer **should not recognise a liability for a restructuring plan** as part of allocating the cost of the combination unless the subsidiary was already committed to the plan before the acquisition.

This **prevents creative accounting**. An acquirer cannot set up a provision for restructuring or future losses of a subsidiary and then release this to profit or loss in subsequent periods in order to reduce losses or smooth profits.

Contingent liabilities

Contingent liabilities of the acquiree are **recognised** in a business combination if their **fair value can be measured reliably**. A **contingent liability** must be recognised even if the outflow is not probable, provided there is a present obligation.

This is a departure from the normal rules in IAS 37 *Provisions, Contingent Liabilities and Contingent Assets*, under which contingent liabilities are not normally recognised, but only disclosed.

After their initial recognition, the acquirer should measure contingent liabilities that are recognised separately at the higher of:

(a) The amount that would be recognised in accordance with IAS 37

(b) The amount initially recognised

2.1.3 Intangible assets

The acquiree may have **intangible assets.** IFRS 3 states that these can be recognised separately from goodwill only if they are **identifiable**. An intangible asset is identifiable only if it:

(a) Is **separable**, ie capable of being separated or divided from the entity and sold, transferred, or exchanged, either individually or together with a related contract, asset or liability, or

(b) Arises from **contractual or other legal rights**

The problem with these principles is that they may exclude many intangible assets that are important to the acquirer. This renders this method unsuitable for the valuation of most established businesses, particularly those in the **service industry or industries** where intellectual capital may be a significant feature, as we discussed in Chapter 5.

Remember the business's intellectual capital will include:

- Patents, trademarks and copyrights
- Franchises and licensing agreements
- Research and development
- Brands
- Technology, management and consulting processes
- Know-how, education, vocational qualification
- Customer loyalty
- Distribution channels
- Management philosophy

Some of these will fulfil the IFRS 3 definition of intangible assets. Others will not, although they may be considered as separate valuable assets by the parties to the acquisition.

The valuation of brands, which may have a big influence on acquisition price, was also discussed in depth in Chapter 5.

2.1.4 Exceptions to the IFRS 13 principles

(a) **Deferred tax:** use IAS 12 values

(b) **Employee benefits:** use IAS 19 values

(c) **Indemnification assets:** measurement should be consistent with the measurement of the indemnified item, for example an employee benefit or a contingent liability

(d) **Reacquired rights**: value on the basis of the remaining contractual term of the related contract regardless of whether market participants would consider potential contractual renewals in determining its fair value

(e) **Share-based payment**: use IFRS 2 values

(f) **Assets held for sale**: use IFRS 5 values

2.1.5 Fair value adjustment calculations

There are two ways of achieving this when the new group is consolidated:

(a) The **subsidiary company** might **incorporate any necessary revaluations** in its own books of account. In this case, we can proceed directly to the consolidation, taking asset values and reserves figures straight from the subsidiary company's statement of financial position.

(b) The **revaluations** may be made as a **consolidation adjustment without being incorporated** in the subsidiary company's books. In this case, we must make the necessary adjustments to the subsidiary's statement of financial position as a working. Only then can we proceed to the consolidation.

2.2 Market relative model (the P/E ratio)

Remember the P/E ratio produces an earnings-based valuation of shares. This is done by deciding a suitable P/E ratio and multiplying this by the EPS for the shares which are being valued. The EPS could be a historical EPS or a prospective future EPS. For a given EPS figure, a higher P/E ratio will result in a higher price. A high P/E ratio may indicate:

(a) **Optimistic expectations**

EPS is expected to grow rapidly in the years to come, such that a high price is being paid for future profit prospects. Many small but successful and fast-growing companies are valued on the stock market on a high P/E ratio. Some stocks (for example, those of some internet companies in the late 1990s) have reached high valuations before making any profits at all, on the strength of expected future earnings.

(b) **Security of earnings**

A well-established low-risk company would be valued on a higher P/E ratio than a similar company whose earnings are subject to greater uncertainty.

(c) **Status**

If a quoted company (the predator) made a share-for-share takeover bid for an unquoted company (the target), it would normally expect its own shares to be valued on a higher P/E ratio than the target company's shares. A quoted company ought to be a lower-risk company, but in addition, there is an advantage in having shares which are quoted on a stock market as the shares can be readily sold. The P/E ratio of an unquoted company's shares might be around 50% to 60% of the P/E ratio of a similar public company with a full Stock Exchange listing (and perhaps 70% of that of a company whose shares are traded on stock markets for smaller companies, such as the UK's Alternative Investment Market).



Case example: P/E ratios

Some sample P/E ratios taken from the *Financial Times* on 13 June 2013:

Market indices	
FTSE 100	12.60
FTSE all-share	13.58
FTSE all-small	54.29
FTSE AIM	Negative
Industry sector averages (main market)	
Chemicals	21.59
Construction	38.38
Food producers	11.07
General retailers	15.66
Pharmaceutical & Biotech	16.27
Mobile Telecommunications	11.60

Worked example: Takeover offer price

Spider Ltd is considering the takeover of an unquoted company, Fly Ltd. Spider's shares are quoted on the Stock Exchange at a price of CU3.20 and since the most recent published EPS of the company is 20p, the company's P/E ratio is 16. Fly Ltd is a company with 100,000 shares and current earnings of CU50,000, 50p per share. How might Spider Ltd decide on an offer price?

Solution

The decision about the offer price is likely to be preceded by the estimation of a 'reasonable' P/E ratio in the light of the particular circumstances.

(a) If Fly Ltd is in the **same industry** as Spider Ltd, its P/E ratio ought to be lower because of its lower status as an unquoted company.

(b) If Fly Ltd is thought to be **growing fast** so that its EPS will rise rapidly in the years to come, the P/E ratio that should be used for the share valuation will be higher.

(c) If the acquisition of Fly Ltd would **contribute substantially to Spider's own profitability and growth**, or to any other strategic objective that Spider has, then Spider should be willing to offer a higher P/E ratio valuation in order to secure acceptance of the offer by Fly's shareholders.

Of course, the P/E ratio on which Spider bases its offer will probably be lower than the P/E ratio that Fly's shareholders think their shares ought to be valued on. Some haggling over the price might be necessary.

Spider might decide that Fly's shares ought to be valued on a P/E ratio of 60% × 16 = 9.6, that is, at 9.6 × 50p = CU4.80 each.

Fly's shareholders might reject this offer and suggest a valuation based on a P/E ratio of, say, 12.5, that is, 12.5 × 50p = CU6.25.

Spider's management might then come back with a revised offer, say valuation on a P/E ratio of 10.5, that is, 10.5 × 50p = CU5.25.

The haggling will go on until the negotiations either break down or succeed in arriving at an agreed price.

2.3 Free cash flow model

The procedure for valuing a target company on the basis of its predicted cash flow is similar to that used for investment appraisal.

Step 1 **Calculate the free cash flow**

The free cash flow to the firm is defined as:

FCF = EARNINGS BEFORE INTEREST AND TAXES (EBIT)

Less: TAX ON EBIT

Add back: NON CASH CHARGES

Less: CAPITAL EXPENDITURE

Less: NET WORKING CAPITAL INCREASES

Plus: NET WORKING CAPITAL DECREASES

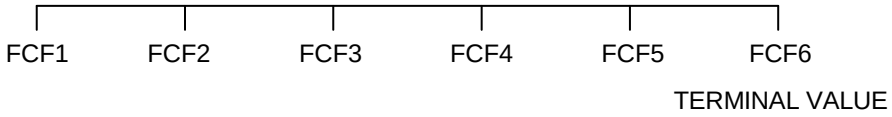
Plus: SALVAGE VALUES RECEIVED

Example

	CU
Earnings before interest and taxes (EBIT)	80,000
Remove taxes (1 – Tax rate, T)	× 76%
Operating income after taxes	60,800
Depreciation (non cash item)	14,000
Less: capital expenditure	(9,000)
Less: changes to working capital	(1,000)
Free cash flow	64,800

Step 2 **Forecast FCF and terminal value**

For a time horizon of six years the following values need to be estimated:



Step 3 **Calculate the weighted average cost of capital (WACC).**

The WACC is calculated using the cost of equity (k_e) and cost of debt (k_d).

$$WACC = k_e \times \frac{E}{E+D} + k_d \times \frac{D}{E+D}$$

where: D = the value of debt

E = the value of equity

(Note that k_d is the cost of debt **after** tax).

Step 4 **Discount free cash flow at WACC to obtain value of the firm.**

Step 5 **Calculate equity value**

Equity value = Value of the firm – Value of debt



Worked example: Calculating value per share

You have completed the following forecast of free cash flows for an eight year period, capturing the normal business cycle of Marathon Ltd.

Year	FCFF
	CUm
20X7	1,860
20X8	1,887.6
20X9	1,917.6
20Y0	1,951.2
20Y1	1,987.2
20Y3	2,043.6
20Y4	2,070
20Y2	2,016

Marathon has non-operating assets with an estimated present value of CU400 million. Based on the present value of future interest payments, the present value of its outstanding debt is CU3,000 million. Free cash flows are expected to grow at 3% beyond 20Y4. The WACC is assumed to be 12%. Marathon has 8,000 million shares in issue.

Requirement

What is Marathon's value per share?

Solution

Year	*FCFF(CUm)*	*PV @ 12%*	*Present value (CUm)*
20X7	1,860.0	0.893	1,660.98
20X8	1,887.6	0.797	1,504.42
20X9	1,917.6	0.712	1,365.33
20Y0	1,951.2	0.636	1,240.96
20Y1	1,987.2	0.567	1,126.74
20Y2	2,016.0	0.507	1,022.11
20Y3	2,043.6	0.452	923.71
20Y4	2,070.0	0.404	836.28
			9,680.00

	CUm
Total present value for forecast period (see above)	9,680
Terminal value = (CU2,070 × 1.03)/(0.12 – 0.03) × 0.404	9,571
Value of non-operating assets	400
Total value of Marathon	19,651
Less: Value of debt	(3,000)
Value of equity	16,651
Shares outstanding	8,000
Value per share	CU2.08



Interactive question 4: Valuing an acquisition using free cash flow model

[Difficulty level: Intermediate]

The management of Atrium, a company in the DIY industry, considers making a bid for Tetrion, a rival company. The current market price of Tetrion is $29 per share and a 20 per cent premium will persuade Tetrion shareholders to sell. In order to convince its shareholders, a valuation of Tetrion is undertaken. The following information is used.

Statement of financial position

	20X4	*20X3*	*Change*
	$	$	$
Cash	300	100	200
Receivables	2,500	1,500	1,000
Inventory	2,600	1,400	1,200
Property, plant & equipment	5,800	4,000	1,800
Accum depreciation	750	500	250
Net property, plant & equipment	5,050	3,500	1,550
Total assets	10,450	6,500	3,950
Payables	3,600	2,560	1,040
Long-term debt	2,000	2,000	–
Equity	4,850	1,940	2,910
Total liabilities and owners' equity	10,450	6,500	3,950

Statement of profit or loss

	20X4
	$
Sales	12,000
Cost of sales	3,500
Selling: General administrative	3,000
Depreciation	250
Total expense	6,750
Interest	100
Income before tax	5,150
Taxes (24%)	1,236
Profit for the year	3,914

Free cash flows

	20X4
Cash flows – Operations	$
Revenue	12,000
Cash expenses	(6,500)
Taxes	(1,236)
Total	4,264
Cash flows – Investments	
Working capital	1,360
Non-current assets	1,800
Total	3,160
Free cash flow	1,104

The following predictions are made by the management of Atrium for the next five years:

	20X5	*20X6*	*20X7*	*20X8*	*20X9*
	$	$	$	$	$
Free cash flows					
Sales	12,000	15,000	18,750	23,438	29,297
Operating costs excluding depreciation	6,500	8,125	10,156	12,696	15,869
EBDIT	5,500	6,875	8,594	10,742	13,428
Depreciation	250	300	360	432	519
EBIT	5,250	6,575	8,234	10,310	12,909
Less: tax on EBIT @ 24%	1,260	1,578	1,976	2,474	3,098
Plus depreciation	250	300	360	432	518
Less: capital expenditure	1,800	2,160	2,592	3,110	3,732
Less: additions to working capital	1,360	1,700	2,125	2,656	3,320
Free cash flow	1,080	1,437	1,901	2,502	3,277
Terminal value (3,277/0.12)					27,308
Total free cash flow	1,080	1,437	1,901	2,502	30,585

Requirement

If the WACC is 12% and there are 100 shares outstanding, what is the value of each share of Tetrion Ltd? At the current market price of Tetrion of $29 per share should the shareholders of Atrium agree to the acquisition of Tetrion?

See **Answer** at the end of this chapter.

2.4 EVA® approach

As we discussed above, EVA® is an estimate of the amount by which **earnings** exceed or fall short of the required minimum rate of return that shareholders and debt holders could get by investing in other securities of comparable risk. It can be relevant in valuing acquisitions. The present value of the company using EVA® is given by:

$$PV = C + \frac{EVA_1}{1+WACC} + \frac{EVA_2}{(1+WACC)^2} + \ldots$$

where C is the invested capital. The value of the company is equal to the value of the invested capital plus the present value of the economic profits from operations.

To arrive at the value of the equity as in the case of the free cash flow valuation, we need to subtract the value of debt from the value of the company. An example of how to calculate the value of a company using EVA® is shown below.

Worked example: Valuation: EVA approach

	Year 0	*Year 1*	*Year 2*	*Year 3*	*Year 4*	*Year 5*
Invested capital	2,000	1,600	1,200	800	400	–
NOPAT	–	88	160	400	440	200
Less: change in invested capital	(2,000)	400	400	400	400	400
Free cash flow	(2,000)	488	560	800	840	600
PV factor (WACC 10%)	1	0.91	0.83	0.75	0.68	0.62
PV of cash flow	(2,000)	444	465	600	571	372
Cumulative PV	(2,000)	(1,556)	(1,091)	(491)	80	452
NPV	452					
Alternative approach						
ROIC (NOPAT/previous year's invested capital)		4.4%	10%	33.3%	55%	50%
EVA = (ROIC – WACC) x capital		(112)	–	280	360	160
PV factor	1	0.91	0.83	0.75	0.68	0.62
PV of EVA	–	(102)	–	210	245	99
Cumulative PV	–	(102)	(102)	108	353	452
Total PV of EVA 452						

The EVA approach focuses on long-term net present value. By including a financing element, it brings home to managers the costs of capital used, thus emphasising the importance of careful investment and control of working capital. However, the EVA approach suffers from the usual problems of being based on historical accounting figures that can be distorted.

2.5 Adjusted present value approach

Under this method, cash flows of the company are discounted using the ungeared cost of equity, with the present value of the tax shield being added back. If APV is positive then the acquisition should be undertaken.

Worked example: APV of acquisition

Suppose that the management of XERON is considering the acquisition of NERON, an unquoted company. The owners of NERON want $500m for the business. The analysis of the prospects of NERON by XERON is reflected in the following profit or loss statements and statements of financial position.

PROFORMA PROFIT OR LOSS STATEMENTS AND STATEMENTS OF FINANCIAL POSITION

	Current						*Years*
	20X7	*20X8*	*20X9*	*20Y0*	*20Y1*	*20Y2*	*20Y3*
	$m	$m	$m	$m	$m	$m	$m
Sales	620.00	682.00	750.20	825.22	907.74	998.52	998.52
Less: cost of goods sold	(410.00)	(441.00)	(475.10)	(512.61)	(553.87)	(599.26)	(599.26)
Gross profit	210.00	241.00	275.10	312.61	353.87	399.26	399.26
Operating expenses	(133.00)	(144.30)	(156.53)	(169.78)	(184.16)	(199.78)	(199.78)
EBIT	77.00	96.70	118.57	142.83	169.71	199.48	199.48
Less: Interest expense	–	(32.00)	(26.88)	(20.19)	(11.73)	(1.27)	–
Earnings before tax	77.00	64.70	91.69	122.64	157.98	198.21	199.48
Less: taxes	(18.48)	(15.53)	(22.01)	(29.43)	(37.92)	(47.57)	(47.88)
Net income	58.52	49.17	69.68	93.21	120.06	150.64	151.60
Current assets	100.00	100.00	100.00	100.00	100.00	242.90	404.55
Non-current assets	400.00	378.00	354.00	328.00	300.00	270.00	238.00
Total assets	500.00	478.00	454.00	428.00	400.00	512.90	642.55
Debt	400.00	335.95	252.35	146.63	15.94	–	–
Equity	100.00	142.05	201.65	281.37	384.06	512.90	642.55
Total assets	500.00	478.00	454.00	428.00	400.00	512.90	642.55

Assumptions:

Growth rate for sales (until 20Y3)	10%
Depreciation expense (20X7)	$40m
Accounting depreciation equals tax depreciation	
Interest rate on debt	8%
Tax rate	24%
All debt is interest bearing	
Capital expenditures/year	$20m
All available cash flow is applied to repaying debt until repaid in full	
Ungeared beta	1.1
Terminal value reflects level perpetuity equal to 20Y3 cash flow	
Risk free rate	6.0%
Market risk premium	7.5%

Requirement

Calculate the APV of NERON and determine on the basis of your answer whether XERON should proceed with the acquisition.

Solution

Step 1 Calculation of firm free cash flow

	20X7	*20X8*	*20X9*	*20Y0*	*20Y1*	*20Y2*	*20Y3*
	$m	$m	$m	$m	$m	$m	$m
EBIT(1 – Tax rate)	58.52	73.49	90.11	108.55	128.98	151.60	151.60
Plus: Depreciation expense	40.00	42.00	44.00	46.00	48.00	50.00	52.00
Less: CAPEX	(20.00)	(20.00)	(20.00)	(20.00)	(20.00)	(20.00)	(20.00)
Firm free cash flow	78.52	95.49	114.11	134.55	156.98	181.60	183.60

Step 2 **Calculation of APV**

The firm free cash flow is discounted at the ungeared cost of equity capital which is:

$k_{eu} = r_f + ß_a (r_m – r_f) = 6 + 1.1 \times 7.5 = 14.25\%$

The tax shield is discounted at the gross cost of debt (8%).

	20X7	*20X8*	*20Y9*	*20Y0*	*20Y1*	*20Y2*	*20Y3*
	$m	$m	$m	$m	$m	$m	$m
Interest tax savings	–	7.68	6.45	4.85	2.82	0.31	–
Discount factor at 8%	–	0.926	0.857	0.794	0.735	0.681	–
Present value	–	7.11	5.53	3.85	2.07	0.21	–

Step 3 **Calculation of terminal value**

The terminal value under the no-growth assumption is:

$183.60/0.1425 = $1,288.42m

The present value of the terminal value is:

$1,288.42m/ $(1.1425)^6$ = $579.32m

	20X7	*20X8*	*20X9*	*20Y0*	*20Y1*	*20Y2*	*20Y3*	*Total*
	$m	$m	$m	$m	$m	$m	$m	$m
Firm free cash flows		95.49	114.11	134.55	156.98	181.60	183.60	
Discount factor at 14.25%		0.875	0.766	0.671	0.587	0.514	0.450	
PV of free cash flows		83.55	87.41	90.28	92.15	93.34	82.62	529.35
PV of interest tax savings		7.11	5.53	3.85	2.07	0.21	nil	18.77
Terminal value								579.32
Total firm value								1,127.44
Less: debt value								400.00
Equity value								727.44

The APV is therefore, APV = $727.44 million – $500 million = $227.44 million

The managers of XERON Ltd should proceed with the acquisition.

2.6 Synergy

The existence of synergies may increase shareholder value in an acquisition. The identification, quantification and announcement of these synergies are essential as shareholders of the companies involved in the acquisition process may need persuasion to back the merger.

The two examples below show how estimates of synergies may be announced.



Case example: NYSE Euronext

In 2007, when NYSE's $10 billion takeover offer for Euronext was announced, Euronext said that uniting the two markets would generate cost and revenue synergies of $375 million. Of these $250 million were expected to result from rationalising the combined group's IT platforms (for example, by combining the companies' trading systems and consolidating their data centres). NYSE executives also said that they expected NYSE Euronext to be able to create an additional $100 million in revenue per year from fees charged to list and trade securities during a 22-hour-long trading day spanning both side of the Atlantic.

In relation to cost synergies, NYSE's Chief Financial Official stated that the cost reductions resulting from the transaction would help increase net income for the combined group by 14% in 2007 (the year the takeover was completed).

Case example: Merger of Informa and Taylor & Francis

In 2004, Informa and Taylor & Francis merged to create T&F Informa, proclaiming that the enlarged entity would be a 'new international force in the provision of specialist information' through its combined publishing and events businesses.

T & F Informa would be able to provide high value specialist information to Informa and Taylor & Francis' overlapping academic, scientific and commercial customer communities. The merged entity's geographic, customer and product presence and enhanced financial strength would enable it to drive both organic and acquisition-led growth.

The merged entity was expected to benefit from:

- The existing strong momentum and prospects for both Informa and Taylor & Francis
- Enhanced revenue opportunities arising from new products and brand extensions across the enlarged group's markets
- The cross-over demand for information in the academic, scientific, professional and commercial communities
- A well balanced and robust portfolio of assets combining operationally geared professional and commercial operations with resilient and stable academic publishing
- Increased operational and financial scale and geographic reach
- Annual pre-tax cost savings of at least CU4.6 million

The one-off cost of achieving these savings is estimated at CU1.3 million.

2.6.1 Revenue synergy

Revenue synergy exists when the acquisition of the target company will result in higher revenues for the acquiring company, higher return on equity or a longer period of growth. Revenue synergies arise from:

(a) Increased market power
(b) Marketing synergies
(c) Strategic synergies

Revenue synergies are more difficult to quantify relative to financial and cost synergies. When companies merge, cost synergies are relatively easy to assess pre-deal and to implement post-deal. But revenue synergies are more difficult. It is hard to be sure how customers will react to the new situation (in financial services mergers, massive customer defection is quite common), whether customers will actually buy the new, expanded 'total systems capabilities' and how much of the company's declared cost savings they will demand in price concessions. Nevertheless, revenue synergies must be identified and delivered. The stock markets will be content with cost synergies for the first year after the deal, but thereafter they will want to see growth. Customer Relationship Management and Product Technology Management are the two core business processes that will enable the delivery of revenue.

2.6.2 Cost synergy

A cost synergy results primarily from the existence of economies of scale. As the level of operation increases, the marginal cost falls and this will be manifested in greater operating margins for the combined entity. The resulting savings from economies of scale are normally estimated to be substantial.

2.6.3 Financial synergy

Diversification

Acquiring another firm as a way of reducing risk cannot create wealth for two publicly traded firms, with diversified stockholders, but it could create wealth for private firms or closely held publicly traded firms. A takeover, motivated only by diversification considerations, has no effect on the combined value of the two firms involved in the takeover. The value of the combined firms will always be the sum of the values of the independent firms. In the case of private firms or closely held firms, where the owners may not be diversified personally, there might be a potential value gain from diversification.

Cash slack

When a firm with significant excess cash acquires a firm with great projects but insufficient capital, the combination can create value. Managers may reject profitable investment opportunities if they have to raise new capital to finance them. It may therefore make sense for a company with excess cash and no investment opportunities to take over a cash-poor firm with good investment opportunities, or vice versa. The additional value of combining these two firms lies in the present value of the projects that would not have been taken if they had stayed apart, but can now be taken because of the availability of cash.



Case example: Softscape Inc

Assume that Softscape Inc, a hypothetical company, has a severe capital rationing problem which results in approximately $500 million of investments, with a cumulative net present value of $100 million, being rejected. IBM has far more cash than promising projects, and has accumulated $4 billion in cash that it is trying to invest. It is under pressure to return the cash to the owners. If IBM takes over Softscape Inc, it can be argued that the value of the combined firm will increase by the synergy benefit of $100 million, which is the net present value of the projects possessed by the latter that can now be taken with the excess cash from the former.

Tax benefits

The tax paid by two firms combined together may be lower than the taxes paid by them as individual firms. If one of the firms has tax deductions that it cannot use because it is losing money, while the other firm has income on which it pays significant taxes, the combining of the two firms can lead to tax benefits that can be shared by the two firms. The value of this synergy is the present value of the tax savings that accrue because of this merger. The assets of the firm being taken over can be written up to reflect new market value, in some forms of mergers, leading to higher tax savings from depreciation in future years.

Debt capacity

By combining two firms, each of which has little or no capacity to carry debt, it is possible to create a firm that may have the capacity to borrow money and create value. Diversification will lead to an increase in debt capacity and an increase in the value of the firm. It has to be weighed against the immediate transfer of wealth that occurs to existing bondholders in both firms from the stockholders. When two firms in different businesses merge, the combined firm will have less variable earnings and may be able to borrow more (have a higher debt ratio) than the individual firms.

2.7 Corporate reporting issues

Acquisitions and mergers are subject to the requirements of IFRS 3 *Business Combinations* and IFRS 10 *Consolidated Financial Statements.* These standards impose a number of significant requirements upon the parties involved that may influence their plans.

2.7.1 Nature of acquisition

Remember that IFRS 3 only applies to the acquisition of **businesses.**



Definition

Business: An integrated set of activities and assets capable of being conducted and managed for the purpose of providing:

(a) A return in the form of dividends; or
(b) Lower costs or other economic benefits directly to investors or other owners

A business generally consists of inputs, processes applied to those inputs, and resulting outputs that are, or will be, used to generate revenues. If goodwill is present in a transferred set of activities and assets, the transferred set is presumed to be a business.

If it is just some assets, and perhaps liabilities, which are acquired, then the consideration is allocated according to other IFRS (eg IAS 16 in the case of property, plant or equipment) across what has been acquired; no goodwill should be recognised.

IFRS 3 requires that one of the combining entities must be identified as the **acquirer.** Identifying the acquirer requires the assessment of all rights, powers, facts and circumstances. In a reverse acquisition, for example, the legal acquirer (the entity issuing the shares) may come under the control of the legal acquiree. Under IFRS 3 the legal acquiree will be treated as the acquirer.

2.7.2 Acquiring control

IFRS 10 states that an investor controls an investee if and only if it has all of the following:

(i) **Power** over the investee (see below)

(ii) Exposure, or **rights, to variable returns** from its involvement with the investee (see below)

(iii) The **ability to use its power** over the investee to affect the amount of the investor's returns

(If there are changes to one or more of these three elements of control, then an investor should reassess whether it controls an investee.)

Power is defined as existing rights that give the current ability to direct the relevant activities of the investee.

Rights to variable returns may include rights to dividends, remuneration for servicing an investee's assets or liabilities or fees and exposure to loss from providing credit support.

In an appendix IFRS 10 discusses these criteria in detail. It states that rights that give an investor power include:

- Voting rights
- Rights of appointment and removal over key management personnel
- Rights of appointment and removal over another entity that directs activities
- Rights to direct the investee to enter into or veto any changes in transactions for the investor's rights
- Other rights such as decision-making rights in a contract that give the ability to direct the relevant activities

Other possible indications of the investor's power include:

- The investee's key management personnel are current or previous employees of the investor.
- The investee's operations are dependent on the investor, for example for funding, guarantees, critical services, technology, supplies or raw materials. Other examples of dependence include control of assets such as licences or trademarks that are critical to the investee's operations or dependence on the investor for key management personnel.
- A significant portion of the investee's activities involve or are conducted on behalf of the investor.
- The investor's exposure or rights to returns from its involvement with the investee is disproportionately greater than its voting or other similar rights.

Returns may be variable for the purposes of IFRS 10 even if they are classified as fixed for other purposes. An investor may hold a bond with fixed interest payments, but those payments are variable for IFRS 10 purposes as they are subject to default risk and they expose the investor to the credit risk of the issuer of the bond. Fixed management performance fees are also treated as variable for IFRS 10 purposes as they expose the investor to the credit risk of the issuer of the bond.

2.7.3 Fair value requirements

We discussed in the context of asset-based valuations above the basic requirement of IFRS 3 that the identifiable assets and liabilities acquired are measured at their acquisition-date fair value. We have seen that the requirement to account for a business combination using fair value measurement will also mean that the acquisition is subject to the requirements of IFRS 13 *Fair value measurement*.

2.7.4 Valuation of previously-held stake

Sometimes an acquirer will make an acquisition, having previously held an equity interest in the company being acquired. If this happens, the previously held interest will be remeasured to fair value immediately before control is achieved and the gain or loss taken to profit or loss.

2.7.5 Valuation of non-controlling interest

Definition

Non-controlling interest: The equity in a subsidiary not attributable, directly or indirectly, to a parent.

The figure for **non-controlling interests in the statement of financial position** will be the appropriate proportion of the translated share capital and reserves of the subsidiary plus, where the NCI is valued at fair value, its share of goodwill translated at the closing rate. In addition, it is necessary to show any dividend declared but not yet paid to the NCI at the reporting date as a liability. The dividend payable should be translated at the closing rate for this purpose.

The **non-controlling interest in profit or loss** will be the appropriate proportion of profits available for distribution. If the functional currency of the subsidiary is the same as that of the parent, this profit will be arrived at after charging or crediting the exchange differences.

The **non-controlling interest in total comprehensive income** includes the NCI proportion of the exchange gain or loss on translation of the subsidiary financial statements. It does not, however, include any of the exchange gain or loss arising on the retranslation of goodwill.

2.7.6 Fair value of consideration

Part of the consideration for an acquisition may not pass to the acquiree's shareholders at the acquisition date but be deferred until a later date.

Deferred consideration should be measured at its **fair value at the acquisition date.** The fair value depends on the form of the deferred consideration.

Where the deferred consideration is in the form of **equity shares**:

- Its fair value should be measured at the acquisition date
- The deferred amount should be recognised as part of equity, under a separate heading such as 'shares to be issued'

Where the deferred consideration is payable in cash:

A **liability** should be recognised at the **present value** of the amount payable.

Definition

Contingent consideration: An obligation of the acquirer to transfer additional consideration to the former owners of the acquiree if specified future events occur or conditions are met.

The acquiree's shareholders may have a different view from the acquirer as to the value of the acquiree. They may have different views about the likely future profitability of the acquiree's business.

In such cases it is often agreed that additional consideration may become due, depending on how the future turns out. Such consideration is 'contingent' on those future events/conditions.

Contingent consideration agreements result in the acquirer being under a legal obligation at the acquisition date to transfer additional consideration, should the future turn out in specified ways. IFRS 3 requires contingent consideration to be recognised as part of the consideration transferred and measured at its fair value at the acquisition date.

2.7.7 Goodwill on acquisition

IFRS 3 requires goodwill acquired in a business combination (or a gain on a bargain purchase) to be measured as:

	CU
Consideration transferred: Fair value of assets given, liabilities assumed and equity instruments issued, including contingent amounts	X
Non-controlling interest at the acquisition date	X
	X
Less total fair value of net assets of acquiree	(X)
Goodwill/(gain from a bargain purchase)	X/(X)

This calculation includes the non-controlling interest and is therefore calculated based on the whole net assets of the acquiree.

Under IFRS 3 the acquirer is required to include a qualitative description of the factors that make up goodwill, such as expected synergies from combining operations or intangible assets that do not qualify for separate recognition.

2.8 Accounting policies and pensions

2.8.1 Accounting policies

Accounting policies can have a significant impact on the valuation of acquisitions. They can either work to inflate or depress the share price. **Optimistic accounting policies, valuing assets generously, bringing forward revenue recognition and delaying provisions** may inflate the company position and share price. On the other hand, **accelerating expenses or making very conservative estimates** of future earnings may depress share prices. There may be agency issues with both approaches. Directors who wish to retain their own jobs may attempt to boost earnings, and hence share prices to deter takeovers. Alternatively, directors who feel they can benefit if a takeover occurs may be tempted to depress a company's market valuation, even though shareholders may lose out as a result.

2.8.2 Pensions

In Chapter 4 we raised the possibility that concerns over pension liabilities may impact upon strategic decisions, and this includes acting as a deterrent to takeover. A pension parachute is a type of 'poison pill', preventing the acquiring firm in a hostile takeover from using surplus cash in the pension fund to finance the takeover. The arrangement ensures that the fund's assets remain the property of its participants.

A large deficit in a defined benefit pension fund can also be a deterrent in a merger or acquisition because of the risks involved. Under UK pension regulations, for example, employers operating schemes that have deficits must agree a plan with the scheme's trustees to pay off the deficit, generally by making extra payments. The aim normally was to clear the deficit within 10 years, although the UK pensions regulator has indicated that more flexibility will be allowed during the current recession. The requirement for three yearly full valuations of pension schemes, taking into account new actuarial assumptions, can cause companies to reappraise their plans.

A study by Cocco and Volpin published in April 2012 did not find clear evidence of whether or not markets were able to correctly price companies with defined benefit pension plans. What was important was investor uncertainty about the value of liabilities, as the deficit in pension plans was difficult to determine, company insiders had better information than external investors and managers might also manipulate the assumptions used for the valuation of scheme assets and liabilities.



Case example: British Airways

British Airways (BA) and Spanish airline Iberia agreed to merge in 2010 after having had discussions for some time. There were a number of positive strategic reasons for the merger, such as spreading the cost base and competing more effectively with other European airlines. The two were also a good match because they had few overlapping routes.

The merger had however been delayed because of problems with BA's pension funds. Its two final salary schemes had a combined deficit of CU3.7bn in 2010. The schemes were a problem despite having been closed to new members for many years – one since 2003 and the other since 1984. The larger NAPS scheme, which closed in 2003, had the bigger deficit of over CU2bn, but still had staff contributing to it as well as pensioners. In 2007 the scheme became less generous to contributing staff, but poor investment returns and increases in pensioners' longevity outweighed the impact of the tougher conditions. In 2010 BA agreed new plans with unions to increase pension contributions in order to reduce the deficit.

2.9 Due diligence

We covered due diligence in the context of acquisitions generally in Chapter 2. Here we focus on the financial and tax aspects.

Due diligence will attempt to achieve the following:

- Confirm the accuracy of the information and assumptions on which a bid is based
- Provide the bidder with an independent assessment and review of the target business

- Identify and quantify areas of commercial and financial risk
- Give assurance to providers of finance
- Place the bidder in a better position for determining the value of the target company

The precise aims will, however, depend upon the types of due diligence being carried out.

2.9.1 Financial due diligence

Financial due diligence is a review of the target company's **financial position, financial risk and projections**. It differs from a statutory audit in a number of ways:

- Its nature, duties, powers, and responsibilities are normally determined **by contract or financial regulation** rather than by statute.
- Its purposes are **more specific** to an individual transaction and to particular user groups.
- There is normally a specific focus on **risk and valuation**.
- Its nature and scope is **more variable from transaction to transaction**, as circumstances dictate, than a statutory audit.
- The information being reviewed is likely to be different and **more future orientated**.
- The **timescale available is likely to be much tighter** than for most statutory audits.

The information which is subject to financial due diligence is likely to include the following:

- Financial statements
- Management accounts
- Projections
- Assumptions underlying projections
- Detailed operating data
- Working capital analysis
- Major contracts by product line
- Actual and potential liabilities
- Detailed asset registers with current sale value/replacement cost
- Debt/lease agreements
- Current/recent litigation
- Property and other capital commitments

2.9.2 Tax due diligence

Information must be provided to allow the potential purchaser to form an assessment of the **tax risks and benefits** associated with the company to be acquired. Purchasers will wish to assess the robustness of tax assets, and gain comfort about the position in relation to potential liabilities (including a possible latent gain on disposal due to the low base cost).

3 Unquoted companies and start-ups



Section overview

- While it is possible to value quoted companies given the availability of vast quantities of information, unquoted companies are more difficult to value.
- Shares are not quoted on the Stock Exchange, therefore the companies themselves have to be valued before the share price can be determined.
- Share price volatilities have to be determined before any share-based payments (such as share option schemes) can be valued.
- The size of the holding may affect the control of the company and this might have a significant effect on the valuation.
- Start-ups can be valued using the models we have previously described although there may be problems related to the uncertainties surrounding forecast figures used.

3.1 Why value unquoted shares?

Unquoted shares are valued for all sorts of purposes, for example:

- To sell the company
- As part of a divorce settlement
- For taxation purposes
- To raise capital from investors

The important thing to note is that as soon as you change the purpose of the valuation you will change the share price. Shares are valued on different bases for different purposes; there are many sources of information on which share values can be based.

3.2 How do we value unquoted shares?

The valuation of unquoted shares is not an exact science and there may be a range of possible values.

When trying to value an unquoted company's shares, one of the most frequent errors is to assume that this exercise can be conducted without taking into account the value of the entire enterprise. Sole reliance on such measures as the P/E ratio for comparable quoted companies can result in valuable information being omitted from the valuation process, leading to potential under- or over-valuation.

When unquoted shares are valued for tax purposes, the valuation method used tends to be – with a few exceptions the estimated price that the shares would achieve if sold on the open market.

Various Court decisions over the years have given guidance on how an imaginary market sale can be used to arrive at a value. For this purpose, the valuer should consider:

- The sustainable future reported earnings after tax
- The company's performance as shown in its financial statements, and any other information normally available to its shareholders
- The commercial and economic background at the valuation date
- The size of the shareholding and the shareholders' rights
- The company's dividend policy
- Appropriate yields and price/earnings ratios
- The value of the company's assets
- Gearing levels
- The existence of certain rights and obligations attached to preference shares, convertible bonds
- Any other relevant factors

3.3 Valuing majority shareholdings

The valuation of a majority shareholding must reflect the extent to which a potential buyer of the shares can or cannot control – or influence – the company. There are many degrees of control which are usually determined by the voting power of a particular block of shares. These range from full control (including the power to liquidate the company) to a small or non-existent influence over the company's affairs.

Unless there are exceptional circumstances, if the degree of control is less than complete, the value of the shares will be less than a pro-rata proportion of the overall value of the company.

In order to value a majority shareholding, consider the following:

- The rights and prospects attached to the shareholding – for example, the right to appoint directors
- Whether restrictions apply to, for example, sale of shares or receipt of dividend
- Whether control is in excess of 75%, meaning that the articles of association can be changed by the holder. A 75% holding also gives the holder the right to wind up the company
- Whether minority shareholders have contractual rights that would be expensive for majority shareholders to buy out
- Whether the minority shareholdings are concentrated on one individual or dispersed

When a majority shareholding is valued, there is a control premium attached to it, meaning that the overall value will be in excess of the pro rata value to the value of the company as a whole. The extent of the premium depends on the answers to the above factors. As a crude guidance, the following table gives you a starting point for consideration:

Shareholding	**Discount on 100% company value**
75% +	Nil to 5%
> 50% but < 75%	10 – 15%
50%	20 – 30% (but a much greater discount if another party holds the other 50%)

3.4 Valuation of minority shareholdings

While there are few differences between the value of a majority holding in a private company and that of a quoted company, there can be major differences between the values of minority holdings. This depends very much on the nature of the unquoted company.

An article in *Finance Week* on 27 March 2007 entitled 'Valuing your unquoted company's shares' identified several factors that should be considered when valuing minority shareholdings in an unquoted company:

- **Marketability** – this may be the only difference between the quoted company being used for comparison purposes and the unquoted company.
- **Size** – private companies are often much smaller than quoted companies. Any size adjustment to valuations depends very much on specific circumstances. Although the growth prospects of an unquoted company may not be as attractive as those of a quoted company, smaller organisations operating in a niche market may be more dynamic and therefore the adjustment in valuation may be positive rather than negative.
- **Expectations of cash returns** – the marketability factor of unquoted companies is affected by the likelihood of minority shareholders receiving a future cash return, either in the form of dividends or due to the flotation of the company. Quoted companies' shareholders are more likely to receive cash returns by way of dividends or share buybacks. If there are little or no prospects of cash returns in the near future, there will be little or no value attached to minority shareholdings unless some significant influence can be exerted on the directors or other shareholders.

Rather than using DCF analysis and market comparability models for valuation purposes, it is more appropriate to value minority shareholdings of unquoted companies using the present value of anticipated dividend streams.

Consideration should also be given, however, to any contractual protection or rights pertaining to minority shareholdings (eg through the Articles of Association or service contracts). Similarly the question of which parties, and how many hold the majority shares may be a key issue in valuing any tranche of minority shares. These circumstances would need to be considered on a case by case basis.

3.5 High growth start-ups

The valuation of **start-ups** presents a number of challenges for the methods we have considered so far, due to their unique characteristics which are summarised below:

- Most start-ups typically have no track record
- Ongoing losses
- Few revenues, untested products
- Unknown market acceptance, unknown product demand
- Unknown competition (in infant industries)
- Unknown cost structures, unknown implementation timing
- High development or infrastructure costs
- Inexperienced management

3.5.1 Projecting economic performance

All valuation methods require reasonable projections to be made with regard to the key drivers of the business. The following steps should be undertaken with respect to the valuation of a high-growth start up company.

Identifying the drivers

Any market-based approach or discounted cash flow analysis depends on the reasonableness of financial projections. Projections must be analysed in light of the market potential, resources of the business, the management team, financial characteristics of the guideline public companies, and other factors.

Period of projection

One characteristic of high growth start-ups is that in order to survive they need to grow very quickly. Start-ups that do grow quickly usually have operating expenses and investment needs in excess of their revenues in the first years and experience losses until the growth starts to slow down (and the resource needs begin to stabilise). This means that long-term projections, all the way out to the time when the business has sustainable positive operating margins and cash flows, need to be prepared. These projections will depend on the assumptions made about growth. However, rarely is the forecast period less than seven years.

Forecasting growth

For most high growth start-ups the proportion of profits retained will be high as the company needs to achieve a high growth rate through investing in research and development, expansion of distribution and manufacturing capacity, human resource development (to attract new talent), and development of new markets, products, or techniques.

3.5.2 Valuation methods

Once growth rates have been estimated, the next step is to consider which is the most appropriate valuation approach.

Asset-based method

The asset-based method is not appropriate because the value of capital in terms of tangible assets may not be high. Most of the investment of a start-up is in people, marketing and/or intellectual rights that are treated as expenses rather than as capital.

Market-based methods

The market approach to valuation also presents special problems for start-ups. This valuation process involves finding other companies, usually sold through private transactions, that are at a similar stage of development and that focus on existing or proposed products similar to those of the company being valued. Complicating factors include comparability problems, differences in fair market value from value paid by strategic acquirers, lack of disclosed information, and the fact that there are usually no earnings with which to calculate price-to-earnings ratios (in this case price-to-revenue ratios may be helpful).

Discounted cash flows

Using the DCF methodology, free cash flows are first projected and are then discounted to the present using a risk-adjusted cost of capital. For example, one could use the constant growth model which specifies that:

$$V = \frac{FCF}{r - g}$$

where:

r = required rate of return

g = growth rate of earnings

Our discussion of the high growth start-up indicates that the growth rates of revenues and costs may vary. Since FCF = Revenue – Costs = R – C, the value of company will be given by:

$$V = \frac{R - C}{r - g}$$

Now assuming that the growth rate of revenues g_R is different from the growth rate of costs g_C:

$$V = \frac{R}{r - g_R} - \frac{C}{r - g_C}$$

Worked example: Valuing a start-up

QuickLeg is an internet legal services provider which next year expects revenue of CU100m and costs of CU500m. The revenues of the firm are expected to rise by 21% every year but costs will remain at the same level. The required rate of return is assumed to 22%. What is the value of QuickLeg?

Solution

$$V = \frac{\text{cu}100\text{m}}{0.22-0.21} - \frac{\text{cu}500\text{m}}{0.22-0} = \text{CU7,727.27 million}$$

The above model seems to capture the phenomenon observed in many start-ups of high losses in the first year of operations with high values of the company.

A very important problem with the discounted flow approach is the sensitivity of the valuation model to the underlying assumptions. Changes in the growth rate induced by changes in demand, technology, and management of other causes can have a dramatic effect on the value of the start-up. For example, suppose that the growth rate of revenues falls from 21% to 20%. The value of the company now is:

$$V = \frac{\text{cu}100\text{m}}{0.22-0.20} - \frac{\text{cu}500\text{m}}{0.22-0} = \text{CU2,727.27 million}$$

that is, the company has lost CU5 billion.

Another problem with the discounted cash flow is that it cannot reflect managerial flexibilities and the strategic options to expand, delay, abandon, or switch investments at various decision points. The best way of incorporating uncertainty into the discounted cash flow analysis for a new company, technology, or product is to assign probabilities of success to each of the various possibilities.

3.5.3 Probabilistic valuation methods

In a probabilistic cash flow model, a number of scenarios are constructed for the drivers of value and derive a value under each scenario. The next step is to assign probabilities to each scenario and arrive at a weighted average value. The procedure to be followed is akin to the Monte Carlo methodology.

Interactive question 5: Valuation methods

[Difficulty level: Intermediate]

Black Raven Ltd is a prosperous private company whose owners are also the directors. The directors have decided to sell their business and have begun a search for organisations interested in its purchase. They have asked for your assessment of the price per ordinary share a purchaser might be expected to offer. Relevant information is as follows.

MOST RECENT STATEMENT OF FINANCIAL POSITION

	CU'000	CU'000	CU'000
Non-current assets (carrying amounts)			
Land and buildings			800
Plant and equipment			450
Motor vehicles			55
Patents			2
			1,307
Current assets			
Inventory		250	
Receivables		125	
Cash		8	
		383	

	CU'000	CU'000	CU'000
Current liabilities			
Payables	180		
Taxation	50		
		230	
			153
			1,460
Long-term liability			
Loan secured on property			400
			1,060
Share capital (300,000 ordinary shares of CU1)			300
Reserves			760
			1,060

The profits after tax and interest but before dividends over the last five years have been as follows:

Year	CU
1	90,000
2	80,000
3	105,000
4	90,000
5 (most recent)	100,000

The company's five-year plan forecasts an after-tax profit of CU100,000 for the next 12 months, with an increase of 4% a year over each of the next four years. The annual dividend has been CU45,000 for the last six years.

As part of their preparations to sell the company, the directors of Black Raven Ltd have had the non-current assets revalued by an independent expert, with the following results:

	CU
Land and buildings	1,075,000
Plant and equipment	480,000
Motor vehicles	45,000

The gross dividend yields and P/E ratios of three quoted companies in the same industry as Black Raven Ltd over the last three years have been as follows:

	Albatross Ltd		*Bullfinch Ltd*		*Crow Ltd*	
	Div. yield	*P/E ratio*	*Div. yield*	*P/E ratio*	*Div. yield*	*P/E ratio*
	%		%		%	
Recent year	12	8.5	11.0	9.0	13.0	10.0
Previous year	12	8.0	10.6	8.5	12.6	9.5
Three years ago	12	8.5	9.3	8.0	12.4	9.0
Average	12	8.33	10.3	8.5	12.7	9.5

Large companies in the industry apply an after-tax cost of equity of about 18% to acquisition proposals when the investment is not backed by tangible assets, as opposed to a rate of only 14% on the net tangible assets.

Your assessment of the net cash flows after interest and tax which would accrue to a purchasing company, allowing for the capital expenditure required after the acquisition to achieve the company's target five-year plan, is as follows.

	CU
Year 1	120,000
Year 2	120,000
Year 3	140,000
Year 4	70,000
Year 5	120,000

Requirement

Use the information provided to suggest alternative valuations which prospective purchasers might make.

See **Answer** at the end of this chapter.

4 Valuation of debt



Section overview

- The basic idea behind debt valuation is that the value is the present value of all future cash flows to the investor (that is, interest plus capital redemption) discounted at the debt investor's required rate of return.
- Different types of debt (irredeemable, redeemable and convertible) are valued in different ways.

4.1 Notes on debt calculations

(a) Debt is usually quoted in CU100 nominal units, or blocks (euro loans are usually quoted in €1,000 blocks); always use CU100 nominal values as the basis to your calculations unless told otherwise.

(b) Debt can be quoted in % or as a value, eg 97% or CU97. Both mean that CU100 nominal value of debt is worth CU97 market value.

(c) Interest on debt is stated as a percentage of nominal value. This is known as the coupon rate. It is not the same as the redemption yield on debt or the cost of debt.

(d) Sometimes people quote an interest yield, defined as coupon/market price, but this is only a crude approximation unless the debt is irredeemable and there is no tax effect.

(e) Always use ex-interest prices in any calculations, unless the debt is specifically described as cum interest.

4.2 Irredeemable debt

For irredeemable debentures or loan stock, where the company will go on paying interest every year in perpetuity without ever having to redeem the loan, the valuation formula (ignoring taxation) is:

$$P_0 = \frac{i}{r_d}$$

where: P_0 = the market price of the stock ex interest, that is, excluding any interest payment that might soon be due

i = the annual interest payment on the stock

r_d = the return required by the loan stock investors

Irredeemable (undated) debt, paying annual after tax interest i (1 – T) in perpetuity, where P_0 is the ex-interest value:

$$P_0 = \frac{i(1-T)}{k_d}$$

where k_d is the after tax cost to the company.

4.3 Redeemable debt

The valuation of redeemable debt depends on future expected receipts. The market value is the discounted present value of future interest receivable, up to the year of redemption, **plus** the discounted present value of the redemption payment (ignoring tax).

Value of debt = (Interest earnings × Annuity factor) + (Redemption value × Discounted cash flow factor)



Worked example: Market value of debentures

Furry has in issue 12% debentures with par value CU100,000 and redemption value CU110,000 with interest payable quarterly. The redemption yield on the bonds is 8% annually and 2% quarterly. The debentures are redeemable on 30 June 20X4 and it is now 31 December 20X0.

Requirement

Calculate the market value of the debentures.

Solution

You need to use the redemption yield cost of debt as the discount rate, and remember to use an annuity factor for the interest. We are discounting over 14 periods using the quarterly discount rate (8%/4).

Period		*Cash flow*	*Discount factor*	*Present value*
		CU	2%	CU
1–14	Interest	3,000	12.11	36,330
14	Redemption	110,000	0.758	83,380
				119,710

Market value is CU119,710.



Interactive question 6: Value of redeemable debt [Difficulty level: Easy]

A company has issued some 9% debentures, which are redeemable at par in three years' time. Investors now require a redemption yield of 10%. What will be the current market value of each CU100 of debenture?

See **Answer** at the end of this chapter.

4.4 Convertible debt

When convertible loan notes are traded on a stock market, the minimum market price will be the price of straight loan notes with the same coupon rate of interest. If the market value falls to this minimum, it follows that the market attaches no value to the conversion rights.

The actual market price of convertible loan notes will depend on:

- The price of straight debt
- The current conversion value
- The length of time before conversion may take place
- The market's expectation as to future equity returns and the associated risk

If the conversion value rises above the straight debt value then the price of convertible loan notes will normally reflect this increase.

Conversion value = $P_0 (1 + g)^n R$

where: P_0 is the current ex-dividend ordinary share price

g is the expected annual growth of the ordinary share price

n is the number of years to conversion

R is the number of shares received on conversion

The current market value of a convertible bond where conversion is expected is the sum of the present values of the future interest payments and the present value of the bond's conversion value.



Worked example: Convertible debt

What is the value of a 9% convertible bond if it can be converted in five years' time into 35 ordinary shares or redeemed at par on the same date? An investor's required return is 10% and the current market price of the underlying share is CU2.50 which is expected to grow by 4% per annum.

Solution

Conversion value = $P_0 (1 + g)^n R = 2.50 \times 1.04^5 \times 35 = CU106.46$

Present value of CU9 interest per annum for five years at 10% = $9 \times 3.791 = CU34.12$

Present value of the conversion value = $106.46 \times 0.621 = CU66.11$

Current market value of convertible bond = $34.12 + 66.11 = CU100.23$

4.5 Floating rate debt

With floating rate debt, the coupon rate is reset at each payment date (or possibly even more regularly) to prevailing interest rates. The implication of this is that at a reset date the bond will be valued at par. In addition, the cash value of the next coupon has now been set. Though all subsequent coupons will still be reset at the next reset date if interest rates move, the next coupon will not be.

This resetting of the coupon at each payment date ensures that the price of floating rate debt is always close to par. Floating rate debt therefore safeguards the par value of the investment rather than showing great swings in value as interest rates fluctuate (as is demonstrated by normal bonds).

Coupon rates tend to be reset by reference to money market rates. As a result, pricing follows money market conventions, applying simple rates over periods less than one year.

To evaluate floating rate debt we have a choice of methods, specifically:

- First principles
- A more practical alternative

From **first principles,** floating rate debt can be evaluated using the relationship:

$$P_0 = \frac{i_1}{(1+k_d)} + \frac{i_2}{(1+k_d)^2} + \frac{i_3}{(1+k_d)^3} + \ldots + \frac{i_n + R}{(1+k_d)^n}$$

The difficulty with this approach is that the future coupon rates are not known at present.



Worked example: Floating rate debt

The current interest rate is at 10% and expected to remain at that level for the foreseeable future. A floating rate note (FRN) has just paid its most recent annual coupon, and future coupons have been reset to 10%. Calculate the current market value of the FRN.

Solution

$$P_0 = \frac{10}{1.10} + \frac{10}{1.10^2} + \frac{10}{1.10^3} + \ldots + \frac{110}{1.10^n} = £100.00$$

A more flexible alternative is to imagine that the debt may be sold at the next reset date at its par value. Though it is not necessary that the holder intends to sell at this date, it is always an open option and hence can validly be used to determine the current price. Based on this idea, the market value can be estimated as follows.

$$P_0 = \frac{\text{Next coupon} + \text{Par value}}{(1+rc)}$$

Where rc = rate for the period to the next coupon, ie $rc = r \times {}^{Days}/_{365}$ (assuming UK convention)

so more generally

$$P_0 = \frac{\text{Next coupon} + \text{Par value}}{1 + r \times {}^{Days}/_{365}}$$

where Days = time to the next coupon

Worked example: Floating rate debt 2

Calculate the current market value of the above floating rate debt, if:

- Interest rates stay at 10%
- Interest rates increase to 11% and are expected to remain at that level

Solution

Interest at 10%

$$\text{Price} = \frac{10+100}{1.10} = \text{CU}100.00$$

Interest at 11%

In this situation, the next coupon in one year's time will remain at CU10, its value determined at the last reset date. All further coupons will, however, be reset to CU11 at the next date (assuming no further interest rate changes), giving rise to a par value at that time. The current market value is therefore:

$$\text{Price} = \frac{10+100}{1.11} = \text{CU}99.10$$

Summary and Self-test

Summary

There are numerous ways in which companies (or component of companies) can be valued, including asset based and cash based measures.

Different circumstances demand different valuation measures – there is no particular method that applies in all situations.

Unquoted companies have the problem of limited information being available – a combination of DCF analysis and market comparability measures may have to be employed for majority shareholdings.

Minority shareholdings in unquoted companies may have little value if there are no dividend payments forthcoming in the future.

Self-test

Self-test question 1

Profed

Profed provides a tuition service to professional students. This includes courses of lectures provided on their own premises and provision of home study material. Most of the lecturers are qualified professionals with many years' experience in both their profession and tuition. Study materials are written and word processed in-house, but sent to an external printing company.

The business was started 15 years ago and now employs around 40 full-time lecturers, 10 authors and 20 support staff. Freelance lecturers and authors are employed in times of peak demand.

The shareholders of Profed mainly comprise the original founders of the business who would now like to realise their investment. In order to arrive at an estimate of what they believe the business is worth, they have identified a long-established quoted company, City Tutors, who have a similar business, although they also publish texts for external sale to universities, colleges and so on.

Summary financial statistics for the two companies for the most recent financial year are as follows:

	Profed	*City Tutors*
Issued shares (million)	4	10
Net asset values (CUm)	7.2	15
Earnings per share (pence)	35	20
Dividend per share (pence)	20	18
Debt: equity ratio	1:7	1:65
Share price (pence)		362
Expected rate of growth in earnings/dividends	9% pa	7.5% pa

Notes:

1 The net assets of Profed are the net book values of tangible non-current assets plus net working capital. However:

- A recent valuation of the buildings was CU1.5m above book value
- Inventory includes past editions of textbooks which have a realisable value of CU100,000 below their cost
- Due to a dispute with one of their clients, an additional allowance for bad debts of CU750,000 could prudently be made

2 Growth rates should be assumed to be constant per annum; Profed's earnings growth rate estimate was provided by the marketing manager, based on expected growth in sales adjusted by normal profit margins. City Tutors' growth rates were gleaned from press reports.

3 Profed uses a discount rate of 15% to appraise its investments, and has done for many years.

Requirements

(a) Compute a range of valuations for the business of Profed, using the information available and stating any assumptions made.

(b) Comment upon the strengths and weaknesses of the methods you used in (a) and their suitability for valuing Profed**.**

Self-test question 2

Wilkinson Ltd

Wilkinson Ltd has identified Chris Limited as a potential acquisition target. It has approached you as its financial adviser to ask for assistance in valuing the company. You have obtained the following information about Chris Limited:

STATEMENT OF CHANGES IN EQUITY FOR THE YEARS ENDED 31 DECEMBER

	20X5	*20X6*	*20X7*
	CU'000	CU'000	CU'000
Profit after tax	280	260	410
Dividends	(150)	(160)	(185)
Retained profit	130	100	225

STATEMENT OF FINANCIAL POSITION AS AT 31 DECEMBER

	20X5	*20X6*	*20X7*
	CU'000	CU'000	CU'000
Non-current assets	1,365	1,405	1,560
Working capital	810	870	940
	2,175	2,275	2,500
Share capital	100	100	100
Retained earnings	875	975	1,200
10% debentures 20Y2	1,200	1,200	1,200
	2,175	2,275	2,500

The non-current assets include an unused property which has a market value of CU100,000. The debentures pay a semi-annual coupon and are redeemable at the end of 20Y2. The gross redemption yield on 20Y2 gilts paying a similar level of coupon is 11%.

The P/E ratio for the quoted company sector in which Chris Limited's activities fall is around 15 times and the sector's gross dividend yield is around 11%. The β of the sector is around 0.8 and the return on the market is around 21%.

Requirements

Estimate the value of Chris Limited, using four different methods of valuation. Explain the rationale behind each valuation, when it would be useful and why each method gives a different value. Discuss the limitations of your analysis and what further information you would require to conduct a more informed valuation.

Self-test question 3

Cub

The following data relates to Cub

Profit or loss statement and dividend data

	20X1	*20X2*
	$m	$m
Sales	995	1,180
Pre-tax accounting profit	204	258
Taxation	49	62
Profit after tax	155	196
Dividends	50	60
Retained earnings	105	136

	20X1	*20X2*
	$m	$m
Non-current assets	370	480
Net current assets	400	500
	770	980
Financed by:		
Shareholders' funds	595	720
Medium and long-term bank loans	175	260
	770	980

Pre-tax accounting profit is taken after deducting the economic depreciation of the company's non-current assets (also the depreciation used for tax purposes).

Other relevant information

(a) Economic depreciation was $95 million in 20X1 and $105 million in 20X2.

(b) Interest expenses were $13 million in 20X1 and $18 million in 20X2.

(c) Other non-cash expenses were $32 million in 20X1 and $36 million in 20X2. (These should not be included in the EVA® calculation.)

(d) The tax rate in 20X1 and 20X2 was 24%.

(e) Cub had non-capitalised leases valued at $35 million in each year 20X0-20X2.

(f) The company's pre-tax cost of debt was estimated as 7% in 20X1 and 8% in 20X2.

(g) The company's cost of equity was estimated as 14% in 20X1 and 16% in 20X2.

(h) The target capital structure is 75% equity, 25% debt.

(i) Statement of financial position capital employed at the end of 20X0 was $695 million. There were no loans at that date.

Requirements

Estimate the EVA® for Cub for 20X1 and 20X2, stating any assumptions that you make and discussing what the calculations demonstrate about the performance of the company.

IAS 33, *Earnings Per Share*

- The objective of IAS 33 is to prescribe the principles determining and presenting earnings per share (EPS) to facilitate performance comparisons between different entities in the same reporting period and between different reporting periods for the same entity. IAS 33 sets out how to calculate both basic EPS and diluted EPS. The calculation of basic EPS is based on the weighted average number of ordinary shares outstanding during the period, while diluted EPS also includes dilutive potential ordinary shares (such as options and convertible instruments) provided they meet certain criteria.

Overview

IFRS 13, *Fair Value Measurement*

- Defines fair value as the price that would be received to sell as asset or would be paid to transfer a liability in an orderly transaction between market participants at the measurement date. IFRS 13 defines fair value on the basis of an 'exit price' notion and uses a 'fair value hierarchy' which results in a market-based measurement rather than an entity-specific one.

Overview

IFRS 3, *Business Combinations*

- Outlines the accounting when an acquirer obtains controls of a business through an acquisition or merger. These business combinations are accounting for using the 'acquisition method' which generally requires the assets acquired, and the liabilities assumed, to be measured at their fair values at the acquisition date.

Overview

IAS 37, *Provisions Contingent Liabilities and Contingent Assets*

- Outlines the accounting for provisions (liabilities of uncertain timing or amount), contingent assets (possible assets) and contingent liabilities (possible obligations or present obligations which are not probable or which cannot be measured reliably). Provisions are measured at the best estimate of the expenditure required to settle the present obligation. The objective of IAS 37 is to ensure that financial statements provide sufficient information to enable users to understand the nature, timing and amount of any provisions, contingent liabilities and contingent assets, but it is also underpinned by the key principle that a provision should only be recognised when a genuine liability exists.

Overview

IAS 12, *Income Taxes*

- Outlines a method of accounting for income taxes which recognises both the current tax consequences of transactions and events, and the future tax consequences of the future recovery of the carrying amount of an entity's assets or the future settlement of its liabilities. Differences between the carrying amount and the tax base of assets and liabilities are recognised, with limited exceptions, as deferred tax liabilities or deferred tax assets.

Overview

IAS 19, *Employee Benefits*

- Outlines the accounting requirements for employee benefits, including short-term benefits (eg wages and salaries; annual leave); post-employment benefits (eg retirement benefits); and termination benefits. The standard requires that the cost of providing employee benefits should be recognised in the period in which the benefit is earned by the employee, rather than when it is paid or payable. IAS 19 also outlines how each category of employee benefits is measured, and it provides detailed guidance about post-employment benefits.

Overview

IFRS 2, *Share-based Payments*

- The objective of IFRS 2 is to specify the financial reporting by an entity when it undertakes a share-based payment transaction. IFRS 2 requires an entity to recognise share-based payment transaction (such as shares granted, or share options) in its financial statement. This includes transactions with employees or other parties, to be settled in cash, other assets, or equity instruments of the entity. Overview

IFRS 5, *Non-current Assets Held for Sale and Discontinued Operations*

- Outlines the accounting required for non-current assets held for sale (or for distribution to owners). In general terms, assets (or disposal groups) held for sale are not depreciated, are measured at the lower of carrying amount and fair value less costs to sell, and are presently separately in the statement of financial position. Overview

IFRS 10, *Consolidated Financial Statements*

- Outlines the requirements for the preparation and presentation of consolidated financial statements, with entities being required to consolidate other entities they control. Overview

IAS 16, *Property, Plant and Equipment*

- Outlines the accounting treatment for most types of property, plant and equipment. The principal issues are the recognition of assets, the determination of their carrying amounts, and the depreciation charges and impairment losses to be recognised in relation to them. Overview

Answers to Interactive questions

Answer to Interactive question 1

k_e = 12% + 2% = 14% (0.14) D_0 = CU250,000

(a) $P_0 = \frac{D_0}{k_e} = \frac{\text{cu } 250,000}{0.14}$ = CU1,785,714

(b) $P_0 = \frac{D_0(1+g)}{k_e - g} = \frac{\text{cu } 250,000(1.04)}{0.14 - 0.04}$ = CU2,600,000 g = 4% or 0.04

Answer to Interactive question 2

(a) **Earnings**. Average earnings over the last five years have been CU67,200, and over the last four years CU71,500. There might appear to be some growth prospects, but estimates of future earnings are uncertain.

A low estimate of earnings in 20X5 would be, perhaps, CU71,500.

A high estimate of earnings might be CU75,000 or more. This solution will use the most recent earnings figure of CU75,000 as the high estimate.

(b) **P/E ratio**. A P/E ratio of 15 (Bumblebee's) would be much too high for Mayfly, because the growth of Mayfly's earnings is not as certain and Mayfly is an unquoted company.

On the other hand, Mayfly's expectations of earnings are probably better than those of Wasp. A suitable P/E ratio might be based on the industry's average of 10, but since Mayfly is an unquoted company and therefore more risky, a lower P/E ratio might be more appropriate; perhaps 60% to 70% of 10 = 6 or 7, or conceivably even as low as 50% of 10 = 5.

The valuation of Mayfly's shares might therefore range between:

high P/E ratio and high earnings: 7 × CU75,000 = CU525,000; and

low P/E ratio and low earnings: 5 × CU71,500 = CU357,500

Answer to Interactive question 3

The maximum price is one which would make the return from the total investment exactly 15% over five years, so that the NPV at 15% would be 0.

Year	*Cash flows ignoring purchase consideration* CU	*Discount factor (from tables)* 15%	*Present value* CU
0	(100,000)	1.000	(100,000)
1	(80,000)	0.870	(69,600)
2	60,000	0.756	45,360
3	100,000	0.658	65,800
4	150,000	0.572	85,800
5	150,000	0.497	74,550
Maximum purchase price			101,910

Answer to Interactive question 4

First we calculate the PV of the free cash flows over the five year planning horizon.

	20X5	*20X6*	*20X7*	*20X8*	*20X9*
	$	$	$	$	$
FCF	1,080	1,437	1,901	2,502	30,585
Discount factor at 12%	0.893	0.797	0.712	0.636	0.567
PV	964	1,145	1,354	1,591	17,342

Total PV = $22,396

	$
PV @ 12% (see above)	22,396
Less: debt	2,000
Equity value	20,396
Shares outstanding	100
Intrinsic value per share	$203.96
Market share price	$29.00
Price at which Tetrion shareholders will sell ($29.00 × 120%)	$34.80
Discount of selling price from value	83%

The shareholders of Atrium should buy Tetrion at the offered price.

Answer to Interactive question 5

Tutorial note:

This question provides comprehensive practice of valuation techniques. You need to make clear the basis of your calculations and the assumptions you are making (in (a) the assumption is that the purchaser will accept the valuation, in (b) that the last five years are an appropriate indicator and so on). Other important issues which this question raises include:

- Valuation (if any) of intangible assets
- Lack of likelihood that asset valuation basis would be used
- Adjustment to P/E ratios used in calculations because company is unquoted

Do not take all of the figures used in this answer as the only possibilities. You could for example have made adjustments to estimated earnings in (c) to allow for uncertainty, or used a different figure to 17% in (d).

(a) **Earnings-basis valuations**

If the purchaser believes that earnings over the last five years are an appropriate measure for valuation, we could take average earnings in these years, which were:

$$\frac{\text{cu } 465{,}000}{5} = \text{cu } 93{,}000$$

An appropriate P/E ratio for an earnings basis valuation might be the average of the three publicly quoted companies for the recent year. (A trend towards an increase in the P/E ratio over three years is assumed, and even though average earnings have been taken, the most recent year's P/E ratios are considered to be the only appropriate figures.)

	P/E ratio
Albatross Ltd	8.5
Bullfinch Ltd	9.0
Crow Ltd	10.0
Average	9.167 (i)
Reduce by about 40% to allow for unquoted status	5.5 (ii)

Share valuations on a past earnings basis are as follows:

	P/E ratio	*Earnings* CU'000	*Valuation* CU'000	*Number of shares*	*Value per share*
(i)	9.167	93	852.5	300,000	CU2.84
(ii)	5.5	93	511.5	300,000	CU1.71

Because of the unquoted status of Black Raven Ltd, purchasers would probably apply a lower P/E ratio, and an offer of about CU1.71 per share would be more likely than one of CU2.84.

Future earnings might be used. Forecast earnings based on the company's five year plan will be used.

		CU	
Expected earnings:	Year 1	100,000	
	Year 2	104,000	
	Year 3	108,160	
	Year 4	112,486	
	Year 5	116,986	
	Average	108,326.4	(say CU108,000)

A share valuation on an expected earnings basis would be as follows:

P/E ratio	*Average future earnings*	*Valuation*	*Value per share*
5.5	CU108,000	CU594,000	CU1.98

It is not clear whether the purchasing company would accept Black Raven's own estimates of earnings.

(b) **A dividend yield basis of valuation with no growth**

There seems to have been a general pattern of increase in dividend yields to shareholders in quoted companies. It is reasonable to suppose that investors in Black Raven would require at least the same yield.

An average yield for the recent year for the three quoted companies will be used. This is 12%. The only reliable dividend figure for Black Raven Ltd is CU45,000 a year gross, in spite of the expected increase in future earnings. A yield basis valuation would therefore be:

$$\frac{\text{CU}45,000}{12\%} = \text{CU}375,000 \text{ or CU}1.25 \text{ per share}$$

A purchasing company would, however, be more concerned with earnings than with dividends if it intended to buy the entire company, and an offer price of CU1.25 should be considered too low. On the other hand, since Black Raven Ltd is an unquoted company a higher yield than 12% might be expected.

(c) **A dividend yield basis of valuation, with growth**

Since earnings are expected to increase by 4% a year, it could be argued that a similar growth rate in dividends would be expected. We shall assume that the required yield is 17%, rather more than the 12% for quoted companies because Black Raven Ltd is unquoted. However, in the absence of information about the expected growth of dividends in the quoted companies, the choice of 12%, 17% or whatever, is not much better than a guess.

$$P_0 = \frac{D_0(1+g)}{(k-g)} = \frac{45,000(1.04)}{(0.17-0.04)} = \text{CU}360,000 \text{ or CU}1.20 \text{ per share}$$

(d) **The discounted value of future cash flows**

The present value of cash inflows from an investment by a purchaser of Black Raven Ltd's shares would be discounted at either 18% or 14%, depending on the view taken of Black Raven Ltd's assets. Although the loan of CU400,000 is secured on some of the company's property, there are enough assets against which there are no charges to assume that a purchaser would consider the investment to be backed by tangible assets.

The present value of the benefits from the investment would be as follows.

Year	*Cash flow*	*Discount factor*	*PV of cash flow*
	CU'000	14%	CU'000
1	120	0.877	105.24
2	120	0.769	92.28
3	140	0.675	94.50
4	70	0.592	41.44
5	120	0.519	62.28
			395.74

A valuation per share of CU1.32 might therefore be made. This basis of valuation is one which a purchasing company ought to consider. It might be argued that cash flows beyond Year 5 should be considered and a higher valuation could be appropriate, but a figure of less than CU2 per share would be offered on a DCF valuation basis.

(e) **Summary**

Any of the preceding valuations might be made, but since share valuation is largely a subjective matter, many other prices might be offered. In view of the high asset values of the company, an asset stripping purchaser might come forward.

Answer to Interactive question 6

Year		*Cash flow*	*Discount factor*	*Present value*
		CU	10%	CU
1 – 3	Interest	9	2.486	22.37
3	Redemption value	100	0.751	75.10
				97.47

Each CU100 of debenture will have a market value of CU97.47.

Answers to Self-test

Answer to Self-test question 1

Profed

(a) The information provided allows us to value Profed on three bases: net assets, P/E ratio and dividend valuation.

All three will be computed, even though their validity may be questioned in part (b) of the answer.

Assets-based valuation

	CU'000
Net assets at book value	7,200
Add: increased valuation of buildings	1,500
Less: decreased value of inventory and receivables	(850)
Net asset value of equity	7,850

Value per share = CU1.96

P/E ratio

	Profed	*City Tutors*
Issued shares (million)	4	10
Share price (pence)		362
Market value (CUm)		36.2
Earnings per share (pence)	35	20
P/E ratio (share price ÷ EPS)		18.1

The P/E for a similar quoted company is 18.1. This will take account of factors – such as marketability of shares, status of company, growth potential – that will differ from those for Profed. Profed's growth rate has been estimated as higher than that of City Tutors, possibly because it is a younger, developing company, although the basis for the estimate may be questionable.

All other things being equal, the P/E ratio for an unquoted company should be taken as between one half to two thirds of that of an equivalent quoted company. Being generous, in view of the possible higher growth prospects of Profed, we might estimate an appropriate P/E ratio of around 12, assuming Profed is to remain a private company.

This will value Profed at 12 × CU0.35 = CU4.20 per share, a total valuation of CU16.8m.

Dividend valuation model

The dividend valuation method gives the share price as:

$$\frac{\text{Next year's dividend}}{\text{cost of equity} - \text{growth rate}}$$

which assumes dividends being paid into perpetuity, and growth at a constant rate.

For Profed, next year's dividend = CU0.20 × 1.09 = CU0.218 per share

While we are given a discount rate of 15% as being traditionally used by the directors of Profed for investment appraisal, there appears to be no rational basis for this. We can instead use the information for City Tutors to estimate a cost of equity for Profed. This is assuming the business risks are similar, and ignores the small difference in their gearing ratio.

Again, from the DVM, cost of equity = $\frac{\text{Next year's dividend}}{\text{Market price}}$ + Growth rate

For City Tutors, cost of equity = $\frac{\text{cu}0.18 \times 1.075}{\text{cu}3.62}$ + 0.075 = 12.84%

Using, say, 13% as a cost of equity for Profed (it could be argued that this should be higher since Profed is unquoted so riskier than the quoted City Tutors):

$$\text{Share price} = \frac{\text{CU}0.218}{0.13 - 0.09} = \text{CU}5.45$$

valuing the whole of the share capital at CU21.8 million.

Range for valuation

The three methods used have thus come up with a range of value of Profed as follows:

	Value per share	*Total valuation*
	CU	CUm
Net assets	1.96	7.9
P/E ratio	4.20	16.8
Dividend valuation	5.45	21.8

(b) **Asset-based valuation**

Valuing a company on the **basis of its asset values** alone is rarely appropriate if it is to be sold on a going concern basis. Exceptions would include property investment companies and investment trusts, the market values of the assets of which will bear a close relationship to their earning capacities.

Profed is typical of many service companies, a large part of whose value lies in the **skill**, **knowledge and reputation of its personnel**. This is not reflected in the net asset values, and renders this method quite inappropriate. A potential purchaser of Profed will generally value its intangible assets such as knowledge, expertise, customer/supplier relationships, brands and so on more highly than those that can be measured in accounting terms.

Knowledge of the net asset value (NAV) of a company will, however, be important as a **floor value** for a company in financial difficulties or subject to a takeover bid. Shareholders will be reluctant to sell for less than the net asset value even if future prospects are poor.

P/E ratio valuation

The P/E ratio measures the **multiple of the current year's earnings** that is reflected in the **market price** of a share. It is thus a method that reflects the earnings potential of a company from a market point of view. Provided the marketing is efficient, it is likely to give the most meaningful basis for valuation.

The market price of a share at any point in time is determined by supply and demand forces prevalent during small transactions, and will be dependent upon a lot of factors in addition to a realistic appraisal of future prospects.

A downturn in the market, economic and political changes can all affect the day-to-day price of a share, and thus its prevailing P/E ratio. It is not known whether the share price given for City Tutors was taken on one particular day, or was some sort of average over a period. The latter would perhaps give a sounder basis from which to compute an applicable P/E ratio.

Even if the P/E ratio of City Tutors can be taken to be **indicative of its true worth**, using it as a basis to value a smaller, unquoted company in the same industry can be problematic.

The status and marketability of shares in a quoted company have tangible effects on value but these are difficult to measure.

The P/E ratio will also be affected by **growth prospects** – the higher the growth expected, the higher the ratio. The growth rate incorporated by the shareholders of City Tutors is probably based on a more rational approach than that used by Profed.

If the growth prospects of Profed, as perceived by the market, did not coincide with those of **Profed's management** it is difficult to see how the P/E ratio should be adjusted for relative levels of growth. The earnings yield method of valuation could however be useful here.

In the valuation in (a) a crude adjustment has been made to City Tutors' P/E ratio to arrive at a ratio to value Profed's earnings. This can result in a very inaccurate result if account has not been taken of all the differences involved.

Dividend-based valuation

The dividend valuation model (DVM) is a **cash flow-based approach**, which values the dividends that the shareholders expect to receive from the company by discounting them at their required rate of return. It is perhaps more appropriate for valuing a minority shareholding where the holder has no influence over the level of dividends to be paid than for valuing a whole company, where the total cash flows will be of greater relevance.

The practical problems with the dividend valuation model lie mainly in its **assumptions**. Even accepting that the required 'perfect capital market' assumptions may be satisfied to some extent, in reality, the formula used in (a) assumes constant growth rates and constant required rates of return in perpetuity.

Determination of an **appropriate cost of equity** is particularly difficult for an unquoted company, and the use of an 'equivalent' quoted company's data carries the same drawbacks as discussed above. Similar problems arise in estimating future growth rates, and the results from the model are highly sensitive to changes in both these inputs.

It is also highly dependent upon the **current year's dividend** being a representative base from which to start.

The dividend valuation model valuation provided in (a) results in a higher valuation than that under the P/E ratio approach. Reasons for this may be:

- The **share price** for City Tutors may be currently **depressed below its normal level**, resulting in an inappropriately low P/E ratio
- The **adjustment** to get to an **appropriate P/E ratio** for Profed may have been too harsh, particularly in light of its apparently better growth prospects
- The **cost of equity** used in the dividend valuation model was that of City Tutors. The validity of this will largely depend upon the relative levels of risk of the two companies. Although they both operate the same type of business, the fact that City Tutors sells its material externally means it is perhaps less reliant on a fixed customer base
- Even if business risks and gearing risk may be thought to be comparable, a prospective buyer of Profed may consider investment in a **younger, unquoted company** to carry **greater personal risk**. His required return may thus be higher than that envisaged in the dividend valuation model, reducing the valuation

Answer to Self-test question 2

Wilkinson Ltd

Earnings-based valuation

P/E ratio

The earnings-based valuation would be based on applying the P/E ratio for similar quoted companies to Chris Limited's earnings.

15 × CU410,000 = CU6,150,000

This value would be the approximate value of a quoted company in the sector. Research has indicated the acquisitions of private companies are typically priced at a discount of 30% to 40% to the quoted sector P/E. This discount probably reflects the lack of marketability of the private company shares compared to those of its quoted counterparts. Using a discount of 40%, the value of Chris Limited would be:

CU6,150,000 × 60% = CU3,690,000

This is the value of the earnings stream. On top of this, it should be possible to sell the unused property without affecting the earnings stream for around CU100,000, giving a total valuation of **CU3,790,000**.

Limitations of the calculation

The sector P/E is an average for the sector. It is not clear whether Chris Limited is an average company or whether it is in a more or less attractive part of the sector. It may be better to identify specific companies in exactly the same class of business as Chris Limited.

The sector P/E reflects the expected growth in earnings in the sector. It may be that Chris Limited's expected growth rate is better or worse than the sector average, meaning that a different P/E ratio would be more appropriate.

The sector P/E reflects the risk of the sector in general, including business and gearing risk. If Chris Limited has a different level of gearing or is in a part of the sector where the business risk is slightly different, then a different P/E ratio would be appropriate.

The calculation has assumed that Wilkinson Ltd acquires a controlling interest and forces the sale of the unused property.

When the calculation is useful

Use of earnings to value a company implies that the investor has control of the earnings and can dictate dividend policy, for example. It would therefore be suitable if Wilkinson Ltd is aiming to get control of the company.

Dividend-based valuation – Dividend valuation model

In order to use the dividend valuation model, the cost of equity of the company must first be estimated. This can be done with the capital asset pricing model: $k_e = r_f + \beta_e (r_m - r_f)$

where: k_e = the company's cost of equity

r_f = the risk-free rate (estimated as the yield on gilts)

and r_m = the return on the market

$k_e = 11 + 0.8(21 - 11) = 19\%$

The market value (MV) of the company is given by the formula $MV = D_1 / (ke - g)$ where D_1 is the prospective dividend (estimated as $D_0 \times \{1 + g\}$), k_e is the cost of equity and g is the expected growth rate in dividends. The value of g can be estimated from extrapolating the dividend growth of Chris Limited over the last few years and is 11% ($\sqrt{\{185/150\}} - 1$).

$MV = 185 \times 1.11 / (0.19 - 0.11) = CU2,567,000$

Since this valuation relies on the β of quoted companies and would give the value of a quoted company's dividend stream, this value should be discounted.

$CU2,567,000 \times 60\% = CU1,540,000$

Adjusting for the value of the unused property, the value of the business would be around **CU1,640,000**.

Limitations of the calculation

As with the earnings estimate, use of the sector β implies that Chris Limited has comparable gearing and business risk to the sector average.

The assumption that past dividend growth of 11% will continue in the future may not be valid.

It has been assumed the company will dispose of the unused property even if Wilkinson Ltd only obtains a minority holding.

When the calculation would be useful

A minority investor who only receives dividends from the company will find this most useful and therefore it may be relevant if Wilkinson Ltd only intends to take a minority stake.

Dividend-based valuation – Dividend yield

Dividend yield is:

$$185 \times \frac{1}{0.11} = 1{,}682$$

Discount for lack of marketability:

1,682 × 60% = 1,009,000

Including the proceeds from the assumed sale of the unused property, the valuation of Chris Limited would be **CU1,109,000**.

Limitations of the calculation

As with the above methods, it assumes that Chris Limited is similar to the sector in terms of gearing and business risk.

It has been assumed that the company will dispose of the unused property, even if Wilkinson Ltd does not acquire a controlling shareholding.

When the calculation would be useful

As with the dividend valuation model, it is most useful for a minority investor who will only receive a dividend flow from the company.

Asset-based valuation

Net realisable value of assets

The net book value of the company's assets is CU2,500,000. To establish the value available to equity investors, the market value of the loan stock must be deducted. This will be the present value of the loan stock's future cash flows, discounted at the investors' required rate of return. The best indication of required returns is given by the details on gilts for the same maturity with the same coupon in the question. A risk premium must be added on to the yield on the gilts to compensate for the additional risk of Chris Limited, say 3%. The resultant annual yield (11% + 3% = 14%) needs to be altered to a semi-annual rate of return of 6.8% ($\sqrt{1.14} - 1$) since the coupon is semi-annual.

Note: The precise calculation here using the square root is probably over the top and gives a spurious level of accuracy. A six-monthly factor of 7% would be just as good.

Time	Cash flow CU	Discount factor at 6.8%	Present value CU
1-10	60,000	7.09	425,400
10	1,200,000	$1/1.068^{10}$	621,539
			1,046,939

The total value of the company's equity is therefore CU2,500,000 – CU1,047,000 = **CU1,453,000**.

Limitations of the calculation

The only data available is net book value, which may not represent realisable value due to potential revaluations, obsolescent inventories, costs of disposal, and so on.

The contents of each category of asset and liability are not known. For example, non-current assets may include intangibles which could not easily be sold at book value.

The value of intangibles such as brands and goodwill may not be included in the above valuation.

The required yield on the loan stock has been estimated and the 14% may not be appropriate.

When the calculation would be useful

Net realisable value assumes the company's assets can be sold off.

This will only be appropriate if Wilkinson Ltd acquires a 75% interest and can force a compulsory liquidation. Alternatively, the company must obtain at the very least 50% to be able to force the disposal of any surplus assets.

Replacement cost of assets may be appropriate to use for a purchaser who is considering starting up an equivalent business from scratch. The problem will be in identifying the cost of replacing intangible assets such as goodwill and brands.

Reasons for differences between the valuations

The earnings-based valuation is based upon an earnings figure that has grown dramatically in the final year. The very high earnings of CU410,000 may not be representative and in subsequent years the earnings may fall back to a level similar to earlier years. Alternatively, if the earnings are going to grow from the current base, then the earnings-based valuation is likely to be the most appropriate of all the above.

The dividends of Chris Limited, by contrast, have grown at a reasonably constant rate over the three-year period regardless of earnings performance. Since the dividends have grown at a much slower rate than earnings, this explains the much lower valuations using dividends based methods.

The dividend policy may give a clue as to the directors' expectations for future profitability and sustainable dividend growth. If this is the case, then the dividends based methods are likely to give the most appropriate valuations.

The asset-based valuation is the lowest of the four figures. This is probably because the company derives its value not from its assets base but from its earnings stream and cash flows.

Additional information required

- Market value of assets
- Existence and value of intangibles
- Analysis of profits between ordinary recurring items and exceptional one-off items, which may have distorted the profits in individual years
- Details of costs or income that may be avoided or lost if the company is acquired, such as very high directors' remuneration
- Details on growth prospects
- More specific details on the company's business, its business risk and gearing risk and similar information for closely comparable quoted companies
- The shareholding Wilkinson Ltd intends to buy
- The possibilities for synergies
- Cash flow details, to obtain a more fundamental cash-based valuation
- Details of any comparable deals executed in the recent past

Answer to Self-test question 3

Cub

Economic value added®

Economic value added® = Net operating profit after tax (NOPAT) – (Capital employed × Cost of capital)

Net operating profit after tax

Net operating profit after tax is arrived at after making a number of adjustments.

	20X1	*20X2*
	$m	$m
Profit after tax	155	196
Add: Non-cash expenses	32	36
Add: Interest after tax charge (1 – 0.24))	9.9	13.7
NOPAT	196.9	245.7

Capital employed

Capital employed is on start of year figures

20X1 Capital employed = Capital employed at end of 20X0 + Leases

= 695 + 35

= $730 million

20X2 Capital employed = Book value of shareholders' funds + Bank loans + Leases

= 595 + 175 + 35

= $805 million

Weighted average cost of capital

20X1 cost of capital = (0.75 × 14%) + (0.25 × (7% (1 – 0.24))

= 11.8%

20X2 cost of capital = (0.75 × 16%) + (0.25 × (8% (1 – 0.24))

= 13.5%

Economic value added

20X1 EVA® = 196.9 – (0.118 × 730)

= $110.8 million

20X2 EVA® = 245.7 – (0.135 × 805)

= $137.0 million

On this measure, the company has created significant value in both 20X1 and 20X2 and appears to be on a rising trend.



CHAPTER 13

Financial instruments and financial markets

Introduction

Topic List

1 Equity instruments
2 Equity markets
3 Fixed interest securities, bonds and leasing
4 Bond markets
5 Bond valuation and yields
6 Credit risks
7 Derivatives
8 Derivative markets

Summary and Self-test

Technical reference

Answers to Interactive questions

Answers to Self-test

Introduction

Learning objectives

	Tick off
• Assess and explain the types of equity securities, and evaluate the implications for disclosure, presentation, recognition and measurement	☐
• Analyse and evaluate the cost of equity, portfolio theory and the use of appropriate asset pricing models, applying principles of financial economics	☐
• Appraise and explain the characteristics of equity markets and the financial institutions operating in those markets	☐
• Explain the types of fixed interest securities and evaluate the implications for disclosure, presentation, recognition and measurement in financial statements	☐
• Appraise and evaluate the use of bonds/loans as a method of finance, explain the implications of terms included in loan agreements in a given scenario and explain the procedures by which monitoring and assurance can be provided in respect of such agreements	☐
• Appraise and explain the characteristics of bond markets and the financial institutions operating in those markets	☐
• Explain and appraise bond valuation techniques and assess flat and gross redemption yields	☐
• Explain and appraise yield curves, sensitivity to yield and components of the yield	☐
• Appraise and evaluate credit risk and credit spread	☐
• Explain the types of derivative securities and evaluate the implications for disclosure, presentation, recognition and measurement in financial statements	☐
• Appraise and evaluate the characteristics of forwards, futures, options, swaps and credit derivatives	☐
• Appraise and explain the characteristics of derivative markets and the financial institutions operating in those markets	☐

Knowledge brought forward

The chapter begins by revising the main features of equity, preference share and debt finance, but then builds on your earlier knowledge of equity and debt finance and derivatives.

Syllabus links and examination context

We shall look at the choice between different sources of finance at the start of the next chapter. You should not necessarily expect to have to choose between debt and equity. It may be that all the choices available are forms of debt, and you may well have to consider corporate reporting implications. The choice may also be influenced by the financial markets that the business is able to use.

The use of derivatives to hedge interest rate and foreign exchange risks is covered in Chapter 15.

1 Equity instruments



Section overview

- You will recall from earlier studies that companies issue equity and preference shares and that there are various methods of issue, depending on whether the company is listed.

You covered equity finance in earlier papers. We start this chapter with a reminder of its main features and terminology.

1.1 Equity shares



Definition

Equity represents the **ordinary shares** in the business. Equity shareholders are the owners of the business and through their voting rights exercise ultimate control. Equity shares have the rights to participate in the distribution of residual assets after any fixed claims from loanholders or preference shareholders have been satisfied.

1.2 Preference shares



Definition

Preference shares form part of the risk-bearing ownership of the business but, since they are entitled to their dividends before ordinary shareholders, they carry less risk. As their return is usually a fixed maximum dividend, they are similar in many ways to debt.

There are a few types of preference shares:

1.2.1 Participating preference shares

The holder of this share stands a chance that if the company does well he will receive his fixed dividend plus an extra dividend, which will usually be a proportion of the ordinary dividend declared.

1.2.2 Cumulative preference shares

A company may not pay a dividend on preference shares if there are insufficient post-tax profits. When the company is in a position to resume dividend payments, holders of cumulative preference shares will receive arrears of dividends. These arrears must be paid before the ordinary shareholders can receive their dividend. With **non-cumulative preference shares**, the right to any unpaid dividend is lost at the end of the financial year and no arrears are carried forward.

1.2.3 Redeemable preference shares

Redeemable preference shares have a set redemption date or are redeemable at the company's option. This makes them similar to a loan stock.

1.2.4 Convertible preference shares

Convertible preference shares offer a dividend plus the opportunity to convert to ordinary shares at pre-specified dates on pre-specified terms. Convertible preference shares will often have a higher market price than the ordinary share of the same company reflecting both the guaranteed dividend and the value of the option to convert. If it becomes very likely that conversion will take place, the price will move in line with those of the ordinary shares. If the investor does not convert by the last permissible date, he forfeits his right. The following table summarises and contrasts the main features of ordinary and preference shares and debt.

Factor / *Type of capital*	*Ordinary shares (equity)*	*Preference shares (normally cumulative)*	*Debt*	
			Secured debentures and loan stock	*Unsecured debentures and loan stock*
Security of investor in terms of repayment of capital	Rank after creditors/payables and preference shares in liquidation.	Rank after all creditors/payables but usually before ordinary shareholders in a liquidation.	Secured on one or more specific assets, usually land and buildings, which are mortgaged, or over assets generally. On default the assets are sold; a surplus over the debenture/loan adds to the assets of the company available for creditors – the other assets of the company are liable for deficit.	None; holder have the same rights as ordinary creditors/payables.
Voting rights of investor	Usually have voting rights in general meetings of the company	Right to vote at a general meeting only when dividend is in arrears or when it is proposed to change the legal rights of the shares.	No voting rights	No voting rights

Factor / *Type of capital*	*Ordinary shares (equity)*	*Preference shares (normally cumulative)*	*Debt*	
			Secured debentures and loan stock	*Unsecured debentures and loan stock*
Degree of control exercised by existing shareholders	Retained earnings and rights issues tend to maintain the existing balance of control. Issues to new shareholders can shift the balance away from existing shareholders.	No change in degree of control unless dividends are in arrears (see above).	Control can be impeded by need to meet interest and capital payments and keep within any covenants imposed by lender.	
Liquidation of investment(ie can investor get out easily?)	Depends on whether the shares are traded on a stock exchange. Lack of marketability is likely to push up investors' required return.	If redeemable then this gives one way out (but probably on a fixed date). Otherwise as ordinary shares.	As preference shares.	
Personal tax position of investor	Dividends are subject to income tax. Capital gains taxed at flat rate of 18% subject to reliefs and exemptions.	As ordinary shares.	As ordinary shares.	
Risk/reward.	Both high.	Both lower.	Both lowest.	

Factor / *Type of capital*	*Ordinary shares (equity)*	*Preference shares (normally cumulative)*	*Debt*	
			Secured debentures and loan stock	*Unsecured debentures and loan stock*
Income payment obligation of company	Dividends payable at the discretion of the directors (subject to sanction by shareholders) out of undistributed profits remaining after senior claims, eg interest and preference dividends, have been met.	A fixed maximum amount per year at the discretion of the directors (subject to sanction of shareholders) and in accordance with rules regarding dividends; arrears accumulate and must be paid before a dividend on ordinary shares.	A fixed annual amount of interest, usually expressed as a percentage of nominal value (often referred to as the coupon rate).	
Obligation to return capital and amount	No obligation unless/until liquidated. The right to all surplus funds after prior claims have been met.	A fixed amount per share where expressly redeemable, otherwise similar to ordinary shares.	A fixed amount per unit of loan stock or debenture, usually on fixed date. Can be avoided by company buying loan stock or debentures in the open market and cancelling.	
Corporation tax	Dividends not tax deductible	Dividends not tax deductible	Interest is tax deductible, reducing effective cost for company.	
Issue costs (ie the administrative and legal costs associated with raising the finance).	Up to 15% of finance raised depending on method used. Covered in more detail in a later section.	As equity.	Relatively cheap compared to equity.	

1.3 Sources of equity finance

There are broadly three methods of raising equity:

Method	Real world use
Retentions, ie retaining operating cash flows rather than paying them out as dividends (sometimes mistakenly called financing through retained profits – but profits are not cash flows)	By far and away the most important source of equity
Rights issues, ie an issue of new shares to existing shareholders	The next most important source
New issues to the public, ie an issue of new shares to new shareholders	The least important source of new equity

1.3.1 Retained earnings

The cash generated from profits earned by a business can either be paid out to shareholders in the form of dividends or reinvested in the business.

There is sometimes a misconception that because no new shares are being sold, using cash flows from retained earnings has no cost. There may be no issue costs but shareholders will still expect a return on the funds re-invested in the business.

Such retentions represent a very easy and important source of finance, particularly for young growing businesses where there may be a continual need for funds but where it is impractical to keep raising them using rights/new issues (and debt).

1.3.2 Rights issues



Definition

A **rights issue** is an issue of new shares for cash to existing shareholders in proportion to their existing holdings.

Legally a rights issue must be offered to existing shareholders before a new issue to the public. Existing shareholders have rights of first refusal (pre-emption rights) on the new shares and can, by taking them up, maintain their existing percentage holding in the company. However, shareholders can, and often do, waive these rights by selling them to others. Shareholders can vote to rescind their pre-emption rights.

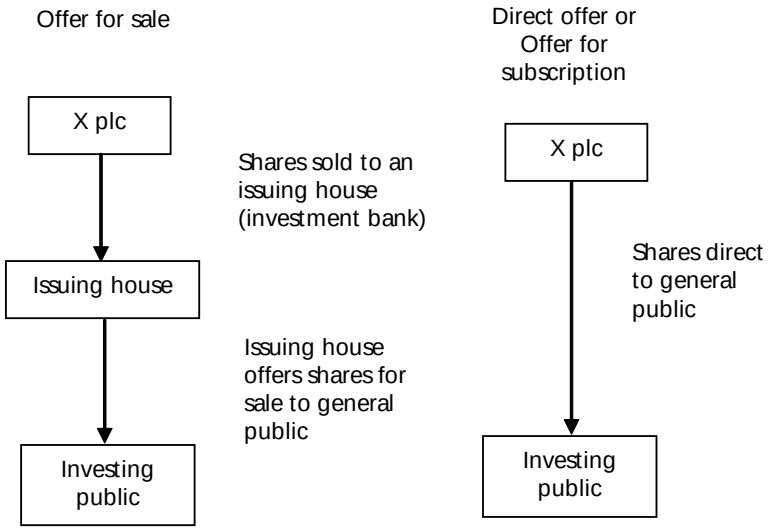
Companies need to consider the following factors when making rights issues:

- **Issue costs** – these have been estimated at around 4% on CU2m raised but, as many of the costs are fixed, the percentage falls as the sum raised increases.
- **Shareholder reactions** – shareholders may react badly to firms continually making rights issues as they are forced either to take up their rights or sell them (doing nothing decreases their wealth). They may sell their shares in the company, driving down the market price.
- Control – unless large numbers of existing shareholders sell their rights to new shareholders there should be little impact in terms of control of the business by existing shareholders.
- Unlisted companies – these often find rights issues difficult to use, because shareholders unable to raise sufficient funds to take up their rights may not have available the alternative of selling them if the firm's shares are not listed. This could mean that the firm is forced to use retentions or raise loans.

1.3.3 Issues in the market

These account for around 10% of new equity finance. When they occur they are often large in terms of the amount raised. They are often used at the time a firm obtains a listing on the Stock Exchange, wants to raise a very large amount and therefore needs a high profile issue.

There are two methods of making a public offer, and they are best illustrated diagrammatically:



In practice the offer for sale is far more common; in either method the issue is likely to be underwritten. There is no restriction on the amount of capital raised by this method.

1.4 Accounting requirements

You will remember the definition of an equity instrument from your earlier financial reporting studies.

Definition

Equity instrument is any contract that evidences a residual interest in the assets of an entity after deducting all of its liabilities.

An instrument is an equity instrument if and only if:

1 The instrument includes no contractual obligation to:

- Deliver cash or another financial asset to an entity, or
- Exchange financial assets or financial liabilities with another entity under conditions that are potentially unfavourable to the entity.

2 If the instrument will or may be settled in the issuer's own equity instruments, it is:

- A non-derivative that includes no contractual obligation for the issuer to deliver a variable number of its own equity instruments.
- A derivative that will be settled only by the issuer exchanging a fixed amount of cash or another financial asset for a fixed number of its own equity instruments.

1.4.1 Classification as equity

Under IAS 32 whether a financial instrument is classified as an equity instrument should be in accordance with the substance of the contractual terms and not with factors outside the terms. Terms may include whether the instruments are redeemable, whether the returns are mandatory or discretionary and whether they contain features such as put or call options that require the issuer to settle the instrument in cash or other financial assets.

The critical feature therefore in contractual terms is whether there is an obligation to deliver cash or another financial asset, or to exchange a financial asset or financial liability on potentially unfavourable terms. If the issuer does not have an unconditional right to avoid delivery of cash or other financial asset, then the instrument is a liability.

The definition of residual interest is not confined to a proportionate interest ranking equally with all other interests, it may also be an interest in preference shares.

1.4.2 Compound financial instruments

Again this should be revision from your earlier Financial Reporting studies.

A compound or 'hybrid' financial instrument is one that contains both a **liability component** and an **equity component**. As an example, an issuer of a **convertible bond** has:

- The obligation to pay annual interest and eventually repay the capital – the liability component.
- The possibility of issuing equity, should bondholders choose the conversion option – the equity component.

In substance the issue of such a bond is the same as issuing separately a non-convertible bond and an option to purchase shares.

At the date of issue the components of such instruments should be classified separately according to their substance, known as 'split' accounting. The amount received on the issue (net of any issue expense) should be allocated between the separate components as follows:

- The **fair value of the liability component** should be measured at the present value of the periodic interest payments and the eventual capital repayment assuming the bond is redeemed. The present value should be discounted at the market rate for an instrument of comparable credit status and the same cash flows but without the conversion option.
- The **fair value of the equity component** should be measured as the remainder of the net proceeds.

Note that the rate of interest on the convertible will be lower than the rate of interest on the comparable instrument without the convertibility option, because of the value of the option to acquire equity.

The allocation should not be revised for subsequent changes in market interest rates, share prices or other events that have changed the likelihood the conversion option will be exercised. This is the case even if the terms become so disadvantageous that it is extremely unlikely that the option will be exercised.

If all or part of the compound financial instrument is eventually converted into equity, the relevant proportion of the carrying amount of the financial liability should be reclassified as equity, being added to the equity amount initially recognised. No gain or loss should be recognised on conversion of the instrument.

1.4.3 Interest, dividends, losses and gains

Again this is a summary of what you've studied before.

Interest, dividends, losses and gains arising in relation to a financial instrument that is classified as a financial liability should be recognised in profit or loss for the relevant period.

Distributions, such as dividends, paid to holders of a financial instrument classified as equity should be charged directly against equity (as part of the movement on retained earnings in the statement of changes in equity).

For compound instruments such as convertible bonds, the annual interest expense recognised in profit or loss should be calculated by reference to the interest rate used in the initial measurement of the liability component.

CHAPTER 13

2 Equity markets



Section overview

- In Bangladesh the main market is the Dhaka Stock Exchange.

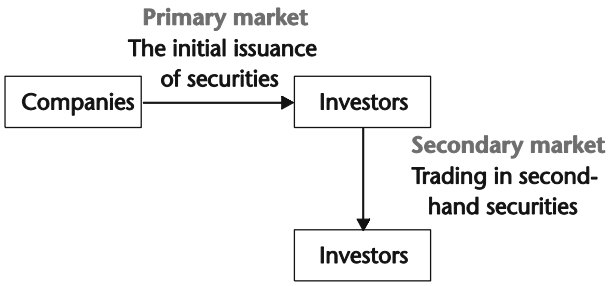
2.1 Dhaka Stock Exchange

The Dhaka Stock Exchange (DSE) is, above all else, a business. Its primary objective is to establish and run a market place in securities. In any economy there are savers and borrowers. The exchange acts as a place in which they can meet.

Initially, the companies (the borrowers) issue shares to the investing public (the savers). This is known as the **primary market**. The main role of the DSE's primary market is to enable a company to issue shares. Investors would not be willing to invest their money unless they could see some way of releasing it in the future.

Consequently, the exchange must also offer a **secondary market** trading in second-hand shares; this allows the investor to convert the shares into cash.

Overview of the Exchange's activities



Companies whose shares are traded on the Dhaka Stock Exchange (DSE) are generally known as **quoted companies**. Listed shares are those which have been admitted to the Official List by the **Bangladesh Securities and Exchange Commission (BSEC)**. Joining the Main Market of the DSE involves a two-stage process:

- The BSEC is responsible for the approval of prospectuses and the admission of companies to the Official List.
- The DSE is responsible for the admission to trading of companies to the Main Market. There is also Chittagong Stock Exchange.

2.1.1 Primary market

The primary market is the market for the issue of new securities. It is important to ensure that the primary market is selective. A poor-quality primary market will undermine the liquidity of the secondary market. Companies wishing to issue shares often find it useful to hire the services of an issuing house or sponsor (usually these are services available from the investment banks) who will guide them through the process of preparing for the new issue and advertising the fact to potential new investors.

2.1.2 Secondary market

The secondary market (markets in second-hand securities) exists to enable those investors who purchased investments to realise their investments into liquid cash.

In order to ensure the stability of the secondary market, the exchange must establish strong controls over the companies that are allowed onto the market. Equally, the exchange must establish rules concerning the activities of brokers in the secondary market in order to preserve the reputation of the market. However, the DSE has itself a number of rules concerning the restriction on the investments in which a member firm can deal. These rules are designed to complement the BSEC rules.

2.1.3 Role of stock exchange member firms

All member firms of an exchange are **broker-dealers**. Broker-dealers have **dual capacity**, giving them the choice to either act as **agents** on behalf of customers, or to deal for themselves as **principals**, dealing directly with customers.

Some broker-dealers can elect to take on board an additional level of responsibility through one of the following roles.

Market makers	Market makers are the focus of market activity and their obligation is to ensure that there is always a two-way price in the securities in which they are registered.
Inter-dealer brokers	Inter-dealer brokers (IDBs) provide market makers with an anonymous dealing service to unwind positions.
Stock Borrowing and Lending Intermediaries	Stock Borrowing and Lending Intermediaries (SBLIs) provide a service allowing market makers to borrow securities in order to settle a 'short' transaction, ie selling shares they do not own.

2.2 The criteria for public offer/ listing

2.2.1 General requirements:

An issuer may make an application for public offer of its securities, if -

- It offers an amount of at least equivalent to 10% of its paid-up capital (including intended offer) or Tk. 15 crore at par value, whichever is higher;
- It has minimum existing paid up capital of Tk. 15 crore;
- It has not made any material change including raising of paid-up capital after the date of audited financial statements as included in the prospectus;
- The issue manager is in no way connected with the issuer nor does hold any of its securities;
- It has prepared its financial statements in accordance with the requirements of the Securities and Exchange Rules, 1987, the provisions of IFRS /IAS as adopted in Bangladesh and audited the same as per International Standards on Auditing (ISA) as well as the Companies Act, 1994 and other applicable legal requirements;
- It has got cost audit by professional accountants as per the Companies Act, 1994, if applicable;
- It has got its latest financial statements audited by the panel auditors as declared by the Commission from time to time;
- It has been regular in holding annual general meeting (AGM);
- It has complied with the provisions of Corporate Governance Guidelines as published by the Commission from time to time;
- It has complied with all the requirements of these Rules in preparing prospectus;
- It has no accumulated retained loss at the time of application;
- It has complied with the provisions of guidelines regarding valuation of assets, if any, as published by the Commission from time to time; and
- The issuer or any of its directors is not a bank defaulter.

2.2.2 Methods of listings

There are two possible ways to get listed with DSE:

- Listing through Initial Public Offer (IPO)

  (a) fixed price method, when offered at par value; or

  (b) book-building method, when offered above par value.
- Offloading of Shares through direct listing

2.2.2.1 Additional requirements for Fixed Price Method:

- If it has been in commercial operation at least for immediate last 3 (three) years, it has positive net profit after tax and net operating cash flow at least for immediate preceding 2 (two) financial years; if it has been in commercial operation for a period less than 3 (three) years, it has positive net profit after tax and net operating cash flow at least for the latest financial year; if it has not started its commercial operation or not completed any financial period yet, it has positive projected net profit after tax and net operating cash flow; and
- At least 35% of the issue has been underwritten on a firm commitment basis by the underwriter(s)

2.2.2.2 Additional requirements for Book Building Method:

- It has been in commercial operation at least for immediate last 3 (three) years;
- It has made net profit after tax at least for immediate preceding 2 (two) financial years;

- It has positive net operating cash flow at least for immediate preceding 2 (two) financial years;
- It has appointed separate persons as issue manager and registrar to the issue for managing the issue;
- The issuer/issue has been rated by a credit rating company registered with the Commission;
- At least 35% of the issue has been underwritten on a firm commitment basis by the underwriter(s)

2.2.2.3 Additional requirements for Direct Listing:

Salient Prerequisites of an issuer for becoming eligible for direct listing:

- Shall have minimum paid up capital of Tk. 300 (three hundred) million
- Shall have no accumulated loss
- Shall be in commercial operation for at least immediate last 5 (five) years
- Shall have profit in 3 (three) years out of the immediate last 5 (five) completed accounting/financial years with steady growth pattern;
- Is regular in holding annual general meeting (AGM).
- Has not raised capital (excluding bonus issue) within preceding 2 (two) years
- Has not issued the same class of securities in any manner other than bonus issue within the preceding 2 (two) years of submitting application of listing
- Shall have positive net current assets (Current Assets less Current Liabilities) at the end of immediate preceding 3 (three) accounting/financial years
- Shall have net positive cash flows from its operating activities for immediate preceding 3 (three) accounting/financial years
- Shall comply with the provisions of Corporate Governance Guidelines as prescribed by the Commission from time to time
- Any of its sponsors/directors is not a bank defaulter
- Has been assigned rating by a credit rating company
- Has prepared its financial statements in accordance with the requirements of the Securities and Exchange Rules, 1987 as well as the provisions of International Financial Reporting Standards (IFRS)/International Accounting Standards (IAS) as adopted in Bangladesh and audited the same as per requirements of International Standards on Auditing (ISA) as adopted in Bangladesh.

2.2.3 Conversion:

- A private limited company shall, complying due legal process, convert itself into a public limited company in any of the following cases:

a. Within six months from the date its existing paid up capital and the further capital it intends to raise exceeds, in total, **taka forty crore**; or

b. Within twelve months from the date of publication of the notification in the official gazette, in case its existing paid up capital has already exceeded, in total, taka forty crore.

2.2.4 Mandatory Listing:

- A public limited company, including the said converted public limited company, whose paid up capital **exceeds taka fifty crore** shall, complying due legal process, apply to the Commission for making an issue of capital through public offering to the extent prescribed by the Commission from time to time:

a. Within one year from the date of its paid up capital exceeds taka fifty crore, or from the date of publication of this notification in the official gazette, whichever comes later, if it has already been in commercial operation for three years or more; or

b. Within three years of commencement of its commercial operation, if it has not yet commenced its commercial operation.

[Note: The date recorded with the taxation authority about commencement of commercial operation shall be considered the date for this purpose.]

2.2.5 Exemption:

Bangladesh Securities and Exchange Commission vide its Notification No. SEC/CMRRCD/2009-193/170/Admin/60 dated June 11, 2015, grants exemption to the foreign owned companies and the joint venture companies with foreign investment from the compliance of the Commission's Notification No. SEC/CMRRCD/2006-159/36/Admin/03-44 dated May 05, 2010, published in the Bangladesh Gazzette on June 1, 2010.

2.2.6 General stages and relevant processes of listing by offloading of shares of companies through Direct Listing Process

- Take Board decision for Offloading shares
- Take shareholders resolution in respect of disposal of Shares
- Get relevant approval from concerned ministry or any other regulatory body, if any
- Appoint Issue Manager, Designated Brokers
- Prepare Information Document in accordance with Regulations 8 to 13 of the Dhaka Stock Exchange (Listing) Regulations, 2015
- Submit Information document to the respective Exchanges and BSEC and apply to the Exchanges for offloading of shares through direct listing
- Comply with deficiency letter issued by BSEC, if any
- Comply with any deficiencies identified the respective Exchanges
- Update Information document and get the same vetted by the respective exchanges
- Exchange(s) approve Listing, if no contrary opinion is received from BSEC
- Publish the Information Document in two in at least two widely circulated national dailies (one in Bangla and the other in English).
- Post the full information document or public offer document on the web site of the Commission, the Exchange and the Issuer.
- Submit printed Information Document to Exchanges and BSEC
- Trading shall commence at least seven days after publication of information document
- Make shares to be offloaded available to designated stock brokers and provide irrevocable sale orders for the total quantity made available.
- The existing shareholders shall offer for sell at least 25 (twenty five) percent of the shareholdings in the company within 30 (thirty) trading days from the date of commencing the normal trading.
- No sponsors or directors of the company shall, subject to compliance of other provisions in respect of shareholding, sell more than 50% of his existing shareholdings until the company holds the annual general meeting after completion of one full accounting year of the company upon listing with the Exchange.
- The sponsors or directors shall be restricted from buying shares for 1 (one) year from the date of direct listing.
- Report broker wise offloading status to the exchanges and BSEC on daily basis until completion of sale of the targeted 25 (twenty five) percent shareholdings.

2.2.7 General stages and relevant processes of listing with DSE through IPO

1. Decision to go Public:

- Take Board decision to go public
- Appoint Issue Manager(s) from Bangladesh Securities and Exchange Commission (BSEC) approved list

- Decide method of public offer with assistance from Issue Manager – Fixed Price or Book Building or Direct Listing
- Get Accounts audited by BSEC approved Panel of Auditors
- Initiate process for credit rating - Mandatory for Bank, Insurance, NBFI and any issue with offer price at premium
- Develop a Company Website

2. Prepare Draft Prospectus/Red-herring Prospectus/Draft Information Memorandum:

- Assist Issue Manager in preparing Draft Prospectus in accordance with Bangladesh Securities and Exchange Commission (Public Issue) Rules, 2015
- Appoint Underwriters
- In case of IPO under Book Building Method
  i. Prepare a Red-herring Prospectus
  ii. Send invitation **to Eligible Investors (EIs**) for Road Show
  iii. Conducting Road Show
  iv. Collect comments and observations from EIs who participated in the road show in accordance with rules of the Bangladesh Securities and Exchange Commission (Public Issue) Rules, 2015
  v. Finalize the Red-herring Prospectus

3. Apply to BSEC for Public Offer:

- Apply to BSEC for IPO under the Bangladesh Securities and Exchange Commission (Public Issue) Rules, 2015. Submit copies of Draft prospectus/Red- herring Prospectus along with relevant documents to Exchanges simultaneously.
- Assist Issue Manager in updating draft prospectus to comply with or fulfil deficiencies identified by BSEC/Exchange.
- Post the draft Prospectus/Red-herring Prospectus on Company's and Issue Manager's Website.

4. Bidding by EIs (for Book-Building only):

- Obtain BSEC consent for bidding
- Apply to Exchanges for holding bidding with BSEC consent for bidding
- Sign agreement to share Book Building Software for bidding and payment of fees thereof
- Determine the cut-off price through Book-Building Software
- On completion of bidding collect allotment list for EI and cut-off price from the Exchange
- Submit the details of bidding along with draft prospectus to BSEC for approval.

5. Approval of IPO:

- Collect consent letter issued by BSEC
- Print abridged version of the approved and vetted prospectus in widely circulated two Bengali and two English News Papers
- Print Final Prospectus
- Post the vetted Prospectus on Website of Issuer, Issue Manager, Commission, and Exchange.
- Apply for Listing with Exchanges in accordance with BSEC (Public Issue) Rules, 2015 and the Listing Regulations of the Exchanges.

6. **Subscription and Lottery:**

- Start subscription for IPO through designated Stock Brokers/Merchant Bankers.
- Assist Issue Manager and Registrar to the issue/Post Issue Manager in completing formalities related to subscription, lottery, refund and crediting shares to successful allottees.
- After subscription period, submit subscription status to BSEC and the Exchanges where the issuer wishes to get listed.
- Hold lottery in case of over subscription under general public category.
- Distribute securities on pro-rata basis in case of over subscription under category of eligible investors.

7. **Allotment and Refund:**

- Distribute Allotment letter in electronic form and Complete Refund Process
- After distribution of allotment letters/completion of refund submit a compliance report before the Commission and the Exchanges.
- If issue was not subscribed by minimum required quantity refund the subscribers.

8. **Listing Approval by the Exchange(s):**

- After distribution of allotment letters/refund warrants and compliance of other requirements, the application for listing by the Issuer is placed for listing approval
- Listing is approved or rejected

9. **Credit Share/Units:**

- If listing is approved by the Exchange, issuer shall apply to CDBL for crediting tradable shares/units as per allotment.

10. **Commencement of Trading of scripts on the Bourse(s):**

- Once shares/units are credited and confirmed by CDBL, commencement date for trading is announced by the respective Exchange.

2.3 International stock exchanges

2.3.1 USA

The United States is home to the world's largest stock market with its constituent parts being the New York Stock Exchange, the American Stock Exchange, NASDAQ OMX, the Philadelphia Stock Exchange, the Boston Stock Exchange, the Chicago Stock Exchange, the Cincinnati Stock Exchange and the Pacific Exchange.

The **New York Stock Exchange** was established in 1792 and is an order-driven floor dealing market. In 2007 the New York Stock Exchange merged with Euronext (itself an amalgamation of the Amsterdam, Brussels and Paris markets).

Trading on the NYSE revolves around **specialists** who receive and match orders via a limit order book. Specialists will also act as market makers where an order cannot be matched via the order book to ensure continuous liquidity in a stock. The primary regulator of the US equities market is the Securities and Exchange Commission (SEC).

Orders are processed through the **Super Display Book System**, the NYSE's primary **order processing system** since 2009. Exchange member firms input orders in a similar way to SETS and these reach specialists via the **trading post**, where the security is traded. The user, who may be an investor or a broker, receives a confirmation report of the transaction in real time as soon as the order is executed. The central clearing house is the **Depository Trust Company (DTC)** and settlement is **T+3** (three business days). For overseas investors, a default 30% withholding tax is applied, which may be halved if a double taxation treaty is in force.

NASDAQ OMX Group owns and operates the **NASDAQ** stock market, a screen-based, quote-driven market, and is monitored by the SEC. NASDAQ is the largest electronic screen-based securities trading market in the US, and is the second largest by capitalisation in the world. As the successor to over-the-counter trading of stocks and the world's first electronic stock market when it was set up in 1971, NASDAQ introduced new competition into the market and helped to lower spreads between bid and offer prices. It has specialised in providing a market for the more innovative companies and technology companies.

To qualify for a **NASDAQ listing**, a company must be registered with the SEC, have at least three market makers in its securities, and meet minimum requirements for assets, capital, public shares and shareholders.

Over-the-counter (OTC) trading generally involves trading of securities off the major exchanges. OTC trading of stocks is carried out by market makers who make markets in OTC Bulletin Board (OTCBB) and 'Pink Sheets' securities using inter-dealer quotation services such as Pink Quote (operated by Pink OTC Markets) and the OTCBB.

Stocks quoted on the OTCBB must comply with US Securities and Exchange Commission (SEC) reporting requirements. Other OTC stocks, such as Pink Sheets securities, have no reporting requirements. Stocks categorised as OTCQX have met alternative disclosure guidelines through Pink OTC Markets.

2.3.2 Japan

There are eight stock exchanges in Japan, the Tokyo Stock Exchange being by far the largest. The Tokyo Stock Exchange is order driven through the CORES dealing system. Settlement is on T□3 by book entry transfer through the JSCC (Japanese Securities Clearing Corporation).

2.3.3 Hong Kong

The Stock Exchange of Hong Kong Limited (SEHK) is a subsidiary of the Hong Kong Exchanges and Clearing Limited (HKEx). Trading is via AMS/3, an automated order matching system. The Central Clearing and Settlement System (CCASS) is the book-entry clearing and settlement system, operated by the depository, Hong Kong Securities Clearing Company Limited (HKSCC). CCASS's Continuous Net Settlement system (CNS) is used for interbroker clearing of exchange trades on the Hong Kong Stock Exchange (SEHK).

2.3.4 France

Trading on Euronext Paris is via the Nouveau Système de Cotation (NSC), the exchange's integrated electronic cash market trading platform. It is an order-driven market. Settlement is on T□3 through the systems of Euroclear France, the central securities depository.

2.3.5 Germany

The Deutsche Börse is a fierce competitor with the LSE. Trading takes place through a computerised order book called XETRA. Settlement is on T□2. Clearing, settlement and custody take place through Clearstream. The Deutsche Borse's Xetra US stars trading scheme allows for the trading of US shares in Europe outside the normal market hours.

2.3.6 Emerging markets

There are various **bond and equity markets** in growing and **emerging markets**, each with its own unique characteristics. In many of these markets, bond and equity trading is OTC and is restricted to locally registered participants. Settlement systems in such markets tend to be run by central banks with no counterparty guarantees. In addition, non-electronic settlement systems and physical delivery are not uncommon. These characteristics make participation both difficult and risky for the investor.

In an effort to achieve some international harmonisation, the larger (G30) economies have published recommendations of good practice including T+3 settlement for equities.

Potential benefits from investing in emerging markets are as follows:

- Potential for high returns – in the long run, emerging markets may offer higher returns than developed markets.
  - There is a perception that foreign securities are mispriced, giving investment opportunities.
  - Faster expanding developing market economies give higher profits growth for companies.

- Potential for reduction in overall portfolio volatility – emerging markets have relatively low correlations with developed markets, giving diversification benefits.

Brazil, Russia, India and China are often referred to collectively as the **BRIC** countries. Brazil and Russia are rich in resources, particularly in oil. China is strong in manufacturing, while India has a well-developed information technology industry.

Additional factors motivating investment in emerging markets are as follows:

- Liberalisation of foreign markets encouraged foreign investment. The demand caused by foreign investors caused prices to rise, attracting more investors. Note that this has a risk of becoming a speculative bubble, ending with the market crashing after excessive investment by foreign and local investors.
- Deregulation (eg abolishing price controls, foreign exchange controls) made entry into emerging markets easier.
- Privatisation of government industries gave a boost to emerging stock markets.
- Improved trade, communication and transport links make investing easier.

Investability describes whether it is possible to invest in an emerging market or not. There are various **restrictions on investability** which will make an emerging market less attractive:

- Limitation on foreign holdings in local stocks, either to a maximum percentage or to a particular class of share
- Small free float of shares eg the government is still a substantial shareholder in a privatised industry
- Restrictions on remittance of funds to overseas
- Taxes on foreign investors
- Dual currency system and other foreign currency controls
- Investment may be only permitted by authorised foreign investors
- Lack of liquidity with holdings being too small to be meaningful, giving rise to excessive transaction costs (market impact)
- Emerging market indices are often based only on investable shares

2.4 Factors affecting share prices

Share prices do not always react in the way that is expected of them. Investors buy ordinary shares mainly because they expect share values to increase. Over a long period, what causes share prices to rise is the increasing earning power of the companies and their ability to pay higher dividends out of these increasing earnings. However, in the short term, there are many other factors that can distort the picture.

2.4.1 Impact of information

Share prices are observed to move when new information is received, and will fairly reflect that new information. Since new information must, by definition, be unpredictable and random (otherwise it would not be new information), it follows that share price movements will also be random.

From these observations, the **efficient markets hypothesis (EMH)** (discussed below) was developed which hypothesised that, at any time, share prices are fairly valued on the basis of all existing known information.

2.4.2 Profit taking

Surprising though it may seem, a company's share price will often fall when it announces good profits. This may happen because speculators buy before the profit announcement is actually made, and then sell their shares in order to take the profit.

2.4.3 Press recommendations

If the press tips a particular share for whatever reason, the price of that share is likely to rise. It is worth noting, however, that this may be caused by buying or simply by the market makers pushing up the price in anticipation of likely buying.

2.4.4 Market makers' and speculators' manoeuvres

Market makers depend on high levels of activity in terms of buying and selling in order to make their profits. Thus, in periods with little activity, they may well try to stimulate the market artificially by moving their quoted prices, and possibly sell shares that they do not own.

Speculators may also employ this technique of selling shares they do not own if they anticipate that the share price will fall. However, if the market makers get wind of this activity, they may push up their quoted prices in order to force speculators to buy the shares, which they need to deliver, at a high price. These speculators who have traded in anticipation of a fall in the share price are known as bears.

2.4.5 Interest rate and currency movements

An increase in interest rates may cause share prices to fall for two separate reasons:

- The available alternative investments in, say, government stocks will become more attractive.
- The higher cost of borrowing is likely to damp down economic activity in general, thus having an adverse effect on company profits.

The effect of movements in sterling can also be fairly complicated. Although a fall in sterling may lead to a rise in interest rates, with its associated problems, it may also improve a country's competitive position relative to other countries and may thus give rise to greater profit potential.

2.4.6 New share issues

If a company raises funds by issuing a large number of new shares, the share price may well fall, as at that time there may not be enough willing buyers to absorb the number of shares in issue.

2.4.7 Political and other sentiment

In the run-up to an election, the anticipated result will often have an effect on share prices.

It has been known in the past for share prices to be affected by the result of a cricket match and also by more logical factors such as economic statistics or the behaviour of other markets in the world.

2.4.8 Takeovers

Rumours of a corporate action such as a major takeover tend to push up the share price of the company concerned and also quite possibly of the market as a whole.

2.4.9 Automated trading

Automated forms of trading have sometimes been blamed for major movements in stock prices.

- **Program trading** has been defined by the New York Stock Exchange as an order to buy or sell fifteen or more stocks valued at over US$1 million total. In practice, this means that computers are used to enter program trades. Such trades are often made to take advantage of arbitrage opportunities, which seek to exploit small price differences between related financial instruments, such as index futures contracts and the stocks underlying them.
- **Algorithmic trading** is a form of trading in which orders are entered to an electronic trading platform based on an algorithm which sets criteria for making the trade based on aspects such as timing, price or quantity. Generally, orders will be executed without human intervention. A special type of algorithmic trading is **high frequency trading** (HFT) or 'flash' trading, which seeks to respond to information received electronically before other human traders are able to process the information and place trades. Studies have found that over half of equity trading volume on major exchanges results from algorithmic trading.

2.5 Market efficiency

You covered the efficient market hypothesis in previous studies and we summarise it here.

The **'random walk hypothesis' suggests** that future share price movements cannot be predicted from details of historical movements. On the other hand, share prices are observed to move when **new information** is received, and will fairly reflect that new information. Since new information must, by definition, be unpredictable

and random (otherwise it would not be new information), it follows that share price movements will also be random.

From these observations, the **efficient markets hypothesis (EMH)** was developed which broadly stated that, at any time, share prices are fairly valued on the basis of all existing information.

If securities are priced efficiently, their prices reflect forecasts of expected benefits from future cash flows capitalised at appropriate discount rates. Of course, individuals can disagree, and it is this disagreement which results in transactions. The aggregation and resolution of expectations in the transaction process produces an unbiased valuation in an efficient market.

Broadly speaking, the evidence suggests that efficient markets can be divided into three forms that are classified according to the degree to which information is reflected in share prices and the availability of that information.

2.5.1 Weak form efficiency

The **weak** form of the EMH states that all information that can be discovered from past price movements has already been incorporated into the current share price. This implies that it should not be possible to predict future price movements from past price movements or to produce superior returns on the basis of past information, since any such information available from past prices has already been taken account of in the current price.

2.5.2 Semi-strong form efficiency

The **semi-strong** form of the EMH states that current share prices not only reflect the information referred to in the weak form, but also incorporate any information that has been published about a company (all publicly available information). For example, release of preliminary figures by the company constitutes new information and the share price will move to reflect this.

This level of market efficiency has been investigated through a number of **events studies** investigating the reaction of the market to the release of new information. Observations in major markets have shown that prices do respond to the release of new information and, traditionally, many people have suggested that share markets tend to exhibit this level of efficiency.

2.5.3 Strong form efficiency

The **strong** form of the EMH is based on the premise that share prices fully reflect all information, whether publicly available or private.

If markets are strong-form efficient, then no investor will ever be able to make better than average returns, except through luck. It would be impossible for even the most corrupt investor to find out anything which the share price did not already reflect.

The evidence on strong-form efficiency is not conclusive, but the seemingly widespread incidence of insider traders (until they are caught) suggests that knowledge of secret information does give the investor a way of predicting share price movements before they have happened. The strong form of market efficiency cannot, therefore, hold.

2.5.4 Alternative theories

The global crisis of 2007–2009 has brought renewed discussion of alternatives to the EMH, which include the following.

Behavioural finance. This area of study postulates that markets are driven by traders who are not rational in the classical sense. Instead, they display behavioural and cognitive shortcomings which psychologists have identified. For example, market participants show a tendency to avoid losses at all costs. They also tend to act like a herd, which will make occasional extreme market crashes more probable.

Adaptive evolution. Markets are complex 'ecosystems'. They may be in a stable equilibrium for extended periods of time. Occasionally, a disruptive event may upset the equilibrium, and new financial 'species' may emerge while others may become 'extinct'.

Chaos theory. It is hypothesised that markets do not behave in a random fashion. Market movements may be modelled in a similar way to the modelling of 'chaotic' systems such as wind turbulence or weather patterns.

3 Fixed interest securities, bonds and leasing



Section overview

- Some of this section will be revision, but it also includes some types of bonds that you may not have come across before.

The term **bonds** describes various forms of long-term debt a company may issue. Bonds come in various forms, including redeemable, irredeemable, floating rate, zero coupon and convertible**.**

The terminology should be familiar to you from your earlier studies but it is worthwhile to recap on it here.



Definitions

Face (or par or nominal) value: The amount of money the bond holder will receive when the bond matures (provided it is not redeemable at a premium or a discount). This is not the market price of the bond. If the market price is above par value, the bond is said to be trading at a premium; if price is below par value, the bond is trading at a discount.

Coupon rate: The amount the bond holder receives as interest payments based upon the par value.

Maturity: The date at which the principal will be repaid. Maturities can range from one day to as long as 30 years (although it has been known for 100-year bonds to be issued).

Issuer: The issuer's stability is the bond holder's main assurance for getting repaid. For example, the Government is much more secure than any company. Hence government-issued bonds are known as risk-free assets and will have lower returns than company-issued bonds.

Fixed charge: The security given on the bond relates to a specific asset or group of assets, typically land and buildings. The company will be unable to dispose of the asset without providing a substitute asset or without the lender's consent.

Floating charge: The charge is on certain assets of the company and the lender's security in the event of a default of payment is whatever assets of the appropriate class the company then owns. The company would be able to dispose of the assets as it chose until a default took place.

3.1 Bonds

Unlike shares, debt is often issued at par, ie with CU100 payable per CU100 nominal value. Where the coupon rate is fixed at the time of issue, it will be set according to prevailing market conditions given the credit rating of the company issuing the debt. Subsequent changes in market (and company) conditions will cause the market value of the bond to fluctuate, although the coupon will stay at the fixed percentage of the nominal value.



Case example: Low interest rates

Some European companies and banks are taking advantage of low interest rates, healthy cash reserves and receptive investors to repay some old debt ahead of schedule and, in many cases, replace it with longer-term bonds to smooth repayment schedules.

Banks have been using loans from the European Central Bank to buy back some of their bonds at a discount, which eases their debt load and generates extra capital on their balance sheet.

While banks are mainly taking advantage of the depressed value of their debt, particularly 'subordinated debt' that is at risk in any restructuring, most corporate bonds trade at a premium in the market.

However, companies enjoy exceptionally low borrowing costs, thanks to burgeoning investor interest and rock-bottom interest rates for safer government bonds, which serve as a benchmark against which debts are priced. This allows many to exchange old bonds with a higher pre-financial crisis coupon with less expensive instruments.

Source: Wigglesworth, R. (2012) Low rates fuel early debt repayments, *Financial Times*, 22 April, *www.ft.com*

3.2 Terms of loan agreement

Covenants within the loan agreement are conditions attached to a bond issue.

3.2.1 Negative pledge

A negative pledge clause is where the borrower undertakes to refrain from raising other finance on which it grants a better security.

3.2.2 Cross default clause

A cross default clause is included in most loan agreements and states that if the borrower defaults on any one of its loans, then this will constitute a default of this borrowing as well.

The important consequence of this is that the borrower may be allowed to default on one loan due to, perhaps, overly strenuous covenants which the lender is prepared to waive, but that will still constitute a default for any other borrowing which has a cross default clause in existence.

3.2.3 *Pari passu* clause

A *pari passu* clause ensures that any lender is granted the same level of security as given to any new lenders.

3.2.4 Restrictive financial position covenants

It is possible to include within the loan documentation a number of key ratios, such as gearing ratio, interest cover and business net worth which the borrower must meet at a minimum. These normally include some measure of the ability to pay interest and may state an express limit on the overall level of borrowing that can be undertaken.

3.2.5 Limitation on additional indebtedness

There may be a restriction on the company that limits the ability to take on further indebtedness unless it meets certain conditions. These conditions are normally linked to key ratios such as interest cover.

3.2.6 Limitation on restricted payments

This covenant limits the company's ability to pay dividends or repurchase its own capital. Once again, these limits are often linked to key ratio cut-off points, such as interest or asset cover.

3.2.7 Limitations on transactions with affiliates

This limits the ability of the company to enter into transactions with an affiliate unless they are on normal commercial terms.

3.2.8 Limitation on dividend and other payment streams from subsidiaries

This is a general covenant prohibiting any subsidiary from entering into an agreement which limits its ability to remit dividends up to the holding company.

3.2.9 Disposal proceeds of asset sales

This ensures that the company cannot sell assets unless they receive a fair market value and unless a specified percentage of the consideration is received in cash. A further extension to this clause is often that the monies received are used to:

- Repay senior debt
- Reinvest within the business within one year
- Repay the debt

3.2.10 New owner clause

A new owner clause is included to allow the lender the right of repayment should the ownership of the corporate borrower change.

3.2.11 Nature of business

This is linked to the new owner clause. Should the nature of the company's business change dramatically, this will again affect the rights of the holders of the bonds, and may give the right to request a redemption of the bond.

3.2.12 Financial information

The company may be required to provide financial statements, interim accounts or quarterly or monthly management accounts.

3.2.13 Events of default

A breach of the covenants or the failure to pay the coupon or principal on the due dates are events of default. While within the agreement there may be allowance for 'grace periods', if the borrower remains in default, the loan is immediately repayable.

Most bonds are constituted in such a way that there is a trustee who is responsible for ensuring the bondholder's interests are protected. Where there is no trustee, the bondholder is obliged to seek redress directly from the company.

3.3 Bond coupons

3.3.1 Predetermined coupons

This category includes the vast majority of bonds. On these bonds, the gross annual coupon (ie the amount due to be paid in a one-year period, irrespective of the frequency of payment) is specified as a percentage of the nominal value of the bond. Sub-classes here include:

- **Straight/fixed coupon bonds** – where the coupon is at a set level for the entire life of the bond.
- **Stepped coupon bonds** – where the coupon increases in steps to prespecified amounts as the bond moves through its life.
- **Zero-coupon bonds** – bonds that carry no coupon and simply redeem at face value at maturity. On such bonds, the investors realise a return by paying only a fraction of the face value, when the bonds are issued.

3.3.2 Variable coupons

This category includes:

- **Floating rate bonds or notes** – where the coupon varies as market (LIBOR) interest rates vary. Loan agreements specify the interest rate (called reference or index rate to be used) and also the quoted margin, the rate above the reference rate that must be paid. The quoted margin will reflect the borrower's credit rating and size of issue, along with market conditions. Arrangements may include a floor (the rate below which the rate paid cannot fall) and a ceiling or cap (the rate above which the rate paid cannot rise).
- **Index-linked bonds** – where the coupon and redemption proceeds figures get scaled for the effects of inflation.

3.3.3 Coupon frequency

The frequency of the payment of the coupons is predetermined before issue, normally following the local market conventions. As a result, all investors will (or should) be aware of these dates.

Conventions regarding the frequency of payment differ between bond markets. Some markets have a convention of paying semi-annual coupons, as is the case in the UK and the US, whereas other markets, in particular the Eurobond market, France and Germany, pay coupons on an annual basis.

3.3.4 Zero coupon bonds

Zero coupon bonds are bonds that are issued at a discount to their redemption value, but no interest is paid on them. The investor gains from the difference between the issue price and the redemption value. There is an implied interest rate in the amount of discount at which the bonds are issued (or subsequently re-sold on the market).

- The advantage for borrowers is that zero coupon bonds can be used to raise cash immediately. There is no cash repayment until redemption date. The cost of redemption is known at the time of issue, and so the borrower can plan to have funds available to redeem the bonds at maturity.
- The advantage for lenders is restricted, unless the rate of discount on the bonds offers a high yield. The only way of obtaining cash from the bonds before maturity is to sell them. Their market value will depend on the remaining term to maturity and current market interest rates.

3.4 Debentures



Definition

Debenture: A written acknowledgement of a debt by a company, usually given under its seal and normally containing provisions as to payment of interest and the terms of repayment of principal. A bond may be secured on some or all of the assets of the company or its subsidiaries.



Case example: Debenture tickets

One example of a debenture is the existence of 'debenture tickets' for the All England Lawn Tennis Club (Wimbledon). An investor who has lent money to the club to fund capital improvements (such as the retractable roof on Centre Court) is not paid interest but is instead given seats in prime locations on either Centre Court or No 1 Court. These debenture tickets are the only tickets that can be legally transferred or sold by the holder to another party.

3.5 Eurocurrency and Eurobonds



Definitions

Eurocurrency: Currency which is held by individuals and institutions outside the country of issue of that currency.

Eurodollars: US dollars deposited with, or borrowed from, a bank outside the USA.

Eurobond: A bond sold outside the jurisdiction of the country in whose currency the bond is denominated.

3.5.1 Eurocurrency

A UK company might borrow money from a bank or from the investing public in sterling. However it might also borrow in a foreign currency, especially if it trades abroad, or if it already has assets or liabilities abroad denominated in a foreign currency. When a company borrows in a foreign currency, the loan is known as a eurocurrency loan. (As with euro-equity, it is not only the euro that is involved, and so the 'euro-' prefix is a misnomer.) Banks involved in the eurocurrency market are not subject to central bank reserve requirements or regulations in respect of their involvement.

The eurocurrency markets involve the depositing of funds with a bank outside the country of the currency in which the funds are denominated and re-lending these funds for a fairly short term, typically three months, normally at a floating rate of interest.

Eurocredits are medium to long-term international bank loans which may be arranged by individual banks or by syndicates of banks. Syndication of loans increases the amounts available to hundreds of millions, while reducing the exposure of individual banks.

3.5.2 Eurobonds

Eurobonds are long-term loans raised by international companies or other institutions and sold to investors in several countries at the same time. Eurobonds are normally repaid after 5–15 years, and are for major amounts of capital ie $10 million or more.

In recent years, a strong market has built up which allows very large companies to borrow in this way, long-term or short-term. Again, the market is not subject to national regulations.

Advantages of Eurobonds

- Eurobonds are 'bearer instruments', which means that the owner **does not have to declare his identity**.
- Interest is **paid gross** and this has meant that Eurobonds have been used by investors to avoid tax.
- Eurobonds create a liability in a foreign currency to **match** against a foreign currency asset.
- They are often **cheaper** than a foreign currency bank loan because they can be sold on by the investor, who will therefore accept a lower yield in return for this greater liquidity.
- They are also extremely **flexible**. Most eurobonds are fixed rate but they can be floating rate or linked to the financial success of the company.
- They are typically issued by companies with **excellent credit ratings** and are normally unsecured, which makes it easier for companies to raise debt finance in the future.
- Eurobond issues are **not normally advertised** because they are placed with institutional investors and this reduces issue costs.

Disadvantages of Eurobonds

- Like any form of debt finance there will be **issue costs** to consider (approximately 2% of funds raised in the case of Eurobonds) and there may also be problems if gearing levels are too high.
- A borrower contemplating a eurobond issue must consider the **foreign exchange risk** of a long-term foreign currency loan. If the money is to be used to purchase assets which will earn revenue in a currency different to that of the bond issue, the borrower will run the risk of exchange losses if the currency of the loan strengthens against the currency of the revenues out of which the bond (and interest) must be repaid.

3.6 Deep discount bonds



Definition

Deep discount bond: A bond offered at a large discount on the face value of the debt so that a significant proportion of the return to the investor comes by way of a capital gain on redemption, rather than through interest payment.

Deep discount bonds will be redeemable at par (or above par) when they eventually mature. For example a company might issue CU1,000,000 of bonds in 2013 at a price of CU50 per CU100, and redeemable at par in the year 2028. For a company with specific cash flow requirements, the low servicing costs during the currency of the bond may be an attraction, coupled with a high cost of redemption at maturity.

Investors might be attracted by the large capital gain offered by the bonds, which is the difference between the issue price and the redemption value. However, deep discount bonds will carry a much lower rate of interest than other types of bonds. The only tax advantage is that the gain gets taxed in one lump on maturity or sale, not as amounts of interest each year.

3.7 Redeemable and irredeemable bonds

Bonds are usually redeemable. They are issued for a term of ten years or more, and sometimes for up to 25 or 30 years. At the end of this period, they will 'mature' and become redeemable (at par or possibly at a value above par).



Definition

Redemption: Repayment of the principal amount (for example a bond) at the date of maturity.

Some redeemable bonds have an earliest and a latest redemption date. For example, 12% Loan Notes 2013/15 are redeemable at any time between the earliest specified date (in 2013) and the latest date (in 2015).

The issuing company can choose the date. The decision by a company when to redeem a debt will depend on how much cash is available to the company to repay the debt, and on the nominal rate of interest on the debt.

Some bonds do not have a redemption date, and are 'irredeemable' or 'undated'. Undated bonds might be redeemed by a company that wishes to pay off the debt, but there is no obligation on the company to do so.

Corporate bonds can have a variety of **redemption** terms.

3.7.1 Bullets

Many bonds issued are bullet issues, with a single redemption date.

3.7.2 Sinking funds

The sinking fund or sinker is a process whereby a proportion of the bonds in issue are redeemed each year. The bonds to be redeemed in each year are selected by the process of 'drawing' the serial numbers. The serial numbers of the bonds drawn in this way are then published and the holders submit the bonds to the paying agent for redemption at par. The final repayment is normally larger than the others and is referred to as the balance or balloon repayment.

Sinking funds tend to come into operation towards the end of the bond's life and rarely start to redeem from the first coupon date.

3.7.3 Purchase fund

A purchase fund buys back the bonds in the secondary market and not at par. The obligation to repay is triggered by a condition specified in the offer document, normally the bond trading below par.

3.7.4 Serial notes

A serial note is one where a proportion of the capital is repaid each year together with the interest.

3.7.5 Optional redemption

The option to redeem a bond can be given to either side of the deal. A **call right** would give the issuer the right to seek an earlier redemption. An example would be the double-dated gilts in the UK market, where the government has the right to redeem from the earlier of the two dates, but must redeem by the later date.

3.7.6 Callable bonds

Callable bonds are where the issuer has the right to redeem the bonds at an agreed price prior to its maturity. This price may be above the normal redemption price and the extra price paid is referred to as the call premium.

The call provision is valuable to the issuer, but is a disadvantage to the investor, since the issuer will only exercise the call if it suits the issuer to do so. As a result, the price at which a callable bond can be issued will be lower than for a comparable straight bond, and the interest rate it will need to pay will consequently be higher.

A call provision will reduce the expected time to maturity of the bond, since there is a possibility that the bond will be retired early as a result of the call provision being exercised.

Call provisions will be exercised when the issuer can refinance the issue at a cheaper cost due to interest rates having fallen. For example, if a bond were issued when interest rates were 15% and interest rates have now fallen to 5%, the issuer could issue a new bond at the currently low rate and use the proceeds to call back the higher coupon bond.

3.7.7 Puttable bonds

This is where the investor has a put option on the bond, giving him the right to sell the bond back to the company at a specified price (the put price). The put price is typically around par, given that the bond was issued at par.

The benefit to investors is that if interest rates rise after the bond is issued, they can sell the bond at a fixed price and reinvest the proceeds at a higher interest rate. As a result of the benefit to investors, puttable bonds are issued at higher prices or lower coupons than comparable nonputtable bonds.

3.8 Convertible bonds



Definition

Convertible debt: A liability that gives the holder the right to convert into another instrument, normally ordinary shares, at a pre-determined price/rate and time.

Conversion terms often vary over time. For example, the conversion terms of convertible bonds might be that on 1 April 20X0, CU2 of bonds can be converted into one ordinary share, whereas on 1 April 20X1, the conversion price will be CU2.20 of bonds for one ordinary share. Once converted, convertible securities cannot be converted back into the original fixed return security.

The current market value of ordinary shares into which a unit of bonds may be converted is known as the conversion value. The conversion value will be below the value of the bonds at the date of issue, but will be expected to increase as the date for conversion approaches on the assumption that a company's shares ought to increase in market value over time.

Conversion value = Conversion ratio × Market price per ordinary share

Conversion premium = Current market value – Current conversion value



Interactive question 1: Convertibles [Difficulty level: Intermediate]

The 10% convertible bonds of Starchwhite are quoted at CU142 per CU100 nominal. The earliest date for conversion is in four years time, at the rate of 30 ordinary shares per CU100 nominal. The share price is currently CU4.15. Annual interest on the bonds has just been paid.

Required

(a) Calculate the current conversion value.
(b) Calculate the conversion premium and comment on its meaning.

See **Answer** at the end of this chapter.

Most companies issuing convertible bonds expect them to be converted. They view the notes as delayed equity. They are often used either because the company's ordinary share price is considered to be particularly depressed at the time of issue or because the issue of equity shares would result in an immediate and significant drop in earnings per share. There is no certainty, however, that the security holders will exercise their option to convert. Therefore the bonds may run their full term and need to be redeemed.

3.8.1 Price, coupon rate and premium

A company will aim to issue bonds with the greatest possible conversion premium so that, for the amount of capital raised, it will on conversion have to issue the lowest number of new ordinary shares. The premium that will be accepted by potential investors will depend on the company's growth potential and so on prospects for a sizeable increase in the share price.

Convertible bonds issued at par normally have a lower coupon rate of interest than straight debt. This lower yield is the price the investor has to pay for the conversion rights. It is, of course, also one of the reasons why the issue of convertible bonds is attractive to a company, particularly one with tight cash flows around the time of issue, but an easier situation when the notes are due to be converted.

When convertible bonds are traded on a stock market, their minimum market price or floor value will be the price of straight bonds with the same coupon rate of interest. If the market value falls to this minimum, it follows that the market attaches no value to the conversion rights.

The actual market price of convertible bonds will depend on:

- The price of straight debt
- The current conversion value
- The length of time before conversion may take place
- The market's expectation as to future equity returns and the risk associated with these returns

3.8.2 Mandatory convertibles

Sometimes the bondholder will be required to convert the nominal value into ordinary shares of the company at a set redemption date. These are known as mandatory convertibles.

The use of mandatory convertibles in the UK has increased with the weak market for Initial Public Offerings since 2008. The appeal for the investor of 'mandatories' is that the company takes the risk of the share price volatility in the period between issuance and conversion. Mandatories are often issued in conjunction with equity in an IPO to attract investors who would not otherwise be interested in the IPO.

3.8.3 Advantages and disadvantages of convertible bonds

Advantages

Compared to either a bond or share issue, convertibles offer the following advantages to the issuer:

- No immediate dilution of the current shareholders
- Lower cost than normal bonds due to a lower coupon
- Less dilution of earnings per share than either a normal share or bond issue as a consequence
- Suitable for when assets are not available to secure straight finance
- Suitable for finance projects with long pay-back periods

Disadvantages

The disadvantage to the issuer is that if the company fails to perform, it is obliged to make the coupon payments, and ultimately redeem the bond for cash if the holder chooses not to convert. Therefore, the firm cannot be sure that they are issuing deferred share capital when they issue a convertible.

3.9 Warrants



Definition

Warrant: A right given by a company to an investor, allowing him to subscribe for new shares at a future date at a fixed, pre-determined price (the exercise price).

Warrants are usually issued as part of a package with unsecured bonds. An investor who buys bonds will also acquire a certain number of warrants. The purpose of warrants is to make the bonds more attractive.

Once issued, warrants are detachable from the bonds and can be sold and bought separately before or during the 'exercise period' (the period during which the right to use the warrants to subscribe for shares is allowed). The market value of warrants will depend on expectations of actual share prices in the future.

3.9.1 Advantages of warrants

- Warrants themselves **do not involve the payment of any interest or dividends**. Furthermore, when they are initially attached to bonds, the interest rate on the bonds will be lower than for a comparable straight debt.
- Warrants **make a bond issue more attractive** and may make an issue of unsecured bonds possible where adequate security is lacking.
- Warrants provide a **means of generating additional equity funds** in the future without any immediate dilution in earnings per share. The cost will be the right that warrants holders have acquired to buy at the possibly reduced exercise price.

3.9.2 Disadvantages of warrants

- When exercised, they will result in the **dilution of share capital**.
- Warrants may be exercised when a business **does not need additional capital**.
- The company has **less control over the exercise of warrants** than it does over the exercise of share capital.

3.10 Exchangeable bonds



Definition

Exchangeable bonds: Bonds that are convertible into the ordinary shares of a subsidiary or associate company of the issuer. This is therefore a different company to the issuer of the bond.

The use of exchangeable bonds can be to provide a way for a group to divest an unwanted investment. There is no dilution of control for the shareholders of the issuer.

3.11 Hybrid bonds



Definition

Hybrid bond: A security that combines characteristics of both debt and equity.

Fixed rate hybrids pay a predictable return or dividend until a certain date, at which point the holder has a number of options, possibly including converting the securities into the underlying share. The most common examples of hybrids are convertible bonds and convertible preference shares.

Though hybrids pay a fixed return like bonds, the payments are voluntary. A missed payment does not constitute a default and payments do not normally accumulate if deferred. Like equities, they tend to be irredeemable or very long dated and they rank behind other debt if the company becomes insolvent.

The motives behind corporate hybrid issues include the following:

- Consolidating credit ratings by buying back senior debt.
- Refinancing pension deficits by using the proceeds of the issue to increase the pension fund. This reduces the deficit and, if the hybrid is assessed as partly equity, replacing the pension liability debt will also have a positive impact on the company's credit rating.
- Financing corporate activity such as mergers and acquisitions, share buybacks or LBOs (leverage buy-outs), providing non-dilutive capital and flexibility.

For bond investors, hybrids offer higher yields than conventional debt but are not without risk. For equity investors, hybrids provide a tax efficient, long-term source of finance to the company without either the diluting effect of an equity issue or the risk of extra gearing from a debt issue where the coupons cannot be deferred if circumstances dictate. Investors in the equity still enjoy the benefits associated with any improvement in company performance.

3.12 Commercial paper



Definition

Commercial paper: Short-term unsecured corporate debt with maturity up to 270 days. The typical term of this debt is about 30 days.

As commercial paper is unsecured debt, it can only be issued by large organisations with good credit ratings, normally to fund short-term expenditure on operating expenses or current assets. The debt is issued at a discount that reflects the prevailing interest rates, but the rates on commercial paper are typically lower than bank rates.

Commercial paper is a cheaper alternative to bank credit, although the small difference in interest rates means that the saving on commercial paper is only significant if large sums are being raised. However, many businesses still maintain bank lines of credit even if they use commercial paper. The wide maturity gives greater flexibility, security does not have to be given and investors can trade their commercial paper, although the market is less liquid than for bonds. However issues are controlled, and banks that issue ordinary commercial paper see a reduction in their credit limits.

A sub-sector of the commercial paper market – the asset-backed commercial paper market – is where the loans are backed by assets such as mortgages or credit card debt. The concern is that asset-backed commercial paper could be held off-balance sheet in special investment vehicles that use the funds raised to buy longer-term assets such as mortgage-based securities. As these vehicles are off-balance sheet, their activities do not affect the banks' ability to lend money for other reasons. However one of the uses made of the funds raised was to invest in sub-prime mortgage backed assets. When the credit crunch began, investors lost confidence and refused to continue the loans. As a result some of the special investment vehicles had to be bailed out by the banks that created them.

3.13 Medium Term Notes (MTNs)

Medium Term Notes (MTNs) are not strictly a type of security. Instead, the term describes a facility enabling the issuer to issue a range of stock from one global facility. In the US, the facility can cover short-term, commercial paper out to 30-year debt.

The issuer sets up a shelf programme. When the programme is initially set up, relevant documentation is prepared to enable the issuer to issue a wide variety of different instruments in terms of:

- Maturity (eg from one week to ten years)
- Currency (sterling, US dollars, euro)
- Coupon (coupon-paying or zero coupon)
- Instrument (commercial paper, long-term bonds)

The implication of this is that the costs of setting up the programme are relatively high compared to the cost of a large Eurobond issue. However, the benefit is that the programme offers greater flexibility and lower cost to the issuer in the long run. As a result, it is more suitable for issuers who need funding flexibility over a period of time. In contrast, a large issuer might find a one-off large Eurobond issue more suitable.

3.14 Repos

Definition

A **repurchase agreement (repo)**: An agreement between two counterparties under which one counterparty agrees to sell an instrument to the other on an agreed date for an agreed price, and simultaneously agrees to buy back the instrument from the counterparty at a later date for an agreed price.

A repo is a loan secured by a marketable instrument, usually a treasury bill or a bond. The typical term is 1 – 180 days. A repo is an attractive instrument because it can accommodate a wide spectrum of maturities. The flows in a repo are shown in the following diagram.

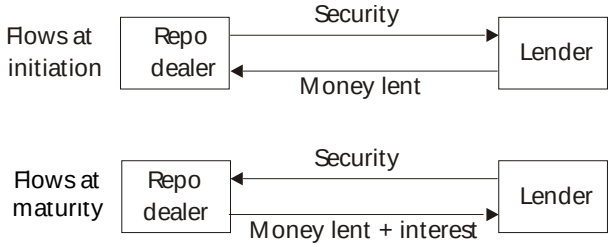


Figure 13.1: Flows in a repo transaction

A repo is in effect a cash transaction combined with a forward contract. Repos can be:

- Overnight (one-day maturity transactions)
- Term (specified end date)
- Open (no end date)

A reverse repurchase agreement (reverse repo) is an agreement for the purchase of an instrument with the simultaneous agreement to resell the instrument at an agreed future date and agreed price. In a reverse repo, the dealer purchases the security initially and then sells it on maturity. Because the two parties in a repo agreement act as a buyer and a seller of the security, a repo to one party is a reverse repo to the other.

3.14.1 Use of repos

Repos give buyers the chance to invest cash for a limited period of time, on a transaction where they receive collateral as security. Market liquidity and rates are generally good. Traders use repos to cover their positions and benefit from lower funding costs. The repo market is an important component of the overnight market.



Case example: Repo 105

Repo 105 is an accounting dodge where a short-term loan is treated as a sale of assets. The cash obtained pays off other debt and the company appears to reduce its leverage on its published statement of financial position. After the statement is published, the company borrows cash and buys back its original assets. This contrasts with a normal repo arrangement where the assets remain in the statement of financial position, as the transaction is treated as financing.

The justification for using Repo 105 has been that under US accounting rules, the sale could be recognised as the assets sold were valued at more than 105% of cash received. However, the arrangement is contrary to the principle of substance over form. Repo 105 does not have a business purpose. It is undertaken to manipulate financial information.

Lehman Brothers used Repo 105, having obtained the opinion of its legal advisers Linklaters that the arrangement was a true sale under UK law. It then applied US accounting standards to make it effective. In the second quarter of 2008 it employed Repo 105 to appear to demonstrate better leverage and liquidity, and mitigate the disclosure of its losses.

3.15 Islamic bonds

Islamic bonds or Sukuk are bond issues that satisfy Islamic principles and have gained Sharia approval. Western style bonds do not satisfy certain Islamic principles, in particular the prohibition of speculation and the payment of interest or any charge simply related to time.

Though Islam frowns on speculation, it does approve of partnerships and risk sharing. Sukuk are based on partnership risk sharing ideas. When investing in such bonds, the Sukuk holder is effectively becoming a part owner of the asset being financed, sharing in profits it generates or losses it incurs. The arrangement is achieved through a special purpose vehicle (SPV) which buys the asset to be financed with the funds raised and acts on behalf of all the Sukuk investors.

In any partnership there are at least two parties involved who may contribute capital, skill and effort, or both. With Sukuk, the parties are:

- Rab al Mal – provides capital
- Mudarib – provides skill and effort

The main types of issue are:

- **Mudaraba Sukuk** – This is the primary type of Sukuk contract where the SPV is the Rab al Mal and company needing finance is the Mudarib. In such an arrangement, all profits are shared as defined in the Sukuk contract, and all losses are absorbed by the Rab al Mal. As part of the contract it is normal for the Mudarib to contract to buy the financed asset at maturity in order to redeem the Sukuk holders. The result of this arrangement can be very similar to that of Western asset-backed bonds depending on how the profit-sharing arrangements are structured.

- **Musharaka Sukuk** – Where all parties contribute both capital and effort. All profits are shared as defined in the Sukuk contract, and all losses are absorbed in proportion to capital introduced. This is very dissimilar to Western bonds, since Western bond-holders would not expect to contribute anything other than capital.
- **Salam Sukuk** – Has a structure similar to a short term zero-coupon bond which is achieved through a combination of spot and deferred payment sales.
- **Istisn'a Sukuk** – Used in construction contracts where the profits are generated from rents received and the ultimate sale of the property constructed.
- **Ijara Sukuk** – Has a structure similar to a leasing arrangement.

3.16 Financial reporting

3.16.1 Recognition

As a financial liability, loans should be recognised when an entity enters into their contractual provisions.

If a new loan is agreed between a borrower and a lender, or the two parties agree revised terms for an existing loan, the accounting depends on whether the original liability should be derecognised and a new liability recognised, or whether the original liability should be treated as modified.

A new liability should be recognised if the new terms are substantially different from the old terms. The terms are substantially different if the present value of the cash flows under the new terms, including any fees payable/receivable, discounted at the original effective interest rate, is 10% or more different from the present value of the remaining cash flows under the original terms. There is said to be an 'extinguishment' of the old liability. In these circumstances:

- The difference between the carrying amount extinguished and the consideration paid should be recognised in profit or loss.
- The fees payable/receivable should be recognised as part of that gain or loss.

If the difference between the two present values is below this cut-off point, there is said to be a modification of the terms. In these circumstances:

- The existing liability is **not** derecognised.
- Its carrying amount is adjusted by the fees payable/receivable and amortised over the remaining term of the modified liability.

3.16.2 Disclosure/presentation

Remember the key rule that if a financial instrument meets any of the criteria set out in the definition of a financial liability, then it should be classified as a liability and not as an equity instrument.

Debt finance is generally classified under the other liabilities category in IAS 39.

3.16.3 Measurement

Debt should initially be measured at its fair value. However, IFRS 9 requires that financial liabilities are initially measured at **transaction price**, ie the fair value of consideration received except where part of the consideration received is for something other than the financial liability. In this case the financial liability is initially measured at fair value determined as for financial assets. Transaction costs are added to this amount for financial liabilities classified as measured at amortised cost. Subsequently debt should be measured at **amortised cost** using the effective interest method, with gains and losses in value taken to profit or loss.

3.17 Leasing

Rather than buying an asset outright, using either available cash resources or borrowed funds, a business may lease an asset. This method of financing is extremely popular with airlines (who typically lease their aircraft) and companies with car pools.

3.17.1 Operating leases

An operating lease is a lease where the lessor retains most of the risks and rewards of ownership.

- The lessor supplies the equipment to the lessee.
- The lessor is responsible for servicing and maintaining the leased equipment.
- The period of the lease is fairly short, less than the economic life of the asset. At the end of one lease agreement, the lessor can either lease the same equipment to someone else and obtain a good rent for it, or sell the equipment second-hand.

Most of the growth in the Bangladesh leasing business has been in operating leases.

3.17.2 Finance leases

A finance lease is a lease that transfers substantially all of the risks and rewards of ownership of an asset to the lessee. It is an agreement between the lessee and the lessor for most or all of the asset's expected useful life.

There are other important characteristics of a finance lease.

- The lessee is responsible for the upkeep, servicing and maintenance of the asset.
- The lease has a primary period covering most or all of the useful economic life of the asset. At the end of this period, the lessor would not be able to lease the asset to someone else, because the asset would be worn out. The lessor must therefore ensure that the lease payments during the primary period pay for the full cost of the asset as well as providing the lessor with a suitable return on his investment.
- At the end of the primary period the lessee can normally continue to lease the asset for an indefinite secondary period, in return for a very low nominal rent, sometimes called a 'peppercorn rent'. Alternatively, the lessee might be allowed to sell the asset on a lessor's behalf (since the lessor is the owner) and perhaps to keep most of the sale proceeds.

3.17.3 Sale and leaseback

Sale and leaseback occurs when a business that owns an asset agrees to sell the asset to a financial institution and then lease it back on terms specified in a sale and leaseback agreement. The business retains use of the asset and has the funds from the sale, but as a consequence has to pay rent in the future. Sale and leaseback arrangements are particularly appropriate for highly specialised assets that may have a low realisable value and therefore would be poor security for a more traditional loan.



Case example: Tesco

Tesco is one of the biggest corporate owners of property in the UK. In 2005, the company completed two significant sale and leaseback transactions with an aggregate value of CU636 million. The first transaction, worth CU366 million, resulted in the sale and leaseback of twelve stores and two distribution centres. Tesco used the funds to help finance its expansion plan, whilst at the same time retaining a high level of operational control over the properties, including rights to make significant alterations. The funds from the second transaction (CU270 million) were applied to Tesco's CAPEX programme.

3.17.4 Attractions of leasing

Attractions include the following.

- The supplier of the equipment is paid in full at the beginning. The equipment is sold to the lessor, and, apart from any guarantees, the supplier has no further financial concern about the asset.
- The lessor invests finance by purchasing assets from suppliers and makes a return out of the lease payments from the lessee. The lessor will also get capital allowances on his purchase of the equipment.
- Leasing may have advantages for the lessee:
  - The lessee may not have enough cash to pay for the asset, and would have difficulty obtaining a bank loan to buy it. If so the lessee has to rent the asset to obtain use of it at all.

– Finance leasing may be cheaper than a bank loan.

– The lessee may find the tax relief available advantageous.

Operating leases have further advantages.

- The leased equipment and the related obligation do not have to be shown in the lessee's published statement of financial position, so the lessee's statement of financial position shows no increase in its gearing ratio.
- The equipment is leased for a shorter period than its expected useful life. In the case of high-technology equipment, if the equipment becomes out-of-date before the end of its expected life, the lessee does not have to keep on using it. The lessor will bear the risk of having to sell obsolete equipment second-hand.

A major growth area in operating leasing in Bangladesh has been in computers and office equipment (such as photocopiers) where technology is continually improving.

3.17.5 Lease or buy?

The decision whether to lease or buy an asset involves two steps.

- The **acquisition decision:** Is the asset worth having? Test by discounting project cash flows at a suitable cost of capital.
- The **financing decision:** If the asset should be acquired, compare the cash flows of purchasing against those of leasing or hire purchase arrangements. The cash flows can be discounted at an **after-tax cost of borrowing**.

The traditional method is complicated by the need to choose a discount rate for each stage of the decision. In the case of a **non-taxpaying organisation**, the method is applied as follows.

Step 1

The cost of capital that should be applied to the cash flows for the acquisition decision is the cost of capital that the organisation would normally apply to its project evaluations.

Step 2

The cost of capital that should be applied to the (differential) cash flows for the financing decision is the cost of borrowing.

- We assume that if the organisation decided to purchase the equipment, it would finance the purchase by borrowing funds.
- We therefore **compare** the **cost of borrowing** with the **cost of leasing** (or hire purchase) by applying this cost of borrowing to the financing cash flows.

In the case of a **tax-paying organisation**, taxation should be allowed for in the cash flows, so that the traditional method would recommend:

Step 1

Discount the cash flows of the acquisition decision at the firm's **after-tax cost of capital**.

Step 2

Discount the cash flows of the financing decision at the **after-tax cost of borrowing**.



Worked example: Lease or buy decisions 1

Mallen and Mullins Co has decided to install a new milling machine. The machine costs $20,000 and it would have a useful life of five years with a trade-in value of $4,000 at the end of the fifth year. Additional net cash generated from the machine would be $8,000 a year for five years. A decision still has to be taken about the method of financing the project. Two methods of finance are being considered:

- The company could purchase the machine for cash, using bank loan facilities on which the current rate of interest is 13% before tax.
- The company could lease the machine under an agreement which would entail payment of $4,800 at the end of each year for the next five years.

The company's weighted average cost of capital, normally used for evaluating projects, is 12% after tax. The rate of company tax is 24%. If the machine is purchased, the company will be able to claim an annual tax depreciation allowance of 20% of the reducing balance.

Requirement

Advise the management on whether to acquire the machine, on the most economical method of finance, and on any other matter which should be considered before finally deciding which method of finance should be adopted.

Solution

The traditional method begins with the **acquisition decision**. The cash flows of the project should be discounted at 12%. The first writing down allowance is assumed to be claimed in the first year resulting in a saving of tax at Year 2.

Tax depreciation

Year		$
1	20% of $20,000	4,000
2	20% of $(20,000 – 4,000)	3,200
3	20% of $(16,000 – 3,200)	2,560
4	20% of $(12,800 – 2,560)	2,048
		11,808
5	$(20,000 – 11,808 – 4,000)	4,192
		16,000

Taxable profits and tax liability

Year	*Cash profits*	*Tax allowable depreciation*	*Taxable profits*	*Tax at 24%*
	$	$	$	$
1	8,000	4,000	4,000	960
2	8,000	3,200	4,800	1,152
3	8,000	2,560	5,440	1,306
4	8,000	2,048	5,952	1,428
5	8,000	4,192	3,808	914

NPV calculation for the acquisition decision

Year	*Equipment*	*Cash profits*	*Tax*	*Net cash flow*	*Discount factor*	*Present value*
	$	$	$	$		$
0	(20,000)			(20,000)	1.000	(20,000)
1		8,000		8,000	0.893	7,144
2		8,000	(960)	7,040	0.797	5,611
3		8,000	(1,152)	6,848	0.712	4,876
4		8,000	(1,306)	6,694	0.636	4,257
5	4,000	8,000	(1,428)	10,572	0.567	5,994
6			(914)	(914)	0.507	(463)
					NPV	7,419

Conclusion

The net present value (NPV) is positive, so the machine should be acquired, regardless of the method used to finance the acquisition.

The second stage is the **financing decision**, and cash flows are discounted at the after-tax cost of borrowing, which is at 13% × 76% = 9.9%, say 10%. The only cash flows that we need to consider are those which will be affected by the choice of the method of financing. The operating savings of $8,000 a year, and the tax on these savings, can be ignored.

- **The present value (PV) of purchase costs**

Year	*Item*	*Cash flow*	*Discount factor 10%*	*PV*
		$		$
0	Equipment cost	(20,000)	1.000	(20,000)
5	Trade-in value	4,000	0.621	2,484
	Tax savings, from allowances			
2	24% × $4,000	960	0.826	793
3	24% × $3,200	768	0.751	577
4	24% × $2,560	614	0.683	419
5	24% × $2,048	492	0.621	306
6	24% × $4,192	1,006	0.564	567
			NPV of purchase	(14,854)

- **The PV of leasing costs**

  It is assumed that the lease payments are fully tax-allowable.

Year	*Lease payment*	*Savings in tax (24%)*	*Discount factor 10%*	*PV*
	$	$		$
1 – 5	(4,800) pa		3.791	(18,197)
2 – 6		1,152 pa	3.446	3,970
			NPV of leasing	(14,227)

  The cheaper option would be to lease the machine. However, other matters should be considered.

- **Running expenses**

  The calculations assume that the running costs are the same under each alternative. However expenses like maintenance, repairs, insurance and so on may differ between the alternatives.

- **The effect on cash flow**

  Purchasing requires an immediate outflow of $20,000 compared to nothing for leasing. This effect should be considered in relation to the company's liquidity position, which in turn will affect its ability to discharge its debts and to pay dividends.

- **Alternative uses of funds**

  The proposed outlay of $20,000 for purchase should be considered in relation to alternative investments.

- **The trade-in value**

  The net present value of purchase is materially affected by the trade-in value of $4,000 in the fifth year. However, this figure may prove not to be very accurate.

3.17.6 Other issues

Once a company has made the decision to acquire an asset, the comparison of lease vs buy only needs to include the costs that differ; the costs that are common to each option need not be included.

A disadvantage of the traditional approach to making a lease or buy decision is that if there is a negative NPV when the operational cash flows of the project are discounted at the firm's cost of capital, the investment will be rejected out of hand. However, the costs of leasing might be so low that the project would be worthwhile provided the leasing option were selected. This suggests that an investment opportunity should not be rejected without first giving some thought to its financing costs.

Other methods of making lease or buy decisions are as follows.

- **Make the financing decision first**. Compare the cost of leasing with the cost of purchase, and select the cheaper method of financing; then calculate the NPV of the project on the assumption that the cheaper method of financing is used.
- **Combine the acquisition and financing decisions together into a single-stage decision**. Calculate an NPV for the project if the machine is **purchased**, and secondly if the machine is **leased**. Select the method of financing which gives the higher NPV, provided that the project has a positive NPV.



Worked example: Lease or buy decisions 2

In the case of Mallen and Mullins Co, the NPV with purchase would be + $7,419. This was calculated above. The NPV with leasing would be as follows. A discount rate of 12% is used here.

Year	*Profit less leasing cost*	*Tax at 24%*	*Net cash flow*	*Discount factor 12%*	*PV*
	$	$	$		$
1	3,200		3,200	0.893	2,858
2–5	3,200	(768)	2,432	2.712	6,596
6		(768)	(768)	0.507	(389)
					NPV = 9,065

Using this method, leasing is preferable, because the NPV is $1,646 higher.

Since **operating leases** are a form of renting, the only cash flows to consider for this type of leasing are the **lease payments** and the **tax saved**. Operating lease payments are allowable expenses for tax purposes.

Remember that the decisions made by companies are not solely made according to the results of calculations like these. Other factors (short-term cash flow advantages, flexibility, and use of different costs of capital) may be significant.

3.18 Reporting on leasing arrangements

The requirements, which you have studied previously, are summarised below.

3.18.1 Lessor accounting and disclosures

Lessor accounting	
Finance lease	**Operating lease**
Substance	
• Risks and rewards with the **lessee** (or other third parties)	• Risks and rewards with the **lessor**
Accounting treatment	
• Recognise a receivable equal to **'net investment in the lease'**. This is the gross investment (minimum lease payments plus any unguaranteed residual value accruing to the lessor) discounted at the interest rate implicit in the lease	• Asset retained in the books of the lessor and is depreciated over its useful life
• Initial direct costs incurred by the lessor are not added separately to the net investment as they are already included in the discounted figures since they are included in the calculation of the interest rate implicit in the lease (reducing the return)	• Rentals are credited to profit or loss on a straight line basis **over the lease term** unless another systematic basis is more representative
• Finance income is recognised reflecting constant periodic rate of return on the lessor's net investment outstanding	

3.18.2 Lessee accounting and disclosures

Lessee accounting	
Finance lease	**Operating lease**
• A lease that transfers **substantially all the risks and rewards incidental to ownership** of an asset to the lessee. Title may or may not eventually be transferred	• A lease **other than a finance lease**
Accounting treatment	
• Capitalise asset and recognise liability at **fair value** of leased property or, *if lower,* present value of minimum lease payments	• Rentals are charged to profit or loss on a **straight-line basis over the lease term** unless another systematic basis is representative of the user's benefit
• Add initial direct costs (incremental costs directly attributable to negotiating and arranging a lease) to amount recognised as an asset	• Incentives to sign operating leases (and initial reverse premiums or rent-free periods) are **spread** over the life of the operating lease reducing the overall payments on the lease charged to profit or loss
• Depreciate asset over the **shorter of the useful life and the lease term including any secondary period** (useful life if reasonable certainty the lessee will obtain ownership)	
• Apply finance charge so as to give a constant rate on the outstanding liability (using the **interest rate implicit in the lease**)	
• Rental payments are split between the finance charge element and the repayment of capital	

3.18.3 Current developments

The distinction between classifying a lease as an operating lease or a finance lease has a considerable impact on the financial statements, most notably on indebtedness, gearing ratios, ROCE and interest cover. It is argued that the current accounting treatment of operating leases is inconsistent with the definition of assets and liabilities in the IASB's *Conceptual Framework*.

The different accounting treatment of finance and operating leases has been **criticised** for a number of reasons.

(a) Many users of financial statements believe that **all lease contracts give rise to assets and liabilities that should be recognised in the financial statements of lessees**. Therefore these users routinely adjust the recognised amounts in the statement of financial position in an attempt to assess the effect of the assets and liabilities resulting from operating lease contracts.

(b) The split between finance leases and operating leases can result in **similar transactions being accounted for very differently,** reducing comparability for users of financial statements.

(c) The difference in the accounting treatment of finance leases and operating leases also provides **opportunities to structure transactions so as to achieve a particular lease classification**.

It is also argued that the current accounting treatment of operating leases is **inconsistent with** the definition of assets and liabilities in the **IASB's *Conceptual Framework***. An operating lease contract confers a valuable right to use a leased item. This right meets the *Conceptual Framework's* definition of an asset, and the liability of the lessee to pay rentals meets the *Conceptual Framework's* definition of a liability. However, the right and obligation are not recognised for operating leases.

Lease accounting is **scoped out of IAS 32, IAS 39 and IFRS 9,** which means that there are considerable differences in the treatment of leases and other contractual arrangements.

There have therefore been calls for the capitalisation of non-cancellable operating leases in the statement of financial position on the grounds that if non-cancellable, they meet the definitions of assets and liabilities, giving similar rights and obligations as finance leases over the period of the lease.

An exposure draft of the IASB's proposals was issued in August 2010 and the draft was re-exposed in May 2013, taking into account criticisms of the original draft. Significant changes to the current standard included the following:

(a) The current IAS 17 **model of classification** of leases would **cease** to exist.

(b) Lessees would **no longer be permitted to treat leases as 'off-balance sheet' financing**, but instead would be required to recognise an asset and liability for all leases within the scope of the proposed standard.

(c) For leases **currently classified as operating leases, rent expense would be replaced with amortisation expense and interest expense**. Total expense would be recognised earlier in the lease term.

(d) The proposed standard has **two accounting models for lessors**:

  (i) **Performance obligation approach**. This is used by lessors who retain exposure to significant risks or benefits **associated with the underlying asset**.

  (ii) **Derecognition approach.** This is used by lessors who do not retain exposure to significant risks or benefits associated with the underlying asset.

4 Bond markets



Section overview

- Companies wishing to issue bonds have a choice. Large multinational firms with good credit ratings are able to access the Eurobond or international market. Smaller companies will have to use the less active domestic corporate bond market.

The corporate bond markets are made up of three elements as follows:

- Domestic corporate issues
- Overseas issuers of sterling debt – 'bulldogs'
- Eurosterling issues

4.1 Bangladesh bond market

4.1.1 Bond and Securitization Activity

The bond market in Bangladesh is yet to be further modernised. There are few players with a limited number of instruments. NBFIs play a significant role for the development of bond market through Issuing Zero Coupon Bonds and Asset-backed Securitised Bonds. By taking a no-objection certificate (NOC) from the Department of Financial Institutions and Markets (DFIM), Taka 1.5 billion non-convertible Zero Coupon Bonds have been issued by a financial institution (IDLC Finance Limited) as of June 2014.

4.1.2 Bangladesh Government Treasury Bonds (BGTBs) Auctions

Treasury Bonds, bearing half yearly interest coupons with tenors of 2-year, 5-year, 10-year, 15-year and 20-year are auctioned in every month following preannounced auction calendar prepared by BB and ministry of finance considering liquidity and macroeconomic indicators. In order to improve liquidity and assets-liabilities matching, 2-year BGTB as a new instrument started auction since 28 May 2013. Banks are eligible to use Government treasury bills and BGTBs for Statutory Liquidity Requirement (SLR) purpose. These bills and bonds are eligible for secondary trading. 59 auctions of these instruments were held in FY14. A total of 1975 bids for Taka 461.87 billion were received and 621 bids for Taka 221.50 billion were accepted, of which Taka 46.43 billion was devolved on BB/PDs and non PDs. The amount of outstanding bonds was increased by 20.68 percent to Taka 1026.27 billion at the end of June 2014 from Taka 850.43 billion at the end of June 2013.

The weighted average yield-to -maturity for the treasury bonds ranged from 8.5206 percent to 12.4800 percent in FY14

In FY13, bids for a total of Taka 167.17 billion were received and Taka 204.52 billion was accepted of which Taka 117.69 billion was devolved on BB/PDs and non PDs. The overall weighted average yield-to maturity ranged from 10.9449 percent to 12.4800 percent in FY13.

4.1.3 Bangladesh Government Islamic Investment Bond (Islamic Bond)

Government issues bond as guarantee against the pool of funds formed by the Islamic banks and individuals in order to develop money market in Islamic banking sector. Virtually Government does not borrow money from this sector. The return of the bonds depends on profit or loss in line with the Islamic sharia savings rate and related factors reflected in the balance sheet of the Islamic bank. The operations of 6-month, 1- year and 2-year Bangladesh Government Islamic Investment Bond (Islamic Bond) which introduced in FY05 continued in FY14. This Government bond is operated in accordance with the rules of Islamic sharia. Bangladeshi institutions, individuals and non-resident Bangladeshis who agree to share profit or loss in accordance with Islamic sharia are eligible to buy this bond. As of end June 2014 the total sale against this bond amounted to Taka 121.34 billion while balance of total amount of financing stood at Taka 24.37 billion and the net outstanding of the bond stood at Taka 96.96 billion. As of end June 2013 the total sale of this bond was Taka 107.13 billion against the balance of total financing of Taka 67.78 billion and the net outstanding of Taka 39.35 billion.

4.2 UK Domestic market

Progressively the UK domestic market declined in importance since the 1970s. The growth of the Eurosterling market has fundamentally undermined its issuer base. In the case of the domestic debt market, the issuance level was never strong given the 'cult of equity' that has dominated the UK markets since the 1950s and led to one of the largest equity markets in the world.

However, as government bond markets have declined, corporate issuance has risen. In the UK, the size of the corporate bond market is now greater than the size of the government debt market. There are a number of reasons for this change:

- Banks have come under increasing regulation and consequently have been less able to lend from their own balance sheets. It therefore makes sense for them to arrange debt issuance.
- Companies have become increasingly concerned about the efficiency of their capital structure. Many firms have historically restructured their balance sheets by reducing the equity and increasing their debt.
- Mergers and acquisition activity is further fuelling this need for new debt capital.
- As government bond markets contract, the investment opportunities shrink. Investors are therefore compelled to take an interest in corporate debt. This also fits into the demographic trends currently affecting the pension industry. As the population gets older, pension funds will tend to move towards safer investment categories such as debt.
- Within the Euroland bloc, the advent of the single currency has removed an element of risk (forex risk arising from cross-border investment) and therefore reduced reward. Consequently, investors are seeking extra reward by moving down the credit curve.
- Individual Savings Accounts (ISAs) allow the creation of tax-free collective investment vehicles offering the enhanced returns that bonds offer over bank accounts without the risks of equity.

These factors have all come together in order to stimulate an increase in issuance.

The secondary market in corporate bonds involves the buying and selling of bonds after the initial offering. The corporate bond secondary market is almost entirely an over-the-counter (OTC) market. Most trades are conducted on closed, proprietary bond-trading systems or by telephone. The individual investor will normally only be able to participate through a broker.

Trading on unregulated OTC markets carries risks. Liquidity may be low. There may be a price disadvantage due to unfavourable price spreads. Brokers' commission must be taken into account. Consequently, the market is not particularly structured, with relatively little involvement of market makers.

In 2010, the Order Book for Retail Bonds (ORB) was launched. Rather than constituting a separate market, ORB is a trading platform for gilts and corporate bonds listed on the London Stock Exchange.

4.3 Overnight market

In the overnight market lenders agree to lend borrowers funds on the basis that the borrowers repay the funds plus interest at the start of business next day. Because of this short time period, banks' overnight rates are the lowest rates at which they will lend money.

The overnight market is used by banks and financial institutions who firstly establish their customers' needs over the day. If there is a surplus or deficit between the money the institutions have on hand and the needs of customers during a day, the institutions will lend or buy on the overnight market at the start of the business day. During the day, as information about the needs of customers changes, the institutions will lend or borrow further on this market.

4.4 Eurobond market

The Eurobond market is, in effect, an international market in debt. Companies issuing debt in the Eurobond market have their securities traded all around the world and are not limited to one domestic market place. The market only accepts highly rated companies, since Eurobonds themselves are unsecured debt.

Primary market eurobond issuance is through the process of **placing**. A large borrower will have a relationship with a number of Eurobond houses. The decision to issue can come either from the borrower who perceives the need for finance or from the issuing house who perceives that there is an opportunity to issue a reasonably priced bond into the market. Once the decision has been taken to issue a new security into the market place, the borrower will embark upon a process of negotiating with a number of Eurobond houses.

Another key decision to be taken is whether or not to **list** the Eurobond on one of the various exchanges. Almost inevitably a Eurobond will be listed, normally on either the London or Luxembourg Exchange. The reason for this is that certain institutions and investors by their trust deeds are prohibited from investing in securities that are not listed on a formal exchange. Consequently, if Eurobond issuers did not seek a listing, then they would be restricting a demand for their stocks. A second reason for listing is that it will provide the stock with a fallback should the Euromarkets fail, since as they are listed on a domestic Exchange they will be able to trade in that domestic market.

There is no formal market place for Eurobond trading. The market is telephone driven and the houses are based in London. The market is regulated by the International Capital Markets Association (ICMA), which operates rules regulating the conduct of dealers in the market place.

Settlement is conducted for the market by two independent clearing houses, Euroclear and Clearstream. These clearing houses immobilise the stocks in their vaults and then operate electronic registers of ownership.

Settlement in the Eurobond market is based on a T+3 settlement system. Once again, the important feature about the registers maintained by the two clearing houses is that they are not normally available to any governmental authority, thereby preserving the bearer nature of the documents.

4.4.1 Eurobond issues

The methods of issue of Eurobonds are identical to those of corporate bond issues in the domestic market.

4.5 International bond markets

4.5.1 USA

The US government bond market is the largest in the world having expanded rapidly in the 1980s. This size is evident in both the quantity of issuance in the primary market and volumes of activity in the secondary market. The US Treasury is responsible for the issuance of new securities. Issuance takes place on a regular calendar with weekly issues of three or six-month Treasury bills, monthly issues of one-year bills and two and five-year notes, and quarterly issues in set cycles of longer dated stocks.

Central to the operation of the secondary market in government bonds are the **primary dealers**. These firms are the market makers. They are authorised to conduct trades by the Federal Reserve (the Fed) and are obliged to make markets in all issues. As with the UK, there are inter dealer brokers (IDBs) to facilitate the taking and unwinding of large positions. There are no money brokers, but there is a full repo market. While the stocks are listed on the New York Stock Exchange, the market is effectively an over-the-counter market. The market has deep liquidity across the maturity range.

Federal agencies are quasi-governmental institutions established to fill gaps in the US financial markets. They are backed by the guarantee of the US government via the Fed and are therefore riskless. However, they may well trade at a slight premium to the equivalent US government securities principally due to lower liquidity.

The main Federal agencies are:

- Federal National Mortgage Association (FNMA) ('Fannie Mae')*
- Government National Mortgage Association (GNMA) ('Ginnie Mae')
- Federal Home Loan Mortgage Corporation (FMLMC) ('Freddy Mac')*
- Federal Home Loan Bank System (FHLB)
- Federal Farm Credit Bank (FFCB)

* Have been de-listed by the Federal Housing Finance Agency (FHFA) and are currently in conservatorship. Conservatorship is a US equivalent of receivership in the UK, where new managers try to rescue a business in financial difficulties.

Unlike the UK, the US corporate sector has been able to borrow substantial sums via the issue of debt securities. In part, this has been forced upon them by the highly fragmented nature of the domestic banking market. Equally, however, investors are willing to hold corporate debt as part of their portfolios in a way UK investors are not.

A Yankee is a dollar-denominated bond issued in the US by an overseas borrower. Given that Eurodollar bonds may not be sold into the US markets until they have **seasoned** (a period of 40 days), there is still a divide between the Euromarket and the domestic market. Apart from the access to a different investor base, the market also allows issuers to raise longer term finance, since the American domestic investors are prepared to accept longer maturities.

These domestic and international bonds trade in the same way as shares.

In the US, corporates are allowed to issue bonds into the private placement market without seeking full SEC registration. This access to the market is available to both domestic and overseas issuers, though the market is dominated by US domestic issuers who have chosen not to enter the public market. The buy side of the market is restricted to certain institutional investors (primarily insurance companies) who are predominantly 'buy and hold' investors. Reflecting the nature of the market as in effect a one-to-one contract, new issue terms are negotiated between the issuer and the lender. This process can take up to eight weeks to complete. Equally, as a consequence, borrowers tend to have to pay a premium over the public market yields. However, they do not have the cost of seeking a credit rating, nor are they bound by the rules of the SEC.

4.5.2 Japan

The **bond market** in **Japan** is dominated by Government bonds. This domination is not in terms of volume, where **Japanese Government Bonds (JGBs)** account for only half of the market, but in the secondary market where they account for over 80% of the secondary market trading. The **issue process** is complex with a monthly auction/syndicate issue.

JGBs trade on both the Tokyo Stock Exchange (TSE) and the Broker-Broker (OTC) market. The market tends to focus on the 'benchmark' issues, with occasionally 90% of the volume taking place in that stock. However, any issues that are deliverable into the JGB future will possess a fair degree of liquidity.

In Japan, there are a number of important issuers other than the government. In the form of 'quasi-government' there are the agencies and municipal stocks.

International borrowers are able to access the domestic pool of savings through the issue of Samurai (publicly issued yen bonds) and Shibosai (yen bonds issued via private placement).

4.5.3 France

The French bond market has developed into one of the key international bond markets, mainly due to the economic transformation that took place since the introduction of the 'Franc fort' policy in 1985. The development of MATIF (the French financial futures market, now part of Euronext) and the trading of the 'Notional' future into the French long bond were also a vital component in the reform of the market.

The French Government issues three **types of bond**, each with a different maturity. All French Government issues are now in book entry form with no physical delivery.

Over half the market is made up of debt issues from the **public corporations**. These stocks are not, for the most part, guaranteed by the Government, but the corporations concerned do possess strong credit ratings.

They have established their own market structure in order to facilitate trading in their stocks. All issues are by way of a placing through a syndicate of mainly local banks.

4.5.4 Germany

The German bond market, including Government bonds, domestic bonds and Eurobonds, is the third largest in the world and one of the largest in Europe (the second largest after Italy).

Unlike the UK, Germany has a strong **corporate debt market** and a relatively weak equity market. The bulk of finance for industry is provided through the banks, either as lenders or shareholders, with debt securities other than Eurobonds being less significant. Within the context of debt issuance, banks issue bonds and then lend on the money to the corporate sector.

The bulk of the banking sector bond issuance comes in the form of Pfandbriefe. These are effectively bonds collateralised against portfolios of loans. Offenliche Pfandbriefe are backed by loans to the public sector and Hypotheken Pfandbriefe are backed by mortgages.

There is a variety of **types of issue**:

- **(Bundesanleihen)** are the conventional bonds in the market, with normal maturities of ten years. Special bonds have been issued to fund the reunification process and are referred to as unity bonds.
- **Bobls (Bundesobligationen)** are medium-term issues with lives of up to five years.
- **Bundesschatzanweisungen (Schatze) and Kassenobligationen** are a second type of medium-term finance; these are issued with maturities of between two and six years.
- **BU-Bills** are six-month bills issued by the Bundesbank.
- **Settlement date** for domestic bond deals is three banking days after the day of dealing. This now matches to the Eurobond three-day settlement period, allowing Government or bank bonds held outside Germany to settle via Euroclear and Clearstream.

4.6 Islamic bond markets

Sukuk markets are relatively new and are not yet as developed and standardised as Western markets. They were originated by government entities, particularly that of Malaysia, and government entities still dominate the market, though corporate issues are gaining in importance.

Issuance is achieved in a similar manner to corporate bond issues in the UK, with investment banks underwriting and managing the issues.

Sukuk other than the short-term Salam Sukuk are traded by being listed on stock exchanges, though liquidity levels are currently quite low and many issues are held to maturity.

5 Bond valuation and yields



Section overview

- Bonds are an important source of finance for companies.
- Bonds can be priced at par, at a premium or at a discount.
- Returns on bonds can be measured using the flat yield or gross redemption yield.
- As interest rates rise, the price of bonds falls.
- The yield curve is a graphical representation of the structure of interest rates, where the yield offered by bonds is plotted against maturity.
- The yield on a bond is made up of a number of elements, including credit and default risk, liquidity and marketability risk, issue specific risk and fiscal risk.
- The volatility of a bond is the sensitivity of the bond to movements in the yield/interest rate.
- Duration is the weighted average length of time to the receipt of a bond's benefits (coupon and redemption value), the weights being the present value of the benefits involved.

5.1 Bond pricing

Bonds can be priced at par, at a premium or at a discount. When calculating the price of a bond, you are really determining the maximum price you would want to pay for it, given the bond's coupon rate compared with the average rate that investors are currently earning in the bond market. Like shares, the price of a bond will depend on the market forces of supply and demand.

5.1.1 General method

The price of a bond is the sum of the present values of all expected coupon payments plus the present value of the redemption value at maturity – in other words, all you are doing is discounting the future cash flows of the bond. The interest rate that is used for discounting purposes is the required yield.

The formula for calculating the price of a bond is as follows:

$$\text{Bond price} = \frac{C}{(1+i)} + \frac{C}{(1+i)^2} + \ldots + \frac{C}{(1+i)^n} + \frac{R}{(1+i)^n}$$

Where: C = coupon payment

n = number of payments

i = interest rate (required yield)

R = value at maturity (redemption value)

If the coupon payments are the same each time, then you can use the annuity formula:

$$\text{Bond price} = C \times \frac{[1-(1/(1+i)^n)]}{i} + \frac{R}{(1+i)^n}$$



Worked example: Bond pricing

A bond has a par value of CU2,500 which is to be redeemed in 15 years' time at par. The coupon rate of the bond is 8% and there is a required yield of 10%. Coupon payments are made every six months and the next payment is due in six months' time.

Requirement

What is the price of the bond?

Solution

The first thing we have to do is calculate the number of coupon payments that will be made. As two payments are made every year for 15 years, there will be 30 payments in total.

What is the value of each coupon payment? As the payments are made twice a year, you should divide the coupon rate in half – which gives a rate of 4%. Each semi-annual coupon payment will be 4% of CU2,500 = CU100.

Likewise, with the required yield, divide by two, giving a yield of 5%. If we did not reduce the yield, the bond price would be too low.

We can now use the formula to calculate the bond price:

$$\text{Bond price} = 100 \times \frac{[1-(1/(1+0.05))^{30}]}{0.05} + \frac{2{,}500}{(1+0.05)^{30}}$$

= CU2,115.69

The bond is trading at a discount – the bond price of CU2,115.69 is less than the par value of CU2,500. This is because the required yield is greater than the coupon rate. Investors will have to be attracted by a discount in order to invest in the bonds, as they could earn greater interest elsewhere at the prevailing rate.

5.1.2 Different frequencies of payments

The worked example above required preliminary calculations to convert the coupon rate and yield into semi-annual equivalents. Rather than having to remember to carry out these steps, you can use the following formula for any payment frequency:

$$\text{Bond price} = \frac{C}{F} \times \frac{[1-(1/[1+i/F]^{nF})]}{(i/F)} + \frac{R}{(1+[i/F])^{nF}}$$

Where: F is the number of times in each year that a coupon payment is made.

If you use the data from the previous worked example in the formula above, you will arrive at the same bond price.

5.1.3 Zero coupon bonds

The pricing of zero coupon bonds is actually quite straightforward as there is no need to use the annuity formula. All you have to do is calculate the present value of the redemption value at maturity.

Worked example: Zero coupon bonds

What is the price of a zero coupon bond that matures in 10 years' time, has a required yield of 7% and a redemption value of CU3,200? Assume that coupon payments occur semi-annually.

Solution

As the coupon payments occur semi-annually, we have to adjust the yield to its equivalent semi-annual payment rate. This means that the number of periods for the zero coupon bond will be doubled from 10 to 20.

The yield will also have to be adjusted, giving a yield of 3.5%.

$$\text{Bond price} = \frac{3{,}200}{(1+0.035)^{20}}$$

$$= \text{CU1,608.21}$$

Zero coupon bonds always trade at a discount, otherwise there would be no chance for the investor to make any money and thus no incentive to invest in such bonds.

5.2 Flat yield

5.2.1 Calculation of the flat yield

The simplest measure of the return used in the market is the flat yield. This is also referred to as the running yield or the interest yield. It looks at the cash return generated by an investment over the cash price. In simple terms, what is the income that you generate on the money that you invest?

$$\text{Flat yield} = \frac{\text{Annual coupon payment}}{\text{Market price}} \times 100\,\%$$

Worked example: Flat yield

5% loan stock

Redemption date five years from now at par

Current market price CU197.25

Solution

The flat yield for the above would be:

$$\frac{5}{97.25} \times 100 = 5.14\%$$

5.2.2 Limitations of the flat yield

This measure is of some use, particularly in the short term, but it has important drawbacks for the investment markets.

- With all equities and some bonds (eg floating rate notes), the return in any one period will vary. If the coupon is not constant, then the measure is only of historic value unless the predicted return is used.
- In addition to the coupon flows, bonds will have return in the form of the redemption monies. Where the bond has been purchased at a price away from par, this will give rise to potential gains and losses.
- The calculation completely ignores the time value of money. If an investor were to be offered the choice between the receipt of CU10 now or in two years' time, the logical choice would be to take the CU10 now, since the money could then be invested to generate interest.

These limitations combine to make the flat yield of marginal use only.

5.3 Gross redemption yield (yield to maturity)

The gross redemption yield considers the flows of money arising from a bond. Each flow is then converted into its present value by discounting the future flow.

$$\text{Current price} = \frac{C_1}{(1+r)} + \frac{C_2}{(1+r)^2} + \frac{C_3}{(1+r)^3} + \ldots + \frac{C_n + R}{(1+r)^n}$$

Where: C_1 = coupon paid at the end of Period 1

C_n = coupon paid at the end of Period n (maturity)

R = principal repaid at the end of Period n

r = gross redemption yield

For each bond, we have the market price and the coupon flows. The GRY is simply the one rate of interest that, when inserted into the formula, will equate the present values of the coupons with the current market price.

It can be seen that the GRY is simply the internal rate of return of the bond's flows, where the current price is treated as an outflow and the future interest and capital repayment flows are treated as inflows.



Worked example: Gross redemption yield

5% loan stock (annual coupon)

Three years to redemption

Current market price CU97.25

Solution

The GRY of this bond is 6.03%. This can be demonstrated by calculating the present value of the flows using a discount rate of 6.03%, as follows.

Time	Cash flow CU	Discount factor	Present value CU
0	(97.25)	1	(97.25)
1	5	$\frac{1}{1.0603}$	4.72
2	5	$\frac{1}{(1.0603)^2}$	4.45
3	105	$\frac{1}{(1.0603)^3}$	88.08
	Net present value		–

5.3.1 Problems with the gross redemption yield

We have noted that the yield that has been calculated so far is in effect the internal rate of return (IRR) of the flows generated by a bond. As a means of appraising an investment project, the IRR is limited since it ignores the magnitude of the flows.

As a measure of predicted return, the yield is limited, since it assumes that any coupon receipts are reinvested at the same rate as the current yield. If the investor is only able to reinvest the coupon at a lower rate, then the overall return generated by the bond will be lower than the yield.

One further criticism of the yield measure is that it ignores reality. It discounts all flows in the future by the same rate when, as we shall see from the yield curve, the rate of return varies for monies of different maturities.

5.4 The relationship between bond prices and interest rates

One of the fundamental correlations in bond markets is that as the interest rate rises, the price of a bond will fall.

This can be demonstrated either through the flat or the gross redemption yield.

Suppose the flat yield was calculated as:

$$\frac{10}{97.25} \times 100 = 10.283\%$$

If the market interest rate were to rise to 12% then the holders of the bond would be encouraged to sell the bond and invest their money into assets yielding 12%. The result of this would be that the supply of the bond would rise and the demand fall, leading to a fall in the price. As the price falls to CU83.33, the yield rises to 12% thereby removing the incentive to switch out of the bond:

$$\frac{10}{83.33} = 12\%$$

The GRY can prove the same result. Using our initial GRY formula:

$$\text{Current price} = \frac{C_1}{(1+r)} + \frac{C_2}{(1+r)^2} + \frac{C_3}{(1+r)^3} + \ldots + \frac{C_n + R}{(1+r)^n}$$

If the interest rate increases then the flows received in future periods will have a lower present value and consequently the value of the bond (its price) falls.

5.5 The yield curve

5.5.1 What is the yield curve?

The yield curve (Figure 13.2) is a graphical representation of the structure of interest rates, where the yield offered by bonds is plotted against maturity. It is often calculated by reference to the gross redemption yield.

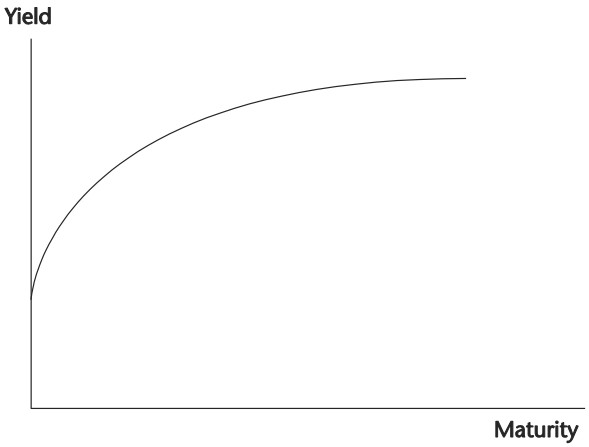


Figure 13.2: The yield curve

5.5.2 The shape of the curve

(a) **Liquidity preference**

If an investor's money is invested in longer-term (and therefore riskier) debt, then they will require a greater return – a risk premium. Short-term liquid debt carries a lower risk and therefore requires a lower return. This gives rise to the normal upward sloping yield curve.

(b) **Expectations theory**

Expectations theory states that the yield curve is a reflection of the market's expectation of future interest rates. If the market believes that the yield at the long end of the yield curve is high and is likely to fall, then in order to profit from the increase in prices that this will create, investors will buy long-dated stocks. As a result, the demand for these stocks will rise. This demand pressure will force the price to rise. As a consequence, the yield will fall, reflecting the expectation of a fall.

On the other hand, if the market believes that rates will have to rise, then the forces will work in the opposite direction and this will lead to a fall in the price and a rise in the yield.

The expectations of the market can clearly be seen in an inverted yield curve (Figure 13.3).

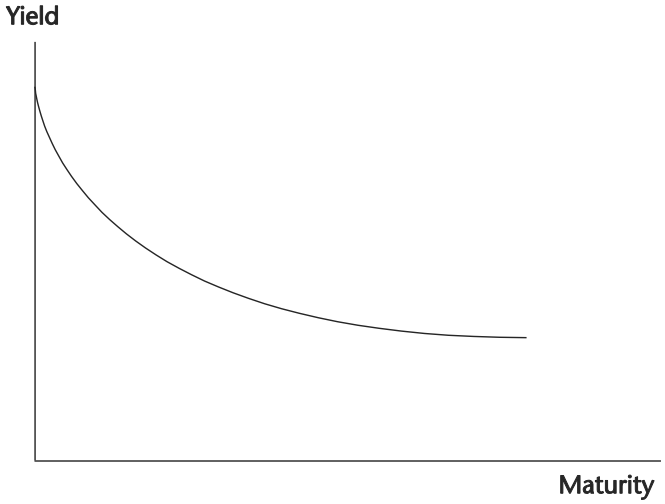


Figure 13.3: An inverted yield curve

Here, short-term rates are unusually high, but the market anticipates that this cannot last for long. The longer end of the market has anticipated this change by forcing yields down. This can lead to the anomalous situation where the long-end of the market remains constant because it has anticipated change and the short end (which is technically the least volatile) exhibits all of the movement.

Another key element of the market's expectations will be the expectation of inflation. If the market believes that inflation will rise in the future then the yields on the longer dated stocks will have to rise in order to compensate investors for the fall in the real value of their money. The expectation of inflation is much more of a problem with the long – rather than the short – end.

(c) **Preferred habitat and market segmentation**

Certain maturity ranges are appropriate to particular types of investors. In the UK, the short-end of the market is dominated by the financial sector maintaining a proportion of their assets in liquid investments, whereas the long-end is dominated by institutional investors such as pension funds. In effect, this gives rise to two markets and may be reflected in a discontinuity, or hump, in the yield curve.

(d) **Supply-side factors**

The availability of debt in certain maturity ranges may lead to either an excess or shortage of debt and consequently an anomalous yield on some debt.

5.5.3 Yield curve and interest rates

The yield curve on a range of long-dated bonds provides the best means of inferring market estimates of future interest rates. The steepness of the yield curve reflects market expectations about the change in forward rates.

5.6 Composition of the yield

The yield on any bond is made up of a number of elements.

- **The real return** – This is the real rate of return that the investment has to earn. Effectively, it represents the opportunity cost of saving over immediate consumption.
- **Inflation premium** – As inflation rises then the yield on a bond will have to increase in order to compensate the holder. Inflation is basically negative interest, eroding the value of savings, whereas interest adds to them.

Together, the real return and the inflation premium form the yield on government bonds and are therefore said to approximate to the interest rate. In the case of non-government bonds, there are other risks to consider.

- **Credit and default risk** – This is the risk of the issuer defaulting on its obligations to pay coupons and repay the principal. The ratings issued by commercial rating companies can be used to help assess this risk.
- **Liquidity and marketability risk** – This is the ease with which an issue can be sold in the market. Smaller issues are particularly subject to this risk. In certain markets the volume of trading tends to concentrate into the 'benchmark' stocks, thereby rendering most other issues illiquid. Other bonds become subject to 'seasoning' as the initial liquidity dries up and the bonds are purchased by investors who wish to hold them to maturity.
- Even if an issuer has a triple A credit rating and is therefore perceived as being at least as secure as the government, it will still have to offer a **yield above that offered by the government** due to the smaller size (normally) and the thinner market in the stocks.
- **Issue specific risk** – eg risk of call. If the company has the right to redeem the bond early, then it will only be logical for it to do this if it can refinance at a lower cost. What is good for the issuer will be bad for the investor and, thus, the yield will have to be higher.
- **Fiscal risk** – The risk that withholding taxes will be increased. For foreign bonds, there would also be the risk of the imposition of capital controls locking your money into the market.



Case example: Corporate bonds

As central banks have printed money (quantitative easing) to mitigate the effects of the recession, bond prices have risen and their yields have fallen. By 2012 the redemption yields of many companies' corporate bonds were significantly lower than the dividend yields on their shares. Although there is greater risk attached to shares, if investors believe that the economy and dividends will recover, they may be more attracted to shares than to fixed interest bonds.

5.7 Sensitivity to yield

5.7.1 Introduction

All of the risks of holding a bond come together in the yield. As we have already seen, there is an inverse relationship between the price of a bond and its yield. It is possible to define this relationship mathematically and predict the way in which a selection of bonds will perform. This is sometimes referred to as the volatility of the bond.

The sensitivity of any bond to movements in the yield/interest rate will be determined by a number of factors.

5.7.2 Sensitivity to maturity

Longer-dated bonds will be more sensitive to changes in the interest rate than shorter dated stocks.

5.7.3 Sensitivity to coupon

Lower coupon stocks demonstrate the greatest level of sensitivity to the yield. It should be noted that the relationship between yield and price is not symmetrical. This is a relationship that is known as convexity.

5.7.4 The impact of the yield

If yields are particularly high, then the flows in the future are worth relatively little and the sensitivity is diminished. Conversely, if the yield is low then the value of flows in the future is enhanced and the bond is more sensitive to the changing GRY.

5.7.5 Summary of volatility

High volatility		Low volatility
Long dated	>	Short dated
Low coupon	>	High coupon
Low yields	>	High yields

While these simple maxims are good indicators of the likely sensitivity to fluctuations in the rate of interest, they do not allow for two bonds to be contrasted. For example, which of the following is likely to be the more sensitive to a rise in interest rates – a high-coupon, long-dated stock, or a low-coupon, short-dated stock? In order to enable two such bonds to be compared, a composite measure of risk known **as** the **duration** was devised in the 1930s.

5.8 Duration

5.8.1 What is duration?

This calculation gives each bond an overall risk weighting that allows two bonds to be compared. In simple terms, it is a composite measure of the risk expressed in years.

Duration is the weighted average length of time to the receipt of a bond's benefits (coupon and redemption value), the weights being the present value of the benefits involved.

5.8.2 Properties of duration

The basic features of sensitivity to interest rate risk will all be mirrored in duration.

- **Longer-dated bonds** will have longer durations.
- **Lower-coupon bonds** will have longer durations. The ultimate low-coupon bond is a zero-coupon bond where the duration will be the maturity.
- **Lower yields** will give longer durations. In this case, the present value of flows in the future will rise if the yield falls, extending the point of balance, therefore lengthening the duration.

The duration of a bond will shorten as the life span of the bond decays. However, the rate of decay will not be at the same rate. For example a five-year bond might have a duration of 4.157 years. In a year's time the bond might have a remaining life of four years and a duration based on the same GRY of 3.480 years. The life span has decayed by a full year, but the duration by only 0.677 of a year.



Case example: 100 year bond

In his 2012 Budget, UK Chancellor George Osborne announced a consultation on the issue of 100 year or perpetual government bonds, to take advantage of low UK interest rates. Average gilt yields were at their lowest during 2012 since the 19th century. The UK Treasury claimed that buyers would be attracted to the bonds because of their low risk status, with the argument that the UK was a 'safe haven' for borrowers because it had taken effective steps to reduce government debt.

Reaction to this proposal was generally not very positive. Jonathan Porter, head of the National Institute of Social and Economic Research, argued that lenders were unlikely to invest in low interest rate bonds unless they did not expect the economy to grow. If they were confident of growth, they would look for a higher return investment elsewhere. A 2% return on the bonds would only be a good investment if inflation was virtually nil, and this would suggest economic stagnation for many years. Joanne Segars, chief executive of the National Association of Pension Funds, suggested that 100 years would be too long for most pension funds and would not yield a strong enough return to be attractive. However, pension funds might be compelled to buy these bonds because of regulatory requirements about the riskiness of their investment portfolios and the lack of risk-free alternatives.

6 Credit risks

Section overview

- Credit risk is the risk undertaken by the lender that the borrower will default either on interest payments or on the repayment of principal on the due date, or on both.
- The credit spread is the premium required by an investor in a corporate bond to compensate for the credit risk of the bond.

6.1 Credit (default) risk

Definition

Credit risk, also referred to as **default risk**, is the risk undertaken by the lender that the borrower will default either on **interest payments** or on the **repayment of principal** on the due date, or on both.

6.1.1 Credit risk aspects

Credit risk arises from the inability of a party to fulfil its obligation under the terms of a contract. Creditors to companies such as corporate bondholders and banks are exposed to credit risk. The credit risk of an individual loan or bond is determined by the following two factors:

(a) **The probability of default**

This is the probability that the borrower or counterparty will default on its contractual obligations to repay its debt.

(b) **The recovery rate**

This is the fraction of the face value of an obligation that can be recovered once the borrower has defaulted. When a company defaults, bond holders do not necessarily lose their entire investment. Part of the investment may be recovered depending on the **recovery rate**.

Definition

Loss given default (LGD) is the difference between the **amount of money owed** by the borrower and the **amount of money recovered**.

For example, a bond has a face value of CU100 and the recovery rate is 80%. The **loss given default** in this case is:

Loss given default = CU100 – CU80 = CU20

Definition

Expected loss (EL) from credit risk shows the **amount of money the lender should expect to lose** from the investment in a bond or loan with credit risk.

The **expected loss** (EL) is the product of the **loss given default** (LGD) and the **probability of default** (PD).

$$EL = PD \times LGD$$

If the probability of default is, say, 10%, the expected loss from investing in the above bond is:

$$EL = 0.10 \times 20 = £2$$

6.1.2 Credit risk measurement

The measurement of credit risk is quite complex. All the approaches concentrate on the estimation of the default probability and the recovery rate.

The oldest and most common approach is to assess the probability of default using financial and other information on the borrowers and assign a rating that reflects the expected loss from investing in the particular bond. This assignment of credit risk ratings is done by credit rating companies such as Standard & Poor's, Moody's Investor Services or Fitch. These ratings are widely accepted as indicators of the credit risk of a bond. The table below shows the credit rating used by the two largest credit rating agencies.

Standard & Poor's	Moody's	Description of category
AAA	Aaa	Highest quality, lowest default risk
AA	Aa	High quality
A	A	Upper medium grade quality
BBB	Baa	Medium grade quality
BB	Ba	Lower medium grade quality
B	B	Speculative
CCC	Caa	Poor quality (high default risk)
CC	Ca	Highly speculative
C	C	Lowest grade quality

Both credit rating agencies estimate default probabilities from the empirical performance of issued corporate bonds of each category.

It would be very difficult for any company without a credit rating to raise money in bond markets, and the market itself is confined to dealing with high credit-worthy stocks exclusively in the investment grade.

A bond may be placed on credit watch as a prelude to a potential downgrade. If a bond is placed on credit watch then it is likely that its credit spread will widen with the consequence of a fall in price. This impact is less pronounced for the higher rated (investment grade) bonds but becomes quite significant for non-investment grade bonds or those falling from investment grade to non-investment grade.

The more a bond gets downgraded, the fewer investors will find it to be of interest. There are specialist high yield funds. However, as a general rule the major investors prefer the higher rated bonds.

One big step is when a bond falls from investment grade to non-investment grade, or high yield. At this stage there tends to be many forced sellers, and prices can be expected to decline dramatically.

6.1.3 Credit migration

There is another aspect of credit risk which should be taken into account when investors are investing in corporate bonds, beyond the probability of default.

A borrower may not default, but due to changing economic conditions or management actions the borrower may become more or less risky than at the time the bond was issued. As a result, the bond issuer will be assigned by the credit agency a different credit rating. This is called credit migration. The significance of credit migration lies in the fact that the assignment of lower credit rating will decrease the market value of the corporate bond.

6.2 Credit spreads and the cost of debt capital



Definition

Credit spread is the premium required by an investor in a corporate bond to compensate for the **credit risk** of the bond.

The yield to a government bondholder is the compensation to the investor for forgoing consumption today and saving. However, corporate bondholders should require compensation not only for forgoing consumption, but also for the credit risk to which they are exposed. Assuming that a government bond such as the ones issued by the US or UK governments is **free** of **credit risk**, the yield on a corporate bond will be:

Yield on corporate bond = Risk free rate + Credit spread

Or in symbols y = r + s

Where: y = yield on the corporate bond

r = risk-free rate, ie the rate on a government bond with no default risk

s = credit spread

Since **credit spreads** reflect the **credit risk** of a bond, they will be inversely related to the credit quality of the bond. Low credit quality bonds will be characterised by large spreads and high credit quality bonds will be characterised by low spreads.

6.2.1 The cost of debt capital

The cost of debt capital for a company will therefore be determined by the following:

- Its credit rating
- The maturity of the debt
- The risk-free rate at the appropriate maturity
- The corporate tax rate

$$\text{Cost of debt capital} = (1 - \text{Tax rate})(\text{Risk free rate} + \text{Credit spread})$$



Worked example: cost of debt capital

Consider a corporate bond with a maturity of four years and a credit rating of BBB. The four-year risk-free rate is 5% and the credit spread is 200 basis points. The tax rate is 24%. Find the cost of debt capital.

Solution

Cost of debt capital = (1 – 0.24)(5% + 2%) = 5.32%



Case example: Government credit ratings

Credit ratings and credit spreads are not just an issue for companies. They have become a very important issue in the world economy, reflecting fears that a number of governments may default on their debt.

Greece's credit rating fell from an A rating in January 2009 to CC in July 2011, using Standard & Poor's credit ratings. Under this ranking Greece was the lowest-rated country in the world. The downgrade was a result of what the market viewed as Greek government overspending resulting in unsustainable long-term debt levels, and lack of confidence in the government's ability to reduce its fiscal deficit sufficiently.

Standard & Poor's regarded an international bailout deal agreed in July 2011, with a proposed restructuring of Greek government debt, as a selective default that would result in losses for commercial creditors. This view was reinforced by markets appearing to price for the risk of a significant default, with impacts on interest rates on privately-held Greek bonds and prices for credit default swaps. However, a full default was expected over the longer-term. According to Thomson-Reuters the credit default swap market was pricing in a 71% probability of a default at some time between 2011 and 2016, and an 83% probability over the 2011-2021 period. For shorter periods, the risk that Greece **might** default (and the resulting impact) appeared to be a bigger influence on prices and therefore the yield curve, than beliefs that it **would** default within two years.

Portugal's credit rating was cut to BBB- with a negative outlook by Standard & Poor's in March 2011, in the expectation that the country would have to accept a bail-out from the EU. By March 2011 Portugal, like Greece, faced high yields on bonds, with yields on two-year bonds at 7.69% and on 10 year-bonds at 8.2%. Market analysts suggested that any yield above 7% was unsustainable. At times also during the Spring of 2011 yields on 5 year bonds were above 10 year bonds. This meant that Portugal had an inverted yield curve, reflecting significant market fears about short-term creditworthiness.

The Portuguese government accepted a bailout in May 2011 from the European Union and International Monetary Fund, but this failed to convince the credit rating agencies. Moody's subsequently downgraded Portugal's long-term rating to Ba2 on the grounds that the bailout was unlikely to succeed. Moody's felt that the government would fail to meet austerity targets and would require a second bailout, and private creditors might suffer significant losses.

Ireland's credit rating was cut significantly by Moody's in December 2010 from Aa2 to Baa1, due to the crystallisation of liabilities relating to the banking sector. Ireland had already accepted a bailout from the European Union and International Monetary Fund. Moody's also believed that the fiscal adjustment required to limit its budget deficit could significantly hinder Ireland's recovery from recession. Ireland also faced an increase in yields on, and problems with finding buyers for, its debt.

In July 2011 Moody's cut Ireland's rating further to Ba1 because of continuing concerns about the Irish economy, although it acknowledged that the Irish government was delivering its fiscal programme objectives. The agency was also concerned about shifts in the opinions of other EU governments about support for distressed countries.

However, by the end of July 2011 the market appeared to be re-assessing Ireland's prospects, with confidence increasing as a result of Ireland's government delivering on its targets and taking effective moves to deal with the banking crisis. Yields on 10 year bonds fell significantly and trading volumes rose to over three times their normal levels. However, the yields remained some way above the yields that would mean that Ireland could obtain affordable funding in the commercial markets. Yields on shorter-term debt remained higher than the 10 year yields, indicating market expectations of a possible debt restructure and further bailout. Analysts felt that many investors would only regain confidence when the yield curve became upward-sloping again.

In August 2011, Standard & Poor's downgraded the United States of America's credit rating for the first time from AAA to AA+ with a negative outlook. The reduction was because of concerns about the adequacy of the government's budget deficit reduction plans and the political process in America, with clashes between the two major parties weakening policymaking. The downgrade appeared to contribute to the instability on global stock markets during August 2011, along with fears over the American economy and the Eurozone crisis.

Also in August 2011 the yields on government bonds from Spain and Italy rose sharply, as investors demanded higher returns. In the meantime the yields on Germany's government bonds fell to record lows. Although the European Central Bank announced that it would buy Italian and Spanish government bonds to bring down their borrowing costs, in September 2011 Italy's debt rating was cut by Standard & Poor's from A+ to A.

During Autumn 2011 Eurozone finance ministers approved a bailout loan to Greece and proposed new budgetary rules for the currency area. However, in January 2012 Standard & Poor's downgraded the ratings of Italy, Spain, Portugal and Cyprus by two notches and the standings of France, Austria, Malta, Slovakia and Slovenia by one notch each. The cut put Italy onto the same BBB+ rating as Kazakhstan and downgraded Portugal to junk status. Other countries were put on negative outlook for a possible further downgrade. Germany was the only country to retain an AAA rating and be viewed as having a stable outlook. In the markets German 10 year bond futures rose to a record high, while the risk premium charged on French, Spanish, Italian and Belgian debt widened. Three days after downgrading the nine countries, Standard & Poor's also downgraded the EU bailout fund, the European Financial Stability Facility, from AAA to AA+.

In April 2012 Standard & Poor's reduced Spain's rating for a second time in 3 months, lowering it to BBB+. The agency feared that Spain would have to take on more debt to support its banking sector. It placed the country on negative outlook with the possibility of further falls. Standard & Poor's made some positive comments about the measures taken by the Spanish government, but saw the economic outlook for Spain as adversely affected by a failure to manage the European sovereign debt crisis effectively and hence give investors confidence. Also in April 2012, Standard & Poor's reaffirmed Ireland's BBB+ rating, although it put the country on a negative outlook. The agency was impressed with the measures that the Irish government had taken, but felt that reducing the deficit to 3% by 2015 would be difficult, due to the need to rebalance private sector balance sheets and weaker than expected growth in Ireland's trading partners.

In July 2012 Spain's 10-year bond yields topped 10%. By contrast yields of German and Austrian 2-year bonds dropped to below zero. German, Austrian, Belgian and French borrowing costs reached historic lows as investors sought safety in those countries.

Subsequent measures taken by the EU and ECB resulted in a widespread fall in interest rates. By October 2012 only 3 Eurozone countries (Greece, Portugal and Cyprus) still had long-term interest rates above 6%.

During October 2012, Standard & Poor's reduced Spain's rating to BBB- and Cyprus's to B because of increasing risks that the countries were judged to face. Greece's rating was B- by the end of 2012, as the agency took into account the determination of the EU to preserve Greek membership of the Euro.

In February 2013 Moody's downgraded the UK's credit rating from Aaa to Aa1, because it expected economic growth over the rest of the 2010s to be sluggish. The lack of growth, with the consequent low tax revenues and higher welfare payments, would make it more difficult to reduce the country's budget deficit.

There were signs during 2013 that the credit agencies' ratings were coming under greater scrutiny. The US government launched a lawsuit in 2013 against Standard and Poor's, alleging that the agency gave excessively high ratings to win business during the boom in mortgage investments. Some commentators questioned the transparency of the methods the rating agencies used, saying full transparency of inputs and outputs would enable a worldwide peer review process, which would promote rapid improvement.

7 Derivatives



Section overview

- **Derivatives** are instruments based on the underlying assets such as bonds, shares, indices, commodities, currencies and property. They enable investors to reduce risk or enhance returns on these investments.
- Derivatives include **futures**, **options**, **and swaps**.



Definition

A **derivative** is a financial instrument or other contract within the scope of IAS 39 with all three of the following characteristics:

- Its value changes in response to the change in a specified interest rate, financial instrument price, commodity price, foreign exchange rate, index of prices or rates, credit rating or credit index, or other variable, provided in the case of a non-financial variable that the variable is not specific to the party to the contract (sometimes called the 'underlying').
- It requires no initial net investment or an initial net investment that is smaller than would be required for other types of contracts that would be expected to have a similar response to changes in market factors; and
- It is settled at a future date.

You covered the basics of some derivatives in earlier studies. To recap:

At the heart of derivative products is the concept of deferred delivery. The instruments allow you, albeit in slightly different ways, to agree **today** the price at which you will buy or sell an asset at some time in the future. This is unlike normal everyday transactions. When we go to a supermarket, we pay our money and take immediate delivery of our goods. Why would someone wish to agree today a price for delivery at some time in the future? The answer is **certainty**.

Imagine a farmer growing a crop of wheat. To grow such a crop costs money for seed, labour, fertiliser and so on. All this expenditure takes place with no certainty that, when the crop is eventually harvested, the price at which the wheat is sold will cover these costs. This is obviously a risky thing to do and many farmers are unwilling to take on this burden. How can this uncertainty be avoided?

By using derivatives, the farmer is able to agree **today** a price at which the crop will ultimately be sold, in maybe four or six months' time. This enables the farmer to achieve a minimum sale price for his crop. He is no longer subject to fluctuations in wheat prices. He knows what price his wheat will bring and can thus plan his business accordingly.

Derivatives may either be:

- **Exchange-traded** – ie where there is an active secondary market accessible to participants.
- **Off-exchange** – ie contracts entered directly between counterparties on the **over-the-counter (OTC)** market.

Derivatives can be used for one of two purposes:

- **Speculation** – speculation involves trading in derivatives for the purpose of attempting to generate a gain.
- **Hedging** – hedging involves using derivatives to reduce the risk in an investment position.



Case example: Amaranth Advisors

Amaranth Advisors, a US hedge fund, lost roughly $6bn in the natural gas futures market in September 2006. Part of the story is attributable to liquidity issues. Amaranth had a concentrated, undiversified position in natural gas futures contracts spreads. Brian Hunter, the Canadian trader behind the fund's strategy, had used leverage to build a very large position, representing around 10% of the global market in natural gas futures. The inability to sell a futures contract at or near the latest quoted price is related to a firm's concentration in the product. In Amaranth's case, the concentration was far too high and there were no natural counterparties when they needed to unwind the positions. It owned a sizeable portion of the open interest (the outstanding contracts on the market), and as such was greatly exposed to illiquidity when it least wanted it. Its other error was the lack of diversifying strategies in its overall investment portfolio (everything depended on natural gas). It also had incorrectly read the gas market. In the previous year it had been highly successful in a similar gas related strategy but the market prices at that time were hugely boosted by the effect of Hurricane Katrina and the price behaviour did not perform in the repeat fashion twelve months on.

7.1 Forwards

A **forward** is an agreement off-exchange between two parties to make or take delivery of an asset for an agreed price at a future date. In principle, then, the nature of the transaction is very similar to a futures contract. However, because this is an 'over-the-counter' transaction between two parties, all terms of the contract can be tailored individually to meet the buyer's and seller's needs.

The key advantage of forwards is that they allow much greater flexibility to suit particular circumstances.

The main disadvantages are a **lack of liquidity** in comparison to exchange-traded futures and **increased credit risk for both buyer and seller**, as there is no clearing house to act as a central counterparty. This is known as counterparty risk.

7.2 Forward rate agreement (FRA)

A FRA is an OTC agreement that a certain interest rate will apply to a certain principal during a specific future period of time.

Essentially, the two counterparties agree upfront to exchange a fixed rate of interest for a floating rate of interest on a predetermined notional amount of cash, for a specific period of time in the future.

A FRA is essentially a contract for difference (or CFD). Rather than actually exchanging a floating rate of interest for a fixed rate of interest, a FRA is simply a mutual monetary compensation contract between the buyer and seller. A contract rate is agreed at initiation of the contract, and a compensatory sum is paid or received at the commencement of the FRA period, based upon the difference between the floating interest rate ruling at that time (usually LIBOR) and the contracted fixed rate.

Note that the gross difference in the interest over the exposure period is then discounted to the beginning of the period, such that the cash settlement can be effected immediately.

- **Buying a FRA** will provide compensation when interest rates rise above the FRA contract rate. It protects an implied borrower.
- **Selling a FRA** will provide compensation when interest rates fall below the FRA contract rate. It protects an implied lender.

7.3 Futures

A future is an agreement to buy or sell a **standard quantity** of a **specified asset** on a **fixed future date** at a **price agreed today**.

There are two parties to a futures contract – a buyer and a seller – whose obligations are as follows.

- The buyer of a future enters into an **obligation** to buy the specified asset on a specified date.
- The seller of a future is under an **obligation** to sell the specified asset on a future date.

Futures contracts are traded on an exchange with the contract terms clearly specified by the rules of the exchange. The first futures market was established in the nineteenth century in Chicago. Futures based on the prices of agricultural commodities allow farmers to be sure of the profit they will receive from the commodities months in advance of the commodities being produced. The main derivatives exchange in the UK is NYSE Liffe.

The contracts are of a **standardised size** with **standardised delivery dates**. This means that it may not be possible to match the exact exposure one requires over the exact period for which it is required. For example, a requirement to buy €950,000 using a currency future must be dealt with by buying eight contracts, since the contract size is €125,000 (€950,000/€125,000 = 7.6, which is eight contracts to the nearest whole number).

Futures are traded on **margin**, meaning that the trader only has to spend a small amount of money, far below the value of the underlying security, to be exposed to the price rise or fall of that security.

Futures markets are wholesale markets in risk – markets in which risks are transferred from the cautious to those with more adventurous (or reckless) spirits. The users fall into one of three categories – the **hedger**, the **speculator** and the **arbitrageur** – whose motivations are as follows:

- **Hedger** – someone seeking to reduce risk.
- **Speculator** – a risk-taker seeking large profits.
- **Arbitrageur** – seeks riskless profits from exploiting market inefficiencies (mispricing).

The differences between forward and futures contracts are summarised in the following table.

Attribute	Futures	Forward contracts
Traded	Exchange traded	OTC
Quality and quantity	Standardised by the exchange for all products	Specified in the contract
Delivery dates	Standard fixed dates	Specified in the contract
Liquidity/ability to close out	Generally good liquidity/easy to close out	May be limited
Counterparty risk	None due to the workings of the clearing and settlement system	Default risk exists
Costs/margin	Relatively low initial costs (margin)	Costs specifically agreed, may be high
Regulation	Significant regulation and investor protection	Less regulated

7.4 Options

An option is a contract that confers the right, but not the obligation, to buy or sell an asset at a given price on or before a given date.

The right to buy is known as a **call option**.

The right to sell is known as a **put option**.

The rights to buy (call) or sell (put) are held by the person buying the option who is known as the **holder.** The person selling an option is known as a **writer**. The following diagram shows the relationship between the holder and the writer.

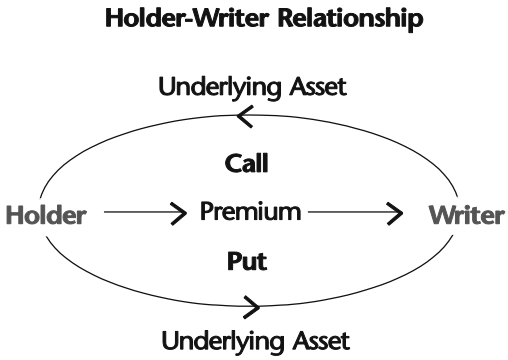


Figure 13.4: The relationship between holder and writer in an option contract

The price at which the holder can buy/sell is the **exercise price** or **strike price**.

Premium is the cost of an option. It is paid by the holder and received by the writer. The holder is obliged to pay the premium, even if the holder does not exercise the option. Depending on the option specification, the premium may be paid upon the purchase of the option (**upfront**) or upon exercise of the option (**on-close**).

In return for receiving the premium, the writer agrees to fulfil the terms of the contract, which of course are different for calls and puts. The holder has to pay a premium because the holder can take advantage of the upside risk without exposure to the downside risk.

Call writers agree to deliver the asset underlying the contract if 'called' upon to do so. When option holders wish to take up their rights under the contract they are said to **exercise** the contract. For a call this means that the writer must deliver the underlying asset for which he will receive the fixed amount of cash stipulated in the original contract.

The date on which an option comes to the end of its life is known as its **expiry date**. The expiry date is the last day on which the option may be exercised or traded. After this date the option disappears and cannot be traded or exercised.

Options are available in a range of different **exercise styles** which are specified when the options are traded. There are a number of potential styles:

- **American style options** – In which the option can be exercised by the holder at any time after the option has been purchased.
- **European style options** – When the option can only be exercised on its expiry date.
- **Asian style options** – When the option is exercised at the average underlying price over a set period of time. Similar to these are TAPOs (Traded Average Price Options). These are fixed strike price, but are exercised against an average underlying price.

A person describing an option will specify its:

- Underlying asset
- Expiry date
- Exercise price
- Call/put

For example, Cocoa (**Underlying asset**)
May (**Expiry date**)
600 (**Exercise price**)
Call (**Call/Put**)

7.5 Factors affecting option value

The value of a **call** option depends upon:

- **Current asset price**. If the asset price rises, the value of a call option will increase. For currency options, the relevant 'price' is the spot exchange rate.
- **Exercise price of the option**. The higher the exercise price, the lower the value of a call option.
- **Asset price volatility or standard deviation of return on underlying share**. The higher the standard deviation of the return, the higher the value of a call option, because there is more likelihood that the asset price will rise above the option price.
- **Time to expiry of the option**. The longer the period to expiry, the higher the value of a call option because there is more time for the asset price to rise above the option price.
- **Risk-free rate of interest**. The higher the risk-free rate of interest, the higher the value of a call option. As the exercise price will be paid in the future, its present value diminishes as interest rates rise. This reduces the cost of exercise and thus adds value to the option.

7.5.1 Share options

The widespread use of derivatives involving options has resulted in much attention being paid to the valuation of options. The share option is a common form of option, giving the right but not the obligation to buy or to sell a quantity of a company's shares at a specified price within a specified period.

The value of a share option is made up of:

- 'Intrinsic value'
- 'Time value'

The intrinsic value of an option depends upon:

- Share price
- Exercise price

The time value of an option is affected by:

- Time period to expiry
- Volatility of the underlying security
- General level of interest rates

7.5.2 Summary of determinants of option prices

Summary of determinants of option prices		
↑ in	*Call price*	*Put price*
Share price	↑	↓
Exercise price	↓	↑
Volatility	↑	↑
Time to expiry	↑	↑
Risk-free rate of return	↑	↓

7.6 The Black-Scholes formula

The Black-Scholes formula for the valuation of European call options was developed in 1973. (European options are options that can only be exercised on the expiry date, as opposed to American options, which can be exercised on any date up till the expiry date.) The formula is based on the principle that the equivalent of an investment in a call option can be set up by combining an investment in shares with borrowing the present value of the option exercise price.

The formula requires an estimate to be made of the volatility in return on the shares. One way of making such an estimate is to measure the volatility in the share price in the recent past and to make the assumption that this volatility will apply during the life of the option.

The formula is part of the wider **Black-Scholes-Merton model**, which models a financial market containing derivative investment instruments.

7.6.1 Assumptions of the Black-Scholes formula

In order to incorporate **volatility** and the **probabilities** of option prices into the formula, the following assumptions are needed:

- Returns are normally distributed.
- Share price changes are lognormally distributed.
- Potential price changes follow a random formula.
- Volatility is constant over the life of the option.

The Black-Scholes formula is also based on the following other important assumptions:

- Traders can trade continuously.
- Financial markets are perfectly liquid.
- Borrowing is possible at the risk-free rate.
- There are no transaction costs.
- Investors are risk-neutral.

7.6.2 The Black-Scholes formula

The Black Scholes formula for the value of a **European call option** is given by:

$c = P_a N(d_1) - P_e N(d_2)e^{-rt}$

Where: P_a = current price of the underlying asset

P_e = exercise price

r = continuously compounded risk-free rate

t = time to expiration measured as a fraction of one year , for example t = 0.5 means that the time to expiration is six months

e = base of the natural logarithms

$N(x)$ = normal proability distribution up to a value of x

$$d_1 = \frac{\ln\left(\frac{P_a}{P_e}\right) + \left(r + 0.5s^2\right)t}{s\sqrt{t}}$$

$d_2 = d_1 - s\sqrt{t}$

where s is the volatility of share price movement (expressed as a standard deviation)

$\ln\left(\frac{P_a}{P_e}\right)$ is the natural logarithm of the spot price over the exercise price.

7.6.3 Value of European put options

The value of a **European put option** can be calculated by using the Put Call Parity.

$p = c - P_a + P_e e^{-rt}$

Where: p = value of the put option

c = value of the call option

7.6.4 Value of American call options

Although American options can be exercised any time during their lifetime it is **never optimal** to exercise an option earlier. The value of an American option will therefore be the same as the value of an equivalent European option and the Black-Scholes formula can be used to calculate its price.

7.6.5 Value of American put options

Unfortunately, no exact analytic formula for the value of an American put option on a non-dividend-paying stock has been produced. Numerical procedures and analytic approximations for calculating American put values are used instead.



Worked example: Black-Scholes formula

Consider the situation where the stock price six months from the expiration of an option is \$42, the exercise price of the option is \$40, the risk-free interest rate is 10% p.a. and the volatility is 20% p.a. This means P_a = 42, P_e = 40, r = 0.1,s = 0.2, t = 0.5.

Solution

$$d_1 = \frac{\ln(42/40) + (0.1 + \frac{0.2^2}{2})0.5}{0.2\sqrt{0.5}} = 0.7693 = 0.77$$

$$d_2 = 0.7693 - 0.2 \times \sqrt{0.5} = 0.6279 = 0.63$$

and

$P_e e^{-rt} = 40e^{-0.1 \times 0.5} = 40e^{-0.05} = 38.049$

The values of the standard normal cumulative probability distribution can be found from the tables and are:

N(0.77) = 0.7794

N(0.63) = 0.7357

Hence if the option is a European call, its value is given by:

c = (42 × 0.7794) – (38.049 × 0.7357) = 4.76

If the option is a European put, its value is given by:

p =4.76 – 42 + 38.049 = 0.81

The stock price has to rise by \$2.76 for the purchaser of the call to break even. Similarly, the stock price has to fall by \$2.81 for the purchaser of the put to break even.



Interactive question 2: Black-Scholes formula [Difficulty level: Intermediate]

The current share price of Cathlynn plc is CU3.50. Using the Black-Scholes formula, estimate the value of a European call option on the shares of the company that has an exercise price of CU3.30 and three months to run before it expires. The risk free rate of interest is 8% and the variance of the rate of return on the share has been 12%.

See **Answer** at the end of this chapter.

7.6.6 Limitations of Black-Scholes formula

(a) The formula is **only designed** for the valuation of **European call options**.

(b) The basic formula is based on the assumption that **shares pay no dividends**.

(c) The formula assumes that there will be **no transaction costs**.

(d) The formula assumes knowledge of the **risk-free rate of interest,** and also assumes the risk-free rate will be constant throughout the option's life.

(e) Likewise the formula also assumes accurate knowledge of the **standard deviation of returns**, which is assumed to be constant throughout the option's life.

7.6.7 Accounting requirements

The pricing of options using Black-Scholes must be considered in the light of the requirements of IFRS 13 *Fair value measurement.*

The Black-Scholes formula contains assumptions that correspond to different levels of the IFRS 13 hierarchies. This is most likely to be an issue for volatility. Historical volatility, volatility derived from historical prices, would be classed as a Level 3 input. Historical volatility generally does not represent current market participants' expectations about future volatility. It may be possible to gain stronger, Level 2, evidence, for example by observing prices for options with varying terms and extrapolating from those.

7.7 Monte Carlo simulation model

The Monte Carlo simulation model is widely used in situations involving uncertainty. It is particularly useful for non-traded derivatives, where Black-Scholes is not appropriate. The method amounts to adopting a particular probability distribution for the uncertain (random) variables that affect the option price and then using simulations to generate values of the random variables.

To deal with uncertainty the Monte Carlo method assumes that the uncertain parameters or variables follow a specific probability distribution.

The basic idea is to generate through simulation thousands of values for the parameters or variables of interest and use these variables to derive the option price for each possible simulated outcome. From the resulting values we can derive the distribution of the option price.

The Monte Carlo simulation model is particularly relevant for IFRS 2 *Share-based payment*. This Standard requires that share-based transactions are recognised in the financial statements at their fair value at the grant date.

One of the major challenges of this statement is measuring the value of the equity instruments (such as share options). The statement requires such instruments to be included in the financial statements at fair value, which should be based on market prices if available. If market prices are not available, the Monte Carlo simulation model is often used to estimate the fair value of the instruments.

7.8 Swaps

A swap is an OTC contract that commits two counterparties to exchange, over an agreed period, two streams of cash or commodities. The contract defines the dates when the cash flows are to be paid and the way in which they are to be calculated. Usually the calculation of cash flows involves the future values of one or more market variables.

Examples of swaps include:

- **Interest rate** – where the two payments exchanged are calculated using different interest rates (discussed in Chapter 15).
- **Currency** – where two streams of interest payments in different currencies are exchanged (discussed in Chapter 15).
- **Equity** – where one cash flow is based on a reference interest rate such as LIBOR, the other is based on the performance of an equity, a basket of equities or an equity index.
- **Commodity** – where one party offers at a fixed single price a series of cash-settled future contracts which the other party will buy or sell at an agreed date. Cash settlement is calculated on the difference between the fixed price and the price of an agreed index for a stated notional amount of the underlying asset.
- **Credit swaps** – discussed below.

7.9 Credit derivatives

Definition

Credit derivative: A derivative whose value is derived from the credit risk associated with an asset.

The market has exploded in size over the last decade. The industry has centred around London, which has global market share in excess of 40%.

Participants in the credit derivatives market include commercial banks, investment banks, insurance companies, hedge funds, pension funds and other corporate entities.

The key concept underlying the credit derivative market is isolation. The buyer of a credit derivative wishes to 'isolate' the credit risk of an underlying security from its other key risks, interest rate and foreign exchange risk. In essence a credit derivative is very similar to an insurance policy. A premium is passed to the seller and if a specific event takes place the seller must compensate the buyer.

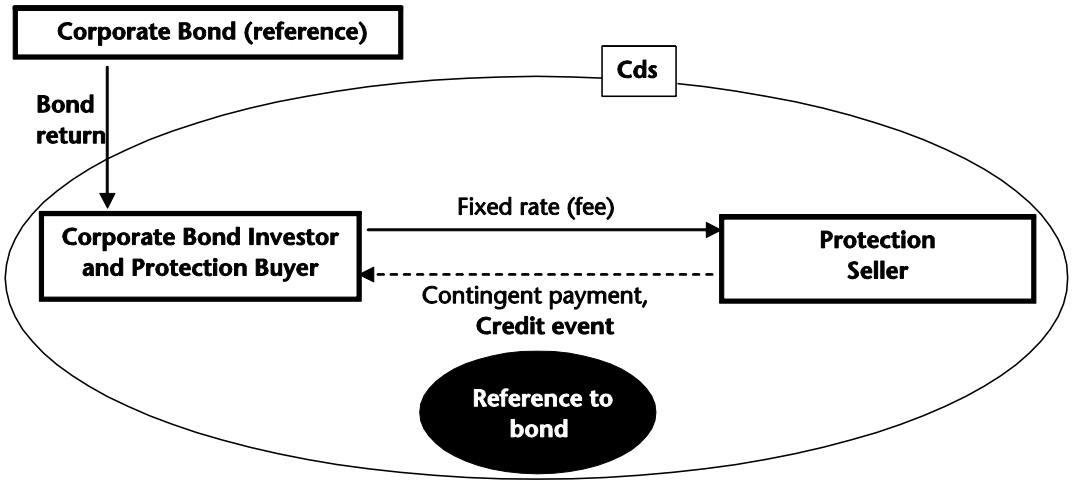


Figure 13.5 Credit derivatives

Credit derivatives are divided into two main categories: those which are funded and those which are unfunded. The funded instruments include credit linked notes and collateralised debt obligations. They are unique because the purchaser of the derivative is buying 'protection' and the cash flows from the underlying security together. In an unfunded credit derivative only the protection is purchased.

One of the most important aspects of credit derivatives is to define exactly what situations will result in the 'insurance' policy being triggered. These are known as 'default events'. The International Swaps and Derivatives Association (ISDA) has defined five 'default events' within its ISDA 2003 Credit Derivatives Definitions:

- **Bankruptcy** – Reference entity voluntarily or involuntarily files for bankruptcy or insolvency protection.
- **Failure to pay or default** – Failure of the reference entity to make aggregate payments due (at least USD 1 million) following a grace period.
- **Restructuring** – Reference entity agrees to, or announces, a change in terms of an obligation (minimum USD 10 million) as a result of deterioration in the financial condition of the reference entity.
- **Repudiation/Moratorium** – Any change in the owner status or independence of the asset or company is considered a credit event, as is any significant change in the asset ownership structure.
- **Obligation default –** A situation where one or more obligations have become capable of being declared due and payable before they would otherwise have been due and payable.

If a credit event does take place the seller of the 'protection' will be contractually obliged to settle the transaction by either taking '**physical delivery**' of the underlying asset from the buyer or via **cash settlement** which is paid to the buyer. An independent valuer will then assess the residual value of the reference asset with the difference between that value and nominal value being paid to the protection buyer.

Another important aspect of credit derivatives is the pricing mechanism and how it changes as the credit quality of the underlying security changes. Market participants have developed models that track the credit rating of the underlying corporate and adjust the value of the derivative accordingly. As credit ratings rise, credit derivative values fall and vice versa. These **credit transitions** are pivotal to the effective valuing of the underlying derivative.

7.9.1 Credit default swaps

Credit default swaps (CDSs) are the most common form of credit derivative. They are mostly based on a single asset. Effectively a purchase of a credit derivative is buying an insurance policy against a credit event, such as bankruptcy, that will affect the value of the underlying security.

The spread of a CDS is the annual amount the protection buyer must pay the protection seller over the length of the contract (like an insurance premium), expressed as a percentage of the notional amount. The more likely the risk of default, the larger the spread. For example, if the CDS spread of the reference entity is 50 basis points (or 0.5%) then an investor buying $10 million worth of protection from a bank must pay the bank $50,000 per year. These payments continue until either the CDS contract expires or the reference entity defaults.

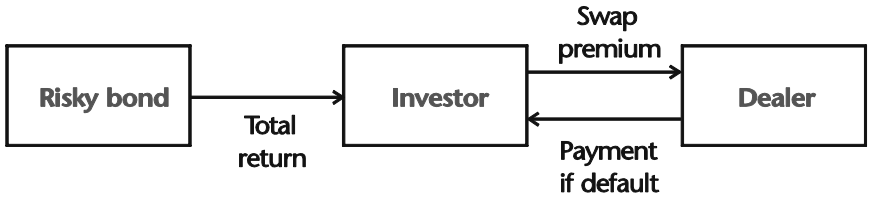


Figure 13.6: Credit default swaps

Unlike insurance, however, CDS are unregulated. This means that contracts can be traded – or swapped – from investor to investor without anyone overseeing the trades to ensure the buyer has the resources to cover the losses if the security defaults.

Credit default swaps are often used to manage the credit risk that arises from holding debt. For example, the holder of a corporate bond may hedge their exposure by entering into a CDS contract as the buyer of protection. If the bond goes into default, the proceeds from the CDS contract will cancel out the losses on the underlying bond.

CDS markets

By the end of 2007, the CDS market was valued at more than $45 trillion – more than twice the size of the combined GDP of the US, Japan and the EU. An original CDS can go through as many as 15 to 20 trades. Therefore, when a default occurs, the so-called 'insured' party or hedged party does not know who is responsible for making up the default or indeed whether the end party has the funds to do so.

When the economy is booming, CDSs can be seen as a means of making 'easy' money for banks. Corporate defaults in a booming economy are few, thus swaps were a low-risk way of collecting premiums and earning extra cash.

The CDS market expanded into **structured finance** from its original confines of municipal bonds and corporate debt and then into the secondary market where **speculative investors** bought and sold the instruments without having any direct relationship with the underlying investment. Their behaviour was almost like **betting** on whether the investments would succeed or fail.



Case example: CDSs

Once an obscure financial instrument for banks and bondholders, CDS have been at the heart of the current credit crisis.

American International Group (AIG) – the world's largest insurer – could issue CDSs without putting up any real collateral as long as it maintained a triple-A credit rating. There was no real capital cost to selling these swaps; there was no limit. Thanks to fair value accounting, AIG could book the profit from, say, a five-year credit default swap as soon as the contract was sold, based on the expected default rate. In many cases, the profits it booked never materialised.

On 15 September 2007 the bubble burst when all of the major credit-rating agencies downgraded AIG. At issue were the soaring losses in its credit default swaps. The first big write-off came in the fourth quarter of 2007,

when AIG reported an $11 billion charge. It was able to raise capital once, to repair the damage. But the losses kept growing. The moment the downgrade came, AIG was forced to come up with tens of billions of additional collateral, immediately. This was on top of the billions it owed to its trading partners. It didn't have the money. The world's largest insurance company was bankrupt.

As soon as AIG went bankrupt, all those institutions who had hedged debt positions using AIG CDSs had to mark down the value of their assets, which at once reduced their ability to lend. The investment banks had no ability to borrow as the collapse of the CDS market meant that no-one was willing to insure their debt.

7.9.2 Total return swaps

A total return swap (TRS) is a type of swap in which one counterparty agrees to pay a floating reference rate such as LIBOR and in exchange will receive the total return, interest and capital gains, generated by an underlying asset. This transaction is specifically designed to transfer the credit risk and the market risk of an underlying security to the counterparty and effectively enables the party to derive an economic benefit from an underlying asset without actually buying it.

TRSs can be used with any underlying asset that generates a return but are most commonly used in the equity markets.

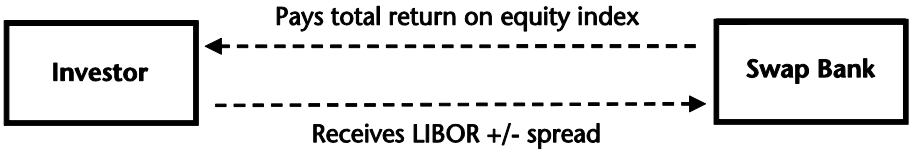


Figure 13.7: Total return swaps

Note that if the equity markets actually fell in value, the receiver of the LIBOR payments would be paying a negative amount of money to its counterparty. Hence the investor would actually be receiving money.

Bond markets also have two types of return associated with holding bonds: the price return and the coupon. TRS are also increasingly popular in the credit derivatives market where the holder of a bond can not only swap the price exposure of a bond (based on coupon and price), but also the credit exposure can be swapped into the deal.

7.9.3 Credit spread swaps

A credit spread swap allows firms to trade smaller shifts in a borrower's credit rating short of outright default. One party makes payments based on the yield to maturity of a specific issuer's debt and the other makes payments based on comparable sovereigns' bond yield plus a spread reflecting the difference in credit rating.

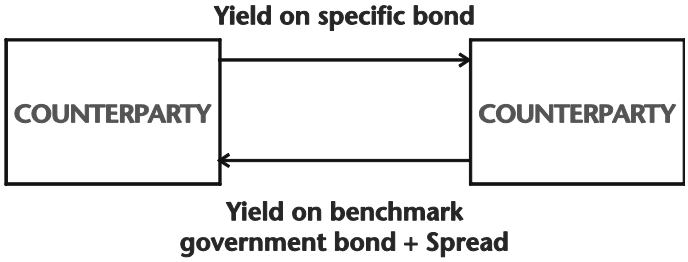


Figure 13.8: Credit spread swaps

If the above two flows are equal at inception of the swap, any change in credit rating of the specified bond relative to the benchmark will result in a payment being made from one party to the other.

This, like the total return swap, allows an investor to lock in a specific spread above a benchmark yield. One of the prime causes of the spread is the difference in credit rating between the corporate bond and the government bond.

Variations could see a swap between yields on a specific bond above a benchmark and the yield between two other bonds, or a swap on the spread on one security above a benchmark with a spread on another security above a benchmark.

7.9.4 Credit options on an underlying asset

Credit options on underlying assets are of two major types:

- Binary options with a predetermined payout
- Binary options with a payout based on credit rating

Binary options with a predetermined payout

This is where there is a fixed payout on the default of a specified asset. If the asset is in default on the expiration of the option, a fixed payout is made. If there is no default by expiry, the option lapses worthless.

Alternatively, the payout may be based on a specified ratings downgrade or on the net worth of the bond issuer falling to a specified level, rather than on default.

Binary options based on credit rating

The payoff of a binary option may be based on the credit rating of the issuer, rather than being a fixed amount. In addition, the option may be embedded in the bond by the issuer.

There are various ways in which these options may be structured.

7.9.5 Credit spread options

Credit spread options are relative value options, since they are based on movements in spreads. The option only gives a profit if the spread changes, rather than if the total yield changes.

If the general level of interest rates increased, but the spread stayed constant, the option would not give any profit.

If the general level of interest rates stayed the same, but the spread increased beyond the strike spread, the option would make profits. As a result, it is an underperformance option.

The payoff on a credit spread option is based on the difference between the strike spread for the option and the actual spread of the specified instrument. The actual amount payable is calculated as follows:

Payoff = (Actual spread – Strike spread) × Notional principal × Risk factor

The risk factor is based on the interest rate sensitivity of the specified instrument.

One possible use of a credit spread option would be to take advantage of a perceived overvaluation of a bond, ie its spread is too low. Instead of selling the bond, the investor could buy a call option on the spread. When the bond's spread widens, the option will give profits.

7.9.6 Credit forward contracts

Credit forwards represent an obligation rather than an option. They can be useful, for example, when a high yield portfolio has performed well with narrowing spreads, and the investor wishes to lock in gains to date.

When an investor purchases a credit forward contract (which would be tailored to relate to the underlying portfolio), the investor will receive compensation if spreads increase. This will compensate for any fall in the value of the underlying portfolio.

If spreads decrease, the value of the portfolio would increase. However, the investor would be obliged to make a payment under the forward contract.

The payment or receipt under the forward contract is calculated as follows.

Payment = (Spread at maturity – Contract spread) × Notional principal × Risk factor

As with credit spread options, the risk factor is based on the duration and convexity of the underlying and represents the interest rate sensitivity to a 1 basis point change in spread.

7.10 Collateralised debt obligations (CDOs)

The overall market for asset-backed securities (ABS) is known as the Collateralised Debt Obligation (CDO) market, where the ABS shifts credit risk on a pool of homogenous assets.

Definition

Collateralised debt obligation is an investment-grade security that is backed or collateralised by a pool of actual bonds, loans or other assets.

CDOs are a common form of funded credit derivative. From the viewpoint of the issuer, a CDO is designed to remove debt assets (eg mortgages, loans or credit card receivables), and their associated credit risk, from an originator's balance sheet in return for cash. To achieve this, the **assets (loans) are sold** by the originator to a **special purpose vehicle (SPV)** for cash, the cash having been raised by the SPV through the issue of bonds to investors, with the return on the bonds being paid from the debt asset cash flows.

Investors purchase CDOs from the issuer who will then take the proceeds from the issuance and invest them in debt securities. The value of the CDO is directly linked to the value of the underlying securities that are used to collateralise it. Interest payments from the underlying securities will effectively be passed through to the CDO holders. Buyers of collateralised instruments can also participate in collateralised mortgage obligations (CMOs) and collateralised bond obligations (CBOs).

One of the most attractive aspects of investing in a CDO is that the issuer will normally issue a range of different classes of CDO for a single pool of assets. These classes are known as tranches and are split according to a credit rating. The higher the credit rating, the more senior the tranche. Losses will first affect the equity tranche, next the mezzanine tranches, and finally the senior tranche. Each tranche pays a periodic payment (the swap premium), with the junior tranches offering higher yields.

7.10.1 Synthetic collateralised debt obligations

Definition

Synthetic collateralised debt obligation: An issued security like a CDO but instead of being backed by a pool of actual underlying assets it is backed by a pool of credit default swaps.

As discussed above, the value of a credit default swap is derived from the credit rating of the underlying asset and is therefore only a representation of that asset and not the asset itself. The CDO is therefore synthetic, as it is made up of a pool of these manufactured credit exposures.

From the issuer's viewpoint, the synthetic CDO acts to remove credit risk on assets that the issuer cannot or does not wish to sell. There may be adverse tax consequences from selling certain assets or legal restrictions on their sale, especially on certain foreign debt. A bank may not wish to sell a particular loan as it wishes to maintain a relationship with the client.

Like a cash CDO, the risk of loss on the CDO's portfolio is divided into tranches. A synthetic CDO issues various tranches of security to investors as with a normal CDO, but then invests any cash raised in a high quality bond portfolio paying a safe, but low, return with minimal credit risk. They then boost this income by selling credit default swaps, thereby taking on the credit risk of the issuer's asset portfolio.

In a synthetic CDO, frequently some of the investors have an unfunded exposure to the risk of the credit default insurance provided, ie they face exposure to the risk of the loss on an asset but have not contributed the associated capital which they may need to if the credit event arises. Arguably, the unfunded nature of many synthetic CDO structures has exacerbated the impact of debt defaults in a manner that would not arise with a funded CDO structure, thereby exaggerating the effects of the credit crisis.

7.11 Limitations of using derivatives

It is easy to assume that derivatives should always be used to hedge interest rate and foreign exchange rate risk. In many instances organisations could have perfectly legitimate reasons for not using derivatives.

7.11.1 Cost

Many organisations will be deterred from using derivatives by the costs, including transaction costs and possibly brokerage fees. Companies may feel that the maximum losses if derivatives are not used are too small to justify incurring the costs of derivatives, either because the size of transactions at risk is not particularly

large, or because the risks of large movements in interest or exchange rates is felt to be very small. Using natural hedging methods, such as matching receipts and payments in the same currency as far as possible, avoids the costs of derivatives. Matching may be particularly important for countries trading in Europe with countries that use the euro.

7.11.2 Attitudes to risk

The desirability of hedging must also be seen in the wider context of the organisation's strategy and its appetite for taking risks. For example, directors may be reluctant to pass up the chance of making exchange gains through favourable exchange rate movements. They may therefore choose the riskier course of not hedging, rather than fixing the exchange rate through a forward contract and eliminating the possibility of profits through speculation.

7.11.3 Uncertainty over payments and receipts

There may not only be uncertainties over movements in rates. Uncertainties may also affect the amount and timing of settlement of the transactions being hedged. Uncertainties over timing may be particularly significant if the hedging transaction has to be settled on a specific date, for example an exporter having to fulfil a forward contract with a bank even if its customer has not paid.

7.11.4 Lack of expertise

If a business is making a lot of use of derivatives, or using complex derivatives, the potential losses from poor decision-making due to lack of expertise may be unacceptably high. These must be weighed against the costs of obtaining specialist external advice or maintaining an in-house treasury function, in order to reduce the risks of poor management of hedging.

7.11.5 Accountancy and tax complications

The accounting complications of using derivatives may be significant. We look in detail at these accounting issues below.



Case example: UBS

In September 2011, Kweku Adoboli, a trader at the Swiss bank UBS, was arrested after allegedly having lost the bank CU1.5 billion. The frauds that Kweku Adoboli was charged with allegedly took place between October 2008 and September 2011 and involved reporting fictitious hedges against legitimate derivative transactions. Adoboli worked for UBS's global synthetic equities division, buying and selling exchange traded funds which track different types of stocks or commodities such as precious metals. In November 2012 he was sentenced to seven years in prison.

Later in September 2011, UBS announced plans to scale back its investment banking activities to reduce its risks and chief executive Oswald Gruebel resigned. In November 2010 Mr Gruebel had reportedly justified the bank's decision at that time to increase its risk appetite with these words: 'Risk is our business. I can assure you, as long as I'm here, as long as my colleagues are here, we do know about risk. (If things go wrong) you won't hear us saying we didn't know it.'



Case example: JP Morgan

The hedging activities of the banking sector in general were put under the media spotlight in May 2012 when JP Morgan announced that a trading desk in London had lost more than $2bn. JP Morgan had had a reputation for being one of the better managed and cautious banks. However, the chief executive Jamie Dimon blamed 'errors, sloppiness and bad judgement' for the losses.

Initial reports suggested the transactions were not unauthorised or carried out by a rogue trader, but were the result of a change in hedging strategy. This change made the strategy more complex and more risky, when hedge funds took advantage of the volatility stemming from JP Morgan's trades. According to an executive at the bank, Dimon wasn't immediately told about the shift in strategy and didn't know the magnitude of the losses until after the company reported earnings on 13 April. However, Dimon had reportedly previously encouraged the trading desk to make bigger and riskier speculative trades.

It was reported that the desk had taken positions so large that even JP Morgan, the largest and most profitable US bank, couldn't unwind them at all easily.

7.12 Accounting for derivatives

7.12.1 Recognition

When an organisation undertakes a derivative transaction involving a contract that is recognised under IA 39 *Financial Instrument: Recognition and Measurement* as a financial instrument, it should be recognised when the organisation enters into the contract, not when the transaction occurs that was stipulated by the derivative contract.

Per IAS 39, derivatives are classified as held for trading unless they are hedging instruments, so they should be **measured at fair value and changes in fair value should be recognised in profit or loss**.

Rules apply to particular derivatives as follows:

- An interest rate swap in which the parties settle on a net basis qualifies as a derivative instrument. This is because the definition of a derivative makes reference to future settlement, but not to the method of settlement.
- If a party prepays its obligation under a **pay-fixed, receive-variable interest rate swap** at inception, the swap should be classified as a **derivative**.
- However, if the fixed rate payment obligation is **prepaid subsequent to initial recognition** this would be regarded as a **termination of the old swap** and an origination of a new instrument.
- A **prepaid pay-variable, receive-fixed interest rate swap is not a derivative if it is prepaid at inception** and it is no longer a derivative if it is prepaid after inception because it provides a return on the prepaid (invested) amount comparable to the return on a debt instrument with fixed cash flows.
- An **option** which is **expected not to be exercised**, for example because it is 'out of the money', **still qualifies as a derivative**. This is because an option is settled upon exercise or at its maturity. Expiry at maturity is a form of settlement even though there is no additional exchange of consideration.
- Many derivative instruments, such as futures contracts and exchange traded written options, require margin accounts. The **margin account** is **not part of the initial net investment in a derivative** instrument. Margin accounts are a form of collateral for the counterparty or clearing house.

7.12.2 Embedded derivatives

Certain contracts that are not themselves derivatives (and may not be financial instruments) include derivative contracts that are 'embedded' within them.



Definition

An **embedded derivative**: A component of **a hybrid (combined) instrument** that also includes a **non-derivative host contract** – with the effect that some of the cash flows of the combined instrument vary in a way similar to a stand-alone derivative. Variation may be due to changes in variables such as a specified interest rate, financial instrument price, commodity price, foreign exchange rate, index of price or rates, credit rating or credit index or other variables.

An embedded derivative may be identified if contracts contain:

- Rights or obligations to exchange at some time in the future.
- Rights or obligations to buy or sell.
- Provisions for adjusting the cash flows according to some interest rate, price index or specific time period.
- Options which permit either party to do something not closely related to the contract.
- Unusual pricing terms (eg a bond which pays interest at rates linked to the FTSE 100 yield contains an embedded swap).

Finally, a comparison of the terms of a contract such as maturity, cancellation or payment provisions with the terms of another similar non-complex contract may indicate the existence, or not, of an embedded derivative.

A key characteristic of embedded derivatives is that the embedded derivative cannot be transferred to a third party independently of the instrument. For example, a bond with a detachable warrant, which gives the right to the owner to exercise the warrant and buy shares while retaining the bond, is not a hybrid or combined instrument. The warrant is a separate financial instrument, not an embedded derivative.

Examples of host contracts

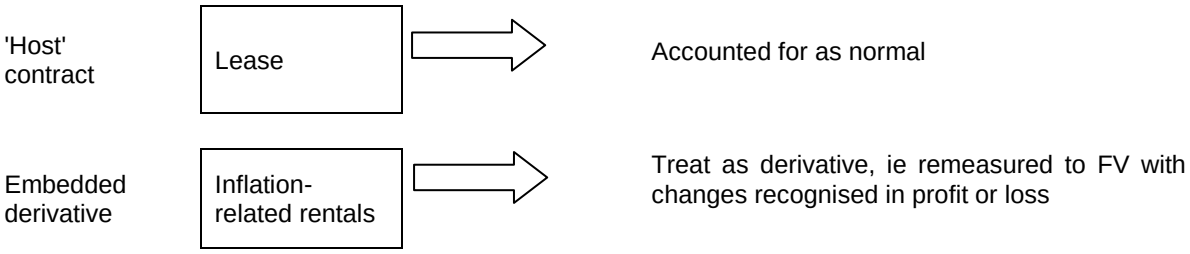
Possible examples include:

- A lease
- A debt or equity instrument
- An insurance contract
- A sale or purchase contract
- A construction contract

Examples of embedded derivatives

Possible examples include:

(a) A term in a lease that provides for rent increases in excess of local inflation:



(b) Effectively, the call option element of a convertible bond that gives the holder of the bond the right to exchange the bond for shares in the company.

(c) A bond which is redeemable in five years' time with part of the redemption price being based on the increase in the FTSE 100 index.

(c) A construction contract priced in a foreign currency. The construction contract is a non-derivative contract, but the change in foreign exchange rate is the embedded derivative.

No definition of 'closely related' is included in IAS 39. In general, an embedded derivative is considered to be **closely related if it modifies** the **inherent risk of the combined contract but leaves the instrument substantially unaltered**. Some common examples of closely related embedded derivatives are given below (IAS 39, Appendix A, Application Guidance AG 33).

- An embedded floor or cap on the interest rate on a debt contract or insurance contract, provided the floor is at or below, and the cap is at or above, the market rate of interest when the contract is issued, and the cap or floor is not leveraged in relation to the host contract.
- An embedded foreign currency derivative that provides a stream of principal or interest payments denominated in a foreign currency and is embedded in a host debt instrument.
- An embedded foreign currency derivative in a host contract that is an insurance contract or not a financial instrument (such as a contract to purchase a non-financial item where the price is denominated in a foreign currency), provided the payment is to be in the functional currency of one of the substantial parties to the contract or in the currency in which the contracted good or service is routinely denominated.
- An embedded prepayment option in an interest-only or principal-only strip is closely related to the host contract provided the host contract (i) initially resulted from separating the right to receive contractual cash flows of a financial instrument that, in and of itself, did not contain an embedded derivative, and (ii) does not contain any terms not present in the original host debt contract.
- A derivative embedded in an insurance contract is closely related to the host insurance contract if the embedded derivative and host insurance contract are so interdependent that an entity cannot measure the embedded derivative separately (ie without considering the host contract).

In all these circumstances the hybrid contract is accounted for as a whole – the embedded derivative is not separated out.

Examples where the embedded derivative is **not** closely related to the **host instrument** include the following (IAS 39, Appendix A, Application Guidance AG 30):

- The option to extend the term on a fixed rate debt instrument without resetting the interest rate to market rates.
- Credit derivatives in a debt instrument.
- Put option embedded in an instrument that enables the holder to require the issuer to reacquire the instrument for an amount of cash or other assets that varies on the basis of the change in an equity or commodity price or index.
- From the point of view of the holder only, a call option embedded in an equity instrument that enables the issuer to reacquire that equity instrument at a specified price.
- Equity-indexed interest or principal payments embedded in a host debt instrument or insurance contract.
- Commodity-indexed interest or principal payments embedded in a host debt instrument or insurance contract.
- An equity conversion feature embedded in a convertible debt instrument.
- A call, put, or prepayment option embedded in a host debt contract or host insurance contract.

In all these circumstances the embedded derivative is separated out from the host contract for accounting purposes.

Accounting treatment of embedded derivatives

The basic rule for accounting for an embedded derivative is that it should be **separated from its host contract** and **accounted for as a derivative**. The purpose is to ensure that the embedded derivative is measured at fair value and changes in its fair value are recognised in profit or loss. But this separation should only be made when the following **conditions** are met:

(a) The **economic characteristics** and risks of the embedded derivative are **not closely related** to the economic characteristics and risks of the **host contract**.

(b) A **separate instrument** with the same terms as the embedded derivative **would meet the definition** of a **derivative**.

(c) The hybrid (combined) instrument is **not measured at fair value with changes in fair value recognised in profit or loss** (if changes in the fair value of the total hybrid instrument are recognised in profit or loss, then the embedded derivative is already accounted for on this basis, so there is no benefit in separating it out).

However, under IFRS 9 where the host contract is a financial asset within the scope of the standard, the classification and measurement rules of the standard are applied to the entire hybrid contract.

7.12.3 Derecognition

When a derivative is derecognised, the difference between the carrying amount and any consideration received should be recognised in profit or loss. Any accumulated gains or losses that have been recognised in other comprehensive income should also be reclassified to profit or loss on derecognition of the asset.

For repurchase agreements, the financial asset will be derecognised when sold if there is an option to repurchase the asset at its fair value at the time of purchase. However, where a financial asset such as a bond is sold with a simultaneous agreement to buy it back at some future date at a specified price, the substance of the transaction is that the risks and rewards of ownership have not been transferred. In effect the proceeds of the sale are collateralised borrowing. The asset should continue to be recognised and the amount received recognised as a financial liability. Similarly the asset should not be derecognised if it is sold but there is a total return swap transferring the market risk exposure back to the entity selling the asset.

For securitisations, whether the securitised assets will be derecognised depends on whether the SPV (special purpose vehicle) has assumed all the risks and rewards of the ownership of the assets and whether the originator has ceded control of the assets to the SPV. If the SPV is a mere extension of the originator and it continues to be controlled by the originator, then the SPV should be consolidated and any securitised assets should continue to be recognised in the group accounts. Securitisation will not in this case lead to derecognition.

Even when the SPV is not controlled by the originator, the risks and rewards of ownership will not have passed completely to the SPV if the lenders to the SPV require recourse to the originator to provide security for their debt, or if the originator retains the risk of bad debts.

For total return swaps, the originator is prohibited from derecognising the asset that it has transferred.

7.12.4 Disclosure/presentation

The presumption is that when a derivative financial instrument gives one party a choice over how it is settled, it is a financial asset or a financial liability unless all of the settlement alternatives would result in it being an equity instrument.

If a derivative is a financial asset, then it should be classified as a financial asset at fair value through profit or loss, being treated as a financial asset held for the purpose of selling in the short-term. If it is a financial liability, it will also be treated at fair value through profit or loss.

7.12.5 Measurement

According to its classification, a derivative should be measured at fair value, with any changes in fair value being taken to profit or loss. This applies both to derivatives that are financial assets or financial liabilities.

Fair value will be preferably the quoted market price or the price at which the latest transaction occurred.

If there is no active market for a particular financial instrument, fair value should be determined using a valuation technique. Such techniques could include recent market transactions, transactions in other shares or securities that are substantially the same, discounted cash flow models and option pricing models. The inputs to such models should be market based and not entity specific, that is they should incorporate data which market participants would use but should not take account of factors which are only relevant to the owner of the asset (such as strategic importance to it).

Appropriate techniques for valuing financial instruments should include observable data about the market conditions that are likely to affect the fair value of an instrument. IAS 39 includes the time value of money, credit risk, exchange rates, volatility, equity prices, prepayment risk and servicing costs as examples of factors to be considered.

Establishing a fair value for non-traded derivatives may be problematic. Their value will be very dependent on the assumptions used, particularly those relating to the timing and size of future cash flows.

(a) **Disclosures**

For derivatives that are financial liabilities, the entity should disclose:

- The amount of change, during the period and cumulatively, in the fair value of the financial liability that is attributable to changes in the credit risk of that liability.
- The difference between the financial liability's carrying amount and the amount the entity would be contractually required to pay at maturity to the holder of the obligation.
- The valuation techniques and inputs used to develop fair value measurements (under IFRS 13).

(b) **Calculation**

The amount of any change in the fair value attributable to credit risk can be calculated as the amount of the change not attributed to market risk. That is:

$$\begin{bmatrix}\text{Amount of change in fair value}\\ \text{attributed to credit risk}\end{bmatrix} = \begin{bmatrix}\text{Total amount of}\\ \text{change in fair value}\end{bmatrix} - \begin{bmatrix}\text{Amount of change in fair value}\\ \text{attributed to market risk}\end{bmatrix}$$

(c) **Alternative method**

IFRS 7 allows the employment of an alternative method to calculate the amount of change in the fair value attributed to credit risk if the entity believes that such a method is more accurate.

8 Derivative markets



Section overview

- Derivatives can only exist when the underlying marketplace allows buyers and sellers to freely influence the market price. Those underlying markets include FX and money markets where users are looking to protect themselves against adverse swings in both FX rates and interest rates for exposures that are due in the future.

8.1 Markets

Derivative products have developed out of a desire of users in the underlying markets to manage their continuing price exposure in those markets. The main derivatives markets are:

- **Foreign exchange** (FX)
- **Money markets** (short-term interest rate, or STIR, markets)
- **Fixed income markets** (Government and non-Government)
- **Equity markets**
- **Commodity markets** (eg crude oil, metals and soft commodities)
- **Credit markets**

8.1.1 Floor versus voice versus electronic

For the Exchange Traded Derivatives Markets (the 'ETD' markets), trading takes place both electronically and via open outcry, on centralised physical trading floors. The trend is towards more electronic market places with the evolution of technology and the desire for banks and brokerage to utilise the most cost-effective trading platforms. Some market places adopt both.

The OTC derivatives market, by contrast, does not have centralised trading floors. It consists of a combination of telephone brokering and electronic trading. Just like the ETD markets, the shift is towards electronic broking and trading.

8.1.2 Quote driven versus order driven

For derivatives markets, price discovery is generated though two different types of market systems. A quote-driven market is one where prices are determined by designated market makers or dealers. This is sometimes described as a 'price driven' market. An order driven market is one where the buy and sell orders placed in the trading system result in the best bid price and lowest offer price, resulting in a transaction taking place.

The difference between these two market systems lies in what is displayed in the market in terms of orders and bid and ask prices. The order driven market displays all bids and asks, while the quote driven market focuses only on the bids and asks of market makers and other designated parties. For example, NYSE Liffe, which is an organised ETD market, is a centralised, order-driven market on which continuous trading is supported by brokers.

OTC derivatives trade via a combination of quote driven and order systems.

8.1.3 Price taker versus price giver

All quote driven transactions around the world involve one participant providing a two-way price on request (a price at which the market maker is willing to buy and a price at which he is willing to sell). Clearly his sell price is higher. A perfect day's trading for a market maker is one where he has simultaneously entered into buy and sell orders throughout the day with matching volumes. At the end of the day, he will have earned the difference between the buy price and the sell price on the volume that he has traded.

The market maker is known as the 'price giver.' His counterparty to the deals is known as the 'price taker'. The price giver will always aim to make a profit that is equal to the difference between the buy price and the sell price that he is quoting. The price taker (known as the 'client') must accept that he will always pay the higher price quoted when he is buying and sell to the lower price quoted by the market maker when he is selling.

Central banks, investment banks, brokerage houses and insurance companies tend to be the typical price givers. Asset managers, corporations and private clients tend to be the typical price takers.

8.2 OTC v exchange-traded markets

As discussed above, derivatives may either be **exchange-traded** (where there is an active secondary market accessible to participants) or be contracts entered directly between counterparties (on the **over-the-counter (OTC)** market).

The table below summarises the differences between the OTC and exchange-traded market.

	Exchange-traded	OTC
Quantity and accuracy of hedging	The quantity covered by each contract is determined by the exchange. Only whole contracts may be traded	Can be tailored to meet the need of the investor exactly
Quality	Defined by the contract specification	Can be varied according to need
Delivery/ expiry dates	Only allowed on dates fixed by the exchange	Can be tailored to meet the customer's needs
Liquidity	Generally good, but dependent upon the product	May be limited; market may be made by just one firm
Counterparty risk	No counterparty risk to the clearing member once contract registered	Risk exists of default, therefore credit rating of counterparty very important
Margin	Margin will normally be required	Normally no margin
Regulation and confidentiality	Subject to significant regulation and disclosure	Less actively regulated. May not be suitable for certain categories of customer

The differences between hedging using exchange-traded products and hedging on the open markets can be further summarised:

	Exchange-traded	OTC
Exposure characteristics	In the ETD market, it is much harder to match the exposure due to the standardisation of the contracts. Expiry dates are fixed, contracts have a minimum trading size and for commodities especially, the quality and location of the underlying delivery is fixed and may not match that of the exposure	OTC hedges can be tailored to meet the exact exposure of the underlying position. This includes the size of the exposure, the timing of the exposure and also, if a commodity, the exact quality and location of delivery of the underlying commodity
Cost of putting on the hedge/closing hedging	Fees are transparent with ETD contracts. A broker will outline exactly what he will charge a client for executing and clearing futures and options contracts	With OTC transactions, the fees to transact them are disguised within the prices that are quoted. However, the more tailor-made the hedge, the higher the embedded costs will be to the hedger
Ease of adjusting or closing the hedge	Successful futures contracts are extremely liquid and will have tight bid/ask spreads. Hence the cost of adjusting a hedge position or closing a hedge out is very small when executed on the ETD markets	There are two options for a hedger to close down an OTC hedge position. Firstly and most obviously, they can go back to the counterparty that they initiated the hedge with. They are then at the mercy of the price offered by that counterparty. In an illiquid market place, or if the hedge is very unique in its construction, then a hedger will have no option but to trade with this counterparty. Secondly, if the hedge is of straightforward construction, the trader will able to ask for quotes from other banks and perhaps trade an

	Exchange-traded	OTC
		equal and opposite OTC deal to their original hedge with the new counterparty. Having two counterparties will obviously increase the administration of the deals and utilise two credit lines which may not be attractive for the trader's company
Counterparty exposure v centralised clearing	Trading directly on the exchange as a clearing member effectively eliminates any counterparty exposure as they have the clearing house as counterparty. Of course, if the trader is simply a client of a member of the exchange, he will have counterparty exposure to that clearing member	All OTC transactions that are bilateral agreements involve counterparty exposure. The credit rating of the trader's company will thus have an impact on the prices that he is able to achieve with the OTC counterparties
Price transparency	Exchanges sell real time prices to quote vendors who then disseminate those prices into dealing rooms. Hence all dealers and traders know exactly what the current prices are at all times	The OTC market has no formal price discovery process if a trader wishes to trade direct with a counterparty. A certain amount of price discovery exists when traders use OTC brokers/interdealer brokers to ascertain the prices available for trading. However, those OTC brokers only collate and quote prices for 'standardised OTC' contracts. If a trader wants to trade a more complex hedge, he is at the mercy of the OTC counterparty for pricing
Best execution	When a trader leaves an order with an ETD broker or dealer, he expects best execution	Best execution can be achieved by OTC brokers for standardised OTC contracts. For anything more complex, a trader will simply have to compare quotations himself from willing counterparties
Documentation	Exchange traded derivative documentation is more straightforward as the relationship with the exchange is standardised therefore no Master Agreements are required. Nevertheless, there still needs to be legal confirmation of each transaction and this is provided by contract notes, which are similar in content to the term sheets produced for OTC derivatives	OTC transactions between counterparties are governed by the framework detailed in the Master Agreement. The individual transactions each have a trade confirmation or 'term sheet' which serves as a record
Settlement mechanism	For exchange traded derivatives all transactions are centrally cleared by the clearing house. In the UK LCH.Clearnet is the key clearer and facilitates the margin procedures and delivery/expiry processes. All transactions on exchange will be guaranteed by the clearing house	Settlement of OTC transactions can be completed either bilaterally between the two counterparties or via a clearing house such as SwapClear. In the former, the counterparties deal directly with each other and are responsible for managing credit risk, overseeing cash flow transfers and facilitating settlement. In the latter, the entire process is managed and guaranteed by the clearing house

8.2.1 Features of exchange trading

Futures and option contracts are traded on an organised exchange in a centralised location. These exchanges are also regulated by the local regulatory bodies in each country and are described as 'Recognised Investment Exchanges' or RIEs. They charge a membership fee and levies on contracts traded to cover the operational costs of the business.

8.2.2 Features of OTC markets

The process of agreeing an OTC transaction is normally conducted over the phone directly with the counterparty or via an inter dealer broker. Once verbally agreed the contract terms will be sent to each counterparty for confirmation. Historically, OTC derivatives have been time consuming and therefore expensive to process because each trade would be unique with different terms and conditions and therefore had to be confirmed individually, then settled and finally cash flows reconciled. However, the advent of technology and the semi-commoditisation of certain portions of the OTC derivatives markets has facilitated the introduction of several trade processing systems which are being used in the OTC market. These include MarkitWire, SwapClear and DTCC Deriv/Serv.

OTC products can present considerable **counterparty risk exposure**. To minimise this risk, participants normally undertake a lengthy due diligence investigation of their counterparty to avoid entering into contracts that may be subject to default. There is also a growing use of central counterparty clearing services provided by LCH Clearnet, which accepts certain OTC contracts as intermediary, protected by a margining system. Credit risks are also minimised through the netting of cash flows in products such as interest rate swaps and, more broadly, by favouring products that are settled on a difference rather than by delivering the physical underlying.

Counterparties to an OTC product are at risk if either the paperwork does not operate as envisaged in the case of a default, or if one party is acting in a capacity for which it is not authorised. The documentary risk is less intense than before as the International Swaps & Derivatives Association (ISDA) has produced a standard master agreement to cover most bilateral OTC derivatives transactions.

Valuing OTC positions can be difficult. While exchange-traded markets provide daily mark to markets against authoritative settlement prices, many OTC products are valued by the issuing bank. This may not provide the objectivity required by many trustees and custodians.

8.3 Participants in markets

For markets to operate in the most efficient and effective way possible (which is what market users are looking for), some market places require additional market participants to help with access, execution and clearing services. These market participants include:

- **Intermediaries** – Interdealer brokers (IDBs). These participants are the lifeblood of the OTC derivatives markets. They provide price discovery services and quotation for the buyers and sellers.
- **Prime brokers** – These are brokers who act as settlement agents, provide custody for assets, provide financing for leverage, and prepare daily account statements for its clients, who are money managers, hedge funds, market makers, arbitrageurs, specialists and other professional investors. They often also offer securities lending services for their hedge fund clients.
- **Futures commission merchants (FCMs)** – This is mostly a generic US term for an exchange traded clearing and/or execution broker. They must be registered by the CFTC in the US.
- **Execution broker** – This is a brokerage corporation or individual who executes client orders on a derivatives exchange. Note: the execution and clearing broker could be the same company or be a separate company.
- **Clearing broker** – This is a brokerage/bank who is normally a member of an organised derivatives exchange. They offer clearing and settlement services internally and to clients who execute transactions on a derivatives exchange.

Summary and Self-test

Summary

Retained funds are a more important source of equity funding than share (rights or new) issues.

UK stock markets are the London Stock Exchange, AIM and the PLUS Stock Exchange. Internationally the New York Stock Exchange, which has merged with Euronext, is most influential.

Bonds are an important source of finance for companies. The UK domestic market in bonds has become more active in recent years, and larger firms can use Eurobonds, bonds available internationally, denominated in another currency.

Bonds can be priced at par, at a premium or at a discount. As interest rates rise, the price of bonds falls and vice versa.

Lenders are exposed to credit risks, which is the risk that borrowers will default on interest and/or principal repayments. Credit spread is the premium required by the lender to compensate for the credit risk.

Derivatives include forward contracts, forward rate agreements, futures, options, swaps and credit derivatives. Derivative trading is carried out both over-the-counter and on exchanges.

The Black-Scholes formula can be used to value options.

Self-test

Self-test question 1

Listing

You have been appointed as the chief financial officer of a multimedia company which is financed by private equity. There is considerable public interest in the company and it continues a very rapid rate of growth under the leadership of its dynamic founder and chief executive officer Martin Pickle. Martin Pickle owns over 30% of the company's equity and has also loaned the business substantial sums to sustain its overseas development. The balance of the other investors consist of some small shareholdings held by current and past employees and the remainder is in the hands of a private equity company which is represented by two directors on the board.

Recent financial information

Year ending 31 December	*Profit for the year after interest and tax*	*Investment in projects or capital expenditure*	*Dividend paid*
	$ million	*$ million*	*$ million*
20X5	18	-	9
20X6	21	30	6
20X7	30	-	15
20X8	33	45	6
20X9	48	-	24

After two months in the job you are called to a meeting with Martin Pickle and the company's non-executive chairman. In that time you have made significant progress in improving the financial controls of the business and the current year end, which is three weeks away, looks very promising. The company's underlying earnings growth promises to be in excess of 20% and its cash generation is strong. The CEO tells you that he would like you to put together a plan to take the company to full listing as a first step to him undertaking a substantial reduction in his financial stake in the business.

Requirements

(a) Prepare a board paper, describing the procedure for obtaining a listing on an international stock exchange such as the London or New York Stock Exchange.

(b) Prepare a briefing note, itemising the advantages and disadvantages of such a step for a medium-sized company.

Self-test question 2

Shareholders and bondholders

(a) Discuss why conflicts of interest might exist between shareholders and bondholders.

(b) Provide examples of covenants that might be attached to bonds, and briefly discuss the advantages and disadvantages to companies of covenants.

IAS 32, *Financial Instruments: Presentation*

- IAS 32 outlines the requirements for the presentation of financial instruments, particularly the classification of these instruments into financial assets, financial liabilities and equity instruments. The standard also provides guidance on the classification of interest, dividends and gains or losses relating to the financial instruments.

Overview

IAS 39, *Financial Instruments: Recognition and Measurement*

- IAS 39 is a companion to IAS 32 and outlines the requirements for the recognition and measurement of financial assets, financial liabilities, and some contracts to buy or sell non-financial items.

Overview

IFRS 9, *Financial Instruments*

- IFRS 9 is currently still a work in progress, but it will eventually form a complete replacement for IAS 39. IFRS 9 sets out the recognition and measurement requirements for financial instruments and some contracts to buy or sell non-financial items.

Overview

IFRS 7, *Financial Instruments: Disclosures*

- IFRS 7 prescribes disclosure about the significance of financial instruments to an entity's position and performance, and about the nature and extent of the risks arising from those financial instruments, in both quantitative and qualitative terms.

Overview

IAS 17, *Leases*

- IAS 17 prescribes the accounting policies and disclosures applicable to leases. The standard applies to both lessees and lessors. Leases which transfer substantially all the risks and rewards of ownership, which give rise asset and liability recognition by the lessee and a receivable by the lessor must be treated as finance leases. Leases which result in expense recognition by the lessee with the asset continuing to be recognised by the lessor must be treated as operating leases.

Overview

IFRS 13, *Fair Value Measurement*

- Defines fair value as the price that would be received to sell as asset or would be paid to transfer a liability in an orderly transaction between market participants at the measurement date. IFRS 13 defines fair value on the basis of an 'exit price' notion and uses a 'fair value hierarchy' which results in a market-based measurement rather than an entity-specific one.

Overview

IFRS 2, *Share-based payments*

- The objective of IFRS 2 is to specify the financial reporting by an entity when it undertakes a share-based payment transaction. IFRS 2 requires an entity to recognise share-based payment transaction (such as shares granted, or share options) in its financial statement. This includes transactions with employees or other parties, to be settled in cash, other assets, or equity instruments of the entity.

Overview

Answers to Interactive questions

Answer to Interactive question 1

(a) Conversion ratio is CU100 bond = 30 ordinary shares

Conversion value = 30 × CU4.15 = CU124.50

(b) Conversion premium = CU(142 – 124.50) = CU17.50

or $\frac{17.50}{124.50} \times 100\% = 14\%$

The share price would have to rise by 14% before the conversion rights became attractive.

Answer to Interactive question 2

Find (d_1) and (d_2)

$$d_1 = \frac{\ln(3.50/3.\ 30) + (0.25 \times 0.08)}{\sqrt{0.12}\sqrt{0.25}} + \frac{\sqrt{0.12}\sqrt{0.25}}{2}$$

= 0.4552 + 0.0866

= 0.5418

d_2 = 0.5418 – ($\sqrt{0.12}\sqrt{0.25}$)

= 0.5418 – 0.1732

= 0.3686

Find N (d_1) and N (d_2) using normal distribution tables

N (0.5418) = 0.5 + 0.2060 = 0.7060

N (0.3686) = 0.5 + 0.1438 = 0.6438

Using the Black-Scholes formula

C_0 = (3.50 × 0.7060) – ((3.30$e^{-0.25 \times 0.08}$) × 0.6438)

= 2.4710 – 2.0825

= 38.85p

CHAPTER 13

Answer to Self-test question 1

Listing

(a) **Procedure for obtaining a listing on an International Stock Exchange Paper prepared for the Board of Multimedia Company**

This paper describes the necessary procedures for obtaining a listing on an international stock exchange.

Obtaining a listing on an international stock exchange such as the London or New York stock exchange consists of satisfying requirements in **three broad areas**: namely **registration, listing and admission to trading**.

In the UK, a firm seeking a listing must first **register** as a public limited company to ensure that it is entitled to issue shares to the public. This will require a change to the company's memorandum and articles of association agreed by the existing shareholders at a special meeting convened for the express purpose of agreeing this change.

The company must meet the regulatory requirements of the **Listing Authority** which is part of Financial Conduct Authority in the UK. These regulatory requirements impose minimum size restrictions on a company and other conditions concerning length of time trading (normally audited accounts must exist for a three year period). An issue of particular concern here is that the CEO has a controlling interest in the business – this will have to be addressed. Once these requirements are satisfied the company is placed on an official list and is allowed to make an initial public offering of its shares.

Once the company is on the official list it must then seek approval from the Stock Exchange to allow its shares to be traded. Exchanges such as the London Stock Exchange impose strict requirements which invariably mean that the applicant company will need the services of a sponsoring firm specialising in this area. The regulatory requirements of the London Stock Exchange include:

- Compliance with corporate governance regulations (for example, 50% of the Board should be independent non-executive directors).
- Quality and experience of the executive directors and the business plan, all of which must be carefully laid out in a prospectus.

This tends to be costly and therefore prohibitive for all but the larger companies. The restrictions (and costs) of obtaining a listing on a junior market (eg AIM in the UK) may be lower.

(b) **Briefing note prepared for Martin Pickle, CEO**

Subject: Advantages and disadvantages of a stock market listing for a medium-sized company

Following on from our discussion regarding a stock market listing for the company, I have detailed below the main advantages and disadvantages of taking such a step for a company of our size.

For a **medium sized firm**, the principal advantage of obtaining a public listing is the **additional sources of finance** available. A listed company would have access to **equity capital** from both institutional and private investors, and the sums that can be raised are usually much greater than through private equity sources. In addition, the presence of a firm as a limited company on a major exchange such as the London Stock Exchange enhances the **credibility** of the firm both to potential investors and to the general public as it has opened itself to a much greater degree of public scrutiny than a privately financed firm.

The **disadvantages** are significant; the distributed shareholding places the firm in the market for investors seeking corporate control and also increases the likelihood that the firm will be subject to a takeover bid. The higher degree of public scrutiny imposes a significant **regulatory burden** on the firm as it must comply with a range of **disclosure requirements** and financial accounts must be prepared in accordance with relevant accounting standards. In the UK, this means in accordance with IFRS and the relevant GAAP as well as the Companies Acts. Under the rules of the London Stock Exchange, companies must also comply with the governance requirements of the **UK Corporate Governance Code** and have an effective and ongoing

business planning process in place. The requirement to comply or explain can impose a significant regulatory burden and can expose the company to critical comment.

Answer to Self-test question 2

Shareholders and bondholders

(a) (i) **Different attitudes to risk and return**

Shareholders may want the company to undertake **risky projects** with correspondingly **high expected levels of returns**. Bondholders will want the company to undertake projects that guarantee sufficient returns to pay their interest each year, and ultimately to repay their loans.

(ii) **Dividends**

Large (albeit) legal dividends may be preferred by shareholders, but may concern bondholders, because the payments leave low cash balances in the company and hence **put at risk** the **company's ability** to meet its commitments to the bondholders.

(iii) **Priority in insolvency**

Bondholders may wish to take the company into **liquidation** if there are problems paying their interest, to guarantee their investment. Shareholders, however, may wish the company to **continue trading** if they expect to receive nothing if the company does go into liquidation.

(iv) **Attitudes to further finance**

Shareholders may prefer the company to **raise additional finance** by means of loans, in order to **avoid having to contribute themselves** in a rights issue, or the risk of dilution of their shareholding and hence power if an open stock market issue is made. Bondholders may **not wish the company** to take on the burden of additional debt finance, because it may increase the risk that the **interest** that they are **due** will not be paid, or the company will have problems repaying their loans, particularly if the new loans rank above theirs.

(v) **Restrictions imposed by bondholders**

Restrictions imposed by bondholders to protect their loans, such as charges preventing the company from selling assets or covenants, may limit the company's ability to maximise returns for shareholders.

(vi) **Bankruptcy costs**

If the **costs of bankruptcy**, such as receivers and lawyers' fees, are likely to be **significant**, bondholders may be much less willing than shareholders for the company to bear any risk. Significant bankruptcy costs may mean that there is insufficient money left to repay their loans.

(b) A covenant in a loan agreement is an obligation placed on the borrower over and above repaying the loan according to terms.

The various types of covenant are:

Positive covenants

These require a borrower to do something, for example to **provide the bank** with its regular management accounts. This would allow the bank to **check** on the **financial performance** of the company, and to ensure that it is likely to be able to repay the loan as planned.

Loan covenants

The borrower may pledge **not to take out further loans** until the current loan has been repaid, or not to take further loans ranking above existing loans. The purpose of this is to protect the position of the lender, and to ensure that the risk of default is not increased, or the level of security diluted.

Asset covenants

There may be restrictions on the company's ability to **acquire or dispose of assets**.

Accounting covenants

These set **limitations on the borrower's financial position**. For example, the company might agree that its total borrowings should not exceed 100% of shareholder's funds. The purpose of this is to keep the gearing, and hence the level of risk to the lender, within certain limits.

Dividend covenants

Covenants may **restrict the levels of dividends** borrowers can pay, or restrict the company's ability to purchase its own shares.

Investment covenants

Covenants may **limit the investments** the borrower can undertake, or prevent the borrower merging or making an acquisition.

Repayment covenants

The lender may be required to **build up a fund over time** to be drawn on to redeem bonds at the end of their life.

Advantages of covenants

(i) The main advantage of covenants is that lenders may be prepared to lend **more money** to the company if it provides the security of a covenant.

(ii) Covenants may mean that the costs at which the company can **borrow money** are **lower**.

Disadvantages of covenants

(i) The main disadvantage of a covenant is that the company's actions may be **constrained**; it may not be able to raise further funds beyond the covenanted loans or undertake profitable investments.

(ii) Covenants may require the borrower to bear **monitoring costs** such as provision of information, auditors' fees or trustee expenses.



CHAPTER 14

Financial structure and financial reconstruction

Introduction

Topic List

1 Capital structure
2 Dividend policy
3 Financial reconstruction
4 Demergers and disposals
5 Small and medium company financing

Summary and Self-test

Technical reference

Answers to Interactive questions

Answers to Self-test

Introduction

Learning objectives

	Tick off
• Appraise and evaluate the sources of finance and the process for raising finance	☐
• Advise and develop proposals for determining the appropriate financing mix for new business projects	☐
• Explain and advise on issues relating to the cost of capital	☐
• Appraise and explain how the choice of financing impacts on reported corporate performance and on the recognition and measurement of financial assets and financial liabilities	☐
• Show and explain how dividend policy impacts upon equity value and upon financing and investment decisions	☐
• Show and explain how financial reconstruction takes place and explain the consequences of such reconstructions for corporate reporting	☐
• Appraise and evaluate financial reconstruction proposals in a given scenario and determine the nature and role of assurance procedures in this context	☐
• Explain the different reasons for refinancing and demonstrate how companies in financial distress can be managed, having regard to insolvency law	☐
• Explain and appraise the workings, and the reasons for, securitisation, showing the impact on financial statement information	☐
• Explain and appraise the nature and consequences of leveraged buyouts	☐
• Appraise and evaluate various forms of reconstruction (spin-off, MBO, divestment, demergers, purchase of own shares, use of distributable profits)	☐
• Explain and demonstrate appropriate valuation techniques in the context of demergers and for disposal of entities and show the impact on corporate reporting issues	☐
• Appraise and explain the small- and medium-sized entity financing problem	☐
• Appraise and evaluate the various methods of financing available to small- and medium-sized enterprises, and explain the nature and role of assurance for small- and medium-sized companies in raising such finance	☐
• Assess and explain the characteristics of sources of equity for smaller companies and the financial institutions operating in such markets	☐

Knowledge brought forward and syllabus links

This chapter follows on from the last chapter by looking at the factors that determine the choice of capital and influence the cost of capital. We include a revision of cost of capital and CAPM calculations from *Financial Management.* Dividend policy was also covered in *Financial Management,* but for this exam the focus is on the factors that determine overall dividend policy and the approaches firms can take.

Company restructuring was also introduced in *Financial Management,* but the focus here is on the consequences of different types of reconstruction, including their impacts on corporate reporting.

Examination context

Company reconstruction is another area where questions ranging across the syllabus could easily be asked. As well as assessing the feasibility of proposals, you may have to assess their corporate reporting consequences and also the issues that will affect the assurance work that future providers of finance will require to give them comfort.

1 Capital structure



Section overview

- In this section we discuss the factors that determine the sources of finance that businesses choose.
- Later in this chapter, in Section 5, we review in detail the issues affecting small businesses as they seek finance.

1.1 Introduction

Often the decision on the right capital structure will be a complex one. Remember businesses are not just deciding what the best mix of equity and debt should be. They are also considering the mix of long-term and short-term debt, the attractiveness of different lenders and the security they wish to offer among other factors. The mix of finance a business should use can be assessed using the **suitability, acceptability and feasibility framework** you studied in the *Business Strategy* syllabus.

1.2 Suitability of capital structure

1.2.1 Stability of company

One determinant of the suitability of the gearing mix is the stability of the company. It may seem obvious, but it is worth stressing that debt financing will be more appropriate when:

- The company is in a healthy competitive position
- Cash flows and earnings are stable or rising
- Profit margins are reasonable
- The bulk of the company's assets are tangible
- The liquidity and cash flow position is strong
- The debt-equity ratio is low
- Share prices are low (unless share prices are low because the company already has high gearing)

1.2.2 Matching assets with funds

As a general rule, assets which yield profits over a long period of time should be financed by long-term funds.

In this way, the returns made by the asset should be sufficient to pay either the interest cost of the loans raised to buy it, or dividends on its equity funding.

If, however, a long-term asset is financed by short-term funds, the company cannot be certain that when the loan becomes repayable, it will have enough cash (from profits) to repay it.

A company would not normally finance all of its short-term assets with short-term liabilities, but instead finance short-term assets partly with short-term funding and partly with long-term funding.

1.2.3 Long-term capital requirements for replacement and growth

A distinction can be made between long-term capital that is needed to finance the replacement of worn-out assets, and capital that is needed to finance growth.

Aims	Main funding sources
Maintenance of current level of operations	Internal sources
Growth	External finance

1.2.4 Signalling

Some investors may see the issue of debt capital as a sign that the directors are confident enough of the future cash flows of the business to be prepared to commit the company to making regular interest payments to lenders. However, this depends on the view that market efficiency is not very high. The argument would be that an efficient market would have sufficient information to be able to make its own mind up about the debt issue, without needing to take the directors' views into account.

1.2.5 Clientele effect

When considering whether to change gearing significantly, directors may take into account changes in the profile of shareholders. If gearing does change significantly, the company may adjust to a new risk-return trade-off that is unsuitable for many shareholders. These shareholders will look to sell their shares, while other investors, who are now attracted by the new gearing levels, will look to buy shares.

1.2.6 Domestic and international borrowing

If the company is receiving income in a foreign currency or has a long-term investment overseas, it can try to limit the risk of adverse exchange rate movements by matching. It can take out a long-term loan and use the foreign currency receipts to repay the loan. Similarly, it can try to match its foreign assets (property, plant etc) by a long-term loan in the foreign currency. However, if the asset ultimately generates home currency receipts, there will be a long-term currency risk.

In addition, foreign loans may carry a lower interest rate, but the principle of interest rate parity suggests that the foreign currency will ultimately strengthen, and hence loan repayments will become more expensive. Euromarket loans also generally require no security and it may be easier to raise large sums quickly on overseas markets.

1.2.7 Cost and flexibility

Interest rates on longer-term debt may be higher than interest rates on shorter-term debt. However, issue costs or arrangement fees will be higher for shorter-term debt as it has to be renewed more frequently.

A business may also find itself locked into longer-term debt, with adverse interest rates and large penalties if it repays the debt early. Both inflation and uncertainty about future interest rate changes are reasons why companies are unwilling to borrow long term at high rates of interest and investors are unwilling to lend long term when they think that interest yields might go even higher.

1.2.8 Optimal capital structure and the cost of capital

When we consider the capital structure decision, the question arises of whether there is an optimal mix of equity and debt that minimises the cost of capital, which a company should, therefore, try to achieve.

One view (the traditional view) is that there is an optimal capital mix at which the average cost of capital, weighted according to the different forms of capital employed, is minimised. As gearing rises, so the return demanded by the ordinary shareholders also begins to rise in order to compensate them for the risk resulting from an ever increasing share of profits going to the providers of debt. At very high levels of gearing the holders of debt will begin to require higher returns too as they become exposed to risk of inadequate profits.

As you may remember, the alternative view of Modigliani and Miller is that the firm's overall weighted average cost of capital is not influenced by changes in its capital structure. Their argument is that the issue of debt causes the cost of equity to rise in such a way that the benefits of debt on returns are exactly offset. Investors themselves adjust their level of personal gearing and thus the level of corporate gearing becomes irrelevant. If tax is included in the model, then it is in the company's interests to use debt finance, because of the tax relief that can be obtained on interest which causes the weighted average cost to fall as gearing increases.

A further issue is tax exhaustion, that at a certain level of gearing, companies will discover that they have no taxable income against which to offset interest charges, and they therefore lose the benefit of the tax relief on the interest.

1.3 Acceptability of capital structure

1.3.1 Risk attitudes

The choice of capital structure will not only depend on company circumstances, but the attitudes that directors and owners have towards the principal risks. This will include the risks that are specific to the business, more general economic risks, and also the risks of raising finance. It could, for example, adversely affect the company's reputation if it made a rights issue that was not fully subscribed.

Owner-director attitudes to risk may also differ. Owners will be concerned about the combination of risk and return. Directors may be concerned with the risk to their income and job security, but, on the other hand, significant profit incentives in their remuneration packages may encourage them to take more risks than the owners deem desirable.

At very high levels of gearing, the firm may face costs arising from the possibility, or fear, of bankruptcy. As firms take on higher levels of gearing, the chances of default on debt repayments, and hence liquidation ('bankruptcy'), increase. Investors will be concerned over this and sell their holdings, which will cause the value of the company's securities to fall, with a corresponding increase in its cost of funds. To optimise capital structure, financial managers must therefore not increase gearing beyond the point where the cost of investor worries over bankruptcy outweighs the benefits gained from the increased tax shield on debt.

1.3.2 Loss of control

The directors and shareholders may be unwilling to accept the conditions and the loss of control that obtaining extra finance will mean. Control may be diminished whether equity or loan funding is sought.

(a) Issuing shares to outsiders may dilute the control of the existing shareholders and directors. The company will be subject to greater regulatory control if it obtains a stock market listing.

(b) The price of additional debt finance may be security, restricting disposal of the assets secured and covenants that limit the company's rights to dispose of assets in general or to pay dividends.

1.3.3 Costs

The directors may consider that the extra interest costs the company is committed to are too high. However, the effective cost of debt might be cheaper than the cost of equity, particularly if tax relief can be obtained.

The differing costs of raising finance may also be important.

1.3.4 Commitments

The interest and repayment schedules that the company is required to meet may be considered too severe. The collateral loan providers require may also be too much, particularly if the directors are themselves required to provide personal guarantees.

1.3.5 Present sources of finance

Perhaps it's easy to find reasons why new sources of finance may not be desirable. Equally, however, they may be considered more acceptable than drawing on current sources. For example, shareholders may be unwilling to contribute further funds in a rights issue. The business may wish to improve its relations with its suppliers, and one condition may be lessening its reliance on trade credit.

1.4 Feasibility of capital structure

Even if directors and shareholders are happy with the implications of obtaining significant extra finance, the company may not be able to obtain that finance.

1.4.1 Lenders' attitudes

Whether lenders are prepared to lend the company any money will depend on the company's circumstances, particularly as they affect the company's ability to generate **cash** and **security** for the loan. Companies with substantial non-current assets may be able to borrow more.

1.4.2 Shareholder willingness to invest

If the stock market is depressed, it may be difficult to raise cash through share issues, so major amounts will have to be borrowed.

1.4.3 Future trends

Likely future trends of fund availability will be significant if a business is likely to require a number of injections of funds over the next few years.

1.4.4 Restrictions in loan agreements

Restrictions written into agreements on current loans may prohibit a business from taking out further loans, or may require that its gearing does not exceed specified limits.

1.4.5 Maturity dates

If a business already has significant debt repayable in a few years' time, because of cash flow restrictions it may not be able to take out further debt which is repayable around the same time.

1.5 Pecking order theory

Pecking order describes the order in which businesses will use different sources of finance. It contrasts with the view that businesses will seek an optimal capital structure that minimises their weighted average cost of capital. The order of preference will be:

- Retained earnings*
- Straight debt
- Convertible debt
- Preference shares
- Equity shares (rights then new issues)

* **Note:** A common error in exams is to refer to retained earnings as a source of finance when there may be no liquid resources in the business. In the context where retained earnings are referred to as a source of finance it needs to be made clear that this refers to operating cash flows retained in the business rather than paid out as dividends.

1.5.1 Reasons for following pecking order

- It is easier to use retained earnings than go to the trouble of obtaining external finance and comply with the demands of external finance providers.
- There are no issue costs if retained earnings are used, and the issue costs of debt are lower than those of equity.
- Investors prefer safer securities, particularly debt with its guaranteed income and priority on liquidation.
- Some managers believe that debt issues have a better signalling effect than equity issues because the market believes that managers are better informed about shares' true worth than the market itself is. Their view is the market will interpret debt issues as a sign of confidence, that businesses are confident of making sufficient profits to fulfil their obligations on debt and that they believe that the shares are undervalued.
- By contrast the market will interpret equity issues as a measure of last resort, that managers believe that equity is currently overvalued and hence are trying to achieve high proceeds while they can.
- The main consequence in this situation will be reinforcing a preference for using retained earnings first. However, debt (particularly less risky, secured debt) will be the next source as the market feels more confident about valuing it than more risky debt or equity.

1.5.2 Consequences of pecking order theory

- Businesses will try to match investment opportunities with internal finance, provided this does not mean excessive changes in dividend payout ratios.
- If it is not possible to match investment opportunities with internal finance, surplus internal funds will be invested. If there is a deficiency of internal funds, external finance will be issued in the pecking order, starting with straight debt.
- Establishing an ideal debt-equity mix will be problematic, since internal equity funds will be the first source of finance that businesses choose, and external equity funds the last.

1.5.3 Limitations of pecking order theory

- It fails to take into account taxation, financial distress, agency costs or how the investment opportunities that are available may influence the choice of finance.
- Pecking order theory is an explanation of what businesses actually do, rather than what they should do.

Studies suggest that the businesses that are most likely to follow pecking order theory are those that are operating profitably in markets where growth prospects are poor. There will thus be limited opportunities to invest funds. These businesses will be content to rely on retained earnings for the limited resources that they need.

1.5.4 Behavioural theories

A number of studies have suggested that businesses pursue rules of thumb or behaviour patterns.

- **The herd theory** states that businesses will stick closely to the industry average capital structure. Of course the average may hide wide variations that are acceptable to different companies. However, there is evidence to suggest that companies that are significantly more highly geared than the industry average will have difficulty obtaining further debt finance.
- **Benchmarking** occurs where businesses identify a leader in their market and adopt a similar capital structure. However, the capital structure that is appropriate for the market leader with the investment opportunities that it faces may not be appropriate for the less successful businesses in that industry.
- **Past experience** may be an important influence. The argument is that managers are aware of the advantages and disadvantages of both equity and debt, and choose the source of finance that experience suggests will cause them few or no problems.

1.6 Cost of capital

The importance of cost of capital cannot be emphasised enough in the formulation of financial strategy. It is used for discounting cash flows of potential projects, determining the type(s) of finance that companies should be using for investment purposes and so on. If the incorrect cost of capital is used, then sub-optimal decisions will be made regarding the projects that are undertaken and the way in which capital is structured.

1.6.1 Cost of equity

The cost of equity (k_e) of a company is the same as the returns required by investors and can be calculated in several different ways: the dividend valuation model (covered in Chapter 12); the Gordon growth model; and the Capital Asset Pricing Model (CAPM).

(a) The **Gordon growth model** (earnings retention model)

This model is based on the premise that retained earnings are the only source of funds. Growth will come about from the retention and reinvestment of earnings. The model is as follows:

$g = rb$

Where: g = growth in future dividends

r = the current accounting rate of return

b = the proportion of earnings retained

(b) **Capital Asset Pricing Model (CAPM)**

The CAPM is based on a comparison of the systematic risk of individual investments with the risks of all shares in the market and is calculated as follows:

$k_e = r_f + \beta_e (r_m - r_f)$

Where: k_e = cost of equity capital

r_f = risk-free rate of return

r_m = the return from the market as a whole

β_e = the beta factor of the individual security



Interactive question 1: CAPM **[Difficulty level: Easy]**

Investors have an expected rate of return of 8% from ordinary shares in Algol, which have a beta of 1.2. The expected returns to the market are 7%.

What will be the expected rate of return from ordinary shares in Rigel, which have a beta of 1.8?

See **Answer** at the end of this chapter.

Interactive question 2: Cost of equity [Difficulty level: Easy]

The following data relates to the ordinary shares of Stilton.

Current market price, 31 December 20X1	250 pence
Dividend per share, 20X1	3 pence
Expected growth rate in dividends and earnings	10% pa
Average market return	8%
Risk-free rate of return	5%
Beta factor of Stilton equity shares	1.40

(a) What is the estimated cost of equity using the dividend growth model?
(b) What is the estimated cost of equity using the capital asset pricing model?

See **Answer** at the end of this chapter.

Interactive question 3: CAPM and beta factor [Difficulty level: Easy]

(a) What does beta measure, and what do betas of 0.5, 1 and 1.5 mean?
(b) What factors determine the level of beta that a company may have?

See **Answer** at the end of this chapter.

1.6.2 Cost of debt

The cost of debt is the return an enterprise must pay to its lenders.

For **irredeemable debt**, this is the (post-tax) interest as a percentage of the ex interest market value of the loan stock (or preference shares).

For **redeemable debt**, the cost is given by the internal rate of return of the cash flows involved.

(a) **Irredeemable debt capital**

After-tax cost of irredeemable debt capital is:

$$k_d = \frac{i\ (1-T)}{P_0}$$

Where: k_d = cost of debt capital after tax
T = the rate of corporation tax

(b) **Redeemable debt**

The procedure is to calculate an internal rate of return on the pre-tax cash flows (the gross redemption yield). The post-tax cost of debt is then calculated by multiplying the gross redemption yield by (1 – T).

The first step is therefore to calculate the internal rate of return of the following cash flows:

t_0 = ex-interest market value
$t_1 – t_n$ = interest
t_n = redemption price

(c) **Cost of preference shares**

As preference shares usually have a constant dividend the perpetuity valuation formula is used:

$$k_p = \frac{D}{P_0}$$

Where: D = constant annual dividend

P_0 = ex-div market value

Remember that, when calculating the weighted average cost of capital, the cost of preference shares is a separate component and should not be combined with the cost of debt or the cost of equity.

(d) **Cost of convertible debt**

This calculation will depend on whether conversion is likely to happen or not. If conversion is not expected, then the conversion value is ignored and the bond is treated as redeemable debt. If conversion is expected, the IRR method for calculating the cost of redeemable debt is used, but the number of years to redemption is replaced by the number of years to conversion and the redemption value is replaced by the conversion value (that is, the market value of the shares into which the debt is to be converted).

Conversion value is calculated as follows.

Conversion value = $P_0 (1 + g)^n R$

Where: P_0 = the current ex-dividend ordinary share price

g = the expected annual growth of the ordinary share price

n = number of years to conversion

R = number of shares received on conversion



Interactive question 4: Cost of debt (no tax) [Difficulty level: Easy]

Allot has in issue 10% loan notes of a nominal value of CU100. The market price is CU90 ex interest. Calculate the cost of this capital if the debenture is:

(a) Irredeemable
(b) Redeemable at par after ten years

Ignore taxation.

See **Answer** at the end of this chapter.



Interactive question 5: Cost of debt (with tax) [Difficulty level: Intermediate]

(a) A company has outstanding CU660,000 of 8% loan notes on which the interest is payable annually on 31 December. The debt is due for redemption at par on 1 January 20X6. The market price of the loan notes at 28 December 20X2 was CU103 cum interest. Ignoring taxation, what do you estimate to be the current cost of debt?

(b) If a new expectation emerged that the cost of debt would rise to 12% during 20X3 and 20X4 what effect might this have in theory on the market price at 28 December 20X2?

(c) If the effective rate of tax was 23% what would be the after-tax cost of debt of the loan notes in (a) above?

See **Answer** at the end of this chapter.

1.6.3 Weighted average cost of capital (WACC)

WACC is calculated by weighting the costs of the individual sources of finance according to their relative importance as sources of finance. Two methods of weighting could be used: market value or book value. The general rule is that market value should always be used if data is available, as the use of historical book values may result in WACC being understated.

WACC is calculated using the following formula:

$$WACC = \left[\frac{E}{E+D}\right] k_e + \left[\frac{D}{E+D}\right] k_d$$

Where: k_e = cost of equity

k_d = cost of debt (net of tax)

E = the market value of equity in the firm

D = the market value of debt in the firm

Interactive question 6: Weighted average cost of capital [Difficulty level: Easy]

An entity has the following information in its statement of financial position.

	$'000
Ordinary shares of 50c	2,500
Debt (12% irredeemable, nominal value)	1,000

The ordinary shares are currently quoted at 130 cents each and the loan notes are trading at $72 per $100 nominal. The ordinary dividend of 15c has just been paid with an expected growth rate of 10%. Corporate tax is currently 24%.

Calculate the weighted average cost of capital for this entity.

See **Answer** at the end of this chapter.

1.6.4 Effective interest rates

The effective interest rate is the rate on a loan that has been restated from the nominal interest rate to one with annual compound interest. It is used to make loans more comparable by converting interest rates of individual loans into equivalent annual rates.

It is calculated using the following formula:

$r = (1 + i/n)^n - 1$

Where: r = the effective interest rate

i = the nominal interest rate

^{n} = number of compounding periods per year (eg 12 for monthly compounding)

1.6.5 Uses of different costs of capital

It is important to use the appropriate cost of capital in the right calculation.

Cost	When used
Cost of equity	• Discounting earnings *after* finance costs, taxation and preference dividends • Calculating value of a share in a dividend valuation or earnings valuation model
Weighted average cost of capital	• Discounting earnings *before* finance costs, taxation and preference dividends • Calculating the value of an enterprise (ie total of equity and debt) using an earnings valuation model • Appraising investments with similar business risks where gearing does not change
Marginal cost of capital	• Appraising investments in circumstances where gearing levels or project risks fluctuate significantly • Appraising investments where the mix of additional finance carries a significantly different level of risks to the existing finance mix • Appraising investments where the source of finance is project-specific

1.7 Portfolio theory and CAPM

1.7.1 Portfolio theory

Modern portfolio theory is based around the premise that an investor will want to minimise risk and follows the 'do not put all your eggs in one basket' theory. Rather than holding shares in just one company – and thus being exposed to the risks associated with that company in particular and its industry in general – investors should prefer to hold shares in a combination of different companies in various industries. In this way, if the investor has invested in companies whose shares move in different ways in response to economic factors, risk will be reduced.

By holding a portfolio of shares, investors can reduce unsystematic risk (which applies to individual investments) through diversification. Investors cannot diversify away systematic risk, which is due to variations in market activity such as macroeconomic factors.

1.7.2 CAPM

We mentioned the CAPM above in relation to calculating the cost of equity. With regard to portfolio theory, the CAPM is used to calculate the required rate of return for any particular investment and is based on the assumption that investors require a return in excess of the risk-free rate to compensate them for systematic risk.

For a portfolio of shares, the beta value will be the weighted average of the beta factors of all the securities in the portfolio.

1.7.3 CAPM and cost of capital

The CAPM can be used to produce a cost of capital for an investment project, based on the systematic risk of that investment.



Interactive question 7: CAPM and cost of capital **[Difficulty level: Easy]**

Panda Ltd is all-equity financed. It wishes to invest in a project with an estimated beta of 1.5. The project has significantly different business risk characteristics from Panda's current operations. The project requires an outlay of CU10,000 and will generate expected returns of CU12,000.

The market rate of return is 12% and the risk-free rate of return is 6%.

Requirement

Estimate the minimum return that Panda will require from the project and assess whether the project is worthwhile, based on the figures you have been given.

See **Answer** at the end of this chapter.

1.7.4 International CAPM

The possibility of international portfolio diversification increases the opportunities available to investors.

If we assume that the international capital market is a **fully integrated market** like an enlarged domestic market, then we have an international CAPM formula as follows.

$r_j = r_f + \beta_w (r_w - r_f)$

Where r_w is the expected return from the world market portfolio and β_w is a measure of the world systematic risk.

This analysis implies that investors can benefit from maximum diversification by investing in the world market portfolio consisting of all securities in the world economy. New risk and return combinations may be available.

1.7.5 Limitations of CAPM

Problems that have been identified with the Capital Asset Pricing Model include the following.

(a) The need to determine the **excess return**. Forecast, rather than historical, returns should be used, although historical returns are normally used in practice.

(b) The need to determine the **risk-free rate**. A risk-free investment might be a government security. However, interest rates vary with the term of the lending.

(c) **Errors** in the **statistical analysis** used to calculate β values.

(d) Beta factors based on **historical data may be a poor basis** for future decision-making. Evidence from a US study suggests that stocks with high or low betas tend to be fairly stable over time, but this may not always be so.

(e) Beta values may **change over time,** for example, if luxury items produced by a company become regarded as necessities, or if the cost structure (eg the proportion of fixed costs) of a business changes.

(f) The CAPM is also unable to forecast accurately returns for **companies with low price/earnings ratios** and to take account of **seasonal** 'month-of-the-year' or 'day-of-the-week' effects which appear to influence returns on shares. Beta factors measured over different timescales may differ.

(g) Financial managers should preferably use betas for industrial sectors rather than individual company betas, as measurement errors will tend to cancel each other out.

(h) The CAPM fails to take into account the ways in which returns are paid. Investors may have a preference for dividends or capital gains.

Some experts have argued that calculating betas by means of complicated statistical techniques often overestimates high betas, and underestimates low betas, particularly for small companies. Sometimes equations are used to adjust betas calculated statistically, such as:

Adjusted β = 0.5 (statistically calculated β) + 0.5

This sort of equation increases betas that are less than 1 and lowers betas higher than one.

1.7.6 Arbitrage pricing theory

The CAPM specifies that the only risk factor that should be taken into account is the market risk premium. Subsequent empirical research has shown that there may be other factors in addition to market risk premium that explain differences in asset returns, such as **interest rates** and **industrial production**.

Unlike the CAPM, which analyses the returns on a share as a function of a single factor – the return on the market portfolio, the **Arbitrage Pricing Theory** (APT) assumes that the return on each security is based on a number of **independent factors**. The actual return r on any security is shown as:

$r = E(r_j) + \beta_1 F_1 + \beta_2 F_2 \ldots + e$

Where: $E(r_j)$ = the expected return on the security
β_1 = the sensitivity to changes in factor 1
F_1 = the difference between actual and expected values of factor 1
β_2 = the sensitivity to changes in factor 2
F_2 = the difference between actual and expected values of factor 2
e = a random term

Factor analysis is used to ascertain the factors to which security returns are sensitive. Four key factors identified by researchers have been:

- Unanticipated inflation
- Changes in the expected level of industrial production
- Changes in the risk premium on bonds (debentures)
- Unanticipated changes in the term structure of interest rates

It has been demonstrated that when no further arbitrage opportunities exist, the expected return $E(r_j)$ can be shown as:

$E(r_j) = r_f + \beta_1(r_1 - r_f) + \beta_2(r_2 - r_f) \ldots$

Where: r_f = risk-free rate of return

r_1 = the expected return on a portfolio with unit sensitivity to factor 1 and no sensitivity to any other factor

r_2 = the expected return on a portfolio with unit sensitivity to factor 2 and no sensitivity to any other factor

Such an approach generalises the CAPM and postulates the following model for the risk premium of a portfolio:

$E(r_j) = r_f + (E(r_A) - r_f)\,\beta_A + (E(r_B) - r_f)\,\beta_B + \ldots\ldots\ldots + (E(r_m) - r_f)\,\beta_m + \ldots\ldots$

Where: $(E(r_A) - r_f)\,\beta_A$ = risk premium on factor A

$(E(r_B) - r_f)\,\beta_B$ = risk premium on factor B and so on

The APT model calculates the risk premium by constructing a portfolio with a **beta of** 1 in relation to the factor under consideration (such as the interest rate) and a **beta of zero** in relation to all the other factors. The risk premium of that specific portfolio is then used as a proxy for the risk premium for the factor under consideration.

1.7.7 Three- and four-factor models

Fama and French identified **two factors** in addition to the **market portfolio** that explain company returns, namely **size** and **distress**.

The **size factor** is measured as the difference in return between a portfolio of the smallest stocks and a portfolio of the largest stocks, whereas the **distress factor** is proxied by the difference in return between a portfolio of the highest book to market value stocks and a portfolio of the lowest book to market value stocks.

The Fama and French three-factor model is as follows:

$E(r_j) = r_f + \beta_{i,m} (E(r_m) - r_f) + \beta_{i,S}$ SIZE + $\beta_{i,D}$ DIST

Where: $\beta_{i,m}$ = the stock's beta

$\beta_{i,S}$ = beta with respect to size

$\beta_{i,D}$ = the stock's beta with respect to distress

Carhart, a student of Fama, added a fourth factor to the model, momentum:

$E(r_j) = r_f + \beta_{i,m} (E(r_m) - r_f) + \beta_{i,S}$ SIZE + $\beta_{i,D}$ DIST + $\beta_{i,M}$ MOM

Where: $\beta_{i,m}$ = the stock's beta with respect to momentum

Momentum is the concept that a stock that has recently performed well will continue to perform well. The theory of momentum appears to be inconsistent with the efficient market hypothesis, that an increase in share prices should not of itself warrant further increases. The existence of momentum has been explained by the irrationality of investors who underreact to new information.

2 Dividend policy



Section overview

- The dividend decision will reflect the investment and financing decisions.

2.1 Relevance of dividend policy

You covered the different views on the relevance of dividend policy in your earlier studies. The traditional view is that CU1 of dividend income received now is more certain than CU1 of capital gain in the future. Therefore, greater value would be put on a firm paying a dividend (and issuing shares to finance new investments) rather than one using retentions (ie cutting dividends).

In contrast to the traditional view, Modigliani and Miller (MM) proposed that in a tax-free world, shareholders are indifferent between dividends and capital gains, and the value of a company is determined solely by the 'earning power' of its assets and investments.

MM argued that if a company with investment opportunities decides to pay a dividend, so that retained earnings are insufficient to finance all its investments, the shortfall in funds will be made up by obtaining additional funds from outside sources. As a result of obtaining outside finance instead of using retained earnings:

Loss of value in existing shares = Amount of dividend paid

There are strong arguments against MM's view that dividend policy is irrelevant as a means of affecting shareholder's wealth.

2.1.1 Clientele

In theory, a company should choose between dividend payout and earnings retention so as to maximise the wealth of its shareholders. However, not all shareholders are likely to have the same tax situation and after-tax cost of capital. Hence there might not be an optimum policy which satisfies all shareholders.

The clientele effect suggests that investors have a so-called 'preferred habitat', ie the company's shares may represent a home for investors with specific investment needs.

Research conducted on the clientele effect generally supports its existence. In the USA, Pettit (1977) confirmed that investors with relatively high marginal personal tax rates preferred low dividend shares. Such investors tended to be younger investors and those who were less than averagely risk-averse.

The management implications of the clientele effect are that it is important to understand the investment needs of the investors in the company. Failure to meet the needs of clientele groups may cause disappointment with the company and hence the company's share price might suffer.

2.1.2 Signalling

Dividends can be used to convey good (or bad) information. A firm that increases its dividend payout ratio may be signalling that it expects future cash flows to increase as this ratio tends to remain steady over time. Bad firms can also increase dividends to try to convince the markets that they too are expecting increased future cash flows. However, this increase may be unsustainable if the promised increases do not occur and the inevitable reduction in dividend payout ratio will mean heavy penalties from the markets.

2.1.3 Agency

Dividend payments can be an instrument to monitor managers. When firms pay dividends they subsequently often need to go to the capital markets to fund new projects. When firms go to the financial markets they will be scrutinised by different market participants. For instance, investors will require an analysis of the creditworthiness of the firm. Therefore, if shareholders force managers to keep dividends high, as already stated, managers will have to go to the capital markets to obtain funding for new investments and have to justify the use they will make of the funds raised.

2.1.4 Life cycle

Under this theory, a company's dividend policy will vary depending on the stage of the company's life cycle.

A young, growing company with numerous profitable investment opportunities is unlikely to pay dividends as its earnings will be used for investment purposes. Shareholders should therefore have low or no expectations of receiving a dividend.

Young company	**Mature company**
Zero/Low dividend	High stable dividend
High growth/investment needs	Lower growth
Wants to minimise debt	Able & willing to take on debt
	Possibly share buybacks too

More mature companies may have built up a sufficient surplus of cash to allow them to pay dividends while still being able to fund investments.

2.1.5 Pecking order

Again, this is based on the impact that the amount of surplus cash paid out as **dividends** has on finance available for investment. Managers have a difficult decision here; how much do they pay out to shareholders each year to keep them happy, and what level of funds do they retain in the business to invest in projects that will yield long-term income? In addition, funds available from retained profits may be needed if debt finance is likely to be unavailable, or if taking on more debt would expose the company to undesirable risks.

Myers (2004) argued that dividend policy is linked to capital gearing and the costs of the various sources of finance. It suggests that dividend policy is really part of a bigger cost of capital issue. In effect, companies will try to ensure that investments are funded by the cheapest means possible. This leads to management setting up a 'pecking order' in which funding is implemented, as we have seen earlier.

Source of finance	Cost impact
Retained profits	No issue costs
Debt	Relatively cheap to raise, eg term loan from bank
Equity	Relatively high issue costs and may involve heavy administrative effort

The implications of pecking order theory on dividend policy are that it will depress the level of dividend payments simply because retained earnings are the cheapest form of finance.

2.2 Other influences on dividend policy

2.2.1 Dividend capacity

In most circumstances, companies must not make a distribution except out of profits available for that purpose. The dividend capacity of a corporation determines how much of a company's income can be paid out as dividend. The dividend capacity of the company is also known as the free cash flow to equity (FCFE).

Free cash flow to equity = Net income (EBIT – Net interest – Tax paid)

Add Depreciation

Less Total net investment (Change in capital investment + Change in working capital)

Add Net debt issued (new borrowings less any repayments)

Add Net equity issued (new issues less any equity repurchases)

The FCFE represents the cash available to the company which could be paid out to shareholders as dividends.

There are also rules which restrict the payment of distributable profits only as dividends.

2.2.2 Other factors

The level of dividends paid by a company may also be influenced by various other factors.

Factor	Impact
Loan agreements	Clauses in loan agreements may restrict payments of dividends
Tax rules	Tax rules may prevent small private companies from not distributing earnings, merely to avoid tax payable by the owners on dividends received
Legal factors	Some investors have a legal requirement to invest in stocks that pay dividends. For example, under trust law, it has been held in courts that it would be imprudent for a trustee to invest in a stock unless it has a satisfactory dividend record. This would favour higher payouts. Some companies may have a legal restriction on the amount they can pay. This may be due to loan covenants or a statutory requirement to only pay out dividends that are covered by earnings. This would restrict payouts to a lower level
Inflation	The effect and risks regarding current and potential inflation must be taken into consideration
Maintaining control	If existing stockholders want to retain control they will not want to issue new equity. Hence, they will prefer to raise debt or retain profits giving a lower payout ratio

2.2.3 Taxation

The payment of dividends may be complicated by the existence of different corporate and personal taxes and different rates for income and capital gains tax. If taxes on dividend income are higher than taxes on capital gains, companies should not pay dividends because investors require a higher return to companies that pay dividends. If payments are to be made to shareholders, the company should opt for other alternatives, such as share repurchases. This is true if taxes on dividend income are higher than taxes on capital gains.

However, different investors have different tax rates. High tax rate individuals will prefer that the firm invest more, whereas low tax individuals may prefer that the firm does not invest and instead pay dividends.

2.3 Approaches to dividend policy

The Modigliani and Miller argument that dividend policy is irrelevant should have led to a random pattern of dividend payments. In practice, dividend payments tend to be smoothed over time. Various explanations have been offered for this.

2.3.1 Residual theory of dividends

According to this theory, firms will only pay dividends if all the profitable investment opportunities have been funded. This theory assumes that internal funds are the cheapest source of financing, and the company will resort to external financing only if the available internal funds, current and retained earnings have been exhausted.

The disadvantage with applying the residual theory each year is that it will give rise to unstable dividends each year, as the level of investment opportunities varies. As a result, it should be used to determine a long-run target payout ratio, rather than the payout in any one year. Investment opportunities are forecast through time, the target capital structure is established and an achievable target payout ratio is identified from this.

Large stable firms, eg utilities, have few investment opportunities. Therefore, they should have higher payouts. New firms in high-growth industries will have more investment opportunities. Therefore, they should retain more of their earnings and have lower payout ratios.

If a residual dividend policy is applied rigorously, it might lead to fluctuating payouts from year to year. This might not be viewed favourably by shareholders if the implications of the clientele effect and signalling effect are borne in mind. Any uncertainty caused is likely to raise shareholders' required return.

2.3.2 Target payout ratio

According to the target payout theory, companies pay out as dividends a fixed proportion of their earnings. Firms have long-run target dividend payout ratios, which are designed to reduce uncertainty. The implications of a target payout are as follows.

(a) Mature companies with stable earnings are likely to have a higher dividend payout ratio than growth companies.

(b) Managers focus more on dividend changes than in absolute amounts.

(c) Transitory changes in earnings usually do not affect dividend payouts. If extra payments are made because earnings in one year are particularly good, then the dividends will be designated as special dividends and there is no guarantee that they will be repeated.

(d) Only long-term shifts in earnings can be followed by permanent changes in dividends.

(e) Managers are reluctant to change dividend payout ratios due to the potential signals that such changes may send to the markets.

In practice, Bray *et al* suggest that many companies will adopt an approach that is designed to be a compromise between a number of conflicting objectives:

- Invest in projects with positive net present values
- Do not cut dividends
- Avoid raising new equity
- Maintain a target debt to equity ratio
- Sustain a target dividend payout ratio

For example, if earnings fluctuate, a constant dividend payout ratio will result in a changing debt to equity ratio, since the level of dividends will change each year and will not be linked to total investment levels including debt. As a result the dividend payout ratio will not be constant, with dividend growth lagging behind earnings growth. Therefore the actual dividend policy followed by a company is less important than communicating that policy to investors and adhering to it.

2.4 Impact of changes in dividend policy

The impact of changes in dividend policy on the value of the firm can be assessed through a valuation model, such as the formula:

$$g = b\left(ROA + \frac{D}{E}(ROA - i(1-t))\right)$$

Where: ROA = return on the net assets of the company

b = retention rate

D = book value of debt

E = book value of equity

i = cost of debt

t = corporate tax rate

Changes in dividend policy will be reflected in the earnings growth rate. Changes in the dividend policy will change the value of b. Decreasing dividends (ie higher b) will increase the growth rate, and increasing dividends will decrease the growth rate.

Worked example: Dividend policy

A firm currently has a debt-equity ratio of 0.12 and a return on assets (ROA) equal to 15%. The current interest rate is 7%. The tax rate is 24%. The retention rate has been 50%. However the firm plans to reduce its dividend payout to 30%. Find the impact of the change in dividend policy on the growth rate.

Solution

Before the change in dividend policy we have:

ROA = 0.15 D/E = 0.12 i = 0.07

b = 0.50 t = 0.24

$$g = b\left(ROA + \frac{D}{E}(ROA - i(1-t))\right)$$

g = 0.5(0.15 + 0.12(0.15 – 0.07(1 – 0.24))) = 0.0808

The growth rate after the decrease in the pay-out rate (ie increase in b) is:

$$g = b\left(ROA + \frac{D}{E}(ROA - i(1-t))\right)$$

g = 0.7(0.15 + 0.12(0.15 – 0.07 (1 – 0.24))) = 0.1131

The increase in the retention rate will raise the growth rate from 8.08% to 11.31%, that is by more than three percentage points.

Case example: Low or no dividends

Berkshire Hathaway

At a recent annual general meeting of Berkshire Hathaway Inc, its Chairman and Chief Executive Officer, American investment guru, Warren Buffett, commented that the value of the corporation's shares would decline if it declared a dividend. Berkshire had shunned payouts and buybacks, instead using profits to make acquisitions and buy securities, generating more than a dollar of market value for every dollar reinvested. However, Berkshire's big cash hoards meant it was becoming harder to effectively invest the profits.

TPK Holding

In China in April 2011, the shares of TPK Holding Co, a touch panel maker, fell in value after the company declared a low stock dividend of NT$0.50 compared with earnings per share of NT$23.83. The fall came despite TPK's plans to use the funds it retained for production expansion to meet a boom in demand, particularly from Apple for whom TPK was a major supplier. However, investors had wanted to reap short-term earnings and had expected a dividend of at least NT$10.

UK dividend payments

In the UK in 2011, UK firms were set to pay out CU64.2bn in dividends, up 13.6% on 2010, according to research by Capita Registrars. An economic forecast from the Ernst and Young Item Club called on companies to do more to invest spare cash, or release it to shareholders via dividends and share buybacks.

Trinity Mirror

Some alternative uses of cash have not convinced the market. The share price of the newspaper publisher Trinity Mirror fell 22% in March 2011, when the company indicated that it would be focusing on expanding its regional press portfolio and failed to pay a dividend, despite a rise in pre-tax profits. The group spokesman claimed that economies of scale in regional media could create value for shareholders. However, investors appeared to doubt the potential of the regional newspaper market, with well-flagged difficulties such as long-term circulation decline, online competition and the fragmentation of advertising spend.



Interactive question 8: Dividend policy

[Difficulty level: Intermediate]

Summarised financial data for TYR Ltd is shown below.

Year	*Post-tax earnings CU million*	*Dividends CU million*	*Issued shares million*	*Share price pence*
20X0	86.2	34.5	180	360
20X1	92.4	36.2	180	410
20X2	99.3	37.6	180	345
20X3	134.1	51.6	240	459
20X4	148.6	53.3	240	448

Year	*All-share index*	*Inflation rate*
20X0	2895	6%
20X1	3300	5%
20X2	2845	4%
20X3	2610	3%
20X4	2305	3%

Requirements

Explain, with supporting numerical evidence, the current dividend policy of TYR Ltd, and briefly discuss whether or not this appears to be successful.

See **Answer** at the end of this chapter.

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3 Financial reconstruction



Section overview

- Financial restructuring takes place when firms get into financial difficulty, or as part of an overall strategy to increase firm value.
- A financial reconstruction scheme is where a firm reorganises its capital structure.
- The success or otherwise of a financial reconstruction scheme can be assessed by its impact on the growth rate of the firm, its risk and associated rate of return.
- Methods of reconstruction include leveraged buyouts, debt for equity swaps and leveraged recapitalisations.
- Markets tend to respond positively to financial reconstructions.
- Refinancing is the application for a secured loan to replace an existing loan secured by the same assets.
- Refinancing may take place to reduce interest costs, pay off other debts or reduce risk. There may be fees related to refinancing a loan that may outweigh any savings.
- Securitisation involves the conversion of illiquid assets into marketable asset-backed securities.

3.1 Reconstruction schemes

Reconstruction schemes are undertaken when companies have got into difficulties or as part of a strategy to enhance the value of the firm for its owners.

3.1.1 Reconstruction schemes to prevent business failure

Not all businesses are profitable. Some incur losses in one or more years, but eventually achieve profitability. Others remain unprofitable, or earn only very small and unsatisfactory profits. Other companies are profitable, but run out of cash.

- A poorly performing company which is unprofitable, but has enough cash to keep going, might eventually decide to go into liquidation, because it is not worth carrying on in business. Alternatively, it might become the target of a successful takeover bid.
- A company which runs out of cash, even if it is profitable, might be forced into liquidation by unpaid creditors, who want payment and think that applying to the court to wind up the company is the best way of getting some or all of their money.

However, a company might be on the brink of going into liquidation, but hold out good promise of profits in the future. In such a situation, the company might be able to attract fresh capital and to persuade its creditors to accept some securities in the company as 'payment', and achieve a capital reconstruction which allows the company to carry on in business.

3.1.2 Reconstruction schemes for value creation

Reconstruction schemes may also be undertaken by companies which are not in difficulties as part of a strategy to create value for the owners of the company. The management of a company can improve operations and increase the value of the company by:

- Reducing costs through the sale of a poorly performing division or subsidiary.
- Increasing revenue or reducing costs through an acquisition to exploit revenue or cost economies.
- Improving the financial structure of the company.

3.1.3 Types of reconstruction

Depending on the actions that a company needs to take as part of its reconstruction plans, these schemes are usually classified in three categories:

- **Financial reconstruction** which involves changing the capital structure of the firm.
- **Portfolio reconstruction**, which involves making additions to, or disposals from, a company's businesses, eg through acquisitions or spin-offs.
- **Organisational restructuring**, which involves changing the organisational structure of the firm.

3.1.4 Designing reconstructions

You can use the following approach to designing reconstructions.

Step 1 Estimate the position of each party if liquidation is to go ahead. This will represent the minimum acceptable payment for each group.

Step 2 Assess additional sources of finance, for example selling assets, issuing shares, raising loans. The company will most likely need more finance to keep going.

Step 3 Design the reconstruction. Often the question will give you details of how to do it.

Step 4 Calculate and assess the new position, and also how each group has fared, and compare with Step 1 position.

Step 5 Check that the company is financially viable after the reconstruction.

In addition, you should remember the following points when designing the reconstruction.

- Anyone providing extra finance for an ailing company must be persuaded that the expected return from the extra finance is attractive. A profit forecast and a cash forecast or a funds flow forecast will be needed to provide reassurance about the company's future, to creditors and to any financial institution that is

asked to introduce new capital into the company. The reconstruction must indicate that the company has a good chance of being financially viable.

- The actual reconstruction might involve the creation of new share capital of a different nominal value to existing share capital, or the cancellation of existing share capital. It can also involve the conversion of equity to debt, debt to equity, and debt of one type to debt of another.
- For a scheme of reconstruction to be acceptable it needs to treat all parties fairly (for example, preference shareholders must not be treated with disproportionate favour in comparison with equity shareholders), and it needs to offer creditors a better deal than if the company went into liquidation. If it did not, the creditors would most likely press for a winding-up of the company. A reconstruction might therefore include an arrangement to pay off the company's existing debts in full.

3.2 Financial reconstructions

A financial reconstruction scheme is a scheme whereby a company reorganises its capital structure, including leveraged buyouts, leveraged recapitalisations and debt for equity swaps.

There are many possible reasons why management would wish to restructure a company's finances, such as when a company is in danger of being put into liquidation, owing debts that it cannot repay, and so the creditors of the company agree to accept securities in the company, perhaps including equity shares, in settlement of their debts. On the other hand, a company may be willing to undergo some financial restructuring to better position itself for long-term success.

3.2.1 Leveraged capitalisations

In leveraged recapitalisation a firm replaces the majority of its equity with a package of debt securities consisting of both senior and subordinated debt. Leveraged capitalisations are employed by firms as defence mechanisms to protect them from takeovers. A high level of debt in a company discourages corporate raiders who will not be able to borrow against the assets of the target firm in order to finance the acquisition.

In order to avoid the possible financial distress arising from a high level of debt, companies that engage in leveraged capitalisation should be relatively debt free, have stable cash flows and should not require substantial ongoing capital expenditure in order to retain their competitive position.

3.2.2 Debt-equity swaps

A second way in which a company may change its capital is to issue a debt/equity or an equity/debt swap. In the case of an equity/debt swap, all specified shareholders are given the right to exchange their stock for a predetermined amount of debt (ie bonds) in the same company. A debt/equity swap works the opposite way: debt is exchanged for a predetermined amount of equity (or stock). The value of the swap is determined usually at current market rates, but management may offer higher exchange values to entice share and debtholders to participate in the swap. After the swap takes place, the preceding asset class is cancelled for the newly acquired asset class.

One possible reason that a company may engage in debt-equity swaps is because the company must meet certain contractual obligations, such as maintaining a debt/equity ratio below a certain number. Also a company may issue equity to avoid making coupon and face value payments because it feels it will be unable to do so in the future.



Worked example: Financing policy

For illustration, assume there is an investor who owns a market value of CU2,000 in ABC Ltd shares. ABC has offered all shareholders the option to swap their shares for debt at a rate of 1.5:1. What is the value of the debt that the investor will receive?

Solution

The investor would receive, if he elected to take the swap, CU3,000 (1.5 × CU2,000) worth of debt, gaining CU1,000 for switching asset classes. However, the investor would lose all rights as a shareholder, such as voting rights, if he swapped his equity for debt.

3.2.3 Other methods of refinancing

Refinancing a loan or a series of loans might help companies to pay off high interest debt and replace it with lower interest debt. Alternatively, debt can be replaced with more flexible debt, having perhaps a longer term to maturity or fewer restrictive covenants.

As well as reducing interest payments, companies may refinance to reduce the risk associated with an existing loan. For example, rather than having a variable rate loan, companies may switch to a fixed rate loan, which will eliminate the uncertainty of how much interest will have to be paid in any particular month.

3.2.4 Dividend policy

A company may change its dividend policy as part of financial restructuring and increase retained earnings and therefore its equity base.

3.3 Financial reconstruction and firm value

The impact of a financial reconstruction scheme on the value of the firm can be assessed in terms of its effect on the growth rate of the company, its risk and its required rate of return.

3.4 Effect on growth rate

The impact of changes in financial policy on the value of a firm can be assessed through the formula we used when assessing dividend policy.



Worked example: Financing policy

A firm currently has a debt-equity ratio of 0.12 and a return on assets (ROA) equal to 15%. The firm could raise the debt-equity ratio up to 0.30 without increasing the risk of bankruptcy. The firm plans to borrow and repurchase equity shares to reach this optimal ratio. The interest rate is expected to increase from 7% to 9%. The tax rate is 24% and the retention rate is 50%. Find the impact of the increase in debt on the growth rate.

Solution

Before the increase in the debt ratio we have:

ROA = 0.15 D/E = 0.12 i = 0.07

b = 0.50 t = 0.24

$$g = b\left(ROA + \frac{D}{E}\left(ROA - i(1-t)\right)\right)$$

g = 0.5(0.15 + 0.12(0.15 – 0.07(1 – 0.24))) = 0.0808

After the increase in the debt ratio we have:

ROA = 0.15 D/E = 0.30 i = 0.09

b = 0.50 t = 0.24

$$g = b\left(ROA + \frac{D}{E}\left(ROA - i(1-t)\right)\right)$$

g = 0.5(0.15 + 0.30(0.15 – 0.09 (1 – 0.24))) = 0.0872

The increase in the debt-equity ratio will raise the growth rate from 8.08% to 8.72%.

3.4.1 Effect on systematic risk

The effect of a reconstruction on the systematic risk of a company can be considered by calculating the revised geared beta using the formula:

$$\beta_e = \beta_a \left(1 + \left[\frac{D(1-T)}{E}\right]\right)$$

Where: β_a = the asset beta

β_e = the geared beta

A higher level of debt will increase the geared beta of a company, and a lower level of debt will reduce it.



Worked example: Effect on risk

A firm currently has a debt equity ratio of 0.12 and an asset beta of 0.9. The firm could raise the debt equity ratio up to 0.30 without increasing the risk of bankruptcy. The firm plans to borrow and repurchase stock to reach this optimal ratio. The interest rate is expected to increase from 7% to 8%. The tax rate is 24%. Find the impact of the increase in debt on the geared beta.

Solution

Before the increase in the debt ratio we have:

D/E = 0.12

T = 0.24

β_a = 0.9

$\beta_e = \beta_a(1 + [D(1 – T)/E]) = 0.9(1 + 0.12[1 – 0.24]) = 0.982$

After the increase in the debt ratio we have:

D/E = 0.30

T = 0.24

β_a = 0.9

The new beta following the change in the level of debt will be:

$\beta_e = \beta_a(1 + [D(1 – T)/E]) = 0.9(1 + 0.30[1 – 0.24]) = 1.105$

3.5 Market response to financial reconstruction

The market response to financial reconstruction has been estimated from empirical studies of the behaviour of share prices.

The empirical evidence shows that the market responds positively to financial restructuring and to firms raising their level of debt up to a certain point, since the constraint that debt imposes on future cash flows makes companies choosier when selecting investment opportunities.

A number of studies have dealt with the performance of leveraged buyouts. Since the company becomes private as a result of the leveraged buyout we cannot assess the impact of the equity market value. However, most studies show that a company does significantly better after the leveraged buyout. More specifically leveraged buyouts result in increases in free cash flow, improved operational efficiency and a greater focus on the company's core business. The causes of the improvement following financial restructuring are reportedly benign and cannot be attributed to lay-offs of employees – rather the increased efficiency of operations coupled with improved control of capital expenditure seem to account for much of the difference.

Empirical evidence also shows that leveraged buyouts which involve divisions of companies seem to display larger improvement gains than corporate leveraged buyouts. On the other hand, the risk of bankruptcy and financial disaster with leveraged buyouts seems to be greater. Moreover, leveraged buyouts would also appear to under-invest in long-term assets where the risk is greater.

3.6 Case study in financial reconstruction

Crosby and Dawson Ltd is a private company that has for many years been making mechanical timing mechanisms for washing machines. The management was slow to appreciate the impact that new technology would have and the company is now faced with rapidly falling sales.

In July 20X1, the directors decided that the best way to exploit their company's expertise in the future was to diversify into the high precision field of control linkages for aircraft, rockets, satellites and space probes. By January 20X2, some sales had been made to European companies and sufficient progress achieved to arouse considerable interest from the major aircraft manufacturers and from NASA in the USA. The cost, however, had been heavy. The company had borrowed CU2,500,000 from the Vencap Merchant Bank Ltd and a further CU500,000 from other sources. Its bank overdraft was at its limit of CU750,000 and the dividend on its cumulative preference shares, which was due in December, had been unpaid for the fourth year in succession. On 1 February 20X2, the company has just lost another two major customers for its washing machine timers. The financial director presents the following information.

If the company remains in operation, the expected cash flows for the next five periods are as follows.

	9 months to			*Years ending 31 December*	
	31.12.X2	*20X3*	*20X4*	*20X5*	*20X6*
	CU'000	CU'000	CU'000	CU'000	CU'000
Receipts from sales	8,000	12,000	15,000	20,000	30,000
Payments to suppliers	6,000	6,700	7,500	10,800	18,000
Purchase of equipment	1,000	800	1,600	2,700	2,500
Other expenses	1,800	4,100	4,200	4,600	6,400
Interest charges	800	900	700	400	100
	9,600	12,500	14,000	18,500	27,000
Net	(1,600)	(500)	1,000	1,500	3,000

The above figures are based on the assumption that the present capital structure is maintained by further borrowings as necessary.

STATEMENTS OF FINANCIAL POSITION

			Projected
	31.12.X0	*31.12.X1*	*31.3.X2*
	CU'000	CU'000	CU'000
Assets employed			
Non-current assets			
Freehold property	2,780	2,770	2,760
Plant and machinery	3,070	1,810	1,920
Motor vehicles	250	205	200
Deferred development expenditure	–	700	790
Current assets			
Inventories	890	970	1,015
Receivables	780	795	725
	1,670	1,765	1,740
Current liabilities			
Trade payables	1,220	1,100	1,960
Bank overdraft (unsecured)	650	750	750
	1,870	1,850	2,710
	(200)	(85)	(970)
	5,900	5,400	4,700
Long-term liabilities			
10% debentures 20X8 (secured on freehold property)	(1,000)	(1,000)	(1,000)
Other loans (floating charges)	–	(3,000)	(3,000)
	4,900	1,400	700

Ordinary shares of CU1	3,500	3,500	3,500
8% Cumulative preference shares	1,000	1,000	1,000
Accumulated reserves/(accumulated deficit)	400	(3,100)	(3,800)
	4,900	1,400	700

Other information

1 The freehold property was revalued on 31 December 20X0. It is believed that its net disposal value at 31 March 20X2 will be about CU3,000,000.

2 A substantial quantity of old plant was sold during the second six months of 20X1 to help pay for the new machinery needed. It is estimated that the breakup value of the plant at 31 March 20X2 will be about CU1,400,000.

3 The motor vehicles owned at 31 March 20X2 could be sold for CU120,000.

4 Much of the work done on the new control linkages has been patented. It is believed that these patents could be sold for about CU800,000, which can be considered as the breakup value of development expenditure incurred to 31 March 20X2.

5 On liquidation, it is expected that the current assets at 31 March 20X2 would realise CU1,050,000. Liquidation costs would be approximately CU300,000.

Requirement

Suggest a scheme of reconstruction that is likely to be acceptable to all the parties involved. The ordinary shareholders would be prepared to invest a further CU1,200,000 if the scheme were considered by them to be reasonable.

A full solution follows. Complete the first step yourself as a short question.



Interactive question 9: Proceeds from liquidation [Difficulty level: Intermediate]

Ascertain the likely result of Crosby & Dawson Limited (see above) going into liquidation as at 31 March 20X2.

See **Answer** at the end of this chapter.

Solution to remainder of the example

If the company was forced into liquidation, the debentures and other loans would be met in full but after allowing for the expenses of liquidation (CU300,000) the bank and trade payables would receive a total of CU2,070,000 or 76p per CU. The ordinary and preference shareholders would receive nothing.

If the company remains in operation, the cash position will, at first, deteriorate but then improve from 20X4 onwards. By the end of 20X6 net assets will have increased by CU12,000,000 before depreciation (plant CU8,600,000 and cash CU3,400,000). If the figures can be relied on and the trend of results continues after 20X6 the company will become reasonably profitable.

In the immediate future, after taking into account the additional amounts raised from the existing ordinary shareholders, the company will require finance of CU400,000 in 20X2 and CU500,000 in 20X3.

Vencap might be persuaded to subscribe **cash for ordinary shares**. It is unlikely that the company's clearing bank would be prepared to accept any shares, but as it would only receive 76p per CU on a liquidation it may be prepared to transfer part of the overdraft into a (say) five-year loan while maintaining the current overdraft limit. It is unlikely that a suitable arrangement can be reached with the trade creditors as many would be prepared to accept 76p per CU, rather than agree to a moratorium on the debts or take an equity interest in the company.

A possible scheme might be as follows.

1 The **existing ordinary shares** to be **cancelled** and **ordinary shareholders** to be **issued** with **CU1,200,000 new CU1 ordinary shares** for cash.

2 The **existing preference shares** to be **cancelled** and the holders to be issued with **CU320,000 new CU1 ordinary shares** at par.

3 The **existing debentures** to be **cancelled** and replaced by **CU800,000 15% secured debentures** with a 15-year term and the holders to be issued with CU400,000 of new CU1 ordinary shares at par.

4 The **loan** 'from other sources' to be **repaid**.

5 The **Vencap Bank to receive CU2,000,000 15% secured debentures** with a **15-year term** in part settlement of the existing loan, to be issued **CU680,000 new ordinary shares** in settlement of the balance and to **subscribe cash for CU800,000** of new ordinary shares.

6 The clearing bank to **transfer the existing overdraft** to a **loan account repayable over five years** and to keep the overdraft limit at CU750,000. Both the loan and overdraft to be secured by a floating charge.

Comments

1 **Debenture holders**

The debentures currently have **more than adequate asset backing**, and their current nominal yield is 10%. If the reconstruction is to be acceptable to them, they must have either **the same asset backing** or **some compensation** in terms of increased nominal value and higher nominal yield. Under the scheme they will receive securities with a total nominal value of CU1,200,000 (an increase of CU200,000) and an increase in total yield before any ordinary dividends of CU20,000. The new debentures issued to Vencap can be secured on the freehold property (see below).

2 **Loans from other sources**

It has been suggested that the 'loans from other sources' should be **repaid** as, in general, it is easier to arrange a successful reconstruction that involves fewer parties.

3 **Vencap**

Vencap's existing loan of CU2,500,000 will, under the proposed scheme, be changed into CU2,000,000 of 15% debentures secured on the property and CU680,000 of ordinary shares. This gives total loans of CU2,800,000 secured on property with a net disposal value of CU3,000,000. This is **low asset cover** which might increase if property values were to rise. The scheme will **increase the nominal value of Vencap's interest** by CU180,000 with an improvement in security on the first CU2,000,000 to compensate for the risk involved in holding ordinary shares. It has also been suggested that Vencap should be asked to subscribe CU800,000 for new ordinary shares. From the company's point of view issuing new equity is to be preferred to loan stock as it will improve the gearing position.

4 **The clearing bank**

In a liquidation now, the clearing bank would **receive approximately CU573,000**. In return for the possibility of receiving the full amount owed to it, it is being asked under the scheme to **advance a further CU750,000**. By way of compensation, they are receiving the **security of a floating charge**.

5 **Preference shares**

In a liquidation at the present time, the preference shareholders would receive nothing. The issue of 320,000 CU1 ordinary shares should be acceptable as it is **equivalent to their current arrears of dividend**.

6 **Ordinary shareholders**

In a liquidation, the ordinary shareholders would also receive nothing. Under the scheme, they will **lose control of the company** but, in exchange for their additional investment, will still hold about 35.3% of the equity in a company which will have sufficient funds to finance the expected future capital requirements.

7 **Cash flow forecast, on reconstruction**

	CU'000
Cash for new shares from equity shareholders	1,200
Cash for new shares from Vencap	800
	2,000
Repayment of loan from other sources	(500)
Cash available	1,500

The overdraft of CU750,000 is converted into a long-term loan, leaving the company with a further CU750,000 of overdraft facility to use.

8 **Adequacy of funds**

The statement of assets and liabilities below shows the company's position after the implementation of the scheme but before any repayments to trade payables.

	CU'000	CU'000
Non-current assets		
Freehold property		2,760
Plant and machinery		1,920
Motor vehicles		200
Deferred development expenditure		790
		5,670
Current assets		
Inventories	1,015	
Receivables	725	
Cash	1,500	
	3,240	
Less: Current liabilities: Trade payables	1,960	
		1,280
		6,950
Less: Long-term liabilities		
15% debentures		(2,800)
Loan from clearing bank		(750)
		3,400
Ordinary shares of CU1		3,400

It would seem likely that the company will have to make a bigger investment in working capital (ignoring cash) for the following reasons.

(a) Presumably a substantial proportion of the sales will be exports which generally have a longer collection period than domestic sales.

(b) It is unlikely that the trade payables will accept the current payment position (average credit takes over two months) in the long term.

9 **Will the reconstructed company be financially viable?**

Assuming that net current assets excluding cash and any overdraft will, by the end of 20X2, rise from the projected figure of –CU220,000 (1,015,000 + 725,000 – 1,960,000) to CU500,000 and increase in proportion to sales receipts thereafter, that the equipment required in 20X2 and 20X3 will be leased on five-year terms and that the interest charges (including the finance elements in the lease rentals) will be approximately the same as those given in the question, then the expected cash flows on implementation could be as shown below.

	9 months to 31.12.X2	*20X3*	*20X4*	*20X5*	*20X6*
	CU'000	CU'000	CU'000	CU'000	CU'000
Receipts from sales	8,000	12,000	15,000	20,000	30,000
Purchase of equipment			1,600	2,700	2,500
Payments to suppliers	6,000	6,700	7,500	10,800	18,000
Other expenses	1,800	4,100	4,200	4,600	6,400
Interest charges	800	900	700	400	100
Lease rentals (excluding finance element) (say)	200	360	360	360	360
Bank loan repayment (say)	150	150	150	150	150
Invt. in working capital	720	250	190	310	630
	9,670	12,460	14,700	19,320	28,140
Net movement	(1,670)	(460)	300	680	1,860
Cash balance b/f	1,500	(170)	(630)	(330)	350
Cash balance c/f	(170)	(630)	(330)	350	2,210

These figures suggest that with an agreed overdraft limit of CU750,000 the company will have **sufficient funds** to carry it through the next five years, assuming that the figures are reliable and that no dividends are paid until perhaps 20X4 at the earliest.

This scheme of reconstruction might not be acceptable to all parties, if the **future profits of the company** seem **unattractive**. In particular, Vencap and the clearing bank might be reluctant to agree to the scheme. In such an event, an alternative scheme of reconstruction must be designed, perhaps involving another provider of funds (such as another venture capitalist). Otherwise, the company will be forced into liquidation.



Case example: United Airlines

United Airlines, which became bankrupt in 2002, is a huge restructuring success story. Its stringent cost cutting exercises, including staff, routes and services offered on board meant that the airline emerged from its bankruptcy in 2006 a leaner, more competitive company. In February 2007, it used cash to pay down $972 million of its original $3 billion exit facility and refinanced the remaining $2 billion. The transaction resulted in significantly lower interest costs, less restrictive covenants and released approximately $2.5 billion of collateral. This restructuring of the exit facility to a lower rate reflected an improved financial condition and greater market confidence.

The new credit facility consisted of a $1.8 billion term loan and a $255 million revolving credit line. The oversubscribed refinancing allowed United to reduce its financing costs by 175 basis points to 200 basis points over LIBOR. The lower pricing is expected to result in annual net pre-tax savings of approximately $70 million.

The refinancing allowed United to remove 101 aircraft and the airline's spare parts inventory – valued at approximately $2.5 billion – from the collateral pool. There is no restriction on the use of these assets to secure new financing, providing an additional source of liquidity, if required.

3.7 Refinancing

3.7.1 Refinancing to reduce interest payments

Refinancing can be undertaken at relatively small levels – such as individuals refinancing a mortgage – or at a high level involving companies refinancing multi-million Taka debts. Whatever the level, the aim is often to reduce costs, normally interest payments, by switching to a loan with a lower interest rate or by extending the period of the loan. The money saved might be used to pay off some of the principal of the loan, which can reduce payments even further.

3.7.2 Refinancing to reduce risk

As well as reducing interest payments, companies may refinance to reduce the risk associated with an existing loan. For example, rather than having a variable rate loan, companies may switch to a fixed rate loan, which will eliminate the uncertainty of how much interest will have to be paid in any particular month. This might be particularly useful for small businesses that are just starting up as they face a great deal of risk anyway and any opportunities to reduce risk should be welcomed.

3.7.3 Refinancing to pay off debts

Refinancing a loan or a series of loans might help companies to pay off high interest debt and replace it with lower interest debt. Alternatively, debt can be replaced with more flexible debt having perhaps a longer term to maturity or fewer restrictive covenants. Individuals are often urged to do this via advertisements urging them to consolidate their debts into one debt. Non-tax deductible debt might be replaced by tax-deductible debt, thus allowing the borrower to take advantage of tax deductions as well as potential reductions in interest payments.

3.7.4 Issues to be aware of when thinking about refinancing

Although refinancing may appear to be an attractive option, there may be some problems. Some loans have penalty clauses that come into play if the loans are paid off early, whether partially or in full. In addition, there are usually closing and transaction fees associated with refinancing a loan. By the time penalty clauses and other fees are taken into consideration, they may actually outweigh the savings being made. Therefore, refinancing should only be considered as a source of finance if the short-term or long-term savings are likely to be substantial.

Depending on the type of loan used to refinance existing debt, lower initial payments may give way to larger total interest costs over the life of the loan. The borrower might also be exposed to greater risks than the existing loan. It is therefore vital that any upfront, variable and ongoing refinancing costs are researched thoroughly before deciding whether to refinance existing debt.

3.8 Securitisation

Securitisation is the process of converting illiquid assets into marketable securities. These securities are backed by specific assets and are normally called asset-backed securities (ABS). Securitisation started with banks converting their long-term loans such as mortgages into securities and selling them to institutional investors. One of the problems of banks as financial intermediaries is the fundamental mismatch between the maturities of assets and liabilities. Securitisation of loans and sale to investors with more long-term liabilities reduces the mismatch problem and a bank's overall risk profile.

The oldest and most common type of asset securitisation is the mortgage-backed bond or security (MBS), although today one can expect virtually anything that has a cash flow to be a candidate for securitisation, (eg future season ticket sales for football clubs).

In a typical ABS transaction, the first step is to identify the underlying asset pool that will serve as collateral for the securities. The assets in this pool should be relatively homogeneous with respect to credit, maturity, and interest rate risks. Common examples of ABS include credit card receivables, trade receivables, and car loans. Once a suitably large and homogenous asset pool is identified, the pooled assets are sold to a grantor trust or other bankruptcy-remote, special purpose financing vehicle (SPV).

The development of securitisation has led to disintermediation and a reduction in the role of financial intermediaries as borrowers can reach lenders directly.

Definition

Disintermediation describes a decline in the traditional deposit and lending relationship between banks and their customers and an increase in direct relationships between the **ultimate suppliers** and **users** of financing.

Figure 14.1 below illustrates the cash flows associated with securitisation:

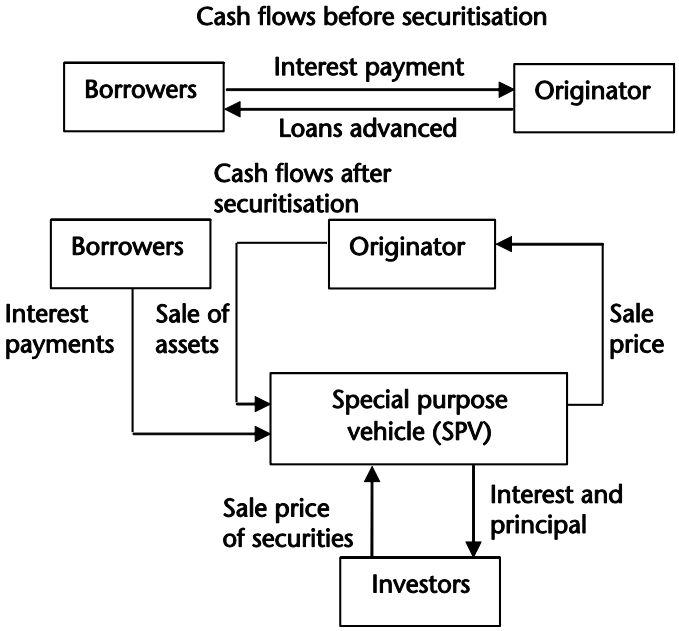


Figure 14.1: Cash flows associated with securities

Case examples: English and Scottish football clubs

Manchester United

In 2006, Manchester United football club entered into talks with financial institutions to borrow up to CU500 million of more expensive debt used by the US-based Glazer family to fund its CU800 million takeover of the club in 2005. Expected annual revenues were CU3 million per match – the securitisation deal would take into account gate receipts as well as associated revenues such as food and drink sales.

In 2006, the Glazers owed CU275 million in payment-in-kind notes to US-based hedge funds that charged interest of up to 20%. The hedge funds had the right to seize the Glazer family's stake if Manchester United failed to repay the debt by 2010. The club also had a CU265 million loan secured against its assets, including such star players as Wayne Rooney.

Although the club's overall debt under the refinancing scheme rose to CU660 million, it was able to realise this saving by cutting the amount borrowed from the expensive hedge funds mentioned above. With the scheme, CU135 million of in-kind note payments no longer translated into equity, meaning that the manager, Sir Alex Ferguson, would have sufficient funds to finance new player signings. This alteration also released the club from the possibility of being run by bankers.

Arsenal

Arsenal football club had already implemented a similar scheme. It raised CU260 million in the first public sale of asset-based debt by a European football club. The club secured a low interest rate on the bond of just 5.28%. The money was used to repay a loan that financed its new stadium and the club saved about CU1.2 million in annual interest payments.

The Daily Telegraph, 10 July 2006

Everton

In 2002, Everton football club raised CU30 million through a securitisation of Everton's current and future season ticket receipts. The intention was that the proceeds would be used to repay existing bank debt, develop training facilities and make transfer funds available.

Since 2002 Everton's board has been considering building a new stadium to try to ensure the club will be a leading Premiership club. The board proposed that the finance needed for this new stadium should be obtained from various sources, including up to CU6 million a year through securitisation of the naming rights to the stadium.

The campaign group 'Keep Everton in our City' suggested an alternative package, funded by raising CU110 million through selling 10% of Everton's future stadium seats to the corporate sector. This plan, known as Equity Seat Right, allows for life-time purchase of corporate seats.

By 2011 Everton still lacked funding for new players. The club did not buy any footballers during the summer. Chairman Bill Kenwright stated in August 2011 that 'We've come to a stage with our bank where we just can't borrow any more...' and that the need was 'to protect the football club and its fans.' Everton midfielder Mikel Arteta commented: 'We know the situation at the moment: we cannot spend money like other clubs. That is sensible even if it is not very popular.' Arteta signed for Arsenal in September 2011.

Financial Fair Play Rules

In the longer term the use of excessive debt financing by England's top football clubs appears to be threatened by UEFA's (the governing body for European football) Financial Fair Play rules. The guidelines state that clubs must not run at a loss. Since losses would include financing costs, significant borrowing linked to clubs will become problematic. Loans from benefactors or owners to cover wages or transfer fees would not be allowed, although they would be allowed to fund long-term facilities or stadium development. Breaches of the rules would lead to clubs being banned from competing in European competitions, potentially a very valuable source of revenue.

The survey by the *Guardian* newspaper in May 2011 suggested that English Premiership clubs collectively were a long way from UEFA's desired position. Sixteen out of the 20 clubs made losses for the 2009–10 season, totalling a record CU484 million. These clubs relied on owner funding, mostly to pay wages and fund transfer fees. The survey noted that only a small proportion of current owner funding had financed longer-term stadium or facilities expenditure. UEFA's concern to ensure that clubs rely on income rather than their owners in future is inevitably leading to increased ticket prices for fans.

The *Guardian's* survey in May 2012 revealed that of the 19 Premier league clubs for which data was available, 8 made between them total profits of CU97.4 million. However, 11 clubs made losses, totalling CU458 million, with Manchester City losing CU197 million, the largest annual loss in the history of football. Chelsea's loss of CU68 million was the second greatest, with its owner, Roman Abramovich, loaning CU94 million to the club during the 2010–11 season.

As well as raising ticket prices, clubs are looking at alternative means of boosting funding. In August 2012 Manchester United launched a $230 million flotation of around 10% of shares in New York. However, the price of $14 was below the $16 – $20 range announced some months before. Analysts suggested that making available only 10% of share capital, together with the nil dividend proposed, made the offer unattractive to institutional investors. This followed the club deciding against pursuing listings on the Hong Kong and Singapore markets.

Reports suggested that a significant part of the proceeds would go to the Glazers, despite previous assurances that the monies would be used to reduce the club's debts. The US filing documents also highlighted that the club's constitution had been altered to include anti-takeover provisions that the owners could use in the future. Investor concern was focused most on the club's CU437 million debt at June 2012.

Glasgow Rangers

In February 2012, Glasgow Rangers entered administration, following a petition for CU9 million of unpaid taxes by Tax department. As well as the tax debt, the club faced a CU10 million deficit in annual running costs.

Rangers was also in dispute with Tax department over its use of Employment Benefit Trusts (EBT) to pay staff over a ten-year period. Rangers faced a potential liability of CU49 million. Tax department claimed that the EBT was a tax dodge. Payments from an EBT should not be made on a contractual basis, as this would make them part of an employee's salary and subject to tax and National Insurance. There were also allegations that the scheme was contrary to the Scottish Football Association's registration rules.

In June 2012, the club was forced into liquidation following the rejection of a proposed Company Voluntary Agreement. The club's assets, including Ibrox stadium, were bought by a new company, Sevco 5088. The club started the 2012 – 13 season in Scottish League Division 3.

Although other Scottish clubs voted to exclude Rangers from the Scottish Premier League and to place the club in Scottish League Division 3, it is possible that their own finances will be adversely affected. The Premier League clubs will lose a lucrative fixture, no longer benefiting from Rangers' travelling fans. There were also concerns about the future of existing TV deals, with television companies scaling back or cancelling commitments and clubs losing vital revenue streams. In the event, broadcasters Sky Sports and ESPN reached agreements with Scottish clubs to continue covering football for the next five years, including Rangers' matches as the club sought to climb back to the top division. Revenues from the deals were down by a seven figure sum, according to the chief executive of the Scottish Premier League, with the value of overseas rights having fallen significantly.

3.9 Legal consequences of financial distress

You will recall from your law studies that directors have to be very careful if their company gets into financial difficulties. Carrying on trading for too long before taking action may mean that they are guilty of fraudulent or wrongful trading.

3.9.1 Fraudulent and wrongful trading

The criminal offence of fraudulent trading occurs under the Companies Act 1994 where a company has traded with **intent** to defraud creditors or for any fraudulent purpose. Offenders are liable to imprisonment for up to seven years or a fine (s 332).

There is also a civil offence of the same name under s 85 of the Insolvency Act 1997 but it only applies to companies which are in liquidation. Under this offence courts may declare that **any persons** who were knowingly parties to carrying on the business in this fashion shall be liable for the debts of the company.

Various rules have been established to determine **what is fraudulent trading**.

(a) Only persons who **take the decision** to carry on the company's business in this way or play some active part are liable.

(b) **'Carrying on business'** can include a single transaction and also the mere payment of debts as distinct from making trading contracts.

(c) It relates not only to **defrauding creditors**, but also to carrying on a business for the purpose of any kind of fraud.

Directors will be liable for wrongful trading if the liquidator proves the following.

(a) The director(s) of the insolvent company knew, or should have known, that there was no reasonable prospect that the company could have avoided going into insolvent liquidation.

(b) The director(s) did not take sufficient steps to minimise the potential loss to the creditors. Directors have an obligation in these circumstances to maximise creditors' interests.

The website *www.companyrescue.com* lists a number of tests for wrongful trading, including:

- Not filing accounts or annual returns at Companies House.
- Not operating tax schemes correctly, building up arrears with the taxation authorities.
- Taking excessive salaries when the company cannot afford them.
- Taking credit from suppliers when there is no realistic prospect of paying the creditor on time.
- Piling up debt.

The website also provides advice for companies that are in trouble:

- Don't wait until legal actions have been taken against the company to ask for a time to pay deal.
- Try to plan cashflows in advance, as directors have a legal obligation to meet cash flow requirements.
- Don't be too ambitious in planning repayment.
- Seek legal advice if worried about legal actions.
- If cash flow projections say the repayment cannot be afforded that quickly, seek a means of continuing the company, such as a company voluntary arrangement.

3.10 Management of companies in financial distress

3.10.1 Summary of formal insolvency procedures

Some formal insolvency procedures are designed to try to help rescue a company whereas procedures such as liquidation recognise that the business has failed and cannot be saved.

In some cases a business may be so distressed that it cannot be turned around without the aid of a formal rescue procedure.

Procedure	Key features
Administration	Moratorium on debts available Proposals put to creditors Approval by >50% in value
Company voluntary arrangement	Moratorium only available for small companies Proposals put to creditors Approval requires at least 75% (in value) of the creditors to support
Administrative receivership	Less common than administration No moratorium Administrative receiver acts for the appointing bank Unsecured creditors are not involved
Scheme of arrangement under s 330 of Companies Act 1994	No moratorium Of use generally in complex cases only Complicated voting structure but can bind unhappy creditors

We now look further at the arrangements for managing companies that apply under the most common procedures, administration and a company voluntary arrangement.

3.10.2 Administration

In an administration the powers of management are subjugated to the authority of the administrator and managers can only act with his consent. The administrator will set out proposals for achieving the aim of administration or set out why it is not reasonable or practicable for the company to be rescued. If the company is to continue, the administrator may do **anything necessarily expedient** for the management of the affairs, business and property of the company.

Administrators have the same powers as those granted to directors and the following specific powers to:

- Remove or appoint a director.
- Call a meeting of members or creditors.
- Apply to court for directions regarding the carrying out of his functions.
- Make payments to secured or preferential creditors.
- With the permission of the court, make payments to unsecured creditors.

3.10.3 Company voluntary arrangement (CVA)

Under a CVA directors retain control of the company (albeit under supervision). A CVA allows the directors to continue to manage the company – they set out their terms in the proposal for the CVA that is put to creditors. An insolvency practitioner acting as nominee will decide whether the proposal is:

- Fit to be put to the creditors
- Fair
- Feasible, ie has a real prospect of implementation
- An acceptable alternative to liquidation or other formal insolvency processes

The directors must establish that trading on will be viable and should be warned of the risks of wrongful trading. Consequently, they should take the following steps.

- Ensure adequate funding available.
- Prepare cash flow forecasts, a business plan and projections. They must show that both ongoing trading is viable and that dividends to creditors shown in the proposal are likely to be paid.
- Obtain independent confirmation from the bank that it will support the proposal and continue to provide funding.
- Consider other sources of funds.
- Investigate whether the directors have the support of management, staff, key suppliers and customers.
- Consider whether any major contracts with customers give the right to terminate if the company is in an insolvency procedure.

3.11 Corporate reporting consequences

Going concern means that an entity is normally viewed as continuing in operation for the **foreseeable future**. Financial statements are prepared on the going concern basis unless management either intends to liquidate the entity or to cease trading or has no realistic alternative but to do so.

IAS 1 *Presentation of financial statements* makes the following points:

- In assessing whether the entity is a going concern management must look at least **twelve months** into the future measured from the **end of the reporting period** (not from the date the financial statements are approved).
- **Uncertainties** that may cast significant doubt on the entity's ability to continue should be **disclosed**.
- If the going concern assumption is not followed that fact must be disclosed together with:
  - The **basis** on which financial statements have been prepared
  - The **reasons** why the entity is not considered to be a going concern

- IFRSs do not prescribe the basis to be used if the going concern assumption is no longer considered appropriate. A **liquidation or breakup basis** may be appropriate, but the terms of the insolvency arrangement may also dictate the form of preparation.

When making the judgement of whether the going concern basis is not appropriate, the following indications taken from International Standard on Auditing, IAS 570 *Going Concern* may be significant:

(a) **Financial indicators**, eg recurring operating losses, net liability or net current liability position, negative cash flow from operating activities, adverse key financial ratios, inability to obtain financing for essential new product development or other essential investments, default on loan or similar agreements, arrears in dividends, denial of usual trade credit from suppliers, restructuring of debt, non-compliance with statutory capital requirements, need to seek new sources or methods of financing or to dispose of substantial assets.

(b) **Operating matters**, eg loss of key management without replacement, loss of a major market, key customers, licence, or principal suppliers, labour difficulties, shortages of important supplies or the emergence of a highly successful competitor.

(c) **Other matters**, eg pending legal or regulatory proceedings against the entity, changes in law or regulations that may adversely affect the entity; or uninsured or underinsured catastrophe such as a drought, earthquake or flood.

In relation to **going concern**, IAS 10 *Events after the reporting period* states that, where operating results and the financial position have deteriorated after the reporting period, it may be necessary to reconsider whether the going concern assumption is appropriate in the preparation of the financial statements.

3.12 Assurance work

You should be familiar with the requirements of IAS 570 *Going Concern* that auditors need to consider whether there are events or conditions that may cast significant doubt on the going concern assumption. The auditor should evaluate any management assessment of the company's ability to continue as a going concern. If there are doubts the auditor should evaluate plans for future actions and any cash flow forecasts. Additional procedures such as review of cash flow and profitability, loan and financial support terms, operating capability and possible legal action may be required.

In addition, auditors may have to carry out assurance work to reassure interested parties that proposed financial reconstructions are likely to work. This is likely to include:

- Consideration of the commercial viability and financial assumptions made in any forecasts.
- Consideration of whether the financial forecasts produced are consistent with the assumptions in amount and timing.
- Assessment of whether the company is likely to meet any fresh commitments that it has assumed.
- Risks that are likely to significantly affect whether the company achieves its objectives.
- Consideration of whether the proposed reconstruction is in accordance with the wishes of all the parties involved.

Areas that may particularly concern the reporting accountant include the following:

- **The reliability of forecasts.** The fact that the company has been in trouble may have been linked to over-optimistic forecasts in the past or systems and information that provided an inadequate basis for previous projections.
- **Consistency of forecast accounting statements with** historic financial statements, particularly consistency and appropriateness of accounting policies.
- **Projected evidence of income.** The reporting accountant may need external evidence to support income projections, for example future orders, customer interest, market surveys. If income is expected to grow, certain costs (selling, distribution) would also be expected to increase (though perhaps not in direct correlation).
- **Changes in cost base.** The forecasts may well include assertions that costs can be lowered, and the accountant will need to assess how successful cost control has been in the past, whether there is a programme for cost reduction, and whether this programme appears realistic and can be done without jeopardising attempts to increase income.

- **Sufficiency of finance.** The accountant will need to assess whether the finance that is assumed to be available will be enough to sustain the changes in activities and operations required to make the reconstruction a success.
- **The form of report,** particularly the caveats that need to be included about the achievability of the forecasts.



Interactive question 10: Financial reconstruction [Difficulty level: Intermediate]

Adrian Walsh produces hand-made furniture. The company has been reorganised twice over the last ten years, but is currently facing financial difficulties which have been made worse by the recent cancellation of three major orders by important customers.

The company's overdraft limit of $3 million has been reached and the bank has refused to grant any further credit. No dividends have been paid on the cumulative preference shares for five years, and the shareholders are becoming impatient.

The company has just completed a statement of assets and liabilities.

STATEMENT OF ASSETS AND LIABILITIES AT 31 DECEMBER 20X9

	$'000	$'000
Non-current assets		
Buildings (freehold)		11,000
Plant and equipment		7,750
Delivery vehicles		800
Deferred development expenditure		3,150
Current assets		
Inventory	4,000	
Trade receivables	2,900	
	6,900	
Current liabilities		
Trade payables	7,750	
Bank overdraft	3,000	
	10,750	
Current assets less current liabilities		(3,850)
Non-current liabilities		
8% loan (20Y5) secured on buildings	4,000	
Other loans (floating charges)	12,000	
		(16,000)
		2,850
Ordinary shares of $1 each		14,000
7% cumulative preference shares		4,000
Retained earnings/(deficit)		(15,150)
		2,850

Other information is available as follows.

- The market value of the freehold buildings is estimated at $11,250,000.
- Delivery vehicles have a current resale value of $500,000.
- Plant and equipment could be sold for approximately $5,000,000.
- Approximate liquidation costs are $1,250,000.

- The patents to the furniture designs could be sold to a rival company for an estimated $3,125,000. This is considered to be the breakup value of the development expenditure.
- Current assets could be sold for approximately $4,000,000.

The company wants to avoid liquidation as it is due to launch a design and manufacturing service for wooden gifts, from jewellery boxes to rocking horses, which is expected to be very successful.

A scheme of reconstruction has been suggested as follows.

- Cancel existing ordinary shares and issue existing ordinary shareholders with $5,000,000 new $1 ordinary shares for $1 cash each.
- Cancel existing preference shares and issue existing holders with $1,250,000 new $1 ordinary shares.
- Repay the bank overdraft. Maintain existing overdraft limit but secure it with a floating charge.
- Cancel the existing secured loan. Replace it with a $3,125,000 8% secured debenture loan (five-year maturity) and $1,500,000 ordinary shares.
- The floating charges loans would be replaced with an $8,000,000 12% loan (secured on the freehold buildings) and $2,750,000 in $1 new ordinary shares.

The company estimates that, with this restructuring in place, earnings before interest and tax will increase to $3,600,000.

The current P/E ratio for the industry is 10.8. Tax is charged at 24%.

The company will be preparing full forecasts for profit and financial position over the next few years on the assumption that the reconstruction goes ahead in its proposed form.

Requirement

Calculate whether the reconstruction scheme is likely to succeed and describe the assurance procedures that an accountant should undertake in order to provide a report on the forecasts for profit and financial position for Adrian Walsh when they have been prepared.

See **Answer** at the end of this chapter.

4 Demergers and disposals



Section overview

- Unbundling is a portfolio restructuring strategy that involves the disposal and sales of assets, facilities, production lines, subsidiaries, divisions or product units.

Unbundling can be either voluntary or it can be forced on a company. A company may voluntarily decide to divest part of its business for strategic, financial or organisational reasons. An involuntary unbundling, on the other hand, may take place for regulatory or financial reasons. The main forms of unbundling are:

(a) Divestments
(b) Demergers
(c) Sell-offs
(d) Spin-offs
(e) Carve-outs
(f) Going private/Leveraged buyouts
(g) Management buyouts

4.1 Divestments



Definition

Divestment: The partial or complete sale or disposal of physical and organisational assets, the shut-down of facilities and reduction in workforce in order to free funds for investment in other areas of strategic interest.

In a divestment the company ceases the operation of a particular activity in order to concentrate on other processes. The rationale for divestment is normally to reduce costs or to increase return on assets. Divestments differ from the other forms of unbundling because they do not require the formation of a new company.

4.1.1 Reasons for divestment

(a) Divestments may take place as a **corrective action** in order to reverse unsuccessful previous acquisitions, especially when the acquisition has taken place for diversification purposes. A subsidiary that is unprofitable or incompatible with existing operations may be sold to allow the firm to concentrate on areas where it is more successful.

(b) Divestments may also take place as a **response to a cyclical downturn** in the activities of a particular unit or line of business.

(c) Divestments may be proactive in the sense that a company may want to **exit lines of business** which have become obsolete or are too small, and redeploy resources to activities with a higher return on invested capital.

4.2 Demergers



Definition

Demerger: The opposite of a merger. It is the splitting up of a corporate body into two or more separate independent bodies.

For example, the ABC Group Ltd might demerge by splitting into two independently operating companies AB Ltd and C Ltd. Existing shareholders are given a stake in each of the new separate companies.

Demerging, in its strictest sense, stops short of selling out.

4.2.1 Advantages of demergers

(a) A demerger should ensure **greater operational efficiency and greater opportunity to realise value.** A two-division company with one loss-making division and one profit-making, fast-growing division may be better off splitting the two divisions. The profitable division may acquire a valuation well in excess of its contribution to the merged company.

(b) A demerger should ensure that **share prices reflect the true value of the underlying operations**. In large diversified conglomerates, so many different businesses are combined into one organisation that it becomes difficult for analysts to understand them fully.

(c) A demerger can **correct a lack of focus**, where senior management have to oversee and monitor a large number of businesses.

4.2.2 Disadvantages of demergers

(a) **Economies of scale** may be **lost**, where the demerged parts of the business had operations in common to which economies of scale applied.

(b) The **smaller companies** which result from the demerger will have **lower turnover**, profits and status than the group before the demerger.

(c) There may be **higher overhead costs** as a percentage of turnover, resulting from (b).

(d) The **ability** to raise **extra finance**, especially debt finance, to support new investments and expansion may be reduced.

(e) **Vulnerability to takeover** may be **increased**. The impact on a firm's risk may be significant when a substantial part of the company is spun off. The result may be a loss in shareholder value if a relatively low risk element is unbundled.

4.3 Sell-offs

Definition

Sell-off: A form of divestment, involving the sale of part of a company to a third party, usually another company. Generally cash will be received in exchange.

The extreme form of a sell-off is where the entire business is sold off in a liquidation. In a voluntary dissolution, the shareholders might decide to close the whole business, sell-off all the assets and distribute net funds raised to shareholders.

4.3.1 Reasons for sell-off

(a) As **part of its strategic planning**, a company has decided to restructure, concentrating management effort on particular parts of the business. Control problems may be reduced if peripheral activities are sold off.

(b) A company **wishes to sell off a part of its business** which makes losses, and so to improve the company's future reported consolidated profit performance. This may be in the form of a management buy-out (MBO) – see below.

(c) In order to **protect the rest of the business from takeover**, a company may choose to sell a part of the business which is particularly attractive to a buyer.

(d) The company may be **short of cash**.

(e) A subsidiary with **high risk** in its operating cash flows could be **sold**, so as to reduce the business risk of the group as a whole.

(f) A **subsidiary** could be **sold at a profit**. Some companies have specialised in taking over large groups of companies, and then selling off parts of the newly-acquired groups, so that the proceeds of sales more than pay for the original takeovers.

A sell-off may however **disrupt** the rest of the organisation, especially if key players within the organisation disappear as a result.

Case example: BP

In July 2010, BP announced a CU20 billion asset sale to help pay for the cost of the oil spill in the Gulf of Mexico. The plan, which was to take place over an 18-month period, included the sale of businesses that are 'worth more to other companies than they are to BP'.

Part of the proceeds of the sales were to be used to reduce BP's CU15 billion debt.

4.4 Spin-offs

Definition

Spin-off: The creation of a new company, where the shareholders of the original company own the shares.

In a spin-off:

(a) There is **no change** in the **ownership of assets**, as the shareholders own the same proportion of shares in the new company as they did in the old company.

(b) Assets of the part of the business to be separated off are **transferred into the new company**, which will usually have different management from the old company.

(c) In more complex cases, a spin-off may involve the original company **being split into a number of separate companies**.

4.4.1 Advantages of spin-offs

(a) The change may make a **merger** or takeover of some part of the business **easier** in the future, or may protect parts of the business from predators.

(b) There may be **improved efficiency** and more streamlined management within the new structure.

(c) It may be easier to see the value of the **separated parts** of the business now that they are no longer hidden within a conglomerate. Directors may believe that the individual parts of the business may be worth more than the whole.

(d) The **requirements** of **regulatory agencies** might be met more easily within the new structure. For example, if the agency is able to exercise price control over a particular part of the business which was previously hidden within the conglomerate structure.

(e) After the spin-off, shareholders have the opportunity to **adjust** the **proportions** of their **holdings** between the different companies created.



Case example: Chesapeake Energy

In April 2012, Chesapeake Energy, the second largest US natural gas producer, filed details of its plan to spin-off its oilfield services division via an IPO with an estimated value of $862.5 million. This is part of a plan to bolster Chesapeake's finances and to reduce its debt levels.



Case example: Punch Taverns

In March 2011, Punch Taverns announced that it was to split its business in two and sell thousands of pubs in an effort to overhaul the firm. The leased and managed pubs were split into separate companies.

Punch Taverns had been struggling with rising debts and falling profits. In 2010, debts hit CU3.3 billion. The leased pubs faced more challenging conditions and were going to suffer more cuts than the managed pubs.

4.5 Carve-outs



Definition

Carve-out: The creation of a new company, by detaching parts of the original company and selling the shares of the new company to the public.

Parent companies undertake carve-outs in order to raise funds in the capital markets. These funds can be used for the repayment of debt or creditors or the new cash can be retained within the firm to fund expansion. Carved out units tend to be highly valued.

4.6 Going private



Definition

Going private for a public company: When a small group of individuals, possibly including existing shareholders and/or managers and with or without support from a financial institution, buys all of a company's shares.

This form of restructuring is relatively common in the USA and may involve the shares in the company ceasing to be listed on a stock exchange.

4.6.1 Advantages of going private

(a) The **costs** of meeting listing requirements can be **saved**.

(b) The company is **protected from volatility in share prices** which financial problems may create.

(c) The company will be **less vulnerable to hostile takeover bids**.

(d) Management can **concentrate on the long-term needs** of the business rather than the short-term expectations of shareholders.

(e) Shareholders are **likely to be closer to management in a private company**, reducing costs arising from the separation of ownership and control (the 'agency problem').

4.6.2 Disadvantages of going private

The main disadvantage of going private is that the company loses its ability to have its shares publicly traded. If a share cannot be **traded** it may **lose some of its value**. However, one reason for seeking private company status is that the company has had difficulties as a quoted company, and the prices of its shares may be low anyway.

4.6.3 Going private temporarily

Sometimes a company goes private with the intention that it will go public once again. During this period, there may be a substantial reorganisation, in order to make significant profits.



Case example: Virgin and SAGA

One example of going private was SAGA, the tour operator, which changed status from public to private in 1990. While public, 63% of the company was owned by one family. The family raised finance to buy all of the shares, to avoid the possibility of hostile takeover bids and to avoid conflicts between the long-term needs of the business and the short-term expectations which institutional shareholders, in particular, are often claimed to have.

Another example of going private was Richard Branson's repurchase of shares in the Virgin Company from the public and from financial institutions.



Case example: Going private

The *San Francisco Business Times* reported that several companies were considering going private, particularly young companies with shares under pressure in public markets. Tighter scrutiny of public company finances, together with new federal disclosure laws, had added to the cost of financing through public equity markets. Going private would allow greater flexibility to restructure operations, and a potential increase in value for those companies whose cash at bank or non-current assets were worth far more than the depressed stock market value.

4.7 Management buyouts (MBO)



Definition

Management buyout: The purchase of a business from its existing owners by members of the management team, generally in association with a financing institution.

A **management buyout** is the purchase of all or part of a business from its owners by its managers. For example, the directors of a subsidiary company in a group might buy the company from the holding company, with the intention of running it as proprietors of a separate business entity.

(a) **To the managers**, the buyout would be a method of setting up in business for themselves.

(b) **To the group**, the buyout would be a method of **divestment**, selling off the subsidiary as a going concern.

Management-owned companies seem to achieve better performance probably because of:

- A **favourable buyout price** having been **achieved**.
- **Personal motivation and determination**.
- **Quicker decision-making** and so **more flexibility**.
- **Keener decisions** and action on pricing and debt collection.
- **Savings in overheads**, eg in contributions to a large head office.

However, many management buyouts, once they occur, begin with some redundancies to cut running costs.

4.7.1 Reasons for a MBO

The board of directors of a large organisation may agree to a management buyout of a subsidiary for any number of different reasons.

(a) The **subsidiary** may be **peripheral** to the group's mainstream activities, and no longer fit in with the group's overall strategy.

(b) The group may wish to **sell off a loss-making subsidiary**. A management team may think that it can restore the subsidiary's fortunes.

(c) The parent company may need to **raise cash quickly**.

(d) The subsidiary may be part of a **group that has just been taken over** and the new parent company may wish to sell off parts of the group it has just acquired.

(e) The **best offer price** might come from a **small management group** wanting to arrange a buyout.

(f) When a group has taken the decision to sell a subsidiary, it will probably **get better co-operation** from the management and employees of the subsidiary if the sale is a management buyout.

A private company's shareholders might agree to sell out to a management team because they need cash, they want to retire, or the business is not profitable enough for them.



Case example: Amount of MBOs

According to a survey in 2011 by private bank Coutts, the number of business owners considering a management buyout (MBO) has risen by a third in the past three years but only accounts for 18% of would-be sellers. In addition, only 30% of those who had completed an MBO said that it represented the best form of exit, and 55% said it was the only way they could exit the business or it offered best value.

4.7.2 Parties to a MBO

There are usually three parties to a management buyout.

(a) A **management team** wanting to make a buyout. This team ought to have the skills and ability to convince financial backers that it is worth supporting.

(b) **Directors** of a group of companies.

(c) **Financial backers** of the buyout team, who will usually want an equity stake in the bought-out business, because of the **venture capital risk** they are taking. Often, several financial backers provide the venture capital for a single buyout.

4.7.3 Exit strategies

Venture capitalists generally like to have a predetermined **target exit date**, the point at which they can recoup some or all of their investment in an MBO. At the outset, they will wish to establish various **exit routes**, the possibilities including:

- The sale of shares following a **flotation** on a recognised stock exchange.
- The **sale** of the company to another firm.

- The **repurchase** of the venture capitalist's shares by the company or its owners.
- The sales of the venture capitalist's shares to an **institution** such as an investment trust.

4.7.4 Appraisal of MBOs

An institutional investor (such as a venture capitalist) should evaluate a buyout before deciding whether or not to finance. Aspects of any buyout that ought to be checked are as follows.

(a) Does the management team have the **full range of management skills** that are needed (for example, a technical expert and a finance director)? Does it have the right blend of experience? Does it have the commitment?

(b) Why is the **company for sale**? The possible reasons for buyouts have already been listed. If the reason is that the parent company wants to get rid of a loss-making subsidiary, what evidence is there to suggest that the company can be made profitable after a buyout?

(c) What are the **projected profits and cash flows of the business**? The prospective returns must justify the risks involved.

(d) What is **being bought**? The buyout team might be buying the shares of the company, or only selected assets of the company. Are the assets that are being acquired sufficient for the task? Will more assets have to be bought? When will the existing assets need replacing? How much extra finance would be needed for these asset purchases? Can the company be operated profitably?

(e) What is **the price**? Is the price right or is it too high?

(f) What **financial contribution** can be made by members of the management team themselves?

(g) What are the **exit routes** and when might they be taken?

4.7.5 Problems with MBOs

A common problem with management buyouts is that the managers may have little or no experience in **financial management** or **financial accounting**. Managers will also be required to take tough decisions. A good way of approaching the problem is **scenario analysis**, addressing the effect of taking a major decision in isolation. However, the results may be painful, including the ditching of long established products.

Other problems are:

(a) Tax and legal complications.

(b) Difficulties in deciding on a fair price to be paid.

(c) Convincing employees of the need to change working practices or to accept redundancy.

(d) Inadequate resources to finance the maintenance and replacement of tangible non-current assets.

(e) The maintenance of employees' employment or pension rights.

(f) Accepting the board representation requirement that many providers of funds will insist upon.

(g) The loss of key employees if the company moves geographically, or wage rates are decreased too far, or employment conditions are unacceptable in other ways.

(h) Maintaining continuity of relationships with suppliers and customers.

(i) Lack of time to make decisions.



Case example: Virgin Megastores

In September 2007 the UK arm of Virgin Megastores was the subject of a management buyout. The group, renamed Zavvi, became the largest independent entertainment retailer in the UK.

Zavvi had already traded in Ireland with mixed success, making a loss of €3.4 million in the year-ended March 2007. Zavvi UK announced that it would focus on the sale of games and would also differentiate itself with limited editions and exclusive products, in addition to increasing online market share. In January 2008, Zavvi's Managing Director claimed that sales for the December period had increased 10.8% compared with the performance the previous year, when the stores traded as Virgin stores.

However, Zavvi was undone by problems with its supplier, Entertainment UK, which was part of the Woolworths group and went into administration in December 2008. Zavvi went into administration on 24 December 2008, due to the loss of Entertainment UK as a supplier. It was unable to obtain inventory from other suppliers on favourable credit terms or at acceptable prices. The pressure these problems placed on working capital meant that Zavvi was unable to meet its rent liabilities. By February 2009, most Zavvi stores were shut, with a limited number acquired by HMV and Head Entertainment.

4.8 Leveraged buyouts



Definition

Leveraged buyout is the purchase of another company using a very significant amount of debt (bonds or loans). Often the cash flows and assets of the company being purchased are used as collateral as well as the assets of the company making the acquisition.

The purpose of leveraged buyouts is to allow companies to make large acquisitions without having to commit a lot of capital. As the cost of debt is lower than the cost of equity, the return on equity increases with increasing debt. Leveraged buyouts can be used when purchasing a public company which then goes private or in funding a management buyout, among other uses.

4.9 Purchase of own shares

For a smaller company with few shareholders, the reason for buying back the company's own shares may be that there is no immediate willing purchaser at a time when a shareholder wishes to sell shares.

For a public company, share repurchase could provide a way of withdrawing from the share market and 'going private'.

4.9.1 Benefits of a share repurchase scheme

(a) **Finding a use for surplus cash**, which may be a 'dead asset'.

(b) **Increase in earnings per share through a reduction in the number of shares** in issue. This should lead to a higher share price than would otherwise be the case, and the company should be able to increase dividend payments on the remaining shares in issue.

(c) **Increase in gearing.** Repurchase of a company's own shares changes the relative proportion of debt to equity, so raising gearing. This will be of interest to a company wanting to increase its gearing without increasing its total long-term funding.

(d) **Readjustment of the company's equity base** to more appropriate levels, for a company whose business is in decline.

(e) **Possibly preventing a takeover** or enabling a quoted company to withdraw from the stock market.

(f) **Rewarding shareholders** without having to increase dividends, which can give out unwanted signals to the market.

4.9.2 Issues with a share repurchase scheme

(a) It can be **hard to arrive at a price that will be fair** both to the vendors and to any shareholders who are not selling shares to the company.

(b) A repurchase of shares could be seen as an **admission that the company cannot make better** use of the funds than the shareholders.

(c) Some shareholders may **suffer from being taxed on a capital gain** following the purchase of their shares rather than receiving dividend income.

(d) An increase in EPS might benefit directors if their bonus is aligned to this ratio.

4.10 Use of distributable profits

4.10.1 Bonus issue

A **bonus/scrip/capitalisation issue** is the capitalisation of the reserves of a company by the issue of additional shares to existing shareholders, in proportion to their holdings. Such shares are normally fully paid-up with no cash called for from the shareholders.

By creating more shares in this way, a scrip issue does not raise new funds. It does though have the advantage of making shares **cheaper** and therefore (perhaps) **more easily marketable** on the Stock Exchange. For example, if a company's shares are priced at $6 on the Stock Exchange, and the company makes a one for two scrip issue, the share price should fall after the issue to $4 each. Shares at $4 each might be more easily marketable than shares at $6 each.

4.11 Valuation issues

Unbundling will impact upon the value of a firm through its impact upon different factors in the valuation models.

4.11.1 Impact on growth rate

When firms divest themselves of existing investments, they affect their expected return on assets, as good projects increase the return on assets (ROA), and bad projects reduce the return.



Worked example: Divestment policy

A firm is expected to divest itself of unrelated divisions, which have historically had lower returns on assets. As a result of the divestment the return on equity is expected to increase from 10% to 15%.

Requirement

Calculate the effect on the earnings growth rate if the debt to equity ratio is 0.30, the tax rate is 25%, the retention rate is 50% and the interest rate on debt is 8%.

Solution

Before the restructuring the growth rate is equal to:

$$g = b\left(ROA + \frac{V_D}{V_E}(ROA - r(1-T))\right) = 0.5\left(0.10 + 0.3\left(0.10 - 0.08(1-0.25)\right)\right) = 0.056$$

After the restructuring the growth rate is equal to:

$$g = b\left(ROA + \frac{V_D}{V_E}(ROA - r(1-T))\right) = 0.5\left(0.15 + 0.3\left(0.15 - 0.08(1-0.25)\right)\right) = 0.0885$$

The restructuring has increased the growth rate from 5.6% to 8.85%.



Worked example: Divestment policy and business risk

The business risk (asset beta) of an oil company which has diversified into a number of other activities such as leisure and tourism is 1.3. If the oil company divested itself of all other activities and concentrated on its core business, its equity beta, based on the observed beta of oil companies with similar financial structure is expected to be 1.4. The tax rate is 25% and the debt to equity ratio is 0.30.

Requirement

Calculate the business risk following the divestment of the other businesses.

Solution

$$\beta e = \beta a\left(1+\left[\frac{D(1-T)}{E}\right]\right)$$

and therefore $1.4 = \beta a\left(1+\left[\frac{0.3(1-0.25)}{1}\right]\right)$

$$\beta_a = \left[\frac{1.4}{(1+0.225)}\right]$$

= 1.143

After the restructuring the business risk of the company is reduced from 1.3 to 1.143 implying a lower cost of equity and, consequently, a higher value of equity.

This can also be proved by calculating the old equity beta, using the asset beta figure of 1.3.

$$\beta e = 1.3\ \left(1+\left[\frac{0.3(1-0.25)}{1}\right]\right)$$

= 1.59

The equity beta has fallen from 1.59 to 1.4.

4.12 Valuation of divestments

The techniques discussed in Chapter 12 need to be applied carefully when considering an entity that has been divested. It may be difficult to forecast future cash flows or profits with any certainty and there will be uncertainties over business risk levels. Whether prices paid for individual assets fairly reflect their value to the new owners going forward may also be questionable.

4.12.1 First Chicago Method

One method used by venture capitalists and private equity investors to value investments is the first Chicago method. This takes account of payments to investment holders during the period they hold their investments, under various scenarios, typically an upside (best case) scenario, a base case and a downside (worst case) scenario.

Once the scenarios have been constructed, the method has the following stages:

- Construct a scenario-specific, internally consistent, forecast of cash flows for the period up to the disposal of the investment.
- Estimate a disposal price by assuming an exit multiple consistent with the scenario.
- Discount the cash flows and exit prices using the investor's required return. The sum of these is the value of the business in that scenario.
- Multiply all the scenario values by a probability corresponding to each scenario, estimated by the investor. The investment value is the probability-weighted sum of the scenarios.

4.13 Financial reporting issues in relation to demergers and disposals

The main financial reporting standards that apply to demergers and disposals are IFRS 5 *Non-current assets held for sale and discontinued operations* and IFRS 8 *Operating Segments*.

4.14 Application of IFRS 5

Demergers and disposals can have significant impacts upon cash flows and profits in group financial statements, so the purpose of IFRS 5 is to help accounts' users make more accurate assessments about the businesses' prospects in the future, by being able to exclude these items.

4.14.1 Recognition of disposals



Definitions

Discontinued operation: A component of an entity that has either been disposed of, or is classified as held for sale, and:

- Represents a separate major line of business or geographical area of operations;
- Is part of a single co-ordinated plan to dispose of a separate major line of business or geographical area of operations; or
- Is a subsidiary acquired exclusively with a view to resale.

Component of an entity: Operations and cash flows that can be clearly distinguished, operationally and for financial reporting purposes, from the rest of the entity.

IFRS 5 also applies to **groups of assets and associated liabilities** which will be disposed of in a single transaction, described as a **disposal group**.



Definition

Disposal group: A group of assets to be disposed of, by sale or otherwise, together as a group in a single transaction, and liabilities directly associated with those assets that will be transferred in the transaction. The group includes goodwill acquired in a business combination if the group is a cash-generating unit to which goodwill has been allocated in accordance with the requirements of IAS 36 *Impairment of Assets* or if it is an operation within such a cash-generating unit.

The definition includes, but is not limited to:

- A subsidiary which the parent is committed to selling.
- A cash-generating unit of the entity, that is a group of assets which generates economic benefits that are largely independent of other activities of the entity.

The results of a disposal group should be presented as those of a discontinued operation if the group meets the definition of a component and is a separate major line of business.

After a demerger is completed, the results may be shown as discontinued operations. However, assets and liabilities to be demerged would not meet the definition of assets and liabilities held for resale, since the demerger should be treated as an abandonment.

Not all the disposals and divestments that a business makes will fulfil the recognition criteria of IFRS 5. They may not be sufficiently important to be regarded as a separate major line of business or geographical operation.

If the disposal is a piecemeal disposal, where assets are sold separately or in small groups, and liabilities are settled individually, relevant standards, for example IAS 39 for financial assets and liabilities, apply.

Where a spin-off takes place, the transactions are with the shareholders of a group and no gains or losses are recognised on disposals.

4.14.2 Held for sale assets



Definition

Held for sale: A non-current asset (or disposal group) should be classified as **held for sale** if its carrying amount will be recovered **principally through a sale transaction** rather than **through continuing use**. A number of detailed criteria must be met.

(a) The asset must be **available for immediate sale** in its present condition.
(b) Its sale must be **highly probable** (ie, significantly more likely than not).

For the sale to be highly probable, the following must apply.

(a) Management must be **committed** to a plan to sell the asset.
(b) There must be an active programme to **locate a buyer**.
(c) The asset must be marketed for sale at a **price that is reasonable** in relation to its current fair value.
(d) The sale should be expected to take place **within one year** from the date of classification.
(e) It is unlikely that significant changes to the plan will be made or that the plan will be withdrawn.

Remember from your earlier studies that the conditions for classification as held for sale may not always be easy to apply.

- The asset should be available for immediate sale **in its present condition**.

  It may be clear that an asset on which substantial remedial work is necessary is not available for sale. But what about one which merely needs a general tidying up?

- Management should be **committed** to a plan to sell the asset.

  Is a minute of a board meeting sufficient? After all, decisions can be reversed at a later stage.

- There should be an **active programme** to locate a buyer.

  There can be legitimate differences of view about what constitutes an active programme.

- The asset should be marketed for sale at **a price that is reasonable** in relation to its current fair value.

  There would be general agreement that an asking price 50% above the current fair value is not reasonable, but what about one 10% above? If that is judged to be reasonable, where is the cut-off point between 10% and 50%?

- The sale should be **expected** to take place within one year from the date of classification.

  Evidence of expectations is notoriously difficult to identify.

- It is **unlikely** that significant changes to the plan will be made or that the plan will be withdrawn.

  What evidence is sufficient for the 'unlikelihood' judgement?

So many judgements are involved, and remember that **all** these conditions should be met before the held-for-sale classification is appropriate.

4.14.3 Measurement issues

A non-current asset (or disposal group) that is held for sale should be measured at the **lower of** its **carrying amount** and **fair value less costs to sell** (net realisable value). Non-current assets held for sale **should not be depreciated**, even if they are still being used by the entity.

Fair value for cash-generating units should be determined in accordance with the requirements of IFRS 13 *Fair value measurement,* using the fair value hierarchy:

- **Level 2:** Valuation multiple (for example, a multiple of earnings or revenue or a similar performance measure) derived from observable market data, eg from prices in observed transactions involving comparable businesses.
- **Level 3:** Financial forecast developed using the entity's own data.

4.14.4 Presentation and disclosure

An entity should disclose a **single amount in the statement of profit or loss and other comprehensive income** comprising the total of:

- The post-tax profit or loss of discontinued operations; and
- The post-tax gain or loss recognised on the measurement to fair value less costs to sell or on the disposal of the assets constituting the discontinued operation.

An entity should also **disclose an analysis of this single amount** into:

- The revenue, expenses and pre-tax profit or loss of discontinued operations.

- The related income tax expense.
- The post-tax gain or loss recognised on measurement to fair value less costs to sell or on disposal of the assets constituting the discontinued operation.
- The related income tax expense.

This analysis may be presented either:

- In the statement of profit or loss and other comprehensive income; or
- In the notes.

If it is presented in the statement of profit or loss and other comprehensive income it should be presented in a section identified as relating to discontinued operations, ie separately from continuing operations.

An asset classified as held for sale should be **presented in the statement of financial position separately from other assets**. Typically, a separate heading **'non-current assets held for sale'** would be appropriate.

The following disclosures would be necessary.

- The **major classes of assets and liabilities** classified as held for sale shall be separately disclosed either in the statement of financial position or in the notes, except as permitted by the next paragraph. An entity shall present separately any **cumulative income or expense recognised directly in equity** relating to a non-current asset (or disposal group) classified as held for sale.
- If the disposal group is a **newly acquired subsidiary that meets the criteria to be classified as held for sale on acquisition**, disclosure of the major classes of assets and liabilities is not required.

The following information should be **disclosed in the notes** in the period in which a non-current asset (or disposal group) has been either classified as held for sale or sold.

- A **description** of the non-current asset (or disposal group).
- A description of the **facts and circumstances of the sale**, or leading to the expected disposal, and the expected manner and timing of that disposal.
- **The gain or loss** recognised in profit or loss or the caption in the statement of comprehensive income that includes that gain or loss.
- If applicable, **the segment in which the non-current asset (or disposal group) is presented in** accordance with IFRS 8 *Operating Segments*.

4.14.5 Impact on business

Measurement and presentation of discontinued operations may have a significant impact on the business, depending on how accounts users view disclosures. Held-for-sale assets might be stripped out when assessing compliance with covenants. Separation of discontinued operations could also have quite a negative impact on the headline figures in the accounts.

4.15 Application of IFRS 8

Remember that IFRS 8 only applies to entities whose equity or debt is traded in public markets.

4.15.1 Recognition of segments

Even if the operations to be sold qualify as discontinued operations under IFRS 5, they may also qualify as an operating segment under IFRS 8 if they fulfil the IFRS 8 definition of an operating segment.

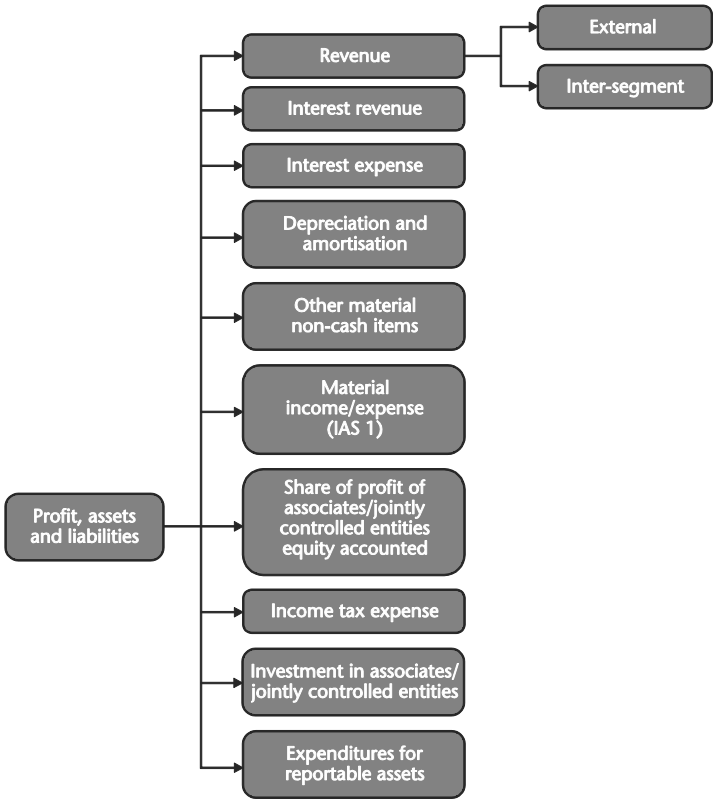
The most important issues here will be that the component's results are still maintained and are still reviewed by the chief operating decision-maker.

The segment may not meet any of the 10% disclosure thresholds of IFRS 8, but the entity should still apply the disclosure requirements if management believes that information about the segment would be useful to users of the financial statements.

4.15.2 Presentation and disclosure

The entity will need to disclose:

- The factors used to identify reportable segments and the types of products and services from which each derives its revenues.
- A measure of profit or loss for each segment, that is reported to the chief operating decision-maker.
- Measures of total assets and liabilities if they are regularly provided to the chief operating decision-maker.
- Other items should be disclosed if they are included in the measure of profit or loss reviewed by the chief operating decision-maker, or are regularly reviewed anyway by the chief operating decision-maker. These items are:



5 Small and medium company financing



Section overview

- A major feature of many small- to medium-sized enterprises is the problems they have in raising finance.
- Equity financing is more common than debt financing for such organisations, given the lack of assets required to secure against debt.
- There are several sources of finance specifically aimed at smaller enterprises, including venture capital and business angels.
- Bangladesh Government has also put support mechanisms in place to make more finance available to smaller enterprises and to encourage their growth.

Many small- to medium-sized enterprises (SMEs) have excellent business plans that require funding. The problem these enterprises have is lack of assets to provide as security for conventional loans. Without special sources of finance, many small businesses would not get off the ground, or their projects would have to be abandoned.

There are numerous sources of finance available for SMEs. Due to the lack of available assets to offer as security, most funding will be equity funding rather than debt funding.

5.1 Characteristics of SMEs

SMEs can be defined as having three characteristics:

- Firms are likely to be unquoted.
- Ownership of the business is restricted to a few individuals, typically a family group.
- They are not micro businesses that are normally regarded as those very small businesses that act as a medium for self-employment of the owners. (*Laney)*

The characteristics may alter over time, with the enterprise perhaps looking for a listing on a stock exchange geared to the needs of the smaller company, such as the UK Alternative Investment Market (AIM), as it expands.

The SME sector accounts for between a third and a half of sales and employment in Bangladesh. The sector is particularly associated with the service sector and serving niche markets. If market conditions change, small businesses may be more adaptable. There is, however, a significant failure rate amongst small firms.

Definition of SMEs as per Bangladesh National Industrial Policy, 2016 are as follows:

Sl	Type of Industry		The amount of investment (Replacement cost and value of fixed assets, excluding land and factory buildings)	Number of employed workers
1.	Cottage Industry		Below 10 lakh	Not exceeding 15
2.	Micro Industry		10 lakh to 75 lakh	16 to 30
3.	Small Industry	Manufacturing	75 lakh to 15 crore	31 to 120
		Service	10 lakh to 2 crore	16 to 50
4.	Medium Industry	Manufacturing	15 crore to 50 crore	121 to 300
		Service	2 crore to 30 crore	51 to 120
5.	Large Industry	Manufacturing	More than 50 crore	More than 300
		Service	More than 30 crore	More than 120

5.1.1 Assurance work on SMEs

In Bangladesh SMEs are not exempted from audit, unless it is not a registered company.

Nevertheless, SMEs may benefit from an audit or other assurance work being carried out on aspects of their business.

(a) **Confidence to finance providers.** This is probably the most important benefit as banks and other finance providers may be more inclined to support a business where assurance has been built in from the start. It may be easier to obtain finance more quickly if the business appears to be reliable. An assurance report may be required for the specific purpose of obtaining loan finance, particularly bank loan finance, and we look at this in more detail below.

(b) **Confidence in accounting.** Assurance work can give the owners of SMEs confidence in the figures that their accounting records are producing. This means not only that the financial statements that the owners are legally responsible for are reasonable, but also that they can rely on their figures as the basis for making operational and finance decisions.

(c) **Review of systems.** Having external assurance providers involved from the start can help an SME in that they can provide advice on how systems should develop to cope with expanding operations.

(d) **Pre-empting audit requirements.** If an SME expands sufficiently, it will need to have an audit. Having independent accountants involved from the start should avoid systems being disrupted when auditors do have to become involved.

(e) **Acceptability for tax.** Tax authorities may be more inclined to rely on accounts that have been audited or had an assurance review carried out.

5.2 Sources of finance for SMEs

Potential sources of funding for SMEs include:

- Owner financing
- Equity finance

- Business angel financing
- Venture capital
- Leasing
- Factoring
- Bank loans

5.2.1 Owner financing

Finance from the owner(s)' personal resources or those of family connections is generally the initial source of finance. At this stage because many assets are intangible, external funding may be difficult to obtain.

5.2.2 Equity finance

Other than investment by owners or business angels (see below), businesses with few tangible assets will probably have difficulty obtaining equity finance when they are formed (a problem known as the 'equity gap').

However, once small firms have become established, they do not necessarily need to seek a market listing to obtain equity financing. Shares can be placed privately. Letting external shareholders invest does not necessarily mean that the original owners have to cede control, particularly if the shares are held by a number of small investors. However, small companies may find it difficult to obtain large sums by this means.

As noted above, owners will need to invest a certain amount of capital when the business starts up. However, owners can subsequently choose whether they withdraw profits from the business or reinvest them.

A major problem with obtaining equity finance can be the inability of the small firm to offer an easy exit route for any investors who wish to sell their stake.

- The firm can purchase its own shares back from the shareholders, but this involves the use of cash that could be better employed elsewhere.
- The firm can obtain a market listing but not all small firms do.

5.2.3 Business angels

Business angel financing can be an important initial source of business finance. Business angels are wealthy individuals or groups of individuals who invest directly in small businesses using their own money. They bring invaluable direct relevant experience, expertise and contacts in an advisory capacity.

The main problem with business angel financing is that it is informal in terms of a market and can be difficult to set up. However, informality can be a strength. There may be less need to provide business angels with detailed information about the business due to the prior knowledge that they tend to have.

5.2.4 Venture capital

Venture capital is risk capital, normally provided in return for an equity stake. Venture capital organisations, such as 3i have been operating for many years.

The types of venture that the 3i group might invest in include the following.

- **Business start-ups**. When a business has been set up by someone who has already put time and money into getting it started, the group may be willing to provide finance to enable it to get off the ground.
- **Business development**. The group may be willing to provide development capital for a company that wants to invest in new products or new markets or to make a business acquisition.
- **Management buyouts**. A management buyout is the purchase of all or parts of a business from its owners by its managers.
- **Helping a company where one of its owners wants to realise all or part of his investment**. The 3i group may be prepared to buy some of the company's equity.

A survey has indicated that around 75% of requests for venture capital are rejected on an initial screening, and only about 3% of all requests survive both this screening and further investigation and result in actual investments. These figures suggest a high degree of selectivity, with businesses seen as too small or whose future is considered too uncertain, being unlikely to obtain finance from this source.

Venture capital organisations will take account of various factors in deciding whether or not to invest.

- The nature of the product (viability of production and selling potential).
- Expertise in production (technical ability to produce efficiently).
- The market and competition (threat from rival producers or future new entrants).
- Future profits (detailed business plan showing profit prospects that compensate for risks).
- Board membership (to take account of the interests of the venture capital organisation and to ensure it has a say in future strategies).
- Risk borne by existing owners.

5.2.5 Leasing

Leasing is a popular source of finance for both large and smaller enterprises. A lease is a contract between a lessor and lessee for hire of a specific asset selected from a manufacturer or vendor of such assets by the lessee. The lessor retains ownership of the asset. The lessee has possession and use of the asset on payment of specified rentals over a period of time.

Many lessors are financial intermediaries such as banks and insurance companies. The range of assets leased is wide, including office equipment and computers, cars and commercial vehicles, aircraft, ships and buildings.

When deciding whether to lease or buy an asset, the SME must make two decisions.

- The **acquisition decision**: is the asset worth having? Test by discounting project cash flows at a suitable cost of capital.
- The **financing decision**: if the asset should be acquired, compare the cash flows of purchasing with those of leasing. The cash flows can be discounted at an after-tax cost of borrowing.

SMEs can also consider a sale and leaseback arrangement. If it owns its own premises, for example, the SME could sell the property to an insurance company or pension fund for immediate cash and rent it back, usually for at least 50 years with rent reviews every few years. While such an arrangement usually realises more cash than a mortgage would, the firm loses ownership of the asset which can reduce its overall borrowing capacity, as the asset can no longer be used as security for a loan.

5.2.6 Debt factoring

SMEs can make use of debt factoring to release funds quickly. As with leasing, debt factoring was covered in detail in the Financial Management paper, therefore you should refresh your memory by revising your earlier notes.

Factoring can release funds by 'selling' debts to a factoring organisation that will then chase the debts on the company's behalf for a fee. At the time of 'sale' the factor will advance a percentage of the debt in cash to the company, thus helping short-term liquidity. The main problem with this method of financing is that it could give out adverse signals about the firm's liquidity position.

5.2.7 Bank loans

Bank loans are often used to finance short-term investment or as a 'bridge' to finance the purchase of, for example, new equipment. Short-term loans might be used to finance a temporary increase in inventory levels, for example to fulfil a special order. The sale of the goods then provides the finance to repay the loan.

Longer-term loans are also available, say for five years. These are normally repaid in equal amounts over the period of the loan, although payments can be delayed until the reason for the loan is up and running – for example, until new machinery is operational and able to generate money-making stock. This is not often the case for small firms, however.

Short-term loans are usually made at a fixed interest rate, while the rates quoted for longer-term loans tend to be linked to the general rate of interest, such as LIBOR.

5.2.7.1 Credit Wholesaling Program

Credit wholesaling is one of the major activities of SME Foundation in Bangladesh to ensure easy access to finance for the SME entrepreneurs. SME Foundation has already taken credit wholesaling program as pilot scheme with its own fund. SME Foundation helps the SME entrepreneurs by providing collateral free loan at 9% interest rate to the technology based potential SME manufacturing industries along with agro-based industries.

Case example: Advice for small businesses

The website SmallBusiness.co.uk published in 2012 a number of tips for SMEs on how to obtain a bank loan.

1 **Don't give up before you try**

There is some evidence that banks haven't been lending because firms haven't asked for funds. Banks are now more sensitive to pressures to lend more, but can only do so if the demand is there.

2 **Have facts and figures to hand**

Over the last ten years banks have become more stringent in terms of the preparation they expect from clients. Businesses may need to provide a business plan, management accounts, evidence of orders, and very importantly, a cash flow forecast. If businesses provide carefully-thought out plans, their chances of securing funding should be good.

3 **Develop a relationship**

Although many lending decisions are now made by banks' centralised control systems, bank managers in some locations may still have the authority to lend significant sums. An experienced bank manager, who knows the banks' systems, may be helpful.

4 **Shop around**

Businesses should try to play banks off against each other if required and consider smaller, fresher operators such as Metro Bank as well as the established banks. Online finance providers may offer better service or innovative products.

5 **Be open**

Banks will be more inclined to help if businesses are frank about what they intend to achieve with the money and also if they are honest about the problems they face, for example a major customer delaying payment. However, greater detail will enable banks to make a more confident assessment of the money the business requires and this may differ significantly from what the business thinks it needs.

6 **Consider different kinds of finance**

Businesses should not just consider traditional loans and overdraft, but trade or invoice finance if appropriate. Businesses also need to realise that banks are constrained in their risk-return decisions. Equity finance will be most appropriate for high-risk companies that cannot offer much security.

5.2.8 Microfinance

Microfinance involves the provision of financial services to very small business and entrepreneurs who lack access to banking services. Microfinance is provided by:

- **Relationship-based banking** for individual businesses.
- **Group-based models**, where lots of entrepreneurs apply for finance and other services, such as insurance and money transfer, as a group.

As well as supporting economic growth, microfinance in certain countries is also seen as a means of poverty alleviation.

One challenge in several countries has been providing smaller loans at an affordable cost, while allowing lenders sufficient margin to cover their expenses.

Countries where microfinance has developed significantly include the United States, where microfinance institutions have served low income and marginalised communities. Credit unions have been important in Canada. In Bangladesh the focus has been on making unsecured loans to people living below the poverty line.

5.3 The problems of financing SMEs

The money for investment that SMEs can obtain comes from the savings individuals make in the economy. Government policy will have a major influence on the level of funds available.

- **Tax policy** including concessions given to businesses to invest (capital allowances) and taxes on distributions (higher taxes on dividends mean less income for investors).
- **Interest rate policy** with low interest rates working in different ways – borrowing for SMEs becomes cheaper, but the supply of funds is less as lower rates give less incentive to investors to save.



Definition

Funding gap: The amount of money needed to fund the ongoing operations or future development of a business or project that is not currently provided by cash, equity or debt.

The term 'funding gap' is most often used in the context of SMEs that are in the early stages of development, and need funds for research, product development and marketing.

SMEs face competition for funds. Investors have opportunities to invest in all sizes of organisation, also overseas and in government debt.

The main handicap that SMEs face in accessing funds is the problem of uncertainty.

- Whatever the details provided to potential investors, SMEs have neither the business history nor longer track record that larger organisations possess.
- Larger enterprises are subject by law to more public scrutiny; their accounts have to contain more detail and be audited, they receive more press coverage and so on.
- Because of the uncertainties involved, banks often use credit scoring systems to control exposure.

Because the information is not available in other ways, SMEs will have to provide it when they seek finance. They will need to supply a business plan, list of the firm's assets, details of the experience of directors and managers and show how they intend to provide security for sums advanced.

Prospective lenders, often banks, will then make a decision based on the information provided. The terms of the loan (interest rate, term, security, repayment details) will depend on the risk involved, and the lender will also want to monitor its investment.

A common problem is that banks are often unwilling to increase loan funding without an increase in security given (which the owners may be unwilling or unable to give), or an increase in equity funding (which may be difficult to obtain).

A further problem for SMEs is the **maturity gap**. It is particularly difficult for SMEs to obtain medium-term loans due to a mismatching of the maturity of assets and liabilities. Longer-term loans are easier to obtain than medium-term loans as longer loans can be secured with mortgages against property.

5.3.1 Impact of credit crunch on small businesses

A survey by the Department of UK Business Innovation and Skills (BIS), published in April 2013, related that small businesses have found it more difficult to obtain credit finance since the financial crisis began. Rejection rates for both overdrafts and term loans were significantly higher in the period from 2008 onwards. If a business had a higher credit risk rating, previous financial delinquency and falling sales levels, rejection was probable. Inevitably, the effects of the recession on sales, profitability and asset prices meant that a greater proportion of businesses were rated at above average risk.

Older, more-established businesses were more likely to obtain finance. However, the survey found that banks appeared to view lending to safer small businesses as relatively more risky in the period after the financial crisis than they did before. Evidence also suggested a greater tightening on renewal of finance than for new loans.

The BIS survey concluded there were greater restrictions on the availability of loan rather than overdraft finance. Some small businesses have thus been forced, or chosen, to rely on overdraft finance rather than loans. However, interest rates on overdrafts for smaller businesses rose between 2009 and 2011, despite the central bank rate remaining stable. Small businesses also faced higher additional charges. Some small businesses have been struggling to obtain even overdraft finance, with banks telling them that they must reduce their overdraft or threatening to withdraw their facilities.

SMEs have also faced problems obtaining finance for assets, as a number of banks withdrew or wound down their asset finance market in the period since 2007.

The survey suggested that key factors in restriction of finance are the high levels of credit risk, the limited reporting requirements that small businesses have to fulfil, creating information issues and collateral being less liquid.

Margins on loans and overdrafts were also significantly higher, as cuts in the Bank of England base rate were not transferred to small businesses.

5.4 Government aid for SMEs

Bangladesh Government has introduced a number of assistance schemes to help businesses. Several of these are designed to encourage lenders and investors to make finance available to small and unquoted businesses.

The Small & Medium Enterprise Foundation, widely known as SME Foundation, is a company limited by guarantee and licensed by the Ministry of Commerce as a not for profit organization and registered under the Companies Act (Act XXVIII) of 1994. It is running under the guideline as stated in the Memorandum and Articles of Association. SME Foundation is established by the Government of Bangladesh through Ministry of Industries as an apex institution for SME development in the country. The major activities of SME Foundation are

- implementation of SME Policy Strategies adopted by the Bangladesh Government,
- policy advocacy and intervention for the growth of SMEs,
- facilitating financial supports for SMEs,
- providing skill development and capacity building training,
- facilitating adaptation with appropriate technologies and access to ICT,
- providing business support services, etc.

It is mentionable here that the Foundation is working for the development of enterprises and entrepreneurs who belong to micro, small and medium categories as per Industrial Policy 2016. Besides the general supports to the development of SMEs and entrepreneurs the Foundation is providing diversified supports to the existing and potential women entrepreneurs in order to position them into the mainstream business community.

5.4.1 Grants

Grants to help with business development are available from a variety of sources, such as Regional Development Agencies, local authorities and some charitable organisations.

These grants may be linked to business activity or a specific industry sector. Some grants are also linked to specific geographical areas, such as those in need of economic regeneration.

5.4.2 Enterprise capital funds

Enterprise capital funds (ECFs) are designed to be commercial funds, investing a combination of private and public money in small high-growth businesses. They are based on a variant of the Small Business Investment Company (SBIC) programme that has operated in the United States for the past 45 years. The SBIC programme has supported the early growth of companies such as FedEx, Apple, Intel and AOL.

Each ECF is able to make equity investments of up to CU2 million into eligible SMEs that have genuine growth potential but whose funding needs are currently not met, based on the evidence that such businesses struggle to obtain finance of up to CU2 million.



Case example: Alternative funding for SMEs

In September 2012, Britain's six largest banks announced that they had agreed to promote a method of obtaining alternative finance for SMEs whose credit applications they had rejected. The banks agreed to test a formal referral service to help businesses that fail their own lending criteria obtain funds from Community Development finance institutions (CDFIs). These organisations, which often are supported by the government or charities, sometimes have large pools of funds available for lending to small businesses. They are often based in poor communities and provide loans to individuals and businesses that have been rejected by the banks, perhaps because they do not have proven records. Community-based finance has been more popular in other countries, including Bangladesh, than the UK and the government is keen to promote this avenue of finance.

Case example: The Pure Package

The Pure Package, a home delivery meals service tailored to meet clients' individual dietary requirements and preferences, was set up by Jennifer Irvine in 2003. In its first year, the business delivered 70,000 meals and earned revenue of CU200,000. Since then, it has grown into a multi-million pound operation.

When it came to financing, the founder was initially wary of taking on any debt or parting with a stake in the business. Rather than using these more conventional means to finance growth, she took a gamble on assuming that clients would be willing to pay for their meals in advance and offered a discount for paying 90 days early. The gamble worked and she was able to generate the necessary working capital for sustained growth.



Interactive question 11: SME finance [Difficulty level: Intermediate]

DF is a manufacturer of sports equipment. All of the shares of DF are held by the Wong family.

The company has recently won a major three-year contract to supply FF with a range of sports equipment. FF is a large company with over 100 sports shops. The contract may be renewed after three years.

The new contract is expected to double DF's existing total annual sales, but demand from FF will vary considerably from month to month.

The contract will, however, mean a significant additional investment in both non-current and current assets. A loan from the bank is to be used to finance the additional non-current assets, as the Wong family is currently unable to supply any further share capital. Also, the Wong family does not wish to raise new capital by issuing shares to non-family members.

The financing of the additional current assets is yet to be decided. In particular, the contract with FF will require orders to be delivered within two days. This delivery period gives DF insufficient time to manufacture items, thus significant inventories need to be held at all times. Also, FF requires 90 days' credit from its suppliers. This will result in a significant additional investment in accounts receivable by DF.

If the company borrows from the bank to finance current assets, either using a loan or an overdraft, it expects to be charged annual interest at 12%. Consequently, DF is considering alternative methods of financing current assets. These include debt factoring, invoice discounting and offering a 3% cash discount to FF for settlement within ten days rather than the normal 90 days.

Requirements

(a) Write a report to the Wong family shareholders explaining the various methods of financing available to DF to finance the additional current assets arising from the new FF contract. The report should include the following headings:

- Bank loan
- Overdraft
- Debt factoring
- Invoice discounting

(b) Discuss the factors that a venture capital organisation will take into account when deciding whether to invest in DF.

See **Answer** at the end of this chapter.

5.5 Assurance work on loan finance

We revised briefly the elements of an assurance engagement in Chapter 8, including the work done on a financial forecast. In order to obtain loan finance, an SME may need to prepare and have assurance work done on prospective financial information.



Definitions

Prospective financial information: Financial information based on assumptions about events that may occur in the future and possible actions by the entity.

Forecast: Prospective financial information based on assumptions as to future events which management expects to take place and the actions that management expects to take (best estimate assumptions).

Projection: Prospective financial information based on hypothetical assumptions about future events and management actions, or a mixture of best-estimate and hypothetical assumptions.

The distinction between forecasts and projections may be particularly important for SMEs where historical evidence on which assumptions can be based is limited.

The information required by potential loan finance providers will generally include a cash flow forecast and may also include full profit and loss and statement of financial position information as well. The accountant providing assurance needs to find out who has been responsible for preparing the forecasts and whether they have expertise and experience in preparing them.

The following considerations are likely to be important for the work carried out by the assurance provider.

5.5.1 General considerations

- The most important consideration is assessing whether the assumptions on which the information is based are not unreasonable, that the information is properly prepared on the basis of the assumptions and that all material assumptions are adequately disclosed, including whether they are best estimate assumptions or hypothetical assumptions.
- Much of the assurance work will focus on income. The accountant will need to have regard for current sales patterns, and also industry and sector conditions. The accountant will need to assess whether sales volumes are realistic for the prices being charged in the markets being accessed, also how tight the production schedule is and whether it is realistic.
- As far as possible, projected expenditure should be verified to suitable evidence. Areas of particular concern could include the following:
- Assumptions about material costs should be verified against assumptions regarding usage and demand.
- Labour cost projections will need to be compared with plans for future salary increases and projected staff numbers.
- Particularly, if significant revenue increases are expected as a result of major sales efforts, the accountant will need to assess whether the level of selling and marketing costs is consistent with plans to increase revenue.
- Capital expenditure could be a major item in cash flow forecasts and ideally the accountant should be able to assess the realism of estimates by inspecting quotes. Other issues that may need to be considered include the strength of supplier guarantees, the amount provided for construction and installation costs and the possible need for follow-up expenditure.
- As well as providing initial assurance, finance providers may require ongoing information about whether the initial forecasts were achieved, and assurance work undertaken on revised forecasts based on revised assumptions. Assurance obtained over actual results may be strong, but the accountant may only be able to provide limited assurance on revised forecasts, although they may be based on better assumptions than initial forecasts.
- The accountant will need to make an overall assessment of whether the finance that is being sought will be sufficient to match the expenditure that is likely to happen.

5.5.2 Cash flow information

- As well as the amount of expenditure, the assumptions regarding timing of expenditure should be considered carefully, particularly if there are times when available finance may be tight. The accountant needs to consider whether the assumptions are consistent with each other, for example that increased selling expenditure is followed by increased sales.
- The accountant will be particularly concerned with the assumptions made about working capital changes and whether they appear to be consistent with what is forecast for sales and purchases.
- The accountant must (obviously) ensure that allowance has been made for forecast loan repayments and interest payments.
- If cash flow projections show a shortfall at any time or that the SME is operating close to its limits, the accountant will need to question the directors on how extra finance will be provided, and assess whether directors' expectations are reasonable.

Summary and Self-test

Summary

Capital structure decisions can be analysed using the suitability, acceptability, feasibility framework, with firms possibly following the pecking order of using retained funds first and new equity issues last.

Firms may adopt varying approaches to dividend policy depending on the funds available for investment, the views of investors and the messages that directors wish to send to markets.

Financial reconstruction can take place either when firms are in difficulty or to enhance the value of the firm, and its success can be assessed by its impact on a firm's growth, risk and rate of return.

Refinancing is the application for a secured loan to replace an existing loan secured by the same assets. It may take place to reduce interest payments, pay off other debts or reduce risks.

There are a number of ways in which firms can reorganise or divest themselves of assets and operations that they no longer require, including a buyout of some of its operations by its managers.

SMEs often have difficulty raising finance, but there are now numerous sources of finance available specifically aimed at such enterprises, both commercial and government-funded.

Self-test

Self-test question 1

CRY

The following figures have been extracted from the most recent accounts of CRY Ltd.

STATEMENT OF FINANCIAL POSITION AS AT 30 JUNE 20X9

	CU'000	CU'000
Non-current assets		10,115
Investments		821
Current assets	3,658	
Less: Current liabilities	1,735	
		1,923
		12,859
Ordinary share capital		
Authorised: 4,000,000 shares of CU1		
Issued: 3,000,000 shares of CU1		3,000
Reserves		7,257
Shareholders' funds		10,257
7% Debentures		1,300
Deferred taxation		583
Corporation tax		719
		12,859

SUMMARY OF PROFITS AND DIVIDENDS

Year ended 30 June	*20X5*	*20X6*	*20X7*	*20X8*	*20X9*
	CU'000	CU'000	CU'000	CU'000	CU'000
Profit after interest and before tax	1,737	2,090	1,940	1,866	2,179
Less: Tax	573	690	640	616	719
Profit after interest and tax	1,164	1,400	1,300	1,250	1,460
Less: Dividends	620	680	740	740	810
Added to reserves	544	720	560	510	650

The current (1 July 20X9) market value of CRY Ltd's ordinary shares is CU3.27 per share cum div. An annual dividend of CU810,000 is due for payment shortly. The debentures are redeemable at par in ten years' time. Their current market value is CU77.10. Annual interest has just been paid on the debentures. There have been no issues or redemptions of ordinary shares or debentures during the past five years.

The current rate of corporation tax is 23%. Assume that there have been no changes in the system or rates of taxation during the last five years.

Requirements

(a) Calculate the cost of capital which CRY Ltd should use as a discount rate when appraising new investment opportunities.

(b) Discuss any difficulties and uncertainties in your estimates.

Self-test question 2

Ella

Ella, a private company, is currently considering a major capital investment project involving the construction of a new factory to manufacture a new product. Additional finance will be required for this project. It is not currently feasible to raise sufficient equity finance to fund the new project, consequently debt finance is being considered. The decision has not yet been finalised whether this debt finance will be short- or long-term and if it is to be at fixed or variable rates.

The $3 million finance required will be used as follows:

	$'000
Construction of new factory	1,250
Purchase of new machinery	1,000
Initial supply of raw material	250
Advertising and marketing of new product	500

The financial controller has asked your firm for assistance in the preparation of a report for a forthcoming meeting of the board of directors.

Requirements

Prepare a draft report to the board of directors which identifies and briefly explains:

(a) The main factors to be considered when deciding on the appropriate mix of short-, medium- or long-term debt finance for Ella.

(b) The practical considerations which could be factors in restricting the amount of debt which Ella could raise.

After the directors have decided how the project should be financed, they will attend a meeting with the audit partner for Ella at your firm.

(c) State the enquiries your firm would make of the directors of Ella to ascertain the adequacy of the $3 million finance requested for the new production facility.

Self-test question 3

JMR

JMR is an established company in public ownership comprising the following divisions: construction and building; engineering and machinery; real estate. Although the company has traded profitably, its earnings have been subject to wide variations and some of the shareholders are concerned about the Board's policy of 'conglomerate diversification'.

In the last year the company had the following earning figures:

	Earnings $m
Division	
Construction and building	50
Engineering and machinery	20
Real estate	30
Group	100

Note: It should be assumed that the above divisional earnings are stated after tax.

	Current average market sector P/E
Industry	
Construction and building	8
Engineering and machinery	13
Real estate	23

JMR is currently valued on the stock market at $1,000 million, and proposed/current dividends are approximately half of analysts' expectations.

Construction and building

This activity represents the original business before JMR started to make acquisitions. The divisional management has described the business as 'mature, stable, and offering the prospect of modest but sustained growth'.

Engineering and machinery

This activity represents the first acquisitions made by JMR whereby a number of small companies were bought and consolidated into one division. The divisional management has described the business as 'mature but

offering the prospect of profit growth of 10% per annum'. Additionally, the division has a broad customer base servicing a number of government agencies – minimising the risk of cash flow problems.

Real estate

This division represents the most recent acquisition made by JMR and has provided profit growth of over 20% per annum in the three years since it was formed. The divisional management, which is recognised as the most dynamic management team within JMR, feels that this rate of growth can be continued or surpassed.

HQ organisation

Each division has its own headquarters office in a different town and the group headquarters, which has the responsibility for raising capital and operating a group treasury function is also separately located. The group headquarters is located in the capital, is quite luxurious and has a staff of 50 including the main board directors. Group headquarters, and the staff, is funded by a management charge on the divisions.

Investors

An informal group of institutional shareholders, which holds approximately 20% of JMR's equity has requested a review of the Board's strategy and a rationalisation of the company's portfolio. These shareholders feel that the company should take the opportunity to dispose of the real estate division, reduce costs by closing the group headquarters and relocate the board and treasury functions to one of the divisional headquarters. This, they have said, would allow the company to pay a large, one off, dividend to reward shareholders for their tolerance of poor past performance.

Requirements

(a) Evaluate the suggestions made by the institutional investors that the company should take the opportunity to dispose of the real estate division, reduce costs by closing the group headquarters and relocate the board and treasury functions to one of the divisional headquarters.

(b) Identify and evaluate alternative methods available to the Board for the disposal of the real estate division, should it decide to do so, and recommend the method of disposal most appropriate to JMR.

Self-test question 4

Kicer

You are the manager responsible for the audit of Kicer Co. Kicer is a supplier of components used in the manufacture of vehicle engines. Due to a downturn in the economy, and in the automotive industry particularly, the company has suffered a decline in sales and profitability over the last two years, mainly due to the loss of several key customer contracts. Many of Kicer's non-current assets are impaired in value, and a significant number of receivables balances have been written-off in the last six months.

In response to the deteriorating market conditions, the management of Kicer decided to restructure the business. The main manufacturing facility will be reduced in size by two-thirds, and investment will be made in new technology to make the remaining operations more efficient, and to enable the manufacture of a wider variety of components for use in different types of engines and machinery. In order to fund this restructuring, the management of Kicer approached the company's bank with a request for a significant loan. You are aware that without the loan, Kicer is unlikely to be able to restructure successfully, which will raise significant doubt over its ability to continue as a going concern. Your firm has been asked to advise on the necessary forecasts and projections that the bank will need to see in order to make a decision regarding the finance requested.

Requirement

Identify and explain the matters that should be considered, and the principal assurance procedures to be performed, in respect of the additional funding being sought, highlighting any corporate reporting issues connected with whether Kicer obtains the loan.

IAS 1, *Presentation of Financial Statements*

- Prescribes the overall requirements for financial statements, including how they should be structured, and the minimum requirements for their content. The standard requires a complete set of financial statements to comprise a statement of financial position, a statement of profit or loss and other comprehensive income, a statement of changes in equity, and a statement of cash flows. The standard also sets out the overriding concepts underlying the financial statements such as going concern, the accruals basis of accounting, and the current/non-current distinction. Overview

IAS 10, *Events after the Reporting Period*

- IAS 10 prescribes when events after the end of the reporting period should be adjusted in the financial statements for that period. Adjusting events are ones which provide evidence of conditions existing at the end of the reporting period, whereas non-adjusting events are ones which are indicative of conditions arising after the reporting period. Overview

IFRS 5, *Non-current assets held for sale and discontinued operations*

- Outlines the accounting required for non-current assets held for sale (or for distribution to owners). In general terms, assets (or disposal groups) held for sale are not depreciated, are measured at the lower of carrying amount and fair value less costs to sell, and are presented separately in the statement of financial position. Overview

IFRS 8, *Operating Segments*

- IFRS 8 requires entities with publicly traded securities to disclose information about their operating segments, products and services; the geographical areas in which they operate, and their major customers. Segment information is based on internal management reports, both in the identification of operating segments and the measurement of disclosed segment information. Overview

IAS 36, *Impairment of Assets*

- Seeks to ensure that an entity's assets are not carried at more than their recoverable amount (being the higher of fair value less costs of disposal and value in use). An annual impairment test is required for goodwill and certain intangible assets, but for the majority of assets an impairment test is only required where there is an indication of impairment of an asset. Overview

IAS 39, *Financial Instruments: Recognition and Measurement*

- Outlines the requirements for the recognition and measurement of financial assets, financial liabilities, and some contracts to buy or sell non-financial items. Overview

IFRS 13, *Fair Value Measurement*

- Defines fair value as the price that would be received to sell as asset or would be paid to transfer a liability in an orderly transaction between market participants at the measurement date. IFRS 13 defines fair value on the basis of an 'exit price' notion and uses a 'fair value hierarchy' which results in a market-based measurement rather than an entity-specific one. Overview

Answers to Interactive questions

Answer to Interactive question 1

Algol: $k_e = r_f + \beta_e (r_m - r_f)$

$8 = r_f + 1.2 (7 - r_f)$

$8 = r_f + 8.4 - 1.2\ r_f$

$0.2\ r_f = 0.4$

$r_f = 2$

Rigel: $k_e = 2 + (7 - 2)\ 1.8$

$= 11\%$

Answer to Interactive question 2

(a) $k_e = \dfrac{d_0 (1+g)}{P_0} + g$

$= \dfrac{3(1.10)}{250} + 0.10$

$= 0.1132$ or 11.32%

(b) $k_e = 5 + 1.40 (8 - 5) = 9.2\%$

Answer to Interactive question 3

(a) **Beta measures** the systematic risk of a risky investment, such as a share in a company, and financial risk. The total risk of the share can be subdivided into two parts, known as **systematic (or market) risk** and **unsystematic (or unique) risk**. The systematic risk depends on the sensitivity of the return of the share to general economic and market factors such as periods of boom and recession. The capital asset pricing model shows how the return which investors expect from shares should depend only on systematic risk, not on unsystematic risk, which can be eliminated by holding a well-diversified portfolio.

Beta is calibrated such that the average risk of stock market investments has a **beta of 1**. Thus shares with betas of 0.5 or 1.5 would have ½ or 1½ times the average sensitivity to market variations, respectively.

This is reflected by higher volatility of share prices for shares with a beta of 1.5 than for those with a beta of 0.5. For example, a 10% increase in general stock market prices would be expected to be reflected as a 5% increase for a share with a beta of 0.5 and a 15% increase for a share with a beta of 1.5, with a similar effect for price reductions.

(b) The beta of a company will be the **weighted average** of the beta of its shares and the beta of its debt. The beta of debt is very low, but not zero, because corporate debt bears default risk, which in turn is dependent on the volatility of the company's cash flows.

Factors determining the beta of a company's equity shares include:

(i) **Sensitivity** of the company's **cash flows** to economic factors, as stated above. For example, sales of new cars are more sensitive than sales of basic foods and necessities.

(ii) The company's **operating gearing**. A high level of fixed costs in the company's cost structure will cause high variations in operating profit compared with variations in sales.

(iii) The company's **financial gearing**. High borrowing and interest costs will cause high variations in equity earnings compared with variations in operating profit, increasing the equity beta as equity returns become more variable in relation to the market as a whole. This effect will be countered by the low beta of debt when computing the weighted average beta of the whole company.

Answer to Interactive question 4

(a) The cost of irredeemable debt capital is $\frac{i}{P_0} = \frac{£10}{£90} \times 100\% = 11.1\%$

(b) **The cost of redeemable debt capital**. The capital profit that will be made from now to the date of redemption is CU10 (CU100 – CU90). This profit will be made over a period of ten years which gives an annualised profit of CU1 which is about 1% of current market value. We will try 12% as a trial and error figure.

Year		*Cash flow* CU	*Discount factor* 12%	*PV* CU	*Discount factor* 11%	*PV* CU
0	Market value	(90)	1.000	(90.00)	1.000	(90.00)
1–10	Interest	10	5.650	56.50	5.889	58.89
10	Capital repayment	100	0.322	32.20	0.352	35.20
				(1.30)		+4.09

The approximate cost of redeemable debt capital is, therefore:

$$k_d = (11 + \frac{4.09}{(4.09 - 1.30)} \times 1) = 11.76\%$$

Answer to Interactive question 5

(a) The current cost of debt is found by calculating the internal rate of return of the cash flows shown in the table below. We must subtract the current interest (of 8% per CU100 of stock) from the current market price, and use this 'ex interest' market value. A discount rate of 10% is chosen for a trial-and-error start to the calculation.

Item and date		*Year*	*Cash flow* CU	*Discount factor* 10%	*Present value* CU
Market value (ex int)	28.12.X2	0	(95)	1.000	(95.0)
Interest	31.12.X3 – X5	1 – 3	8	2.487	19.9
Redemption	1.1.X6	3	100	0.751	75.1
NPV					0.0

By coincidence, the cost of debt is 10% since the NPV of the cash flows above is zero.

(b) If the cost of debt is expected to rise in 20X3 and 20X4 it is probable that the market price in December 20X2 will fall to reflect the new rates obtainable. The probable market price would be the discounted value of all future cash flows up to 20X6, at a discount rate of 12%.

Item and date		*Year*	*Cash flow* CU	*Discount factor* 12%	*Present value* CU
Interest	31.12.X2	0	8	1.000	8.0
Interest	31.12.X3 – X5	1 – 3	8	2.402	19.2
Redemption	1.1.X6	3	100	0.712	71.2
NPV					98.4

The estimated market price would be CU98.40 per cent **cum** interest.

(c) Again we must deduct the current interest payable and use ex interest figures.

Item and date		*Year*	*Cash flow* CU	*PV 10%* CU
Market value (ex int)		0	(95.0)	(95.0)
Interest	31.12.X3 – X5	1-3	8.0	19.9
Redemption	1.1.X6	3	100.0	75.1
NPV				0

The estimated after-tax cost of debt is: 10% (1 – 0.23) = 7.7%

Answer to Interactive question 6

Market values:

		$'000
Equity (E):	$\frac{2,500}{0.5} \times 1.30$	6,500
Loan notes (D):	$1,000 \times 0.72$	720
E+D		7,220

Cost of equity:

$$k_e = \frac{d_0(1+g)}{P_0} + g = \frac{0.15(1+0.1)}{1.3} + 0.1 = 0.2269 = 22.69\%$$

Cost of loan stock:

$$k_d = \frac{i(1-T)}{P_0} = \frac{0.12(1-0.24)}{0.72} = 0.1267 = 12.67\%$$

Weighted average cost of capital:

$$WACC = \left[\frac{E}{E+D}\right]k_e + \left[\frac{D}{E+D}\right]k_d$$

$$WACC = \left[\left(\frac{6,500}{7,220}\right) \times 22.69\%\right] + \left[\left(\frac{720}{7,220}\right) \times 12.67\%\right] = 20.43\% + 1.26\% = 21.69\%$$

Answer to Interactive question 7

We do not need to know Panda's weighted average cost of capital, as the new project has different business characteristics from its current operations. Instead we use the capital asset pricing model so that:

Required return = 6 + 1.5(12 – 6) = 15%

Expected return = $\frac{12,000 - 10,000}{10,000}$ = 20%

Thus the project is worthwhile, as expected return exceeds required return.

Answer to Interactive question 8

	Post-tax EPS	*Growth*	*Dividend per share*	*Growth*	*Inflation*	*Payout ratio*
	Pence	%	Pence	%	%	%
20X0	47.9	–	19.2	–	–	40.1
20X1	51.3	7.1	20.1	4.7	5	39.2
20X2	55.2	7.6	20.9	4.0	4	37.9
20X3	55.9	1.3	21.5	2.9	3	38.5
20X4	61.9	10.7	22.2	3.3	3	35.9

The data indicates that TYR is paying a **constant real dividend per share**, the nominal dividend per share being adjusted by the rate of inflation. As a result its **payout ratio** has declined.

Assessment of dividend policy

One way in which we can measure the success of the dividend policy is to compare the changes in the share price of TYR with the changes in the market index.

	FT all share index	*Growth*	*Share price*	*Growth*
		%	Pence	%
20X0	2895	–	360	–
20X1	3300	14.0	410	13.9
20X2	2845	(13.8)	345	(15.9)
20X3	2610	(8.3)	459	33.0
20X4	2305	(11.7)	448	(2.4)

TYR's shares have out-performed the market over the last two years, so by this measure its dividend policy has been a success, despite the decline in payout ratio.

Limitations of analysis

However, TYR's share price may be affected by **factors other than its dividend policy**. Modigliani and Miller suggested that shareholders will be indifferent between dividends and capital gains. Even if this view is not accepted, in a **reasonably efficient market** shareholders may be influenced by the present value of expected **future cash flows** rather than **present dividend policy**. The fact that TYR is retaining a higher proportion of its earnings may signal to shareholders that it has plans for significant investment in profitable opportunities. Other influences on share prices can include rumours of a takeover bid.

Answer to Interactive question 9

Breakup values of assets at 31 March 20X2	CU'000
Freehold	3,000
Plant and machinery	1,400
Motor vehicles	120
Patents	800
Current assets	1,050
	6,370

Total liabilities at 31 March 20X2	CU'000
Debentures	1,000
Other loans	3,000
Bank overdraft	750
Trade payables	1,960
	6,710

Thus liabilities exceed assets, and on a liquidation the shareholders would receive nothing.

Answer to Interactive question 10

Breakup values of assets at 31 December 20X9

	$'000
Freehold buildings	11,250
Liquidation costs	(1,250)
Secured loan	(4,000)
	6,000
Plant and equipment	5,000
Delivery vehicles	500
Sale of patents	3,125
Current assets	4,000
	18,625
Other loans	(12,000)
	6,625
Trade payables and bank overdraft	10,750

Comment

The secured loan, other loans and liquidation costs would be paid in full in the event of liquidation. However, there would only be $6,625,000 left to pay trade payables and the bank overdraft. Approximately 61.6% of these obligations would be met. There would be nothing left for the preference and ordinary shareholders.

Reconstruction scheme

	$'000
Earnings before interest and tax	3,600
Interest (8% × $3,125,000 + 12% × $8,000,000)	1,210
Earnings before tax	2,390
Tax at 24%	574
Earnings after interest and tax	1,816
P/E ratio (average)	10.8

Share price = ($1,816,000 × 10.8) / Number of shares (10,500,000) = $1.87

Comments

Secured loan

Under the proposed scheme, the loan provider will receive securities of $5,375,000 ($3,125,000 + 1,500,000 shares at, say, $1.50 each). This is more than it had previously and the yield on the loan remains the same (8%). If the company went into liquidation it would receive the full amount of the money owing to it.

Other loans

The loan provider will receive $8,000,000 secured loan plus $4,125,000 worth of shares ($1.50 × 2,750,000). This is more than it had previously. This means that a total of $11,125,000 (including the secured loan above) is secured on freehold buildings with a disposal value of $11,250,000. This does not give good asset coverage, although this could change if the value of the buildings was to increase. The loan provider's risk has increased as a result of being granted ordinary shares (last in the pecking order if the company went into liquidation).

Ordinary shareholders

Under the scheme, the current ordinary shareholders would lose control of the company due to the shares granted to loan providers and preference shareholders. In the event of liquidation they would receive nothing.

Preference shareholders

The preference shareholders have received no dividends for five years. However, the granting of 1,250,000 ordinary shares more than covers the arrears.

Cash flow if reconstruction took place

	$'000
Cash from new share issue to equity holders	5,000
Repayment of overdraft	3,000
Available cash	2,000

The reconstruction scheme may not be acceptable to all interested parties. In particular, the providers of the 'other loans' may be reluctant, given their increased risk. This will be a concern for the company as the funds from the 'other loans' are necessary to finance the business. If the reconstruction scheme is not acceptable, the company may have to seek funds elsewhere, otherwise liquidation may be unavoidable.

Assurance procedures

Applicable to all Prospective Financial Information (PFI)

- Discuss with management the way in which the PFI is prepared.
- Compare the actual results of previous restructurings with forecasts to determine overall level of accuracy of PFI.
- Determine who specifically is responsible for the preparation of the PFI and assess their experience and expertise.

- Assess the role of internal audit and other control procedures over the preparation of PFI.
- Check the accounting policies normally adopted by the company. These should have been consistently applied in the preparation of the PFI.
- Check the arithmetical accuracy of the PFI by making clerical checks such as recomputation. Internal consistency should also be assessed through the use of analytical procedures.
- Obtain written representations from management regarding the intended use of the prospective financial information, the completeness of significant management assumptions and management's acceptance of its responsibility for the prospective financial information.

Profit forecasts

- Discuss with management the means by which they have predicted expected revenues/profits. For example, extrapolation of historical data may be inappropriate due to the restructuring.
- Check that any assumptions made are consistent with one another. For example, if revenue is expected to grow certain costs would also be expected to increase (although not necessarily in direct correlation). Assess the assertion by the business that the restructuring will result in a lower cost base.
- Compare assumptions made for forecast purposes with other internal information produced by the business. For example, expected sales growth can be compared to sales and marketing plans.
- Compare assumptions made with general industry data and trends particularly in respect of the building systems market.
- Compare predicted costs against actual costs incurred. Clarify the rationale behind any significant cost savings.

Forecast statements of financial position

- Perform analytical review comparing key ratios including ROCE, current ratio and gearing, based on the forecast information with the most recent results.
- Agree proposed additions to tangible assets to capital expenditure budgets. Ensure assumptions regarding depreciation are consistent with the profit forecast. (This would also apply to intangibles.)
- Agree cash balance to other forecast information, eg cash flow.
- Determine the level of provisions made in respect of discontinued activities and assess whether they seem reasonable.
- Compare predicted movements in loans to cash flow.
- Analyse movement on reserves (ie is movement on revenue reserve equal to forecast profit? If not what do the other movements represent?).

Answer to Interactive question 11

Tutorial note:

Part (a) covers alternative sources of finance. Various criteria can be used to consider them:

- **Costs** (including costs saved)
- **Flexibility** (a company knows when and how much interest and principal it has to pay on a loan but still has to pay it; by contrast an overdraft facility only has interest charged on it if it is used, but it is repayable on demand)
- **Commitment** (security that has to be given, how much the company is tied into the arrangement)
- **Appearances** (effect on gearing, effect on accounts receivable if factor organisation is employed)

Although the question directs you towards discussing certain sources of finance, it does not confine you to those sources. Therefore, although the bulk of your answer to (a) should discuss the sources listed, a section briefly mentioning other sources should also be included.

Don't forget also in (a) to bear in mind the likely level of financial knowledge of the recipients of your report. Don't assume a high level of understanding.

(b) is a summary list of the key factors venture capitalists will take into account. As well as the market prospects of a company, venture capitalists are also interested in the involvement of management (level of commitment and expertise).

(a) REPORT

To: Shareholders in DF

From: Accountant

Date: 11 December 20X1

Subject: Alternative methods of financing current assets

Introduction

The contract to supply FF means that DF will need to make a **significant additional permanent investment** in **current assets** (in the form of additional inventories and higher accounts receivable). There will also be an additional temporary element which **fluctuates** with the level of sales. This will increase the amount of money needed by the company to finance these assets. There are a number of different sources of finance that could be considered.

Bank loan

A bank loan would normally be for a **fixed amount of money** for a fixed term and at a fixed rate of interest. It is not clear whether or not the company has any existing debt finance. However, it has already been decided to use a bank loan to fund the purchase of the additional non-current assets. The **size of this loan** and the **quality of security** available will be key factors in determining whether the bank is willing to make a further advance to cover the investment in current assets. Assuming that a further loan is forthcoming, the company will need to evaluate the effect of this in terms of **cost** and the **effect on the capital structure**.

Advantages of bank loan

(i) **Bank finance** is **cheaper** than the cost of allowing a 3% **settlement discount**, and is also likely to be cheaper than using debt factoring or invoice discounting.

(ii) The **loan** can be **negotiated** for a **fixed term** and a **fixed amount**, and this is less risky than, for example, using an overdraft, which is repayable on demand.

Disadvantages of bank loan

(i) The company will have to **pay interest** on the **full amount of the loan** for the entire period. This could make it more expensive in absolute terms than using an alternative source of finance where interest is only payable on the amount outstanding.

(ii) The loan will **increase the level** of the company's **financial gearing**. This means that there could be greater volatility in the returns attributable to the ordinary shareholders.

(iii) The bank is likely to **require security**. If there are questions as to the quality of the asset base, the bank may also require personal guarantees or additional security from the directors or shareholders.

Overdraft

An overdraft is a form of lending that is **repayable on demand**. The bank grants the customer a **facility** up to a certain limit, and the customer can take advantage of this as necessary. Overdrafts are essentially short-term finance, but are renewable and may become a near-permanent source.

Advantages of overdraft

The attraction of using an overdraft to finance current assets is that **interest** is only **payable** on the **amount of the facility actually in use** at any one time. This means that the **effective cost of the overdraft** will be **lower** than that of the **bank loan**. This is particularly attractive for a company such as DF, where demand is expected to fluctuate significantly from month to month, and consequently there are likely to be large variations in the level of working capital. It is also likely to be cheaper than the other alternatives being considered.

Disadvantages of overdraft

As already stated, the main drawback to using an overdraft is that it is **repayable on demand**. Therefore, the company is in a more vulnerable position than it would be if a bank loan were used instead. A long-term overdraft may be included in the **gearing** calculations, and the bank may require **security**.

Debt factoring

Factoring is an arrangement to have **debts collected** by a **factor company**, which advances a proportion of the money it is due to collect. Services offered by the factor would normally include:

(i) **Administration** of the client's invoicing, sales accounting and debt collection service.

(ii) **Credit protection** for the client's debts, whereby the factor takes over the risk of loss from bad debts and so 'insures' the client against such losses.

(iii) **Making advance payments** to the client before the debts are collected.

Benefits of factoring

(i) **Growth** is **effectively financed through sales**, which provide the security to the factor. DF would not have to provide the additional security that might be required by the bank.

(ii) The **managers** of the business will **not** have to **spend time** on the problem of **slow paying accounts receivable**.

(iii) **Administration costs** will be **reduced** since the company will not have to run its own sales ledger department.

Disadvantages of factoring

(i) The **level of finance** is **geared** to the **level of sales**. In other words, finance lags sales. In practice, DF will need finance ahead of sales in order to build up sufficient inventories to meet demand.

(ii) Factoring may be **more expensive** than bank finance. Service charges are generally around 2% of total invoice value, in addition to finance charges at levels comparable to bank overdraft rates.

(iii) The fact that accounts receivable will be making payments direct to the factor may present a **negative picture** of the firm.

Invoice discounting

Invoice discounting is related to factoring and many factors will provide an invoice discounting service. Invoice discounting is the **purchase of a selection of invoices**, at a discount. The discounter does **not take over** the **administration** of the client's sales ledger. The arrangement is purely for the advance of cash.

Advantages of discounting

The arrangement is thus a **purely financial transaction** that can be used to release working capital. It therefore shares some of the benefits of factoring in that **further security** is **not required**. The discounter will make an assessment of the risk involved, and only good quality invoices will be purchased, but this should not be a problem to DF since FF is a large well established company.

Disadvantage of discounting

The main disadvantage is that **invoice discounting** is likely to be **more expensive** than any of the other alternatives. It is normally only used to cover a temporary cash shortage, and not for the routine provision of working capital.

Other options

(i) Finance can be obtained by **delaying payment to accounts payable**. In theory this is potentially a **cheap source of finance**. The main disadvantage may be a **loss of supplier goodwill**, at a time when the company needs supplier co-operation to fulfil the new order.

(ii) Other methods of loan finance, notably debenture issue, are not appropriate as they are essentially **long-term.** The **debenture holders** may require **security** that the company is unable to provide.

(iii) Although we are told that **increased inventory levels** will be needed to **fulfil FF's requirements**, there may be scope for **reducing the inventory levels** necessary to fulfil other customers' requirements.

Conclusions

Of the options considered, factoring or some form of bank finance is likely to be the most appropriate. The final decision must take into account the full cost implications, not just the relative rates of interest on the

finance. DF must also consider the effect of the type of finance selected on the statement of financial position and the type of security that will be required. This could also impact on the ability of the company to raise further finance in the future.

(b) A **venture capital organsation** (below, 'VC') is likely to take the following factors into account when deciding whether or not to invest in DF.

The nature of the company's product

The VC will consider whether the good or service can be produced viably and has potential to sell, in the light of any market research which the company has carried out.

Expertise in production

The VC will want to be sure that the company has the necessary technical ability to implement production plans with efficiency.

Expertise in management

Venture capitalists pay much attention to the quality of management, since they believe that this is crucial to the success of the enterprise. Not only should the management team be committed to the enterprise; they should also have appropriate skills and experience.

The market and competition

The nature of the market for the product will be considered, including the threat which rival producers or future new entrants to the market may present.

Future prospects

The VC will want to be sure that the possible prospects of profits in the future compensate for the risks involved in the enterprise. The VC will expect the company to have prepared a detailed business plan setting out its future strategy.

Board membership

The VC is likely to require a place on the board of directors. Board representation will ensure that the VC's interests will be taken account of, and that the VC has a say in matters relating to the future strategy of the business.

Risk borne by the existing owners

The VC is likely to wish to ensure that the existing owners of the business bear a significant part of the investment risk relating to the expansion, as bearing part of the risk will provide an incentive to ensure the success of the venture. Although the VC may be providing most of the investment, the amounts provided by the owners should be significant in relation to their overall personal wealth.

Exit routes

The means by which the VC can eventually realise its investment are called 'exit routes'. Ideally, the VC will try to ensure that there are a number of exit routes.

Answers to Self-test

Answer to Self-test question 1

CRY

Tutorial note:

(a) Demonstrates the complications that may occur in weighted average cost of capital calculations. When you calculate the cost of equity, you will need to do more than just plug the figures into the formula. Don't forget to check whether shares are quoted **cum or ex div**.

With debentures, the most serious mistake you can make is to treat redeemable debentures as irredeemable. Because the debentures are redeemable, you need to carry out an IRR analysis. Remember this calculation is done from the viewpoint of the investor. The investor pays the market price for the debentures at time 0, and then receives the interest and the redemption value in subsequent years. You must bring tax into your calculation.

Lastly, don't forget that the weightings in the WACC calculation are based on **market values, not book values**.

(b) Demonstrates that the calculation of the weighted average cost of capital is not a purely mechanical process. It makes assumptions about the shareholders, the proposed investment and the company's capital structure and future dividend prospects. Given all the assumptions involved, the result of the calculations may need to be taken with a large pinch of salt!

Answer:

(a) The post-tax weighted average cost of capital should be calculated first.

(i) **Ordinary shares**

	CU
Market value of shares cum div	3.27
Less: Dividend per share (810 ÷ 3,000)	0.27
Market value of shares ex div	3.00

The formula for calculating the cost of equity when there is dividend growth is:

$$k_e = \frac{D_0 (1+g)}{P_0} + g$$

Where: k_e = cost of equity

D_0 = current dividend

g = rate of growth

P_0 = current ex div market value

In this case we shall estimate the future rate of growth (g) from the average growth in dividends over the past four years.

$810 = 620 (1 + g)^4$

$$(1 + g)^4 = \frac{810}{620}$$

$= 1.3065$

$(1 + g) = 1.0691$

$g = 0.0691 = 6.91\%$

$$k_e = \frac{0.27 \times 1.0691}{3} + 0.0691 = 16.53\%$$

(ii) **7% Debentures**

In order to find the post-tax cost of the debentures, which are redeemable in ten years' time, it is necessary to find the discount rate (IRR) which will give the future post-tax cash flows a present value of CU77.10.

The relevant cash flows are:

(1) Annual interest payments, pre-tax, which are CU1,300,000 × 7% × = CU91,000 (for ten years)

(2) A capital repayment of CU1,300,000 (in ten years' time)

Try 10%

	Present value
	CU'000
Current market value of debentures (1,300 at CU77.10)	(1,002.3)
Annual interest payments CU91 × 6.145 (10% for ten years)	559.2
Capital repayment CU1,300 × 0.386(10% in ten years' time)	501.8
NPV	58.7

Try 12%

	CU'000
Current market value of debentures	(1,002.3)
Annual interest payments CU91 × 5.650	514.2
Capital repayment CU1,300 × 0.322	418.6
NPV	(69.5)

$$\text{IRR} = 10\% + \left[\frac{58.7}{58.7 - 69.5} \times (12 - 10)\right]\% = 10.92\%$$

Post-tax cost of debt = 10.92% × (1 – 0.23) = 8.41%

(iii) **The weighted average cost of capital**

	Market value	*Cost*	*Product*
	CU'000	%	CU'000
Equity	9,000	16.53	1,488
7% Debentures	1,002	8.41	84
	10,002		1,572

$$\text{WACC} = \frac{1,572}{10,002} \times 100 = 15.72\%$$

The above calculations suggest that a discount rate in the region of 16% might be appropriate for the appraisal of new investment opportunities.

(b) Difficulties and uncertainties in the above estimates arise in a number of areas.

(i) **The cost of equity**. The above calculation assumes that all shareholders have the same marginal cost of capital and the same dividend expectations, which is unrealistic. In addition, it is assumed that dividend growth has been and will be at a constant rate of 6.9%. In fact, actual growth in the years 20X5/6 and 20X8/9 was in excess of 9%, while in the year 20X7/8 there was no dividend growth. 6.9% is merely the average rate of growth for the past four years. The rate of future growth will depend more on the return from future projects undertaken than on the past dividend record.

(ii) **The use of the weighted average cost of capital**. Use of the weighted average cost of capital as a discount rate is only justified where the company in question has achieved what it believes to be the **optimal capital structure** (the mix of debt and equity) and where it intends to maintain this structure in the long term.

(iii) **The projects themselves**. The weighted average cost of capital makes **no allowance** for the **business risk** of **individual projects**. In practice, some companies, having calculated the WACC, then add a premium for risk. In this case, for example, if one used a risk premium of 5% the final discount rate would be 21%. Ideally, the risk premium should vary from project to project, since not all projects are equally risky. In general, the riskier the project the higher the discount rate which should be used.

Answer to Self-test question 2

Ella

(a) To: Board

From: Accountant

Date: 8 January 20X7

Re: Debt finance

Factors to be considered when deciding on the appropriate term of the finance to be issued are discussed below.

The term of the assets being acquired

The term should be appropriate to the **asset** being acquired. As a general rule, **long-term assets** should be **financed** from **long-term finance** sources. Cheaper short-term funds should finance short-term requirements, such as fluctuations in the level of working capital.

Flexibility

Short-term debt is a **more flexible** source of finance. There may be penalties for repaying long-term debt early. If the company takes out long-term debt and interest rates fall, it will find itself locked into unfavourable terms.

Repayment terms

The company must have **sufficient funds** to be able to **meet repayment schedules** laid down in loan agreements and to cover interest costs. Although there may be no specific terms of repayment laid down for short-term debt, it may possibly be **repayable on demand**, so it may be risky to finance long-term capital investments in this way.

Costs

The interest rate on short-term debt is usually **less** than on long-term debt. However, if short-term debt has to be renewed frequently, issue expenses may raise its cost significantly.

Availability

It may be **difficult to renew short-term finance** in the future if the company's position or economic conditions change adversely.

Effect on gearing

Certain types of short-term debt (such as bank overdrafts and increased credit from suppliers) will not be included in gearing calculations. If a company is seen as **too highly geared**, lenders may be **unwilling to lend money**, or judge that the high risk of default must be compensated by higher interest rates or restrictive covenants.

(b) The following factors might restrict the amount of debt that the company could raise.

Previous record of company

If the company (or possibly its directors or even shareholders) has a **low credit rating** with credit reference agencies, investors may be unwilling to subscribe for debentures. Banks may be influenced by this, and also by their own experiences of the company as a customer (especially if the company exceeded overdraft limits in the past on a regular basis).

Restrictions in Memorandum and Articles

The company should examine the legal documents carefully to see if they place any restrictions on what the company can borrow, and for what purposes.

Restrictions of current borrowing

The **terms** of any **loans** to the company that are **currently outstanding** may contain restrictions about further borrowing that can be taken out.

Uncertainty over project

The project is a significant one. Presumably the **interest and ultimately repayment** that lenders obtain may be dependent on the success of the project. If the results are uncertain, lenders may not be willing to take the risk.

Security

The company may be **unwilling to provide the security** that lenders require, particularly if it is faced **with restrictions** on what it can do with the **assets secured**.

Alternatively, it may have **insufficient assets** to provide the necessary security.

(c) There should be sufficient finance to cover the costs of the new factory, starting the new business unit and working capital requirements to begin production.

Questions

(i) Will the new venture be financed entirely by new debt or is Ella also advancing any capital? This is to establish whether the business plan is complete.

(ii) Who prepared the forecasts? This is to establish whether they have been prepared by someone with experience of preparing such budgets as this will give assurance as to whether the budgets are reasonable.

(iii) Are figures in the forecasts supported by evidence such as quotations for machinery or building work? This is to see the degree of estimation included in the plans.

(iv) Has the cost of finance been included in the forecasts?

(v) How long before the products can be sold and begin to fund themselves? The budget does not contain any contingency and it is important to discover how tight the production schedule is and whether it is realistic.

(vi) Have all construction costs been included in the cost projection – for example, the costs of electricity or the cost of employees not being used in the their usual roles.

(vii) What is the timescale for the construction? Does the projection take account of inflation, if necessary?

(viii) Does the projection contain budgets for all raw materials required?

(ix) What are the advertising costs based on? These must be appropriate to the specific product, so if they are based on the costs associated with other products of the company, they may not be sufficient.

(x) What is the commercial viability of the new product? The accountant should look at market research because ability to pay the loan back will be an important factor for the bank.

Answer to Self-test question 3

JMR

(a) While a review of the Group's strategy is necessary, such a review should consider all of the operating divisions as well as the Group and head office functions, rather than being limited in scope to the areas the institutional investors suggest.

Disposal of real estate division

The real estate division currently contributes 30% of the Group's earnings, and is the **fastest growing** of the divisions (over 20% per year in the last three years). The divisional management team expects this rate of growth to be sustained.

The real estate market sector also has the **highest P/E ratio**, suggesting the sector affords good growth prospects, and supporting the divisional management team's optimistic forecasts.

In terms of JMR's overall portfolio, the real estate division appears to offer **better growth prospects** than either the construction or engineering divisions, although the engineering division is likely to have relatively secure earnings by virtue of its contracts with government departments. Nonetheless, disposing of the Real Estate department does not appear to be a good strategic move.

The **engineering and machinery division** looks a more suitable candidate for disposal, despite its government contracts. It makes the **lowest contribution to Group earnings**, and has a lower growth rate than the real estate division.

Although the **construction and building division** has the lowest growth rate, it **generates 50% of the Group's earnings** and JMR would be unlikely to want to dispose of a division which contributes such a large proportion of earnings.

Moreover, we should also consider the **institutional investor's potential motives** in recommending the sale of the real estate division. It is looking for a **large one-off dividend**, which suggests a short-term strategy. In this respect, it is likely that JMR could sell the real estate division for a much **higher price** than the engineering division, thereby generating more cash to pay a dividend. However, that is unlikely to be in the Group's longer term-strategic interests.

Relocating Group headquarters

The Group headquarters are 'quite luxurious' and located in the capital which suggests that they are quite expensive. Therefore, it is likely that **cost savings** could be made, by relocating to one of the divisional headquarters. There may be reasons why the offices need to be located in the capital (for example, being close to the stock market) in which case the Board need to explain this to the investors.

Equally, there may not be space in any of the divisional headquarters to relocate all the Group staff (50) there; in which case, the Group could still look at finding **new offices where overhead costs will be lower**. This could also be a good opportunity to review whether the Group really needs 50 staff or whether the team can be streamlined.

(b) If the Board does decide to sell the real estate division there are a range of alternative methods it could use for the disposal.

Sale as a going concern to another business

This would represent, in effect, the reverse of the transaction by which JMR acquired the real estate division. The division would be **sold to another company**, in exchange for either **cash or shares** in the acquiring company. All the responsibilities and costs of running the division would pass to the acquiring company, as would all future profits.

If the sale were made for cash, it could provide JMR with an **inflow of cash** to meet the shareholders' demands for a large, **one-off dividend payment**.

However, it would mean that **JMR loses 30% of its earnings**, and any future earnings growth which the real estate division would have generated. This could mean that the Group's subsequent **ability to pay dividends in future years is reduced**. Moreover, stripping out the division with the highest P/E ration would cause JMR's share price to fall; in turn reducing the value of the remaining Group, and possibly again laying the Board open to a charge of 'destroying value.'

Finally, the sale of a division would mean that the Group **overhead costs** have to be apportioned over only two divisions rather than three, again reducing the Group profitability unless significant overhead savings were made.

Demerger

A demerger would mean that instead of simply being a division of JMR Group, the real estate operation becomes a **separate company in its own right**. The existing shareholders of JMR Group are likely to **receive shares in the new company** in proportion to their existing holding in JMR.

The logic behind a demerger is usually that the existing formation is creating **negative synergies**, and the new company will generate greater earnings operating independently rather than being part of the Group. Given the suggestion that JMR is currently 'destroying value' this could well be the case.

However, from JMR's perspective a demerger is less attractive. As with a cash sale, JMR Group would lose 30% of its earnings. But unlike the cash sale, the **demerger would not generate a cash inflow** into the business.

Therefore this option **would not provide for a one-off dividend to the shareholders**, because it is a non-cash option. If shareholders want a one-off cash boost they will have to generate it themselves by selling their shares in the newly demerged company.

However, one advantage of this approach from the shareholders' perspective is that they have **shares in both companies**. If they remain dissatisfied with the performance of JMR Group, they could elect to sell their shares in it, and just retain their shares in the new real estate company.

Liquidation of assets

The real estate **division could be closed**, its staff made redundant (or redeployed elsewhere in the Group) and its **assets sold off** at market price.

However, given that the real estate is a profitable and growing business this is unlikely to be a desirable option; not least because a sale of assets is **likely to command lower prices than the sale of the business as a going concern**.

A liquidation of assets would be a cash sale, and so would provide a cash inflow to underwrite a one-off dividend payment. However, given that both options would lead to JMR losing 30% of its Group earnings, it is likely that it would **prefer the option which generates more cash** in return.

Moreover, there is a likely to be **negative publicity** surrounding the closure of the division, and any associated redundancies, which may have a further negative impact on the Group's performance.

Management buyout

In a management buyout, the **management of the real estate division would buy the division** from JMR, with the intention of driving forward its growth and increasing its profitability.

However, an important issue here is the **price which the managers would agree to pay** for the division. On the one hand, it is likely they will have to obtain **funding from venture capitalists** to support their own capital in the purchase, so they will want to keep the purchase price as low as possible to minimise their debt and future interest charges.

On the other hand, the divisional **managers are likely to know more about the business** and its prospects than the Group managers, and also any external purchasers.

These two factors together are likely to mean that the price a management buyout team offer for the sale is **likely to be lower than the price which could be earned from an open market sale** of the business as a going concern.

Again, the Group needs to remember that after the buyout the real estate will be a separate entity so Group **earnings will be reduced by 30%**. Therefore it should not accept a sale price which is too low, particularly if it intends to make a one-off dividend payment to the institutional investors.

However, a management buyout may be considered the most attractive option from a **public relations perspective**. The Group could present the sale of a successful division to its management positively – emphasising the way they are being given the opportunity to control the division's strategy and its future.

Management buy-in

This approach, in effect, combines aspects of a management buyout and a sale of the business as a going concern. Like a management buyout, a **group of people collectively buy the division**. However, unlike a management buyout, the **purchasers come from outside the company**. So after a management buy-in the real estate division would become a privately owned real estate company.

From JMR's perspective, the management buy-in is another option which could **generate a cash inflow**, and so would provide the funds to satisfy the investors' demands for a one-off dividend. Depending on the extent of the purchasers' knowledge of the business, JMR may be able to earn a higher selling price from a management buy-in than from a management buy-out.

However, a management buy-in does not afford the same positive aspects in terms of public relations.

Recommendation

JMR could either look at the disposal as a means of **maximising value** from the Group, or **raising cash** to pay a one-off dividend. A demerger is probably the option which would maximise value, but it will not generate cash. However, a management buyout will generate cash proceeds, and, by allowing the divisional management full control of the real estate division should allow its capabilities to be exploited

fully. Although the new entity will be outside the Group, the public relations aspect of a sale to management will be more positive than an open market sale.

Therefore, JMR would be advised to sell the real estate division through a management buyout.

Answer to Self-test question 4

Kicer

Assurance procedures

Procedures in respect of the loan include:

- Obtain and review the forecasts and projections prepared by management and consider if the assumptions used are in line with business understanding.
- Obtain a written representation confirming that the assumptions used in the forecasts and projections are considered achievable in light of the economic recession and state of the automotive industry.
- Obtain and review the terms of the loan that has been requested to see if Kicer can make the repayments required.
- Consider the sufficiency of the loan requested to cover the costs of the intended restructuring.
- Review the repayment history of any current loans and overdrafts with the bank, to form an opinion as to whether Kicer has any history of defaulting on payments. (Any previous defaults or breach of loan conditions makes it less likely that the new loan would be advanced).
- Discuss the loan request with the company's bankers and attempt to receive confirmation of their intention to provide the finance, and the terms of the finance.
- Discuss the situation with management and those charged with governance, to ascertain if any alternative providers of finance have been considered, and if not, if any alternative strategies for the company have been discussed.
- Obtain a written representation from management stating management's opinion as to whether the necessary finance is likely to be obtained.

Corporate reporting issues

The central issue here is going concern; there are a number of indications that Kicer may not be a going concern. For instance: declining sales and profitability over two years; the loss of key customers; the impairment of assets; debts going bad. Most significant of all is the question of whether the loan will be obtained.

If Kicer does not obtain the loan, then the financial statements must contain disclosures regarding the material uncertainty over going concern.



CHAPTER 15

Financial risk management

Introduction

Topic List

1 Financial risks
2 Interest rate risks
3 Foreign exchange rate risks
4 Hedge accounting

Summary and Self-test

Technical reference

Answers to Interactive questions

Answers to Self-test

Introduction

Learning objectives

	Tick off
• Analyse and evaluate financial risks and their implications (for example financing, currency and interest rate risks) and show the application of qualitative and quantitative risk disclosures according to IFRS 7 and other corporate reporting disclosures relevant to risk assessment	☐
• Evaluate and explain interest rate risks	☐
• Appraise and advise on appropriate methods to assess and manage financial risks in specific business scenarios	☐
• Explain and appraise financial instruments available for hedging against interest rate and foreign exchange rate risk, for example swaps, collars and floors	☐
• Demonstrate and explain how interest rate hedging strategies and foreign currency risk management strategies can be formulated, both at the level of individual transactions and for macro hedging arrangements	☐
• Demonstrate and explain the nature and operation of financial instruments underlying the disclosure, recognition and measurement requirements of IAS 32, IAS 39, IFRS 7 and IFRS 9	☐

Knowledge brought forward

Calculations involving futures, options and swaps were covered in *Financial Management.* The focus in this chapter is on step-by-step approaches to the more complex calculations that you may see in this exam and the advantages and disadvantages of different methods.

Syllabus links

This chapter focuses on demonstrating how the derivatives discussed in Chapter 13 can be used to limit foreign exchange and interest rate risks.

Examination context

Questions about the financial risks an entity faces may also ask how those risks are to be disclosed in the accounts. Calculations involving different hedging methods may well be combined with how hedging is dealt with in corporate reports.

1 Financial risks



Section overview

- Financial risks businesses face include risks associated with sources of finance, overseas investment and trading. Businesses also face risks when accounting for financial risks and the financial instruments designed to manage financial risks.

1.1 Financing and liquidity risks

1.1.1 Financing risks

There are various risks associated with sources of finance.

- Long-term sources of finance being unavailable or ceasing to be available.
- Taking on commitments without proper authorisation.
- Taking on excessive commitments to paying interest that the company is unable to fulfil.
- Pledging assets to meet the demands of one finance provider, so that there will be insufficient collateral available to secure further funding.
- Having to repay multiple sources of debt finance around the same time.
- Being unable to fulfil other commitments associated with a loan.
- Being stuck with the wrong sort of debt (floating rate debt in a period when interest rates are rising, fixed rate debt in a period when interest rates are falling).
- Excessive use of short-term finance to support investments that will not yield returns until the longterm.
- Ceding of control to providers of finance (for example, banks demanding charges over assets or specifying gearing levels that the company must fulfil).

The attitudes to risk of the board and major finance providers will impact significantly on how risky the company's financial structure is.

1.1.2 Liquidity risks

You have covered liquidity risks in your earlier studies and, hopefully, should remember the key indicators of liquidity problems (current and quick ratios and turnover periods for receivables, payables and inventory).

To recap briefly, if a business suddenly finds that it is unable to cover or renew its short-term liabilities (for example, if the bank suspends its overdraft facilities), there will be a danger of insolvency if it cannot convert enough of its current assets into cash quickly.

Current liabilities are often a cheap method of finance (trade payables do not usually carry an interest cost). Businesses may therefore consider that, in the interest of higher profits, it is worth accepting some risk of insolvency by increasing current liabilities, taking the maximum credit possible from suppliers.

1.1.3 Cash flow risks

Cash flow risks relate to the volatility of a firm's day-to-day operating cash flows. A key risk is having insufficient cash available because cash inflows have been unexpectedly low, perhaps due to delayed receipts from customers. If, for example, a firm has had a very large order, and the customer fails to pay promptly, the firm may not be able to delay payment to its supplier in the same way.

1.2 Credit risks

Definition

Credit risks: Financial risks associated with the possibility of default by a counterparty.

The most common type of credit risk is when customers fail to pay for goods that they have been supplied with on credit.

A business can also be vulnerable to the credit risks of other firms with which it is heavily connected. A business may suffer losses as a result of a key supplier or partner in a joint venture having difficulty accessing credit to continue trading.

1.3 Market risks

Definition

Market risks: The financial risks of possible losses due to changes in market prices or rates.

They include:

- **Interest rate changes.**
- **Exchange rate changes**, where the business has agreed to undertake a transaction in the future in a foreign currency.
- **Commodity price changes**, particularly where the commodity is intrinsic to operations (such as oil for a transport company).
- **Equity price changes**, changes in the price of shares or financial instruments (especially for companies that use these as prime sources of finance, for example insurance and pension companies).

1.4 Foreign investment risks

Risks here are linked to the strategies of setting up a presence in a foreign country or deciding to participate in global markets.

1.4.1 Economic risk

Economic risk refers to the effect of exchange rate movements on the international competitiveness of a company. For example, a Bangladeshi company might use raw materials which are priced in US dollars, but export its products mainly within the European Union. A depreciation of Taka against the dollar or an appreciation of Taka against other EU currencies will both erode the competitiveness of the company.

1.5 Accounting risks

There are various risks associated with the requirements to produce accounts that fairly reflect financial risks. These risks are particularly significant if the business has financial instruments that are accounted for in accordance with the requirements of BASs 32 and 39 and IFRSs 7 and 9. We have discussed the requirements of these standards already and later in Section 1 we look at the requirements that relate to the disclosure of risks. In Section 4 we discuss the hedging provisions in these standards.

1.5.1 Accounts risks

The main risk is loss of reputation or financial penalties through being found to have produced accounts that are misleading. However, accounts that fully and fairly disclose risks may also be problematic, if investors react badly. This doesn't just apply to misreporting financial risks, it also includes misleading reporting in other areas, either in accounts or in other reports, for example environmental reporting.

1.5.2 Income risks

Income may become increasingly volatile if fair value accounting for financial instruments is used. This may have an adverse impact on the ability of companies to pay dividends and on their share price and cost of capital, as accounts users find it difficult to determine what is causing the volatility. Investors may not be sure if low market valuations of financial assets are temporary or permanent.

1.5.3 Measurement risks

Measurement of financial risks and value of financial instruments may be problematic. There may well be considerable uncertainty affecting assets valued at market prices when little or no market currently exists for those assets. The problem is enhanced for financial instruments which are not tradable and therefore have no market value. Arguably, also in slow markets use of market values underestimates long-term asset values.

1.5.4 Systems risks

Accounting fairly for risks may require investment in new systems and there may be an increased risk of systems problems as systems have to cope with linking of assets with derivatives, accommodating changes in hedge allocations and measuring hedge effectiveness.

1.6 Financial risk management

1.6.1 Diversification

As we discussed in Chapter 7, risk diversification involves creating a **portfolio of different risks** based on a number of events, which, if some turn out well and others turn out badly, the average outcome will be neutral. Diversification can be used to manage financial risks in a variety of ways.

- Having a mix of equity and debt finance, of short and long-term debt, and of fixed and variable interest debt.
- Diversification of trading interests or portfolio of investments.

International portfolio diversification can be very effective for the following reasons.

(a) Different countries are often at different stages of the trade cycle at any one time.

(b) Monetary, fiscal and exchange rate policies differ internationally.

(c) Different countries have different endowments of natural resources and different industrial bases.

(d) Potentially risky political events are likely to be localised within particular national or regional boundaries.

(e) Securities markets in different countries differ considerably in the combination of risk and return that they offer.

However, there are a number of factors that may limit the potential for international diversification.

(a) Legal restrictions exist in some markets, limiting ownership of securities by foreign investors.

(b) Foreign exchange regulations may prohibit international investment or make it more expensive.

(c) Double taxation of income from foreign investment may deter investors.

(d) There are likely to be higher information and transaction costs associated with investing in foreign securities.

(e) Some types of investor may have a parochial home bias for domestic investment.

1.6.2 Hedging



Definition

Hedging: Taking an action that will offset an exposure to a risk by incurring a new risk in the opposite direction.

Hedging is perhaps most important in the area of currency or interest rate risk management, and we review the various hedging instruments in the next two sections. Generally speaking, these involve an organisation making a commitment to offset the risk of a transaction that will take place in the future.

Hedging can lead to a smoother flow of cash and lower risks of bankruptcy, and can result in a fall in the company's cost of capital.

However, there will possibly be significant transaction costs from purchasing hedging products, including brokerage fees and transaction costs. Because of lack of expertise, senior management may be unable to monitor hedging activities effectively. There may also be tax and accounting complications.

1.6.3 Macro hedging

Macro hedging, also known as portfolio hedging, is a technique where financial instruments with similar risks are grouped together and the risks of the portfolio are hedged together. Often this is done on a net basis with assets and liabilities included in the same portfolio. For example, instead of using interest rate swaps to hedge interest rate exposure on a loan-by-loan basis, banks hedge the risk of their entire loan book or specific portions of the loan book.

In practice, however, macro hedging is difficult, as it may be hard to find an asset that offsets the risk of a broader portfolio.

1.6.4 Sharing

There are various instruments that businesses can purchase in order to share credit risks, some of which we have discussed in Chapter 13. These include:

- **Credit guarantees** – the purchase from a third party of a guarantee of payment.
- **Credit default swaps** – a swap in which one payment is conditional on a specific event such as a default.
- **Total return swaps** – one part is the total return on a credit-related reference asset.

However, credit derivatives are not a means of eliminating risk. Risks include counterparty defaulting and basis risk, the risk that derivative prices don't move in the same direction or to the same extent as the underlying asset.

1.6.5 Transfer

One method of transferring risk is **securitisation**, the conversion of financial or physical assets into tradable financial instruments. This creates the potential to increase the scale of business operations by converting relatively illiquid assets into liquid ones.

1.6.6 Internal strategies

Internal strategies for managing financing and credit risks include working capital management and maintaining reserves of easily liquidated assets. Specific techniques businesses use include:

- Vetting prospective partners to assess credit limits.
- Position limits, ceilings on limits granted to counterparties.
- Monitoring credit risk exposure.
- Credit triggers terminating an arrangement if one party's credit level becomes critical.
- Credit enhancement, settling outstanding debts periodically, also margin and collateral payments.

1.7 Corporate reporting requirements

We summarised the general requirements of the financial reporting standards relating to financial instruments in Chapter 13. In this section we focus on the disclosures relating to financial risks. After we have covered hedging for interest and foreign exchange risks, we summarise the requirements of the standards relating to hedge accounting in Section 4.

1.7.1 Qualitative disclosures

For each type of risk arising from financial instruments, an entity must disclose:

(a) The exposures to risk and how they arise.

(b) Its objectives, policies and processes for managing the risk and the methods used to measure the risk.

(c) Any changes in (a) or (b) from the previous period.

1.7.2 Quantitative disclosures

For each financial instrument risk, summary quantitative data about risk exposure must be disclosed. This should be based on the information provided internally to key management personnel. More information should be provided if this is unrepresentative.

Information about **credit risk** must be disclosed by class of financial instrument.

(a) Maximum exposure at the year end.

(b) The amount by which related credit derivatives or similar instruments mitigate the maximum exposure to credit risk.

(c) The amount of change during the period and cumulatively, in fair value that is attributable to changes in credit risk. This can be calculated as (Amount of change in fair value attributable to credit risk) = (Total amount of change in fair value) – (Amount of change in fair value attributable to market risk).

(d) Any collateral pledged as security.

(e) In respect of the amount disclosed in (d), a description of collateral held as security and other credit enhancements.

(f) Information about the credit quality of financial assets that are neither past their due dates nor are impaired.

(g) Financial assets that are past their due dates or are impaired, giving an age analysis and a description of collateral held by the entity as security.

(h) Collateral and other credit enhancements obtained, including the nature and carrying amount of the assets and policy for disposing of assets not readily convertible into cash.

For **liquidity risk** entities must disclose:

(a) A maturity analysis of financial liabilities.
(b) A description of the way risk is managed.

Disclosures required in connection with **market risk** are:

(a) Sensitivity analysis, showing the effects on profit or loss of changes in each market risk.

(b) If the sensitivity analysis reflects interdependencies between risk variables, such as interest rates and exchange rates the method, assumptions and limitations must be disclosed.

There are two options in relation to disclosure of sensitivity analysis.

Option 1

An entity should disclose:

- Sensitivity analysis for each type of market risk to which the entity is exposed at the reporting date, showing how profit or loss and equity would have been affected by changes in the relevant risk variables.
- The methods and assumptions used in preparing the sensitivity analysis; and
- Changes from the previous period in the methods and assumptions used, and the reasons for such changes.

Option 2

Alternatively, if an entity prepares a sensitivity analysis, such as value at risk, that reflects interdependencies between risk variables (eg interest rates and exchange rates) *and uses it to manage financial risks*, it may use that sensitivity analysis. In this case the entity should also disclose:

- An explanation of the method used in preparing such a sensitivity analysis, and of the main parameters and assumptions underlying the data provided; and
- An explanation of the objective of the method used and of limitations that may result in the information not fully reflecting fair value.

2 Interest rate risks



Section overview

- When deciding which techniques to use to hedge against interest rate risk, issues such as cost, flexibility, expectations and ability to benefit from favourable interest rate movements should be considered.
- Financial instruments should not be chosen in isolation – their impact on the overall financial strategy of the company should also be considered.

2.1 Futures

An interest rate futures contract is a contract that either has a debt security as an underlying or is based on an interbank deposit. The price of futures contracts is quoted as 100 minus the interest rate for the contract period expressed in annual terms (the interest rate used is the LIBOR). Futures contract prices move in 'ticks', with the tick size for interest rate futures usually being one basis point or 0.01% interest rate movement in the underlying market. Futures contracts require an initial margin deposit and also subsequent maintenance margin deposits.

Borrowers will wish to hedge against an **interest rate rise** by:

- **Selling futures now**
- **Buying futures** on the day that the interest rate is fixed

Lenders will wish to hedge against the possibility of **falling interest rates** by:

- **Buying** futures now
- **Selling futures** on the date that the actual lending starts

The **pricing** of an interest rate futures contract is determined by prevailing interest rates.

- For short-term futures, if three-month interest rates are 8%, a three-month futures contract will be priced at 92 (100 – 8).
- If interest rates are 11%, the contract price will be 89 (100 – 11).

This decrease in price, or value, of the contract, reflects the reduced attractiveness of a fixed rate deposit in a time of rising interest rates.

The price of long-term futures reflects market prices of the **underlying bonds**. A price of $100 equals par. The interest rate is implied in the price. If a long-term 10% futures contract has a price of $114.00, the implied interest rate on long-term bonds is approximately $^{100}/_{114} \times 10\% = 8.8\%$.



Worked example: Interest rate futures

Yew has taken a three-month $1,000,000 eurodollar loan with interest payable of 8%, the loan being due for rollover on 31 March. At 1 January, the company treasurer considers that interest rates are likely to rise in the near future. The futures price is 91 representing a yield of 9%. Given a standard contract size of $1,000,000 the company **sells** a eurodollar three-month contract to hedge against interest on the three-month loan required at 31 March (to **sell** a contract is to commit the seller to take a deposit). At 31 March the spot interest rate is 11%.

Requirement

Calculate the cost saving to Yew.

Solution

The company will **buy back** the future on 31 March at 89 (100 – 11). The cost saving is the **profit on the futures contract**.

$\$1{,}000{,}000 \times (91 - 89) \times {}^{3}/_{12} = \$5{,}000$

The hedge has effectively reduced the net annual interest cost by 2%. Instead of a cost of 11% at 31 March ($27,500) for a three-month loan, the net cost is $22,500 ($27,500 – $5,000), a 9% annual cost.

Worked example: Setting up a futures contract

This example is a reminder of the step-by-step procedure that you will have seen in *Financial Management*.

Panda has taken a six-month $10,000,000 loan with interest payable of 8%, the loan being due for rollover on 31 March. At 1 January, the company treasurer considers that interest rates are likely to rise in the near future. The futures price is 91 representing a yield of 9%. Given a standard contract size of $1,000,000 the company sells a dollar three-month contract to hedge against interest on the three-month loan required at 31 March (to sell a contract is to commit the seller to take a deposit). At 31 March the interest rate is 11% and the futures price has fallen to 88.50.

Requirement

Demonstrate how futures can be used to hedge against interest rate movements.

Solution

Set up the hedge

(a) What contract: three-month contract

(b) What type: sell (as borrowing and rates expected to rise)

(c) How many contracts: $\frac{\text{Exposure}}{\text{Contract size}} \times \frac{\text{Loan period}}{\text{Length of contract}} = \frac{10\text{m}}{1\text{m}} \times {}^{6}/_{3} = 20$ contracts

Outcome in futures market

Closing futures price = 88.50

At opening rate:	0.91 sell
At closing rate:	0.8850 buy
	0.0250 receipt

Futures outcome:

$$\text{Receipt} \times \text{Size of contract} \times \text{Number of contracts} \times \frac{\text{Length of contract}}{\text{One year}}$$

$0.0250 \times 1{,}000{,}000 \times 20 \times {}^{3}/_{12} = \$125{,}000$

Outcome in spot market

	$
Payment in spot market $10m × 11% × ${}^{6}/_{12}$	(550,000)
Receipt in futures market	125,000
Net payments	(425,000)

$$\text{Effective interest rate} = \frac{425{,}000}{10{,}000{,}000} \times {}^{12}/_{6} = 8.5\%$$

2.1.1 Basis risk

'Basis risk' refers to the problem that the **basis may result in an imperfect hedge**. The basis will be **zero** at the **maturity date of the contract**.

Basis risk can be calculated as the difference between the futures price and the current price (**'cash market' price**) of the underlying security.

If a firm takes a position in the futures contract with a view to closing out the contract before its maturity, there is still likely to be basis. The firm can only **estimate what effect** this will **have on the hedge**.

Worked example: Basis risk

To give an example, if three-month LIBOR (the London Inter-Bank Offered Rate) is 7% and the September price of the three-month sterling future is 92.70 now (at the end of March, say) then the basis is:

Libor (100-7)	93.00
Futures	92.70
	0.30 %
	or 30 basis points

A further cause of basis risk for interest rates is that there are significantly more possible actual interest rates than there are standard contracts. Therefore management may wish to calculate the correlation between the futures price movement and the underlying price movement.

2.1.2 Advantages of interest rate futures

(a) **Cost**

Costs of interest rate futures are reasonably **low**.

(b) **Amount hedged**

A company can **hedge relatively large exposures of cash** with a **relatively small initial employment of cash**.

2.1.3 Disadvantages of interest rate futures

(a) **Inflexibility of terms**

Traded interest rate futures are for **fixed periods** and **cover begins in March, June, September or December**. Contracts are for **fixed**, **large**, **amounts**, so may not entirely match the amount being hedged.

(b) **Basis risk**

The company may be liable to the risk that the **price of the futures contract** may not move in the expected direction.

(c) **Daily settlement**

The company will have to settle **daily profits or losses** on the contract.

Interactive question 1: Profit from futures trading [Difficulty level: Easy]

A three-month sterling interest rate futures contract (contract size £500,000) is quoted on a recognised investment exchange. Its delivery date is 20 December 20X6.

On 22 November the future is trading at 94.63, implying that the market believes three-month LIBOR will be 5.37% (100 – 94.63) on 20 December.

On 24 November 20X6 the future is quoted at 94.53. If you sell the future on 22 November at 94.63 and buy on 24 November at 94.53, how much profit will you make?

See **Answer** at the end of this chapter.

Interactive question 2: Interest rate futures [Difficulty level: Intermediate]

Rumble Inc will shortly be making a short-term investment and wants to borrow $4 million for three months, starting in three months' time. However, interest rates are currently volatile and it is worried about adverse movements in these rates before it takes out the loan.

Rumble Inc is considering using interest rate futures to hedge the $4 million loan. It is now 1 March and the Chicago Board of Trade is quoting the following prices on standardised $1 million three-month contracts.

March	96.00
June	96.10
September	96.20

Contracts are assumed to expire at the end of the quoted months. LIBOR remains at 3.5% and Rumble can still borrow at a rate of approximately LIBOR + 1%.

Requirement

Assuming that Rumble takes out a loan at a rate of LIBOR + 1% at the start of the loan, illustrate the outcome of the futures contract if LIBOR is

(a) 4%
(b) 3%

See **Answer** at the end of this chapter.

2.2 Options

An interest rate option is an instrument sold by an option writer to an option purchaser, for a price known as a premium. The specified rate of interest for borrowing or lending is the strike price of the option. The option holder has the right, *but not the obligation*, to exercise the option on or before a specified expiry date.

A call option gives the holder the right to buy an underlying instrument at the strike price and obliges the option writer to sell the instrument at that price if and when the option is exercised.

A put option gives its holder the right to sell an underlying instrument at the strike price and obliges the option writer to buy the instrument at that price if and when the option is exercised.

An option is said to be 'in-the-money' if its strike price is more favourable than the current market rate, 'out of the money' if the strike price is less favourable than current market rate, and 'at-the-money' if the strike price and current market rate are the same.

2.2.1 Types of option

Tailor-made 'over-the-counter' interest rate options can be purchased from major banks, with specific values, periods of maturity, denominated currencies and rates of agreed interest. The cost of the option is the 'premium'. The strike price of an OTC (over-the-counter) option is for a benchmark or reference interest rate such as three-month LIBOR.

Exchange-traded options are also available. These have **standardised amounts** and **standard periods**.

Exchange-traded interest rate options are available as options on interest rate futures which give the holder the right to buy (call option) or sell (put option) one futures contract on or before the expiry of the option at a specified price. We shall explain their pricing by looking at a schedule of prices from the ***Financial Times***.

UK long gilt futures options (LIFFE) CU100,000 100ths of 1%

	Calls			*Puts*		
Strike price	*Nov*	*Dec*	*Jan*	*Nov*	*Dec*	*Jan*
CU113.50	0.84	1.24	1.34	0.27	0.65	1.02
CU114.00	0.55	0.96	1.07	0.47	0.88	1.27
CU114.50	0.34	0.73	0.85	0.74	1.14	1.54

This schedule shows that an investor could pay $^{1.34}/_{100} \times$ CU100,000 = CU1,340 to purchase the right to buy a CU futures contract in January at a price of CU113.50 per CU100 stock.

If, say, in December, January futures are priced **below** CU113.50 (reflecting an interest rate **rise**), the option will not be exercised. In calculating any gain from the call option, the premium cost must also be taken into account.

If the futures price moves **higher,** as it is likely to if interest rates **fall,** the option will be exercised. The profit for each contract will be current futures prices – 113.50 – 1.34.

To use traded interest rate options for hedging follow exactly the same principles as for traded currency options.

(a) If a company needs to hedge **borrowing** (where interest will be paid) at a future date it should **purchase put options** to **sell futures**.

(b) Similarly, if a company is lending money (and will therefore be receiving interest) it should **purchase call options** to **buy futures**.

We shall revise the use of traded interest rate options by looking at a question.



Interactive question 3: Exchange-traded options [Difficulty level: Intermediate]

Rumble (see Interactive question 2) is considering using options to hedge against interest rate movements on its $4 million loan. It is now 1 March and LIBOR remains at 3.5%. Rumble Inc can still borrow at approximately LIBOR + 1%.

Options on three-month futures ($1,000,000 contract size, premium cost in %) are as follows.

	Calls			*Puts*		
	March	*June*	*September*	*March*	*June*	*September*
9600	0.120	0.195	0.270	0.020	0.085	0.180
9625	0.015	0.075	0.155	0.165	0.255	0.335
9650	0	0.085	0.085	0.400	0.480	0.555

Requirement

Illustrate an option hedge at 3.75%, assuming that the loan is taken out at LIBOR + 1% and LIBOR is

(a) 4%
(b) 3%

See **Answer** at the end of this chapter.

2.2.2 Advantages of interest rate options

(a) **Upside risk** – the company has the choice not to exercise the option and will, therefore, be able to take advantage of falling interest rates.

(b) **Over the counter options** – these are tailored to the specific needs of the company and are therefore more flexible than exchange-traded options for a more exact hedge.

(c) Exchange-traded options are useful for **uncertain transactions** – for example, you may be unsure if a loan will actually be needed. If it becomes evident that the option is not required it can be sold.

2.2.3 Disadvantages of interest rate options

(a) **Premium** – the premium cost may be **relatively expensive** compared with the costs of other hedging instruments. It will be payable whatever the movement in interest rates and whether or not the option is exercised.

(b) **Collar** – if the company has a collar, this will limit its ability to take advantage of lower interest rates to the lower limit set by the floor.

(c) **Maturity** – the maturity of exchange-traded options may be **limited to one year**.

(d) **Traded options** – if the company purchased exchange-traded options then the **large fixed amounts** of the available contracts may not match the amount to be hedged. The large amounts of the contracts will also prohibit organisations with smaller amounts to be hedged from using them.

2.3 Traded caps, floors and collars

Definitions

Cap: Option that sets an interest rate ceiling.

Floor: Option that sets a lower limit to interest rates.

Collar: Using a **collar** arrangement, the borrower can buy an interest rate cap and at the same time sell an interest rate floor which reduces the cost for the company.

The cost of a collar is lower than for a cap alone. However, the borrowing company forgoes the benefit of movements in interest rates below the floor limit in exchange for this cost reduction.

Worked example: Caps and collars

Suppose the prevailing interest rate for a company's variable rate borrowing is 10%. The company treasurer considers that a rise in rates above 12% will cause serious financial difficulties for the company. How can the treasurer make use of a 'cap and collar' arrangement?

Solution

The company can buy an interest rate cap from the bank. The bank will reimburse the company for the effects of a rise in rates above 12%. As part of the arrangements with the bank, the company can agree that it will pay at least 9%, say, as a 'floor' rate. The bank will pay the company for agreeing this. In other words, the company has sold the floor to the bank, which partly offsets the costs of the cap. The bank benefits if rates fall below the floor level.

2.3.1 Traded caps

Say you are a borrower and have bought a put option (a right to sell a future). The exercise price is 93.00, reflecting an interest rate of 7%**.**

Interest rate rises

- If the interest rate you have to pay **rises to 8%**, the price of the future will fall to 92.00.
- You will buy the future at 92.00 and exercise your right to sell it at 93.00.
- The profit you make on buying and then selling the future can be set against the 8% interest you have to pay, to give an **effective interest rate of 7%**.

Interest rate falls

- If the interest rate **falls to 6%**, you don't exercise the option, therefore don't worry about buying and selling the future, just pay interest at 6%.

2.3.2 Traded floors

In order to set a floor if you are investing/lending, you have to buy a call option – a right to buy a future. Say the exercise price is 95.00, corresponding to an interest rate of 5%.

Interest rate falls

- If the interest rate **falls to 4%**, the price of the future will rise to 96.00.
- You will only receive interest at 4%.
- However, you will exercise your option to buy the future at 95.00 and then you will sell it on at 96.00.
- The profit you make on the future will be added to the 4% interest you receive to give an **effective net interest rate of 5%**.

Interest rate rises

- If the interest rate **rises to 6%**, you will not exercise the option, and you will receive interest at 6%.

2.3.3 Traded collars

With collars, if you are a borrower, you are buying a put and selling a call. Say the exercise price is 96.00, corresponding to an interest rate of 4%.

- Buying a put as above.
- Selling a call means that you are selling someone else the right to buy a future from you.

Interest rate falls

- If the interest rate **falls to 3%**, the price of the future will rise to 97.00.
- You will pay interest at 3%.
- However, the holder of the call option will wish to exercise the option to buy the future at 96.00.
- You, therefore, have to buy the future yourself at 97.00 and sell it to the option holder at 96.00, thus incurring a loss.
- The loss you incur will be added to the 3% interest you have to pay to give an **effective net interest rate of 4%**.
- If interest rates **fall further**, you will pay a lower interest rate but incur a larger loss on the option, netting-out always at an interest rate of 4%.

Interest rate rises

- If the interest rate **rises above 4%**, the option holder will not exercise the option.
- You will pay interest at more than 4%, but be able to offset against this a profit on selling the future, to give an **effective interest rate of 4%**.

2.4 Forward rate agreements

A forward rate agreement (FRA) is a cash-settled forward contract on a short-term loan. FRAs are over-the-counter instruments whose terms can be set according to the end user's requirements, but tend to be illiquid as they can only be sold back to the issuing investment bank. A 2 v 5 FRA, for example, is a two-month forward on a three-month loan.

There are several important dates when dealing with FRAs.

- The **trade date** is the date on which the FRA is dealt. The **spot date** is usually two business days after the traded date.
- The **fixing date** is the date on which the reference rate used for the settlement is determined.
- FRAs settle with a single cash payment made on the first day of the underlying loan – this date is the **settlement date**.
- The date on which the notional loan or deposit expires is known as the **maturity date**.

The settlement amount for a FRA is calculated using the following formula:

$$S = L\frac{(r_{REF} - r_{FRA}) \times \frac{ND}{DY}}{\left(1 + r_{REF} \times \frac{ND}{DY}\right)}$$

Where: L = the notional amount of the loan

S = settlement amount

r_{REF} = the reference rate, typically a LIBOR rate or EURIBOR

ND = the number of days the loan is for

DY = the day count basis applicable to money market transactions in the currency of the loan

2.4.1 Advantages of forward rate agreements

(a) **Protection provided**

A FRA protects the borrower from **adverse interest rate movements** above the rate negotiated.

(b) **Flexibility**

FRAs are **flexible**. They can, in theory, be arranged for any amounts and any duration, although they are normally for amounts of over $1 million.

(c) **Cost**

Forward rate agreements may well be **free** and will in any case **cost little**.

2.4.2 Disadvantages of forward rate agreements

(a) **Rate available**

The rate the bank will set for the forward rate agreement will reflect **expectations of future interest rate movements**. If interest rates are expected to rise, the bank may set a **higher rate** than the rate currently available.

(b) **Falling interest rate**

The borrower will **not be able to take advantage** if interest rates fall unexpectedly.

(c) **Term of FRA**

The FRA will **terminate on a fixed date**.

(d) **Binding agreement**

FRAs are **binding agreements** so are less easy to sell to other parties.



Interactive question 4: FRA settlement value **[Difficulty level: Intermediate]**

Suppose a 4 v 10 US$10 million FRA is transacted with a FRA rate of 3.5%. The four-month forward period starts on the spot date and extends to the settlement date. For this FRA, the reference rate is six-month US$ LIBOR. Suppose the reference rate is 3.8% on the fixing date. What is the settlement amount? (Remember that the US$ money market uses a 360-day basis.)

See **Answer** at the end of this chapter.

2.5 Swaps

An interest rate swap is a contract between two parties. The two parties agree to exchange a stream of payments at one interest rate for a stream of payments at a different rate, normally at regular intervals for a period of several years. The two parties to a swap agreement can come to an arrangement whereby both will reduce their costs of borrowing. Swaps are generally terminated by agreeing a **settlement interest rate**, generally the current market rate.

There are two main types of interest rate swaps – **coupon swaps** and **basis swaps**.

In a **coupon swap**, one party makes payments at a fixed rate of interest in exchange for receiving payments at a floating rate (which changes for each payment). The other party pays the floating rate and receives the fixed rate.

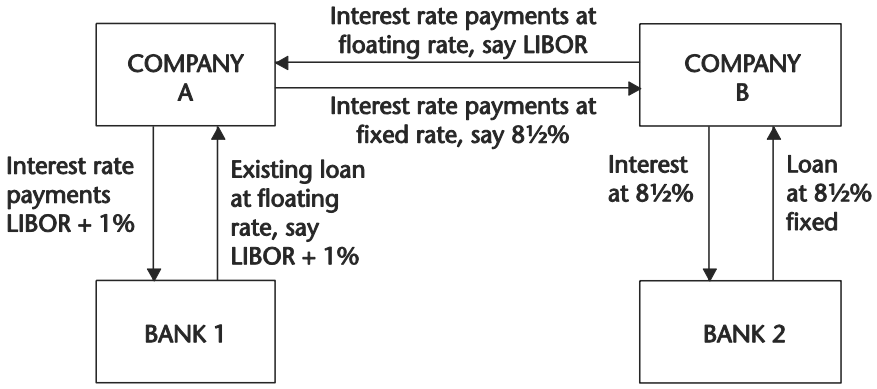
In a **basis swap**, the parties exchange payments on one floating rate basis (for example at three-month LIBOR or at a six-month CD rate) for payments on another floating rate basis (for example at six-month LIBOR).

Most interest rate swaps are coupon swaps.

(a) A company which has **debt at a fixed rate of interest** can make a **swap** so that it ends up paying **interest at a variable rate**.

(b) A company which has **debt at a variable rate of interest** (floating rate debt) ends up paying a **fixed rate of interest**.

An example is illustrated below.



Interest rate swap

In this example, Company A can use a swap to change from paying interest at a floating rate of LIBOR + 1% to one of paying fixed interest of (8½% + 1%) = 9½%.

A swap may be arranged with a bank, or a counterparty may be found through a bank or other financial intermediary. Fees will be payable if a bank is used. However a bank may be able to find a **counterparty more easily**, and may have **access to more counterparties** in **more markets** than if the company seeking the swap tried to find the counterparty itself.

2.5.1 Basis swaps



Definitions

Basis swap: A series of payments which vary over time (floating), exchanged for a series of payments which also vary over time (floating), according to a different method of calculation or different schedule of payments.

For example, a company may agree to swap floating payments of 12-month USD LIBOR v 6-month USD LIBOR. This could be a trade based on the shape of the yield curve.

There are many different types of basis swaps. Some include:

- Different tenors of the same index (for example three-month LIBOR v six-month LIBOR).
- The same or different tenors of different indexes (three-month USD LIBOR v three-month US Treasury bill yield).
- An index and its average (six-month LIBOR v the weekly average of six-month LIBOR over six months).

Basis swaps can also include swapping a stream of floating payments in one currency into a stream of floating payments in another currency. These are called cross-currency basis swaps.

2.5.2 Total return swaps



Definition

Total return swaps: A type of swap in which one counterparty agrees to pay a floating reference rate such as LIBOR and in exchange receives the total return, interest and capital gains, generated by an underlying asset.

This transaction is specifically designed to **transfer the credit risk and the market risk** of an underlying security to the counterparty and effectively enables the party to derive an economic benefit from an underlying asset without actually buying it.

Total return swaps can be used with any underlying asset that generates a return but are most commonly used in the equity markets.

2.5.3 Swaptions

Definitions

Swaptions: Options on swaps, giving the holder the right but not the obligation to enter into a swap with the seller.

Payer swaption: Gives the holder the right to enter into the swap as the fixed rate payer (and the floating rate receiver).

Receiver swaption: Gives the holder the right to enter into the swap as the fixed rate receiver (and the floating rate payer).

Bermudan swaption: Allows the owner to enter the swap on multiple specified dates.

European swaption: Allows the owner to enter the swap only on the maturity date.

American swaption: Allows the owner to enter into the swap on any date that falls within a range of two dates.

A swaption is a 'hybrid' hedging instrument that combines the features of different financial instruments**.**

For example, A Ltd might buy a swaption from a bank, giving A Ltd the right, but not the obligation, to enter into an interest rate swap arrangement with the bank at or before a specified time in the future.

Swaptions generate a worst case scenario for buyers and sellers. For example, an organisation that is going to issue floating rate debt can buy a payer swaption that offers the option to convert to being a fixed rate payer should interest rates increase.

Worked example: Swaption

It is now 1 January 20X6. Towyn plc pays a variable rate of interest on a $1,000,000 eurodollar loan which is due to mature on 30 June 20X9. The interest rate currently payable on this loan is 6.75% per annum. The company treasurer is now concerned about the possibility of interest rate rises over the near future. The company's bank has indicated that an American-style dollar swaption is available with the following features.

Interest rate	7.5%
Exercise period	1 July 20X6 to 31 December 20X6
Maturity date	30 June 20X9
Premium	$20,000

Requirement

Assess under what circumstances Towyn plc will gain from exercising the swaption. Ignore the time value of money.

Solution

The swaption would be likely to be exercised if interest rates rose above 7.5%. To evaluate the benefit of the swaption, ignoring the time value of money, it is first necessary to evaluate its cost over the remaining three-year period of the loan.

	$
Interest: $1,000,000 × 7.5% × 3	225,000
Premium	20,000
Total cost	245,000

This represents an effective annual rate of interest of 8.17% ($245,000/($1,000,000 × 3)). The average rate of interest payable by the company without the swap would therefore have to exceed 8.17% for the swaption to be beneficial.

2.5.4 Advantages of swaps

(a) **Flexibility and costs**

Swaps are **flexible**, since they can be arranged in any size, and they can be **reversed** if necessary. **Transaction costs are low**, particularly if no intermediary is used, and are potentially much lower than the costs of terminating one loan and taking out another.

(b) **Credit ratings**

Companies **with different credit ratings** can **borrow in the market** that offers each the best deal and then swap this benefit to reduce the mutual borrowing costs. This is an example of the principle of **comparative advantage**.

(c) **Capital structure**

Swaps allow **capital restructuring** by changing the nature of interest commitments without renegotiating with lenders.

(d) **Risk management**

Swaps can be used to **manage interest rate risk** by swapping floating for fixed rate debt if rates are expected to rise. Swaps can also be used to swap a variable rate for a fixed rate investment if interest rates are expected to fall.

(e) **Convenience**

Swaps are relatively **easy to arrange**.

(f) **Predictability of cash flows**

If a company's future cash flows are uncertain, it can use a swap to ensure it has **predictable fixed rate commitments**.

2.5.5 Disadvantages of swaps

(a) **Additional risk**

The swap is subject to **counterparty risk;** the risk that the other party will default leaving the first company to bear its obligations. This risk can be avoided by using an intermediary.

(b) **Movements in interest rates**

If a company takes on a floating rate commitment, it may be vulnerable to **adverse movements in interest rates**. If it takes on a fixed rate commitment, it won't be able to **take advantage of favourable movements in rates**.

(c) **Lack of liquidity**

The **lack of a secondary market in swaps** makes it **very difficult to liquidate a swap contract**.



Interactive question 5: Interest rate swap **[Difficulty level: Intermediate]**

Seeler Muller wishes to borrow 300 million euros for five years at a floating rate to finance an investment project in Germany. The cheapest rate at which it can raise such a loan is Euro LIBOR + 0.75%.

The company's bankers have suggested that one of their client companies, Overath Maier, would be interested in a swap arrangement. This company needs a fixed interest loan at €300 million. The cheapest rate at which it can arrange the loan is 10.5% per annum. It could, however, borrow in euros at the floating rate of euro LIBOR + 1.5%.

Seeler Muller can issue a fixed interest five-year bond at 9% per annum interest. The banker would charge a swap arrangement fee of 0.15% per year to both parties. You are required to devise a swap by which both parties can benefit.

See **Answer** at the end of this chapter.

2.6 Devising an interest rate hedging strategy

While it is essential to know about the different financial instruments that are available to reduce interest rate risk, it is also very important to be able to determine which instrument(s) should be used in particular circumstances or when devising strategies.

If you have to discuss which instrument should be used to hedge interest rate risk, consider **cost, flexibility, expectations and ability to benefit from favourable interest rate movements.**

Different hedging instruments often offer alternative ways of managing risk in a specific situation. In the following example, we consider the different ways in which a company can hedge interest rate risk.



Worked example: Hedging strategies

It is 31 December, Octavo needs to borrow CU6 million in three months' time for a period of six months. For the type of loan finance which Octavo would use, the rate of interest is currently 13% per year and the corporate treasurer is unwilling to pay a higher rate.

The treasurer is concerned about possible future fluctuations in interest rates, and is considering the following possibilities:

- Forward rate agreements (FRAs)
- Interest rate futures
- Interest rate guarantees or short-term interest rate caps

Requirement

Explain briefly how each of these three alternatives might be useful to Octavo.

Solution

Forward rate agreements (FRAs)

Entering into an FRA with a bank will allow the treasurer of Octavo to **effectively lock in an interest rate** for the six months of the loan. This agreement is independent of the loan itself, upon which the prevailing rate will be paid. If the FRA were negotiated to be at a rate of 13%, and the actual interest rate paid on the loan were higher than this, the bank would pay the difference between the rate paid and 13% to Octavo. Conversely, if the interest paid by Octavo turned out to be lower than 13%, it would have to pay the difference to the bank. Thus the cost to Octavo will be 13% regardless of movements in actual interest rates.

Interest rate futures

Interest rate futures have the same effect as FRAs, in effectively **locking in an interest rate**, but they are standardised in terms of size, duration and terms. They can be **traded on an exchange** (such as LIFFE in London), and they will generally be **closed out before the maturity date**, yielding a profit or loss that is offset against the loss or profit on the money transaction that is being hedged. So, for example, as Octavo is concerned about rises in interest rates, the treasurer can sell future contracts now. If that rate does rise, their value will fall, and they can then be bought at a lower price, yielding a profit which will compensate for the increase in Octavo's loan interest cost. If interest rates fall, the lower interest cost of the loan will be offset by a loss on their futures contracts.

There may not be an **exact match** between the **loan and the future contract** (100% hedge), due to the standardised nature of the contracts, and margin payments may be required while the futures are still held.

Interest rate guarantees

Interest rate guarantees (or short-term interest rate options) give Octavo the opportunity to **benefit from favourable interest rate movements** as well as protecting it from the effects of adverse movements. They give the holder the **right** but not the **obligation** to deal at an agreed interest rate at a future maturity date. This means that if interest rates rise, the treasurer would exercise the option, and 'lock in' to the predetermined borrowing rate. If, however, interest rates fall, then the option would simply lapse, and Octavo would feel the benefit of lower interest rates.

The main disadvantage of options is that a premium will be payable to the seller of the option, whether or not it is exercised. This will add to the interest cost. The treasurer of Octavo will need to consider whether this cost, which can be quite high, is justified by the potential benefits to be gained from favourable interest rate movements.

3 Foreign exchange rate risks



Section overview

- Similar issues to those taken into consideration for interest rate hedging strategies apply to foreign exchange risk management strategies. Some of these issues have already been covered in the Professional Level *Financial Management* paper.
- Internal methods such as matching and leading and lagging can also be used as part of the overall strategy.

3.1 Causes of exchange rate fluctuations

3.1.1 Currency supply and demand

The exchange rate between two currencies – that is the buying and selling rates, both 'spot' and forward – is determined primarily by supply and demand in the foreign exchange markets, which are influenced by such factors as the relative rates of inflation, relative interest rates, speculators and government policy.

3.1.2 Interest rate parity

The difference between spot and forward rates reflects differences in interest rates. If this was not the case then investors holding the currency with the lower interest rates would switch to the other currency for (say) three months, ensuring that they would not lose on returning to the original currency by fixing the exchange rate in advance at the forward rate. If enough investors acted in this way (known as **arbitrage**), forces of supply and demand would lead to a change in the forward rate to prevent such risk-free profit making.

The principle of interest rate parity can be stated as:

$$F_0 = S_0 \times \frac{(1+i_c)}{(1+i_b)}$$

Where: F_0 = expected future spot rate
S_0 = current spot rate
i_c = interest rate in country c
i_b = interest rate in country b



Interactive question 6: Northland and Southland **[Difficulty level: Intermediate]**

Exchange rates between two currencies, the Northland florin (NF) and the Southland dollar ($S) are listed in the financial press as follows.

Spot rates	4.7250	NF/$S
	0.21164	$S/NF
90-day rates	4.7506	NF/$S
	0.21050	$S/NF

The money market interest rate for 90-day deposits in Northland florins is 7.5% annualised. What is implied about interest rates in Southland?

Assume a 365-day year.

(**Note**: In practice, foreign currency interest rates are often calculated on an alternative **360-day** basis, one month being treated as 30 days.)

See **Answer** at the end of this chapter.

3.1.3 Purchasing power parity

Purchasing power parity theory predicts that the exchange value of foreign currency depends on the relative purchasing power of each currency in its own country and that **spot exchange rates will vary over time according to relative price changes**.

Formally, purchasing power parity can be expressed in the following formula.

$$S_1 = S_0 \times \frac{(1+h_c)}{(1+h_b)}$$

Where: S_1 = expected spot rate

S_0 = current spot rate

h_c = expected inflation rate in country c

h_b = expected inflation rate in country b

Note that the expected future spot rate will not necessarily coincide with the 'forward exchange rate' currently quoted.

Worked example: Forecasting exchange rates

The spot exchange rate between Bangladesh Taka and the Danish kroner is Tk1 = 8.00 kroners. Assuming that there is now purchasing parity, an amount of a commodity costing Tk110 in Bangladesh will cost 880 kroners in Denmark. Over the next year, price inflation in Denmark is expected to be 5% while inflation in Bangladesh is expected to be 8%. What is the 'expected spot exchange rate' at the end of the year?

Using the formula above:

$$\text{Future (forward) rate, } S_1 = 8 \times \frac{1.05}{1.08}$$

$$= 7.78$$

This is the same figure we get if we compare the inflated prices for the commodity. At the end of the year:

Bangladesh price = Tk110 × 1.08 = Tk118.80

Denmark price = Kr880 × 1.05 = Kr924

S_1 = 924 ÷ 118.80 = 7.78

In the real world, exchange rates move towards purchasing power parity only over the **long term**. However, the theory is sometimes used to predict future exchange rates in **investment appraisal problems** where forecasts of relative inflation rates are available.

Interactive question 7: Forecasting exchange rates [Difficulty level: Easy]

Assume that the $/Tk exchange rate is currently $1.7/Tk, expected inflation in Bangladesh is 4% and the expected inflation rate in the US is 5%. What is the expected exchange rate in one year's time according to the PPP?

See **Answer** at the end of this chapter.

Case example: Purchasing power parity

An amusing example of purchasing power parity is *The Economist*'s Big Mac index. Under PPP, movements in countries' exchange rates should in the long term mean that the prices of an identical basket of goods or services are equalised. The McDonald's Big Mac represents the basket.

The index compares local Big Mac prices with the price of Big Macs in America. This comparison is used to forecast what exchange rates should be, and this is then compared with the actual exchange rates to decide which currencies are over- and under-valued.

3.1.4 International Fisher effect

The International Fisher effect states that currencies with high interest rates are expected to depreciate relative to currencies with low interest rates.

For Bangladesh, the Fisher equation can be expressed as:

$(1 + i) = (1 + r) (1 + h)$

Where: i = the nominal return

r = the real return

h = the expected inflation rate

Countries with relatively high rates of inflation will generally have high nominal rates of interest, partly because high interest rates are a mechanism for reducing inflation, and partly because of the Fisher effect. Higher nominal interest rates serve to allow investors to obtain a high enough real rate of return where inflation is relatively high.

According to the International Fisher effect, interest rate differentials between countries provide an unbiased predictor of future changes in spot exchange rates. The currency of countries with relatively high interest rates is expected to depreciate against currencies with lower interest rates, because the higher interest rates are considered necessary to compensate for the anticipated currency depreciation. Given free movement of capital internationally, this idea suggests that the real rate of return in different countries will equalise as a result of adjustments to spot exchange rates.

The International Fisher effect can be expressed as:

$$\frac{1+i_c}{1+i_b} = \frac{1+h_c}{1+h_b}$$

Where: i_c = nominal interest rate in country c

i_b = nominal interest rate in country b

h_c = inflation rate in country c

h_b = inflation rate in country b



Interactive question 8: International Fisher effect 1 **[Difficulty level: Easy]**

Suppose that the nominal interest rate in Bangladesh is 6% and the expected rate of inflation is 4%. If the expected rate of inflation in the US is 5% what is the nominal interest rate in the US? What is the real interest rate in each country?

See **Answer** at the end of this chapter.



Interactive question 9: International Fisher effect 2 **[Difficulty level: Easy]**

Suppose that the nominal interest rate in the Bangladesh is 6% and the nominal interest rate in the US is 7%. What is the expected change in the dollar/Taka exchange rate over a year?

See **Answer** at the end of this chapter.

3.2 Foreign exchange risk management

As with interest rate risk management, you should consider **cost, flexibility, expectations and ability to benefit from favourable movements in rates** when trying to determine how to hedge against foreign currency risk.

As well as the derivatives mentioned above, it is possible to use internal hedging techniques to protect against foreign currency risk. Basic methods include matching receipts and payments, invoicing in your own currency and leading and lagging the times that cash is received and paid. These were covered in detail in the Application Level paper *Financial Management* and are reviewed briefly below.

3.3 Currency of invoice

An exporting company can avoid currency risk by invoicing customers in its own home currency. An importing company can make arrangements to be invoiced in its own currency by overseas suppliers. This transfers all the currency risk to the other party. However, this is unlikely to continue in the long term as the overseas customers and suppliers are unlikely to be willing to bear the entire currency risk exposure burden.

3.4 Matching receipts and payments

A company can reduce or eliminate its foreign exchange transaction exposure by matching receipts and payments. Wherever possible, a company that expects to make payments and have receipts in the same foreign currency should plan to offset its payments against its receipts in the currency. Since the company will be setting-off foreign currency receipts against foreign currency payments, it does not matter whether the currency strengthens or weakens against the company's 'domestic' currency because there will be no purchase or sale of the currency.

The process of matching is made simpler by having foreign currency accounts with a bank. Receipts of foreign currency can be credited to the account pending subsequent payments in the currency. (Alternatively, a company might invest its foreign currency income in the country of the currency – for example, it might have a bank deposit account abroad – and make payments with these overseas assets/deposits.)

3.5 Leading and lagging

Lead payments are payments made in advance, while lagged payments are those that are delayed. This tactic is often used to take advantage of movements in exchange rates.

3.6 Netting

As the name suggests, netting involves setting-off intercompany balances before payment is arranged. This is common in multinational groups where a significant amount of intragroup trading takes place.



Case example: Exchange rate movements

2008 demonstrated that exchange rates could be volatile in both directions within a short space of time, as a consequence of uncertain economic conditions. For example, the value of the Australian dollar varied significantly over the year. The dollar appreciated rapidly in the first half of 2008, before falling back against a number of other major currencies. By the end of 2008 the Australian dollar had, over the 12 months, fallen 21% against the US dollar, 18% against the Euro and 26% against the Chinese Yuan. However, the Australian dollar had appreciated by 8% against the British pound and 5% against the New Zealand dollar.

3.7 Forward contracts

A forward contract allows importers and exporters to hedge the risk of foreign currency rates moving against them. Companies can arrange for a bank to buy or sell foreign currency at a future date, at a rate of exchange determined when the contract is made. Remember that the current spot price is irrelevant to the outcome of a forward contract – these contracts must be exercised regardless of whether the spot rate is more favourable than the agreed forward rate. Such contracts are used to limit potential losses on exchange, but prevent any exchange gains being made.

You should remember from your earlier studies that a forward rate might be higher or lower than the spot rate. For example, if the spot rate for euros is €1.25/CU, the forward rate could be:

Higher – €1.27 – the forward rate is said to be at **a discount** to the spot rate.

Lower – €1.23 – the forward rate is said to be at **a premium** to the spot rate.

FORWARD RATES AS ADJUSTMENTS TO SPOT RATES	
Forward rate for the overseas currency is weaker than spot	Quoted at discount
Forward rate for the overseas currency is stronger than spot	Quoted at premium

A **discount** is therefore **added** to the spot rate, and a **premium** is **subtracted** from the spot rate.

Remember also that if a customer cannot satisfy a forward exchange contract, the bank will make the customer fulfil the contract.

(a) If the customer has arranged for the bank to **buy** currency but then cannot deliver the currency for the bank to buy, the bank will:

  (i) **Sell currency** to the customer **at the spot rate** (when the contract falls due for performance).
  (ii) Buy **the currency back**, under the terms of the forward exchange contract.

(b) If the customer has contracted for the bank to **sell** him currency, the bank will:

  (i) **Sell the customer** the **specified amount of currency** at the forward exchange rate.
  (ii) **Buy back the unwanted currency** at the spot rate.

3.7.1 Advantages of forward exchange contracts

- They are **transacted over the counter**, and are not subject to the requirements of a trading exchange.
- They can, in theory, be for **any amount**.
- The length of the contract can be **flexible**, but contracts are generally for less than two years.

3.7.2 Disadvantages of forward exchange contracts

- The organisation doesn't have the **protection** that trading on an exchange brings.
- The contracts are **difficult to cancel** as they are contractual obligations (discussed below).
- There is a risk of **default** by the counterparty to the contract.

3.7.3 Synthetic foreign exchange agreements

In order to reduce the volatility of their exchange rates, some governments have banned foreign currency trading.

In such markets, **synthetic foreign exchange agreements (SAFEs)**, also known as non-deliverable forwards, are used. These instruments resemble forward contracts but no currency is actually delivered. Instead the two counterparties settle the profit or loss (calculated as the difference between the agreed SAFE rate and the prevailing spot rate) on a notional amount of currency (the SAFE's face value). At no time is there any intention on the part of either party to exchange this notional amount.

SAFEs can be used to create a foreign currency loan in a currency that is of no interest to the lender.



Worked example: Synthetic agreements

A borrower might require US dollars but wants to make the loan repayments in a currency that isn't traded. In this case, the borrower will receive dollars and repayments will be calculated in dollars. However, actual payment will be in the other preferred currency, calculated using the current exchange rate.

The lender might wish to lend in US dollars and also receive payment in US dollars. Therefore, at the same time as lending the dollars to the borrower, the lender may also enter into a SAFE agreement with a counterparty that matches the cash flows from the foreign currency repayments.

What has happened is that the lender has a synthetic dollar loan, the borrower has a synthetic second currency loan and the counterparty has a SAFE agreement with the lender.

It is important to remember that **settlement of SAFEs will always be in dollars** as the counterparty will be unable to settle in the alternative currency (as it is not traded).

Worked example: Settlement of synthetic agreements

A lender enters into a three-month SAFE with a counterparty to buy $5 million worth of Philippine pesos at a rate of $1 = PHP44.000. The spot rate is $1 = PHP43.850

When the SAFE is due to be settled in three months' time, the spot rate is $1 = PHP44.050. This means that the lender will have to pay 5 million × (44.050 – 44.000) = PHP250,000 to the counterparty.

As this will be settled in dollars at the prevailing spot rate, the payment to the counterparty will be PHP250,000/44.050 = $5,675.

Interactive question 10: Forward contract [Difficulty level: Easy]

A German exporter will receive an amount of $1,500,000 from a US customer in three months' time. He can arrange a forward exchange contract to cover this transaction. The current spot rate is $1 = €0.7810 – 0.7840 and the three month forward rate is quoted at 0.0005 – 0.0003 premium.

Requirement

Calculate how much the exporter will receive under the terms of the forward contract.

See **Answer** at the end of this chapter.

3.8 Money market hedge

Money market hedges can be set up to cover future foreign currency payments or future foreign currency receipts. They can be used instead of forward contracts and have exactly the same effects.

3.8.1 Hedging payments

Suppose a company needs to **pay** a foreign creditor in the foreign currency in three months' time. It does not have enough cash to pay now, but will have sufficient in three months' time. Instead of negotiating a forward contract, the company could:

- Borrow the appropriate amount in home currency now.
- Convert the home currency to foreign currency immediately.
- Place the foreign currency on deposit in a foreign currency bank account.
- When the time comes to pay the creditor:
  - Pay the creditor out of the foreign currency bank account.
  - Repay the home country loan account.

The effect is exactly the same as using a forward contract, and will usually cost almost exactly the same amount. If the results from a money market hedge were very different from a forward hedge, speculators could make money without taking a risk. Therefore market forces ensure that the two hedges produce very similar results.

Worked example: Hedging payments

A Thai company owes a New Zealand company NZ$ 3,000,000, payable in three months' time. The current exchange rate is NZ $1 = Thai Baht 19.0300 – 19.0500.

The Thai company elects to use a money market hedge to manage the exchange risk.

The current borrowing and investing rates in the two countries are:

	New Zealand	*Thailand*
	%	%
Investing	2.5	4.5
Borrowing	3.0	5.2

Requirement

Calculate the cost to the Thai company of using a money market hedge.

Solution

	Thailand		New Zealand
Now	Bt56,795,022	@ 19.0500 ←	$2,981,366
	↓ @ 1.013**		↑ @ 1.00625*
3 months	Bt57,533,357		$3,000,000

* $\frac{3}{12} \times 2.5\% = 0.625\%$

** $\frac{3}{12} \times 5.2\% = 1.3\%$

- Decide how much needs to be invested in New Zealand so that total (principal and interest) can be used to repay $3,000,000 in three months' time (2.5% pa = 0.625% for three months).
- Convert $ to Bt at spot ($1 = Bt19.0500) to give the Bt amount required to be borrowed from bank in Thailand today.
- Borrow in Thailand (5.2% pa = 1.3% for three months) and work out interest payable.
- Cost = Bt57,533,357.

3.8.2 Hedging receipts

A similar technique can be used to cover a foreign currency **receipt** from a debtor. To manufacture a forward exchange rate, follow the steps below.

- Borrow an appropriate amount in the foreign currency today.
- Convert it immediately to home currency.
- Place it on deposit in the home currency.
- When the debtor's cash is received:
  - Repay the foreign currency loan.
  - Take the cash from the home currency deposit account.



Worked example: Hedging receipts

An Australian company is due to receive ¥ 15,000,000 from a Japanese company, payable in four months' time. The current exchange rate is Aus $1 = ¥ 62.6000 – 62.8000.

The Australian company elects to use a money market hedge to manage the exchange risk.

The current borrowing and investing rates in the two countries are:

	Australia	*Japan*
	%	%
Investing	4.5	2.7
Borrowing	6.0	3.3

Requirement

Calculate the amount the Australian company will receive if it uses a money market hedge.

Solution

	Australia		Japan
Now	$236,255	@ 62.8000 ←	¥14,836,795
	↓ @ 1.015**		↑ @ 1.011*
4 months	$239,799		¥15,000,000

* $\frac{4}{12} \times 3.3\% = 1.1\%$

** $\frac{4}{12} \times 4.5\% = 1.5\%$

- Borrow an amount in Japan which will be repaid in four months, so that principal and interest will equal ¥15,000,000 (3.3% pa = 1.1% for four months). Total paid off by ¥ receipt in four months' time.
- Convert principal in ¥ to $ at spot ($1 = ¥62.8000).
- Invest $ in Australia money market (4.5% pa = 1.5% for four months).
- The deposit will grow to $239,799.

Interactive question 11: Money market hedging [Difficulty level: Intermediate]

Nicole, a French company, has made a large sale worth $5,000,000 to a US company, Sims Inc. Sims Inc is due to settle the amount it owes to Nicole in three months' time, on 15 December.

Currency market rates

Spot rate $ per €1	1.5904	–	1.5912

Money Market Rates pa

Euro	2.6%
US	1.6%

Demonstrate how Nicole can use the money market to hedge the foreign currency receipt.

See **Answer** at the end of this chapter.

3.9 Currency futures

You will remember that a currency future is a contract to buy or sell a standardised amount of a currency for notional delivery at a set date in the future. For example, the Chicago Mercantile Exchange (CME) trades sterling futures contracts with a standard size of £62,500. Only whole number multiples of this amount can be bought or sold. They can also only be delivered on certain dates, eg sterling futures have contract dates of March, June, September or December.

Futures contracts seldom go to maturity. The ease of liquidating positions in the futures market makes a futures contract attractive for hedging and speculation. The high degree of standardisation in the futures market means that traders need only decide the number of contracts and the price, and transactions can be arranged quickly and efficiently.

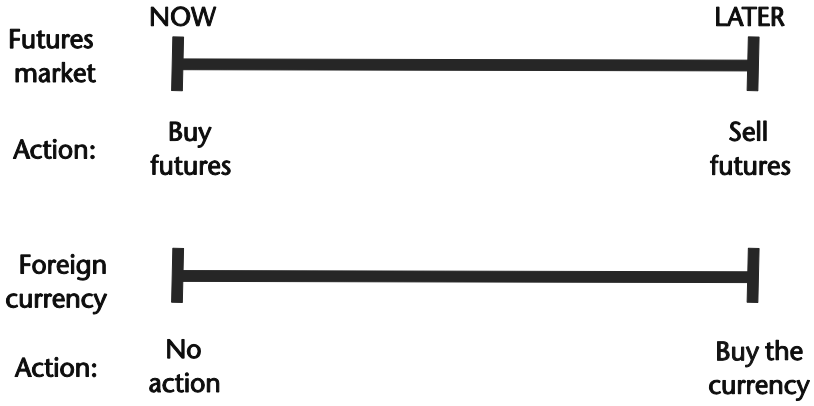
The foreign currency futures market provides an alternative to the forward market, but it also complements that market. Like the forward market, the currency futures market provides a mechanism whereby users can alter portfolio positions. It can be used on a highly geared basis for both hedging and speculation and thus facilitates the transfer of risk – from hedgers to speculators, or from speculators to other speculators.

3.9.1 Which type of contract

(a) If you are going to **make a payment in a foreign currency** (not American dollars) on a future date, you will need to buy that currency. To hedge: take the following action.

Step 1 **Buy** the appropriate **foreign currency futures** contracts **now** (just as you would with a forward contract).

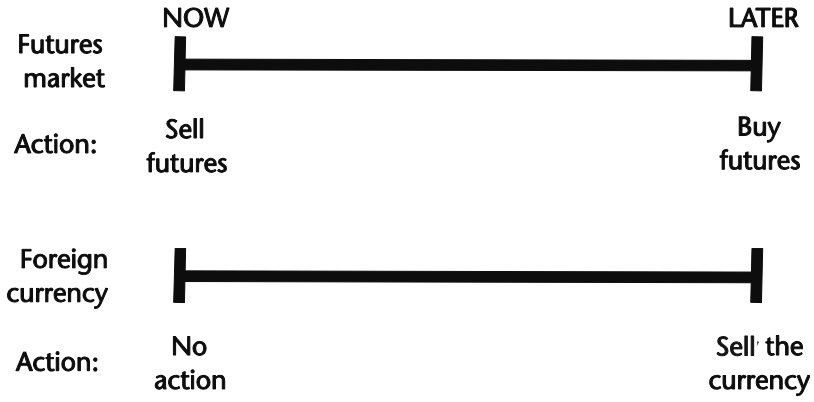
Step 2 **Sell** the same number of **foreign currency futures** contracts on the date that you buy the actual currency (closing out).



(b) If you are going to **receive monies in a foreign currency** on a future date, you will need to sell that currency. To hedge take the following steps:

Step 1 **Sell** the appropriate **foreign currency futures** contracts **now**.

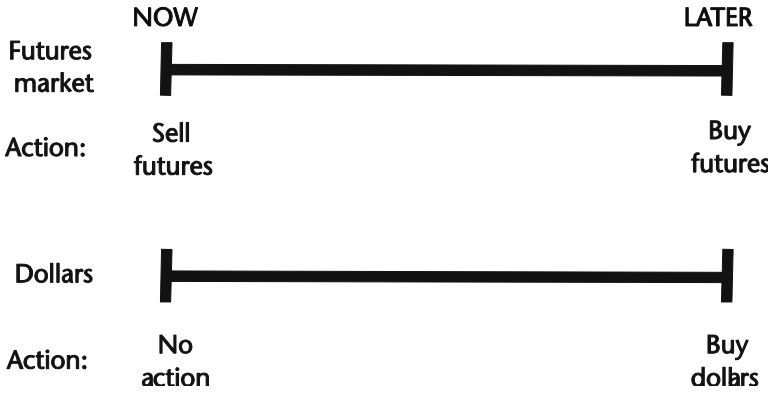
Step 2 **Buy** the same number of **foreign currency futures** contracts on the date that you sell the actual currency.



(c) If you are **from outside America and are going to make a payment in American dollars** on a future date, you will need to buy American dollars. To hedge you cannot buy American dollar futures, therefore you will have to sell your own currency's futures:

Step 1 **Sell** your **home currency futures** contracts **now**.

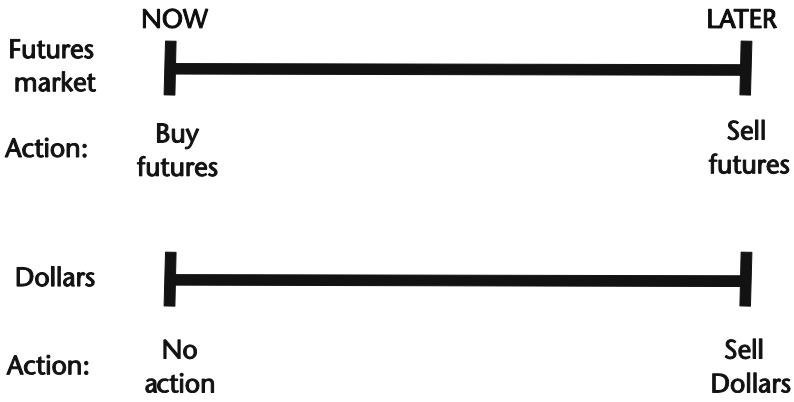
Step 2 **Buy** the same number of **home currency futures** contracts on the date that you buy the dollars



(d) If you are **from outside America and are going to receive an amount in American dollars** on a future date, you will need to sell American dollars. To hedge you cannot sell American dollar futures so you will have to buy your own currency's futures:

Step 1 **Buy** the appropriate **home currency futures** contracts **now**.

Step 2 **Sell** the same number of **home currency futures** contracts on the date that you receive dollars.



3.9.2 Tackling futures questions

A number of possible stages are involved.

Step 1 **The set-up process**

This may involve the following steps.

(a) **Choose which contract**

You must choose an expiry date after the underlying exposure.

(b) **Choose type of contract**

A €125,000 contract will be used to buy or sell €. If the company owes €, it will wish to buy € so will **buy € futures**.

However, a UK company receiving $ will wish to sell $ or buy £. As the contract size is quoted in £, £62,500, the company will **buy £ futures**.

(c) **Choose number of contracts**

You need to divide the amount being hedged by the size of contract, rounding to the nearest whole contract.

You may also need to calculate how much of the currency of the future is needed. You do this by using today's price for the futures contract to convert the amount being hedged into the currency of the futures contract, and then divide by the size of the futures contract.

Step 2 **Estimate the closing futures price**

You should be given this in the question.

Step 3 **Hedge outcome**

(a) **Calculate futures market outcome**

This will be:

Movement in rate × Value of one contract × Number of contracts

(b) **Calculate net outcome**

Spot market payment or receipt translated at closing rate
+ Futures market profit/(loss)

The currency used for this calculation will be the opposite to the currency of the receipt/payment being hedged. Therefore, unless a dollar receipt or payment is being hedged, the value of the futures profit or loss will also have to be converted using the **closing spot rate**.

The gain or loss on the futures will accrue during the contract. For exam purposes you will take this gain or loss when the contract is terminated.



Worked example: Currency futures

A US company buys goods worth €720,000 from a German company payable in 30 days. The US company wants to hedge against the € strengthening against the dollar.

Current spot is €1 = $0.9215 – 0.9221 and the futures rate is 0.9245.

The standard size of a three-month € futures contract is €125,000.

In 30 days' time the spot is 0.9345 – 0.9351. Closing futures price will be 0.9367.

Requirement

Evaluate the hedge.

Solution

Step 1 **Set up**

(a) **Which contract?**

We assume that the three-month contract is the best available.

(b) **Type of contract**

We need to buy € or sell $.
As the futures contract is in €, we need to buy futures.

(c) **Number of contracts**

$$\frac{720{,}000}{125{,}000} = 5.76, \text{ say six contracts}$$

Step 2 **Closing futures price**

We're told it will be 0.9367

Step 3 **Hedge outcome**

(a) **Outcome in futures market**

Opening futures price	0.9245	Buy at low price
Closing futures rice	0.9367	Sell at high price
Movement	0.0122	Profit
Futures profit/loss	0.0122 × $125,000 × 6 contracts = $9,150	

(b) **Net outcome**

	$
Spot market payment (720,000 × 0.9351)	673,272
Futures market profit	(9,150)
	664,122

In this instance, the risk feared was the risk that the payment would go up in $ terms, as you needed more $ to buy each € that you needed to pay the European supplier.

This risk has materialised as in the end you need to pay $0.9351 to buy each € rather than $0.9221.

Buying the € futures has mitigated this loss because at the end you can sell them for more than you paid because € have become more valuable.

Interactive question 12: Currency futures [Difficulty level: Intermediate]

Allbrit plc, a company based in Bangladesh, imports and exports to the USA. On 1 May it signs three agreements, all of which are to be settled on 31 October.

(a) A sale to a US customer of goods for $205,500
(b) A sale to another US customer for TK550,000
(c) A purchase from a US supplier for $875,000

On 1 June the spot rate is TK1 = 1.5500 – 1.5520 $ and the October forward rate is at a premium of 4.00 – 3.95 cents per Taka. Taka futures contracts are trading at the following prices:

Taka futures (IMM) Contract size TK62,500

Contract settlement date	*Contract price $ per TK1*
Jun	1.5370
Sep	1.5180
Dec	1.4970

Requirements

(a) Calculate the net amount receivable or payable in pounds if the transactions are covered on the forward market.

(b) Demonstrate how a futures hedge could be set up and calculate the result of the futures hedge if, by 31 October, the spot market price for dollars has moved to 1.5800 – 1.5820 and the Taka futures price has moved to 1.5650.

See **Answer** at the end of this chapter.

3.9.3 Basis risk

Basis risk is the risk that the price of a futures contract will vary from the spot rate as expiry of the contract approaches. It is assumed that the **difference** between the spot rate and futures price (the 'basis') **falls over**

time. However, there is a risk that basis will not decrease in this predictable way (which will create an imperfect hedge). There is no basis risk when a contract is held to maturity.

In order to **manage** basis risk it is important to choose a currency future with the **closest maturity date** to the actual transaction. This reduces the **unexpired basis** when the transaction is closed out.



Worked example: Basis risk

A US company trades in Europe and will need to pay €5 million in five months' time. It is now 1 March and futures contracts mature at the relevant month end. The current spot rate is $1.2500/€1. The following futures contracts are available ($ per €1).

September 1.2456

December 1.2382

If September contracts are used, there will be two months of unexpired basis. If December contracts are used there will be five months. If basis is assumed to decline at a constant rate, the unexpired basis on 1 August under each contract would be:

	September	*December*
Spot rate now	1.2500	1.2500
Futures price	1.2456	1.2382
Difference (basis now)	0.0044	0.0118
Months until contract matures	7	10
Unexpired portion of contract on 1 August	2/7	5/10
Unexpired basis	0.0013	0.0059

The September contracts have the lower unexpired basis. Given the shorter time horizon there is less risk of significant differences between the predicted futures price and the actual futures prices on 1 August when the contracts are settled.

In this case, however, the September contracts are closed two months before expiry and there is no guarantee that the price of the futures contract will be the same as the predicted price calculated by basis at that date. It is **assumed** that the unexpired basis above is 0.0013 but it could be either more or less.

This creates a problem in that the futures contract, which in theory gives a fixed interest cost, may vary and therefore the amount of interest is not fixed or predictable. Typically, this risk is much **smaller** than the risk of remaining unhedged and, therefore, the impact of this risk is smaller and **preferable** to not hedging at all.

3.9.4 Hedge efficiency

Hedgers who need to buy or sell the underlying currency or commodity do not use the margin to trade more than they otherwise would. They can use the futures markets quite safely provided they understand how the system operates. The only risk to hedgers is that the futures market does not always provide a perfect hedge. This can result from two causes.

(a) Amounts must be **rounded to a whole number of contracts**, causing inaccuracies.
(b) **Basis risk** – as discussed above. The actions of speculators may increase basis risk.

A measure of **hedge efficiency** compares the profit made on the futures market with the loss made on the cash or commodity market, or *vice versa*.



Worked example: Hedge efficiency

You are given the following details about the results of a hedge by an American company for a payment of SFr 650,000 in 30 days' time under two scenarios. In each case compute the hedge efficiency. Assume today's spot rate is SFr1 = $0.5803. Contract size is SFr125,000.

Number of contracts = 650,000/125,000 = 5.2, round to 5.

		Scenario 1		*Scenario 2*
Futures hedge (five contracts)	$/SFr	$	$/SFr	$
Today: Buy 5 at	0.5725		0.5725	
In 30 days: Sell 5 at	0.6030		0.5610	
Gain/(loss) per contract in ticks	305		(115)	
Total gain/(loss) on 5 contracts:				
125,000 × 5 × Gain/(loss)		19,063		(7,187)
Cash transaction				
In 30 days: SFr 650,000 are actually bought at	0.6112	(397,280)	0.5680	(369,200)
Net cost of the Swiss francs		(378,217)		(376,387)

Requirement

Calculate the hedge efficiency.

Solution

The futures hedge gives slightly more or less than the target payment of $377,195 (SFr 650,000 × 0.5803) because of hedge inefficiency. To compute the hedge efficiency in each case, compute gain/loss as a percentage. In Scenario 1 the gain comes from the futures market. In Scenario 2 the gain comes from the cash market.

Hedge efficiency

	$	$
Target payment (650,000 × 0.5803)	377,195	377,195
Actual cash payment	397,280	369,200
Gain/(loss) on spot market	(20,085)	7,995
Futures gain/(loss)	19,063	(7,187)
Hedge efficiency	94.9%	111.2%

3.9.5 Margin and marking to market

There are two types of margin – **initial margin** and **variation margin**.

An **initial margin** is similar to a deposit. When a currency future is set up, the trader is required to deposit some cash (the initial margin) with the futures exchange in a **margin account**. This acts as security against the trader defaulting on their trading obligations. This money will remain in the margin account as long as the currency future remains 'open'.

We mentioned above the process of calculating the profit or loss on a contract when there is movement in the exchange rate. This profit or loss is received into or paid from the margin account on a daily basis rather than in one large amount when the contract matures. This procedure is known as **marking to market**.

The futures exchange monitors the margin account on a daily basis. If the trader is making significant losses, the futures exchange may require additional margin payments known as **variation margins**. This practice creates uncertainty as the trader will not know in advance the extent (if any) of such margin payments.

3.9.6 Advantages of currency futures

(a) **Transaction** costs should be **lower** than for forward contracts.

(b) The **exact date** of **receipt** or **payment** of the currency does **not have to be known**, because the futures contract does not have to be closed out until the actual cash receipt or payment is made. In other words, the futures hedge gives the equivalent of an 'option forward' contract, limited only by the expiry date of the contract.

(c) Because future contracts are traded on exchange-regulated markets, **counterparty risk** should be **reduced** and buying and selling contracts should be easy.

3.9.7 Disadvantages of currency futures

(a) The **contracts cannot be tailored** to the user's exact requirements.

(b) **Hedge inefficiencies** are **caused** by having to deal in a whole number of contracts and by **basis risk**.

(c) **Only certain currencies** are the subject of futures contracts.

(d) The **procedure for converting** between two currencies neither of which is the US dollar is twice as complex for futures as for a forward contract.

(e) Using the market will involve various **costs**, including brokers' fees.

3.10 Currency options

A currency option is an agreement involving a right, but not an obligation, to buy or sell a certain amount of currency at a stated rate of exchange (the **exercise price**) on or before some specified time in the future. Currency options involve the payment of a premium, which is the most the buyer of the option can lose. An option reduces the risk of losses due to currency movements but allows currency gains to be made. The premium cost means that if the currency movement is adverse, the option will be exercised, but the hedge will not normally be quite as good as that of the forward or futures contract. However, if the currency movement is favourable, the option will not be exercised, and the result will normally be better than that of the forward or futures contract. This is because the option allows the holder to profit from the improved exchange rate.

The purpose of currency options is to reduce or eliminate exposure to currency risks, and they are particularly useful for companies in the following situations.

(a) Where there is **uncertainty** about **foreign currency receipts or payments**, either in timing or amount. Should the foreign exchange transaction not materialise, the option can be sold on the market (if it has any value) or exercised if this would make a profit.

(b) To **support the tender** for an **overseas contract**, priced in a foreign currency.

(c) To allow **the publication of price lists** for the company's goods in a foreign currency.

(d) To protect the import or export of **price-sensitive goods**.

In both situations (b) and (c), the company would not know whether it had won any export sales or would have any foreign currency income at the time that it announces its selling prices. It cannot make a forward exchange contract to sell foreign currency without becoming exposed in the currency.

3.10.1 Types of currency options

A business needs to decide which types of currency options it needs to purchase.

With over-the-counter options there is usually no problem in making this decision. If, for example, a business needs to buy US dollars at some stage in the future, it can hedge by purchasing a US dollar call option. With traded options, however, only a limited number of currencies are available and there is no US dollar option as such. The company's requirements have to be rephrased.

(a) A Bangladeshi company wishing to sell US dollars in the future can hedge by purchasing Tk call options (ie options to buy Taka with dollars).

(b) Similarly, a German company which needs to buy US dollars can hedge by purchasing euro put options.

Transaction on future date		Now		On future date	
Receive	currency	Buy	currency put	Sell	currency
Pay	currency	Buy	currency call	Buy	currency
Receive	$	Buy	currency call	Buy	currency
Pay	$	Buy	currency put	Sell	currency

3.10.2 Currency option calculations

If an options calculation appears to be complicated, it is best to use a similar method to the method we used for futures to assess the impact of options.

Step 1 **Set up the hedge**

(a) Choose contract date
(b) Decide whether put or call option required
(c) Decide which exercise or strike price applies
(d) How many contracts
(e) Calculate premium (Price in table × 0.01) × Size of contract × Number of contracts

The premium may need to be converted using the spot rate

Step 2 **Ascertain closing price**

You should be given this.

Step 3 **Calculate outcome of hedge**

You may have to calculate the outcome under more than one closing spot rate.

(a) Outcome in options market. This will include:

  (i) Exercising the option
  (ii) Cash flows on exercise
  (iii) Converting amount uncovered/overcovered at spot rate

(b) Net outcome



Worked example: Currency options

A Bangladeshi company owes a US supplier $2,000,000 payable in July. The spot rate is Tk1 = $1.5350 – 1.5370 and the Bangladeshi company is concerned that the $ might strengthen.

The details for $/Tk Tk31,250 options (cents per Tk1) are as follows.

Premium cost per contract

	Calls			Puts		
Strike price	June	July	August	June	July	August
147.50	6.34	6.37	6.54	0.07	0.19	0.50
150.00	3.86	4.22	4.59	0.08	0.53	1.03
152.50	1.58	2.50	2.97	0.18	1.25	1.89

A strike price of 147.50 corresponds to an exchange rate of Tk1 = $1.4750.

Requirement

Show how traded currency options can be used to hedge the risk at 1.525. Calculate the Taka cost of the transaction if the spot rate in July is:

(a) 1.46 – 1.4620
(b) 1.61 – 1.6120

Solution

Step 1 Set up the hedge

(a) Which date contract? July

(b) Put or call? Put, we need to put (sell) pounds in order to generate the dollars we need

(c) Which strike price? 152.50, that is 1.5250

(d) How many contracts

$$\frac{2{,}000{,}000 \div 1.525}{31{,}250} \approx 41.97, \text{ say 42 contracts}$$

(e) Use July Put figure for 1.5250 of 1.25. Remember it has to be multiplied by 0.01.

Premium = (1.25 × 0.01) × Contract size × Number of contracts

Premium = 0.0125 × 31,250 × 42
= $16,406 ÷ 1.5350 (to obtain premium in Tk)
= Tk10,688

We need to pay the option premium in $ now. Therefore the bank sells low at 1.5350.

Step 2 Closing spot and futures prices

Case (a) $1.46
Case (b) $1.61

Assume here the price to use for options calculation is the same as the closing spot rate.

Step 3 Outcome

(a) **Options market outcome**

Strike price put	1.5250	1.5250
Closing price	1.46	1.61
Exercise?	Yes	No
Outcome of options position (31,250 × 42)	Tk1,312,500	–

Balance on spot market

	$
Exercise option (31,250 × 42 × 1.5250)	2,001,563
Value of transaction	2,000,000
Balance	1,563

Translated at spot rate $\frac{1{,}563}{1.46}$ = Tk1,071

(b) **Net outcome**

	Tk	Tk
Spot market outcome translated at closing spot rate $\frac{2,000,000}{1.61}$	–	(1,242,236)
Options position	(1,312,500)	–
Difference in hedge at closing rate	1,071	
The difference is a receipt as the amount owed was over-hedged.		
Premium (remember premium has to be added in separately as translated at the opening spot rate)	(10,688)	(10,688)
	(1,322,117)	(1,252,924)

Interactive question 13: OTC option

[Difficulty level: Easy]

Edted is a Bangladesh company that has purchased goods worth $2,000,000 from an American supplier. Edted is due to make payment in three months' time. Edted's treasury department is looking to hedge the risk using an over-the-counter option, A three-month dollar call option has a price of 1.4800.

Requirement

Ignoring premium costs, calculate the cost to Edted if the exchange rate at the time of payment is:

(a) TK1 = $1.4600
(b) TK1 = $1.5000

See **Answer** at the end of this chapter.

Interactive question 14: Traded option

[Difficulty level: Intermediate]

Vinnick, an American company purchases goods from Santos, a Spanish company, on 15 May on three months' credit for €600,000.

Vinnick is unsure in which direction exchange rates will move so has decided to buy options to hedge the contract at a rate of $1 = €0.7700.

The details for €10,000 options at 0.7700 are:

Calls			Puts		
July	August	September	July	August	September
2.55	3.57	4.01	1.25	2.31	2.90

The current spot rate is 0.7800.

Requirement

Calculate the dollar cost of the transaction if the spot rate in August is:

(a) 0.7500
(b) 0.8000

See **Answer** at the end of this chapter.

3.10.3 Option premiums

The level of currency option premiums depends upon the following factors:

- The **exercise price**
- The **maturity of the option**
- The **volatility** of exchange and interest rates
- **Interest rate differentials**, affecting how much banks charge

3.10.4 Advantages of currency options

Foreign currency options have the advantage that while offering protection against adverse currency movements, they need not be exercised if movements are favourable. Thus the maximum cost is the option price, while there is no comparable limit on the potential gains.

3.10.5 Disadvantages of currency options

- The cost depends on the expected volatility of the exchange rate.
- Options must be paid for as soon as they are bought.
- Tailor-made options lack negotiability.
- Traded options are not available in every currency.

3.11 Currency swaps

A currency swap (or cross-currency swap) is an interest rate swap with cash flows in different currencies. It is an agreement to make a loan in one currency and to receive a loan in another currency. With the currency swap there are three sets of cash flows. Initially, the underlying principals are exchanged when the swap starts, interest payments are then made over the life of the swap and finally the underlying principal amounts are re-exchanged. Liability on the main debt (the principal) is not transferred and the parties are liable to counterparty risk. If the other party defaults on the agreement to pay interest, the original borrower remains liable to the lender. This can present complicated legal problems and some borrowers are unwilling to get involved in swap transactions for this reason.

A currency swap could also be interpreted as issuing a bond in one currency (and paying interest on this bond) while investing in a bond in another currency (and receiving interest on this bond).



Worked example: Currency swaps 1

A simple example would be one in which a Bangladeshi company agrees with a US company to swap capital amounts at an agreed rate of exchange. Suppose a Bangladeshi company is selling satellite equipment to NASA in the USA but will not be paid (in US dollars) for two years. The Bangladeshi company could agree with another company to swap capital at an agreed rate of exchange in two years' time. The Bangladeshi company will give the counterparty US dollars and receive the Taka in return.



Worked example: Currency swaps 2

Consider a Bangladeshi company X with a subsidiary in France that owns vineyards. Assume a spot rate of Tk1 = 1.2000 euros. Suppose the parent company wishes to raise a loan of 1.2 million euros for the purpose of buying another French wine company. At the same time, the French subsidiary Y wishes to raise Tk1 million to pay for new up-to-date capital equipment imported from Bangladesh. The Bangladesh parent company X could borrow the Tk1 million and the French subsidiary Y could borrow the 1.2 million euros, each effectively borrowing on the other's behalf. This is known as a back-to-back loan.

3.11.1 Advantages of currency swaps

(a) **Flexibility**

Swaps are **easy to arrange** and are **flexible** since they can be arranged in any size and are reversible.

(b) **Cost**

Transaction costs are low, only amounting to legal fees, since there is no commission or premium to be paid.

(c) **Market avoidance**

The parties can **obtain the currency they require** without subjecting themselves to the **uncertainties** of the foreign exchange markets.

(d) **Access to finance**

The company can gain **access to debt finance in another country** and currency where it is little known, and consequently has a poorer credit rating, than in its home country. It can therefore take advantage of lower interest rates than it could obtain if it arranged the currency loan itself.

(e) **Financial restructuring**

Currency swaps may be used to **restructure the currency base** of the company's liabilities. This may be important where the company is trading overseas and receiving revenues in foreign currencies, but its borrowings are denominated in the currency of its home country. Currency swaps thereby provide a means of reducing exchange rate exposure.

(f) **Conversion of debt type**

At the same time as exchanging currency, the company may also be able to **convert fixed rate debt** to **floating rate or *vice versa***. Thus it may obtain some of the benefits of an interest rate swap in addition to achieving the other purposes of a currency swap.

(g) **Liquidity improvement**

A currency swap could be used to **absorb excess liquidity** in one currency which is not needed immediately, to create funds in another where there is a need.

3.11.2 Disadvantages of currency swaps

(a) **Risk of default by the other party to the swap (counterparty risk)**

If one party became **unable to meet its swap payment obligations**, this could mean that the other party risked having to make them itself.

(b) **Position or market risk**

A company whose main business lies outside the field of finance should **not increase financial risk** in order to make **speculative gains**.

(c) **Sovereign risk**

There may be a risk of **political disturbances or exchange controls** in the country whose currency is being used for a swap.

(d) **Arrangement fees**

Swaps have arrangement fees payable to third parties. Although these may appear to be inexpensive, this is because the intermediary accepts **no liability** for the swap. (The third party does however suffer some spread risk, as they warehouse one side of the swap until it is matched with the other, and then undertake a temporary hedge on the futures market.)

3.12 FOREX (FX) swaps

An FX swap is a spot currency transaction coupled with an agreement that it will be reversed at a pre-specified date by an offsetting forward transaction.

Although the FOREX swap is arranged as a single transaction, it consists of two separate legs. The counterparties agree to exchange two currencies at a particular rate on one date and to reverse payments normally at a different rate on a specified future date. The two legs can therefore be seen as one spot **transaction** and **one forward transaction** going the **opposite direction**.

A FOREX swap is called a *buy/sell* swap when the base currency, eg the dollar, is bought on the near date and sold on the far date, and is called a *sell/buy* swap when the base currency is sold on the near date and bought on the far date.

A FOREX swap is useful for hedging because it allows companies to shift temporarily into or out of one currency in exchange for a second currency without incurring the exchange rate risk of holding an open position in the currency they temporarily hold. This avoids a change in currency exposure which is the role of the forward contract.

Worked example: FOREX swap

An example of a FOREX swap is where Bank ABC enters into a FOREX swap with Bank 123 to:

- Sell USD1,000,000 worth of Japanese Yen (JPY) today
- Buy USD1,000,000 worth of JPY in one week's time

This FOREX swap (known as a spot to forward date swap) would look something like this:

Today	Bank ABC sells JPY and buys USD	JPY → / ← USD	Bank 123 buys JPY and sells USD
One week	Bank ABC buys JPY and sells USD	← JPY / USD →	Bank 123 sells JPY and buys USD

In the above example, the FOREX swap is made up of a spot FOREX transaction and a one-week forward transaction. Other types of FOREX swaps include transactions where both the first and second halves (legs) occur in the future. These are known as forward against forward swaps, and are, in effect, two forward transactions operating in parallel.

Interactive question 15: El Dorado part 1 [Difficulty level: Intermediate]

El Dorado Ltd, an engineering company based in the UK, has won a contract to build a theme park ride in Bangladesh. This project will require an initial investment of 500 million Bangladesh Taka and will be sold for 900 million Taka to Bangladesh government in one year's time. As the Bangladesh government will pay in Taka, El Dorado is exposed to movements in the £/Tk exchange rate.

Requirement

Construct a FOREX (FX) swap that will help to hedge the exchange rate risk.

See **Answer** at the end of this chapter.

Interactive question 16: El Dorado part 2 [Difficulty level: Intermediate]

Look again at El Dorado part 1.

Assume that the currency spot rate is 100 Taka/£ and Bangladesh government has offered a FOREX swap at that rate. The estimated spot rate in one year's time (when the government will pay for the theme park ride) is 180 Tk/£. The current UK borrowing rate is 8%.

Requirement

Should El Dorado hedge the exposure using the swap or should it just do nothing? Show all workings to support your answer.

See **Answer** at the end of this chapter.

3.13 Devising a foreign currency hedging strategy

Given the wide range of financial instruments (both internal and external) available to companies that are exposed to foreign currency risk, how can an appropriate strategy be devised that will achieve the objective of reduced exposure while at the same time keeping costs at an acceptable level and not damaging the company's relationship with its customers and suppliers?

There is no individual best way of devising a suitable hedging strategy – each situation must be approached on its own merits. Unless you are told otherwise, it should be assumed that the company will be wanting to minimise its risk exposure – it is up to you to come up with the most appropriate way of doing so. You should be prepared to justify your choice of strategy.

Worked example: Foreign currency hedging

Assume you are a financial manager with the nationally-owned postal and telecommunications company in Zorro, a country in Asia. In organisations such as this, periodic settlements are made between local and foreign operators. Net receipts or payments are in US$.

Requirements

Explain the main types of foreign exchange risk exposure that are likely to affect the organisation and advise the company on policies it could consider to reduce exposure to these risks.

Solution

Exchange risks in Zorro

Transactions exposure

This is the risk that the exchange rate **moves unfavourably** between the **date of agreement** of a contract price and the **date of cash settlement**.

Economic exposure

This is the risk of an **adverse change in the present value** of the organisation's future cash flows as a result of longer-term exchange rate movements.

Netting off

The Zorro postal and telecommunications company will receive **domestic income** in its local currency but will make **settlements** (net receipts or payments) with foreign operators in US dollars. It may appear that most of the **currency risk** is **hedged** because **dollar payments** are balanced against **dollar receipts** before settlement. However, although this is a good way of reducing currency transaction costs, it does not remove currency risk.

Residual risk

Although the foreign transactions are denominated in dollars, the exchange risk involves all the **currencies of the countries** with which the company deals. For example, if money is owed to Germany and the euro has

strengthened against the dollar, then the dollar cost of the transaction has increased. Also, although all of these transactions are short term, their combined effect is to expose the company to **continuous exchange risk** on many currencies. The company needs a strategy to manage this form of **economic exposure**.

Management of currency risk

One way to manage currency risk in this situation is to attempt to **match assets and liabilities** in each currency as follows.

(i) The company needs to examine each country with which it deals and, having selected those with which it has a material volume of transactions, **determine in each case** whether there is a **net receipt** or **net payment** with that country and the average amount of this net receipt/payment.

(ii) If for a given country there is normally a net receipt, currency risk can be hedged by **borrowing an amount** in that currency equal to the **expected net receipt** for the period for which hedging is required, and **converting this amount** to the home currency.

(iii) For countries where there is **normally a net payment**, a **deposit account** in this currency should be maintained.

Recommendation

This strategy will go some way towards hedging currency risk in the various countries involved, but will involve **increased currency transaction costs** and possibly **increased interest costs**. It is therefore probably only feasible for major currencies (eg dollar, euro, yen) and for currencies of Asian countries with which there are major transaction volumes.

4 Hedge accounting



Section overview

- If a business uses financial instruments for fair value or cash flow hedging, it will be subject to hedge accounting rules if certain conditions are fulfilled. The rules relating to where changes in value are recognised differ for fair value and cash flow hedges.

Hedge accounting is the accounting process which reflects in financial statements the commercial substance of hedging activities. It results in the gains and losses on the linked items being recognised in the same accounting period and in the same section of the statement of comprehensive income, ie both in profit or loss, or both in other comprehensive income.

Hedge accounting reduces or eliminates the volatility in profit or loss which would arise if changes in the value of derivatives had to be accounted for separately. Designation of hedging arrangements means that volatility in the values of the original derivatives is offset.

Hedge accounting rules are particularly important for many companies, as companies will use derivatives for risk management and not speculative purposes.

4.1 Hedge accounting

The main components of hedge accounting are:

- The **hedged item**: this is an asset, a liability, a firm commitment (such as a contract to acquire a new oil tanker in the future) or a forecast transaction (such as the issue in four months' time of fixed rate debt) which exposes the entity to risks of fair value/cash flow changes. The hedged item generates the risk which is being hedged.
- The **hedging instrument**: this is a derivative or other financial instrument whose fair value/cash flow changes are expected to offset those of the hedged item. The hedging instrument reduces/eliminates the risk associated with the hedged item.
- There is a designated relationship between the item and the instrument which is documented.

- At inception the hedge must be expected to be highly effective and it must turn out to be highly effective over the life of the relationship (see below).
- The effectiveness of the hedge, can be reliably assessed on an ongoing basis.
- In respect of a cash flow hedge, a forecast transaction is highly probable.
- To qualify for hedging, the changes in fair value/cash flows must have the potential to affect profit or loss.
- There are two main types of hedge:
  - The **fair value hedge**: the gain and loss on such a hedge are recognised in profit or loss.
  - The **cash flow hedge:** the gain and loss on such a hedge are initially recognised in other comprehensive income and subsequently reclassified to profit or loss.

Hedge effectiveness is the degree to which the changes in the fair value or cash flows of the hedged item that are attributable to a hedged risk are offset by changes in the fair value or cash flows of the hedging instrument. Hedge effectiveness should be tested on both a prospective and retrospective basis because hedge accounting should only be applied when:

- At the time of designation the hedge is expected to be highly effective; and
- The hedge turns out to have been highly effective throughout the financial reporting periods for which it was designated.

The highly effective hurdle is achieved if the actual results of a hedge are within the range from 80% to 125%.

4.2 Hedged items

Definitions



A **hedged item** is an asset, liability, firm commitment, highly probable forecast transaction or net investment in a foreign operation that:

- Exposes the entity to risk of changes in fair value or future cash flows; and
- Is designated as being hedged.

A **firm commitment** is a binding agreement for the exchange of a specified quantity of resources at a specified price on a specified future date or dates.

A **forecast transaction** is an uncommitted but anticipated future transaction.

Hedged items are exposed to a variety of risks that affect the value of their fair value or cash flows. For hedge accounting, these risks need to be identified and hedging instruments which modify the identified risks selected and designated. The risks for which the above items can be hedged are normally classified as:

- Market risk

  Which can be made up of:
  - Price risk
  - Interest rate risk
  - Currency risk
- Credit risk
- Liquidity risk

IAS 39 allows for a portion of the risks or cash flows of an asset or liability to be hedged. The hedged item may, for example, be:

- Oil inventory (which is priced in $) for a Bangladeshi company, where the fair value of foreign currency risk is being hedged but not the risk of a change in $ market price of the oil.

- A fixed rate liability, exposed to foreign currency risk, where only the interest rate and currency risk are hedged but the credit risk is not hedged.

Other important aspects of the definition are:

- The hedged item can be:
  - A single asset, liability, unrecognised firm commitment, highly probable forecast transaction or net investment in a foreign operation.
  - A group of assets, liabilities, firm commitments, highly probable forecast transactions or net investments in foreign operations with similar risk characteristics; or
  - A portion of a portfolio of financial assets or financial liabilities which share exposure to interest rate risk. In such a case the portion of the portfolio that is designated as a hedged item is a hedged item with regard to interest rate risk only.
- Assets and liabilities designated as hedged items can be either financial or non-financial items.
  - Financial items can be designated as hedged items for the risks associated with only a portion of their cash flows or fair values. So a fixed rate liability which is exposed to foreign currency risk can be hedged in respect of currency risk, leaving the credit risk not hedged.
  - But non-financial items such as inventories shall only be designated as hedged items for foreign currency risks or for all risks. The reason is that it is not possible to separate out the appropriate portions of the cash flow or fair value changes attributable to specific risks other than foreign currency risk.
- Only assets, liabilities, firm commitments or highly probable transactions that involve a party external to the entity can be designated as hedged items.
- As an exception, an intra-group monetary item qualifies as a hedged item in the consolidated financial statements if it results in an exposure to foreign exchange rate gains and losses that are not eliminated on consolidation.

4.3 Hedging instruments

Definition



A hedging instrument is a designated derivative or, for a hedge of the risk of changes in foreign currency exchange rates only, a designated non-derivative financial asset or non-derivative financial liability, whose fair values or cash flows are expected to offset changes in the fair value or cash flows of a designated hedged item.

The types of hedging instruments that can be designated in hedge accounting are:

- **Derivatives**, such as forward contracts, futures contracts, options and swaps; and
- **Non-derivative financial instruments, but only for the hedging of currency risk**. This category includes foreign currency cash deposits, loans and receivables, available for sale monetary items and held-to-maturity instruments carried at amortised cost.

Any derivative financial instrument, with the exception of written options to which special rules apply, can be designated as a hedging instrument. Derivative instruments have the important property that their fair value is highly correlated with that of the underlying.

4.4 Fair value hedges

A fair value hedge is a hedge of an entity's exposure to changes in fair value of a recognised asset or liability or an unrecognised firm commitment, or a part thereof, that is attributable to a particular risk and could affect profit or loss. Examples of fair value hedges include the hedge of exposures to changes in fair value of fixed rate debt using an interest rate swap and the use of an oil forward contract to hedge movements in the price of oil inventory.

Examples of fair value hedging

Hedged item	Risk exposure	Type of risk	Example of hedging instrument
Commodity inventory	Change in value due to changes in the price of commodity	Market risk (price risk)	Forward contract
Equities	Change in the value of the investments due to changes in the price of equity	Market risk (price risk)	Purchase put option
Issued fixed rate bond	Change in the value of the bond as interest rates change	Market risk (interest rate risk)	Interest rate swap
Purchase of materials denominated in foreign currency in three months	Depreciation of the local currency and increase in the cost of material	Market risk (foreign currency)	Forward contract

IAS 39 does not require that in order for a hedging relationship to qualify for hedge accounting, it should lead to a reduction in the overall risk of the entity. A hedging relationship that satisfies the conditions for hedge accounting may be designed to protect the value of a particular asset.

If a fair value hedge meets the conditions for hedge accounting during the period, it should be accounted for as follows:

- The gain or loss from remeasuring the hedging instrument at fair value (for a derivative hedging instrument) or the foreign currency component of its carrying amount measured in accordance with IAS 21 (for a non-derivative hedging instrument) should be recognised in profit or loss; and
- The gain or loss on the hedged item attributable to the hedged risk adjusts the carrying amount of the hedged item and is recognised in profit or loss.

If the fair value hedge is 100% effective, then the change in the fair value of the hedged item will be wholly offset by the change in the fair value of the hedging instrument and there will be no effect in profit or loss. Whenever the hedge is not perfect and the change in the fair value of the hedged item is not fully cancelled by change in the fair value of the hedging instrument, the resulting difference will be recognised in profit or loss. This difference is referred to as hedge ineffectiveness.

4.5 Cash flow hedges

A cash flow hedge is a hedge of the variability in an entity's cash flows. The variability should be attributable to a particular risk associated with:

- A recognised asset or liability; or
- A highly probable forecast transaction

and could affect profit or loss.

Examples of cash flow hedges include:

- The use of interest rate swaps to change floating rate debt into fixed rate debt. The entity is hedging the risk of variability in future interest payments which may arise for instance from changes in market interest rates. The fixed rate protects this cash flow variability (but with the consequence that the fair value of the instrument may now vary in response to market interest movements).
- The use of a commodity forward contract for a highly probable sale of the commodity in future. The entity is hedging the risk of variability in the cash flows to be received on the sale, due to changes in the market price of the goods.

The hedge of foreign currency assets and liabilities using forward exchange contracts can be treated as either a fair value or a cash flow hedge. This is because movements in exchange rates change both the fair value of such assets and liabilities and ultimate cash flows arising from them. Similarly, a hedge of the foreign currency risk of a firm commitment may be designated as either a fair value or a cash flow hedge.

A forecast transaction is an uncommitted but anticipated future transaction. To qualify for cash flow hedge accounting, the forecast transaction should be:

- Specifically identifiable as a single transaction or a group of individual transactions which share the same risk exposure for which they are designated as being hedged.
- Highly probable.
- With a party that is external to the entity.

If a cash flow hedge meets the qualifications for hedge accounting during the period it should be accounted for as follows:

- The portion of the gain or loss on the hedging instrument that is determined to be an effective hedge should be recognised in other comprehensive income and held in a separate component in equity; and
- The ineffective portion of the gain or loss on the hedging instrument should be recognised in profit or loss.

On a cumulative basis the effective portion can be calculated by adjusting the separate component of equity associated with the hedged item to the lesser of the following (in absolute amounts):

- The cumulative gain or loss on the hedging instrument from inception of the hedge.
- The cumulative change in the fair value (present value) of the expected future cash flows on the hedged item from inception of the hedge.

Any remaining gain or loss on the hedging instrument is the ineffective portion and should be recognised in profit or loss.

The hedged item is not itself recognised in the financial statements.

4.6 Review Draft: Hedge accounting section of IFRS 9

This is the third phase of the project to replace IAS 39. The hedge accounting rules have been criticised as being complex and not reflecting the entity's risk management activities, nor the extent to which they are successful. The IASB aims to address these issues in its revision of the current hedge accounting rules.

In September 2012, the IASB issued a Review Draft of the hedge accounting chapter of IFRS 9 *Financial Instruments.* The Review Draft has been issued as a 'fatal flaw' check before becoming Chapter 6 of IFRS 9 and has taken into account comments received on an Exposure Draft issued in December 2010. The changes will not come into force until 2015 at the earliest.

You do not need to know this in detail for your *Strategic Business Management* exam, but you need to be aware that IFRS 9 remains a current issue in financial reporting, and that the standard will affect the rules for hedge accounting.

4.6.1 Hedge effectiveness

Under the proposals the 80% – 125% 'bright line' test of whether a hedging relationship qualifies for hedge accounting would be replaced by an objective-based assessment, ie that:

(a) There is an economic relationship between the hedged item and the hedging instrument, ie the hedging instrument and the hedged item have values that generally move in the opposite direction because of the same risk, which is the hedged risk.

(b) The effect of credit risk does not dominate the value changes that result from that economic relationship, ie the gain or loss from credit risk does not frustrate the effect of changes in the underlyings on the value of the hedging instrument or the hedged item, even if those changes were significant.

(c) The hedge ratio of the hedging relationship (quantity of hedging instrument vs quantity of hedged item) is the same as that resulting from the quantity of the hedged item that the entity actually hedges and the quantity of the hedging instrument that the entity actually uses to hedge that quantity of hedged item.

This allows genuine hedging relationships to be accounted for as such whereas the IAS 39 rules sometimes prevented management from accounting for an actual hedging transaction as a hedge.

4.6.2 Fair value hedges

The IAS 39 treatment of recognising both changes in the fair value of the hedged item and changes in value of the hedging instrument in profit or loss will be retained.

However, if the hedged item is an investment in an equity instrument held at fair value through other comprehensive income, the gains and losses on both the hedged investment and the hedging instrument will be recognised in other comprehensive income.

This ensures that hedges of investments of equity instruments held at fair value through other comprehensive income can be accounted for as hedges.

4.6.3 Cash flow hedges

These will continue to be accounted for as under IAS 39. Hedging gains and losses recognised in other comprehensive income will be recognised in a separate cash flow hedge reserve in equity.



Interactive question 17: Hedging strategies [Difficulty level: Intermediate]

(a) Discuss briefly four techniques a company might use to hedge against the foreign exchange risk involved in foreign trade.

(b) Fidden plc is a medium-sized Bangladesh company with export and import trade with the USA. The following transactions are due within the next six months. Transactions are in the currency specified.

Purchases of components, cash payment due in three months:	Tk116,000
Sale of finished goods, cash receipt due in three months:	$197,000
Purchase of finished goods for resale, cash payment due in six months:	$447,000
Sale of finished goods, cash receipt due in six months:	$154,000

Exchange rates (London market)

	$/Tk
Spot	1.7106 – 1.7140
Three months forward	0.82 – 0.77 cents premium
Six months forward	1.39 – 1.34 cents premium

Interest rates

Three months or six months	*Borrowing*	*Lending*
Taka	12.5%	9.5%
Dollars	9%	6%

Foreign currency option prices (New York market)
Prices are cents per Tk, contract size Tk12,500

	Calls			*Puts*		
Exercise price ($)	*March*	*June*	*Sept*	*March*	*June*	*Sept*
1.60	–	15.20	–	–	–	2.75
1.70	5.65	7.75	–	–	3.45	6.40
1.80	1.70	3.60	7.90	–	9.32	15.35

Assume that it is now December with three months to the expiry of March contracts and that the option price is not payable until the end of the option period, or when the option is exercised.

Requirements

(i) Calculate the net Taka receipts and payments that Fidden might expect for both its three- and six-month transactions if the company hedges foreign exchange risk on:

- The forward foreign exchange market
- The money market

(ii) If the actual spot rate in six months' time turned out to be exactly the present six-month forward rate, calculate whether Fidden would have done better to have hedged through foreign currency options rather than the forward market or the money market.

(c) PRW appears to have hedged a large foreign currency payment due on 30 April 20X8 with a foreign currency transaction that it entered into in October 20X7 and has accounted for this hedge using cash flow hedging. It is currently 31 March 20X8 and you are involved in the audit of PRW for the year ended 28 February 20X8. There has been a large fair value loss on the hedging arrangement as calculated at 28 February 20X8. The documentation connected with the hedging was not given to you until some days after you requested it, and you are suspicious that it may not have been prepared until after you asked to see it.

Requirement

Explain the corporate reporting issues and assurance risks that arise as a result of your suspicions about the hedging documentation, and describe the assurance work you would carry out on the hedging arrangements.

See **Answer** at the end of this chapter.

Summary and Self-test

Summary

There are numerous financial instruments available for hedging interest rate risk and foreign currency risk – the key is being able to determine which one(s) are most compatible with the overall financial strategy.

Issues that should be taken into consideration when deciding between alternatives include cost, flexibility, expectations and ability to benefits from favourable movements in interest and currency rates.

As well as financial instruments, companies can make use of internal techniques to reduce currency exposure, including matching assets and liabilities, and leading and lagging.

Financial reporting standards require extensive disclosures about the financial risks companises face and also determine how companies should account for hedging arrangements.

Self-test

Self-test question 1

Prices (premiums) on 1 June for CU traded currency options on the Philadelphia Stock Exchange are shown in the following table:

CU option contracts of CU31,250 contracts (cents per CU)

Exercise price	*Calls*		*Puts*	
$/CU	September	December	September	December
1.5000	5.55	7.95	0.42	1.95
1.5500	2.75	3.85	4.15	6.30
1.6000	0.25	1.00	9.40	11.20

Prices are quoted in cents per CU. On the same date, the September CU futures contract (contract size CU62,500) is trading at $/CU 1.5390 and the current spot exchange rate is $1.5404 – $1.5425. Stark Inc, a US company, is due to receive CU CU3.75 million from a customer in four months' time at the end of September. The treasurer decides to hedge this receipt using either September CU traded options or September CU futures.

Requirements

Compute the results of hedging using:

(a) Futures
(b) Options

(Illustrating the results with all three possible option exercise prices.) If by the end of September the spot exchange rate moves to (i) 1.4800; (ii) 1.5700; (iii) 1.6200. Assume that the futures price moves by the same amount as the spot rate and that by the end of September the options contracts are on the last day before expiry.

Self-test question 2

(a) Briefly discuss the problems of using futures contracts to hedge exchange rate risks.

(b) Identify and explain the key reasons why small vs large companies may differ in terms of both the extent of foreign exchange and interest rate hedging that is undertaken, and the tools used by management for such purposes.

Self-test question 3

Assume that you are the financial manager of a UK company which currently trades only with major European countries. Your managing director has strongly advocated that the UK should adopt the euro, which will result in significant savings in transactions costs, and will eliminate all foreign exchange exposure for your company.

Discuss whether or not the managing director is correct in his comments.

Self-test question 4

It is 31 May 20X5, Edgington, a UK computer retailer, is about to enter a contract with Curren, an American company, to purchase computer equipment costing $7 million. Payment will be made on the date of the delivery, which per the contract is due on 31 October 20X5.

Edgington is considering two alternatives:

(a) Do not hedge and therefore accept any consequent exchange rate risks.

(b) Enter into a foreign exchange forward contract today to purchase $7 million on 31 October 20X5.

The current spot exchange rate and forward rate are both CU1 = $1.5758.

If it decides to hedge, Edgington intends to treat the contract as a fair value hedge for financial reporting purposes, assuming that it can satisfy the hedge accounting conditions.

Edgington's directors have made the following assumptions about foreign exchange rate movements:

	30 June 20X5 (Edgington's year-end)	31 October 20X5
Spot rate	CU1 = $1.4847	CU1 = 1.3763
Fair value of forward contract	CU273,056 positive (in Edgington's favour)	CU644,285 positive

Requirements

(a) Based on the assumptions that the directors have made, advise Edgington on whether it should enter into the forward contract or accept the foreign exchange risk without hedging.

(b) Produce journal entries based on the assumptions, showing the impact of the forward contract on the financial statements for the year ended 30 June 20X5 and 30 June 20X6 under each of the following scenarios.

- There is no hedging arrangement in place.
- Edgington enters into the forward contract, but does not satisfy the conditions for hedge accounting.
- Edgington enters into the forward contract, satisfies the conditions for hedge accounting and uses fair value hedge accounting.

Technical References

IAS 32, *Financial Instruments: Presentation*

- IAS 32 outlines the requirements for the presentation of financial instruments, particularly the classification of these instruments into financial assets, financial liabilities and equity instruments. The standard also provides guidance on the classification of interest, dividends and gains or losses relating to the financial instruments.

Overview

IAS 39, *Financial Instruments: Recognition and Measurement*

- IAS 39 is a companion to IAS 32 and outlines the requirements for the recognition and measurement of financial assets, financial liabilities, and some contracts to buy or sell non-financial items.

Overview

IFRS 7, *Financial Instruments: Disclosures*

- IFRS 7 prescribes disclosure about the significance of financial instruments to an entity's position and performance, and about the nature and extent of the risks arising from those financial instruments, in both quantitative and qualitative terms.

Overview

IFRS 9, *Financial Instruments*

- IFRS 9 is currently still a work in progress, but it will eventually form a complete replacement for IAS 39. IFRS 9 sets out the recognition and measurement requirements for financial instruments and some contracts to buy or sell non-financial items.

Overview

IAS 21, *The effects of changes in foreign exchange rates*

- IAS 21 prescribes how to include foreign currency transactions and foreign operations in the financial statements of an entity, and how to translate financial statements into a presentation currency. The principal issues are: which exchange rate(s) to use, and how to report the effects of changes in exchange rates.

Overview

Answers to Interactive questions

Answer to Interactive question 1

The asset underlying the future is a notional three-month deposit of £500,000. In the example, the price of the future alters by 0.10 % (94.63 – 94.53), or ten ticks. So the profit on each contract would be:

£125,000 × 0.001 = £125

Answer to Interactive question 2

The solution to this question takes a slightly different approach from the example above. Rather than converting into monetary terms at each stage we leave the answers in % and convert into money at the end. Either approach is acceptable.

Set up

(a) What contract? **Three months**

(b) What type? **Sell** (as Rumble is borrowing and rates are expected to rise)

(c) How many contracts? $\frac{\text{Exposure}}{\text{Contract size}} \times \frac{\text{Loan period}}{\text{Length of contract}}$ = ($4m/$1m) × (3/3) = **4 contracts**

(d) Date? **June** (start of the loan)

Closing price

The closing price has to be calculated using basis.

	Now – 1 March	(a) – 1 June	(b) – 1 June
June future	3.90	4.10	3.10
LIBOR	3.50	4.00	3.00
Basis	0.40	0.10	0.10
	This basis represents four months from beginning of December to end of March	One month's basis remains (that is, 0.40/4). We know LIBOR therefore price of June future on 1 March is the balancing figure	

Outcome

	(a)	(b)
Actual loan rate (LIBOR + 1%)	5.00	4.00
Profit/loss on future		
Opening rate (pay)	3.90	3.90
Closing rate (receive)	4.10	3.10
	0.20	0.80
	PROFIT	LOSS
Net rate	4.80	4.80

NOTE THE FIXED OUTCOME

In $ this represents 4.8% × $4m × 3/12 = $48,000

Answer to Interactive question 3

Set up

(a) **Which contract?** June

(b) **What type?** Put (as we are paying interest on borrowings)

(c) **Strike price** 96.25 (100 – 3.75)

(d) **How many?** $\frac{\text{Exposure}}{\text{Contract size}} \times \frac{\text{Loan period}}{\text{Length of contract}} = (\$4m/\$1m) \times (3/3) = 4 \text{ contracts}$

(e) **Premium** At 96.25 (3.75%) June Puts = 0.255%

$$\text{Contracts} \times \text{premium} \times \frac{\text{Size of contract}}{\left(\frac{12 \text{ months}}{\text{Length of contract}}\right)} = 4 \times 0.00255 \times [\$4m/(12/3)] = \$10,200$$

Outcome

Options market outcome	(a)	(b)
Right to pay interest at	5.00%	4.00%
Profit/loss on option		
Opening position – put	3.75%	3.75%
Closing position – future (see calculation in earlier question	4.10%	3.10%
	0.35% (profit)	Do not exercise option
Net outcome	5.00 + 0.255 – 0.35	4.00 + 0.255
	= 4.905%	= 4.255%
In $	0.04905 × $4m × 3/12	0.04255 × $4m × 3/12
	= $49,050	$42,550

Answer to Interactive question 4

On the settlement date, the borrower will receive the following amount from the lender:

$$S = \$10 \text{ million} \times \frac{(0.038 - 0.035) \times (180/360)}{[1 + (0.038 \times (180/360))]}$$

S = $14,720.31

Answer to Interactive question 5

Company wants	Floating	Fixed	
Would pay (no swap)	(LIBOR + 0.75%)	(10.5%)	(LIBOR + 11.25%)
Could pay	(9%)	(LIBOR + 1.5%)	(LIBOR + 10.5%)
Commission	(0.15%)	(0.15%)	(0.3%)
Potential gain			0.45%
(difference between would pay and could pay – commission)			
split evenly	0.225%	0.225%	
Expected outcome			
(would pay + potential gain)	(LIBOR + 0.525%)	(10.275%)	(LIBOR + 10.8%)
Swap terms			
Could pay	(9%)	(LIBOR + 1.5%)	(LIBOR + 10.5%)

Swap floating	(LIBOR + 1.5%)	LIBOR + 1.5%	
Swap fixed (W)	10.125%	(10.125%)	
Commission	(0.15%)	(0.15%)	(0.3%)
Net paid	(LIBOR + 0.525%)	(10.275%)	(LIBOR + 10.8%)
Would pay	(LIBOR + 0.75%)	(10.5%)	(LIBOR + 11.25%)
Gain	0.225%	0.225%	0.45%

Both companies make a net gain of 0.225%. The swap proceeds as follows.

Step 1 Seeler Muller raises a fixed interest rate five-year loan for €300 million at 9% interest.

Step 2 Overath Maier raises a floating rate €300 million loan at LIBOR + 1.5%.

Step 3 The companies swap loan principals.

Step 4 Each year, each company pays its own loan interest and swaps the interest to the counterparty and receives the interest swap from the counterparty. As shown above, the exact payments between the two companies will depend on how the gains are to be split.

Here the floating swap is the floating interest Overath Maier pays. The fixed interest swap can be calculated as:

$$10.5\% - \frac{11.25 - 10.5}{2} = 10.125\%$$

Step 5 At the end of five years the loan principals are swapped back and the companies repay their original loans.

Answer to Interactive question 6

Today, $S1.000 buys NF4.7250.

NF4.7250 could be placed on deposit for 90 days to earn interest of NF (4.7250 × 0.075 × 90/365) = NF0.0874, thus growing to NF (4.7250 + 0.0874) = NF4.8124.

This is then worth $S 1.0130 at the 90-day exchange rate (4.8124/4.7506).

This tells us that the annualised expected interest rate on 90-day deposits in Southland is 0.013 × 365/90 = 5.3%.

Alternatively, applying the formula we have the following.

Northland interest rate on 90-day deposit = i_n = 7.5% × 90/365 = 1.85%

Southland interest rate on 90-day deposit = i_s

90-day forward exchange rate = S_f = 0.21050

Spot exchange rate = S_o = 0.21164

$$\frac{1+i_s}{1+0.0185} = \frac{0.21050}{0.21164}$$

$1 + i_s = 1.0185 \times 0.21050 \div 0.21164 = 1.013$

i_s = 0.013, or 1.3%

Annualised, this is 0.013 × 365/90 = 5.3%

Answer to Interactive question 7

The exchange rate will be:

$$\text{Future spot rate} = 1.7 \times \frac{1.05}{1.04} = 1.716$$

That is the dollar is expected to depreciate relative to Taka by $0.016 or 0.9%.

Answer to Interactive question 8

The nominal interest rate in the US is:

$$\frac{1+i_c}{1+i_b} = \frac{1+h_c}{1+h_b}$$

$$1 + i_c = \left[\frac{1+h_c}{1+h_b}\right] \times (1+i_b)$$

$$= \left[\frac{1+0.05}{1+0.04}\right] \times (1+0.06)$$

$$= 1.070$$

The nominal interest rate in the US is therefore 7%.

The real interest rate in both countries is approximately 2% (the difference between the nominal interest rate and the inflation rate for each country).

Answer to Interactive question 9

Since:

$ interest rate – Tk interest rate = 0.01

it means that:

$$\frac{\text{Future spot rate} - \text{Current spot rate}}{\text{Current spot rate}} = 1\%$$

And the implication is that the dollar will depreciate by 1%.

Answer to Interactive question 10

The German bank will buy $ at the lower rate 0.7810.
The premium should be deducted from this rate 0.7810 – 0.0005 = 0.7805.
As the $ is the base currency, multiply the amount in $ by the forward rate:
1,500,000 × 0.7805 = €1,170,750

Answer to Interactive question 11

We need to borrow now to match the receipt we shall obtain.

	France		US
Now	€3,129,764	← @ 1.5912	$4,980,080
	↓ @ 1.0065**		↑ @ 1.004*
3 months	€3,150,107		$5,000,000

* $\frac{3}{12} \times 1.6\% = 0.4\%$

** $\frac{3}{12} \times 2.6\% = 0.65\%$

- Borrow an amount in US which will be repaid in three months, so that principal and interest will equal $5,000,000 (1.6% pa = 0.4% for three months). Total paid off by $ receipt in three months' time
- Convert principal in $ to € at spot (€1 = $1.5912)
- Invest € in money market (2.6% pa = 0.65% for three months)
- The deposit will grow to €3,150,107

Answer to Interactive question 12

(a) Before covering any transactions with forward or futures contracts, match receipts against payments. The Taka receipt does not need to be hedged. The dollar receipt can be matched against the payment giving a net payment of $669,500 on 31 October.

The appropriate spot rate for buying dollars on 1 May (bank sells low) is 1.5500. The forward rate for October is *spot – premium* = 1.5500 – 0.0400 = 1.5100.

Using a forward contract, the Taka cost of the dollar payment will be 669,500/1.5100 = Tk443,377. The net cash received on October 31 will therefore be Tk550,000 – 443,377 = Tk106,623.

(b) **Set up**

Step 1

(a) **Which contract**

December contracts

(b) **Type of contract**

Sell Taka futures in May, we sell the Taka in order to buy the $ that we need

(c) **Number of contracts**

Here we need to convert the dollar payment to TK as contracts are in TK

Using December futures price:

$$\frac{669,500}{1.4970} = TK447,228$$

$$\text{No of contracts} = \frac{Tk447,228}{62,500}$$

= 7.16 contracts, round to 7

Step 2

Closing futures price

1.5650 given in question

Step 3

Result of futures market

(a) **Futures market outcome**

Opening futures price	1.4970 Sell
Closing futures price	1.5650 Buy
Movement	0.0680 Loss

Futures market loss = 0.0680 × 62,500 × 7 = $29,750

(b) **Net outcome**

	$
Spot market payment	(669,500)
Futures market loss	(29,750)
	(699,250)
Translated at closing spot rate	1.5800
The bank sells low hence we use the rate of 1.5800	TK442,563

Answer to Interactive question 13

As the option is an over-the-counter option, it is possible to have a dollar call option and to cover the exact amount.

(a) If the exchange rate is 1.4600, the option will be exercised and the cost will be:

$$\frac{2,000,000}{1.4800} = TK1,351,351$$

(b) If the exchange rate is 1.5000, the option will not be exercised, and the cost will be:

$$\frac{2,000,000}{1.5000} = TK1,333,333$$

Answer to Interactive question 14

Step 1 Set up the hedge

(a) Which date contract? August

(b) Put or call? Call, we need to buy euros

(c) Which strike price? 0.7700

(d) How many contracts

$$\frac{600{,}000}{10{,}000} = 60$$

(e) Use August call figure of 3.57. Remember it has to be multiplied by 0.01.

Premium = (3.57 × 0.01) × Contract size × Number of contracts

Premium = 0.0357 × 10,000 × 60
= $21,420

Step 2 Closing spot and futures prices

Case (a) 0.75
Case (b) 0.80

Assume here the price to use for options calculation is the same as the closing spot rate.

Step 3 Outcome

(a) **Options market outcome**

Strike price call	0.77	0.77
Closing price	0.75	0.80
Exercise?	Yes	No
Outcome of options position	€600,000	–

(b) **Net outcome**

	$	$
Spot market outcome translated at closing spot rate $\frac{600{,}000}{0.80}$	–	(750,000)
Options position $\frac{600{,}000}{0.77}$	(779,221)	–
Premium	(21,420)	(21,420)
	(800,641)	(771,420)

Answer to Interactive question 15

The following FOREX (FX) swap could be used:

- **Swap pounds today** at an agreed swap rate for the Taka required to make the initial investment.
- **Take out a Taka loan today** to purchase the Taka.
- In one year's time, **swap back the Taka** obtained in bullet point one for pounds at the same agreed swap rate.
- In a similar way to taking out a loan in Taka, El Dorado is only exposed on the profit earned from the project.

Answer to Interactive question 16

With the swap

	Year 0	*Year 1*
	£m	£m
Buy 500 million Taka (spot rate = 100)	(5.0)	
Swap 500 million Taka back (spot rate 100)		5.00
Sell 400 million Taka at 180/£		2.22
Interest on Taka loan (£5 million × 8%)		(0.40)
	(5.0)	6.82

Net outcome is a net receipt of £1.82 million.

Do nothing

	Year 0	*Year 1*
	£m	£m
Buy 500 million Taka (spot rate = 100)	(5.0)	
Sell 900 million Taka (spot rate = 180)		5.0
Interest on Taka loan (£5 million × 8%)		(0.4)
	(5.0)	4.6

Net outcome is a net payment of £0.4 million.

El Dorado is better off undertaking the swap.

Answer to Interactive question 17

(a) Techniques for protecting against the risk of adverse foreign exchange movements include the following. (**Note:** You were only required to give four.)

(i) A company could trade only in its own currency, thus transferring all risks to suppliers and customers.

(ii) A company could ensure that its assets and liabilities in any one currency are as nearly equal as possible, so that losses on assets (or liabilities) are matched by gains on liabilities (or assets).

(iii) A company could enter into forward contracts, under which an agreed amount of a currency will be bought or sold at an agreed rate at some fixed future date or, under a forward option contract, at some date in a fixed future period.

(iv) A company could buy foreign currency options, under which the buyer acquires the right to buy (call options) or sell (put options) a certain amount of a currency at a fixed rate at some future date. If rates move in such a way that the option rate is unfavourable, the option is simply allowed to lapse.

(v) A company could buy foreign currency futures on a financial futures exchange. Futures are effectively forward contracts, in standard sizes and with fixed maturity dates. Their prices move in response to exchange rate movements, and they are usually sold before maturity, the profit or loss on sale corresponding approximately to the exchange loss or profit on the currency transaction they were intended to hedge.

(vi) A company could enter into a money market hedge. One currency is borrowed and converted into another, which is then invested until the funds are required or funds are received to repay the original loan. The early conversion protects against adverse exchange rate movements, but at a cost equal to the difference between the cost of borrowing in one currency and the return available on investment in the other currency.

(b) (i) 1 **Forward exchange market**

The rates are:

	$/Tk
Spot	1.7106 – 1.7140
3 months' forward	1.7024 – 1.7063
6 months' forward	1.6967 – 1.7006

The net payment three months hence is Tk116,000 – $197,000/1.7063 = TK546.

The net payment six months hence is $(447,000 – 154,000)/1.6967 = TK172,688.

Note that the dollar receipts can be used in part settlement of the dollar payments, so only the net payment is hedged.

2 **Money market**

$197,000 will be received three months hence, so $197,000/(1 + 0.09 $\times$ $\frac{3}{12}$) may be borrowed now and converted into BDT, the dollar loan to be repaid from the receipts.

The net BDT payment three months hence is:

$$£116,000 - \frac{\$197,000}{1+(0.09\times\frac{3}{12})}\times\frac{1}{1.7140}\times(1+(0.095\times\tfrac{3}{12})) = £924$$

The equation for the $197,000 receipt in three months is to calculate the amount of dollars to borrow now (divide by the dollar borrowing rate) and then to find out how much that will give now in BDT (divide by the exchange rate). The final amount of BDT after three months is given by multiplying by the BDT lending rate.

$293,000 (net) must be paid six months hence. We can borrow BDT now and convert it into dollars, such that the fund in six months will equal $293,000. The BDT payment in six months' time will be the principal and the interest thereon. A similar logic applies as for the equation above except that the situation is one of making a final payment rather than a receipt.

The BDT payment six months hence is therefore:

$$\frac{293,000}{1+0.06\times\frac{6}{12}}\times\frac{1}{1.7106}\times(1+0.125\times\tfrac{6}{12}) = \text{Tk}\,176,690$$

(ii) Available put options (put, because BDT is to be sold) are at $1.70 (cost 3.45 cents per TK) and at $1.80 (cost 9.32 cents per TK).

Using options at $1.70 gives the following results.

$$\frac{\$293,000}{1.70\$/£} = \text{Tk}\,172,353$$

$$\text{Contracts required} = \frac{\text{Tk}\,172,353}{\text{Tk}\,12,500} = 14 \text{ (to the next whole number)}$$

Cost of options = 14 $\times$ 12,500 $\times$ 3.45 cents = $6,038.

14 contracts will provide, for TK12,500 $\times$ 14 = TK175,000, $(175,000 $\times$ 1.70) = $297,500.

$$\text{The overall cost is TK175,000} + \frac{\$293,000+\$6,038-\$297,500}{1.6967} = \text{Tk}\,175,906$$

As this figure exceeds the cost of hedging through the forward exchange market (TK172,688), use of $1.70 options would have been disadvantageous.

Note: The rate of 1.6967 is used instead of 1.7006 because buying 14 contracts leaves the company slightly short of dollars (by $293,000 + $6,038 – $297,500 = $1,538).

Using options at $1.80:

$$\frac{\$293,000}{1.80\$/Tk} = Tk162,778$$

$$\text{Contracts required} = \frac{Tk162,778}{Tk12,500} = 14 \text{ (to next whole number)}$$

Cost of options = 14 × 12,500 × 9.32 cents = $16,310

14 contracts will provide, for TK12,500 × 14 = TK175,000, 175,000 × 1.80 = $315,000.

$$\text{The overall cost is TK175,000} + \frac{\$293,000 + \$16,310 - \$315,000}{1.7006} = Tk171,654$$

This figure is less than the cost of hedging through the forward exchange market, so use of $1.80 options would have been preferable.

(iii) Foreign currency options have the advantage that while offering protection against adverse currency movements, they need not be exercised if movements are favourable. Thus the maximum cost is the option price, while there is no comparable limit on the potential gains.

(c) **Financial reporting issues**

To be eligible for hedge accounting the hedge documentation must be in place at the inception of the hedge relationship. Until the necessary documentation is in place hedge accounting cannot be applied even if the underlying hedging activity is valid. There can be no retrospective designation of a hedge relationship.

If the hedge documentation is ultimately determined to be valid, then IAS 39 permits a foreign currency hedge of a firm commitment to be treated either as a fair value hedge or a cash flow hedge. If the hedge to be validly designated as a cash flow hedge, then the fair value loss can be recognised in other comprehensive income in accordance with the directors' wishes. It then needs to be reclassified into profit or loss in the year ending 28 February 20X9 when the underlying transaction takes place.

Assurance risks

The key risk is that this is not a valid hedge because the hedge documentation was not in place at the date of inception of the hedge, but was only drawn up later when the hedge instrument made a loss.

Also, the forecast purchase after the year-end needs to be 'highly probable' or hedge accounting is not permitted.

If it is not a valid cash flow hedge then the reduction in fair value would be recognised in profit or loss rather than in other comprehensive income. This would not affect overall comprehensive income, but it would affect profit for the period.

Assurance procedures

- Examine documentation that evidences that the purchase transaction will take place with a high degree of probability, or has already taken place (eg correspondence with suppliers, contracts).
- Review hedge documentation for evidence of completeness (describing hedge relationship, risk management objective, identification of hedge instrument and hedge item, nature of risk being hedged, assessment of effectiveness).
- Look for any evidence of a date on which the documentation was drawn up (eg reference to events after October).
- Speak to the author of the documentation and question them about the hedge and when they prepared documentation. Question other personnel for consistency of the story.

Answers to Self-test

Answer to Self-test question 1

The target receipt is 3,750,000 × 1.5404* = $5,776,500.

*The American company gets the lower number of dollars for selling CU.

A receipt of CU3.75 million will represent 3,750,000/62,500 = 60 futures contracts or 3,750,000/31,250 = 120 option contracts.

(a) If we make the assumption that the futures price moves by the same amount as the spot rate, there will be no basis risk and the future will give a perfect hedge.

On 1 June, 60 CU futures contracts are sold for $1.5390 (a price which is $0.0014 below the spot rate). The results of this hedge are as follows.

Scenario	*(i)*	*(ii)*	*(iii)*
Spot rate, 30 Sept	1.4800	1.5700	1.6200
Sell 60 at	1.5390	1.5390	1.5390
Buy 60 at (spot – 0.0014)	1.4786	1.5686	1.6186
Gain/(loss)	0.0604	0.0296	(0.0796)
	$	$	$
Value of gain/(loss)	226,500	(111,000)	(298,500)
CU3.75 million sold at spot for	5,550,000	5,887,500	6,075,000
Total net receipt	5,776,500	5,776,500	5,776,500

(b) Using options, the treasurer will purchase 120 September *put* options. The premium cost will vary with the exercise price as follows.

Exercise price	*Cost $*
1.5000	120 × 0.42/100 × 31,250 = $15,750
1.5500	120 × 4.15/100 × 31,250 = $155,625
1.6000	120 × 9.40/100 × 31,250 = $352,500

Scenario 1

Spot rate moves to 1.4800.

In all cases, exercise the option and sell CU3.75 million at the exercise price.

Exercise price	*Cash received*	*Premium cost*	*Net*	
$/CU	$	$	$	
1.5000	5,625,000	(15,750)	5,609,250	
1.5500	5,812,500	(155,625)	5,656,875	← Best result
1.6000	6,000,000	(352,500)	5,647,500	

Scenario 2

Spot rate moves to 1.5700.

Exercise price	*Exercise option?*	*Exchange rate used*	*Cash received*	*Premium cost*	*Net*	
			$	$	$	
1.5000	No	1.57	5,887,500	(15,750)	5,871,750	← Best result
1.5500	No	1.57	5,887,500	(155,625)	5,731,875	
1.6000	Yes	1.60	6,000,000	(352,500)	5,647,500	

Scenario 3

Spot rate moves to 1.6200.

In all cases, abandon the option.

Cash received = $6,075,000

Exercise price	*Cash received*	*Premium cost*	*Net*	
$/CU	$	$	$	
1.5000	6,075,000	(15,750)	6,059,250	←Best result
1.5500	6,075,000	(155,625)	5,919,375	
1.6000	6,075,000	(352,500)	5,722,500	

Summary. The futures hedge achieves the target exactly. The options give a range of possible results around the target. When the option is exercised, it does not give as good a result as the future. However, when the option is allowed to lapse because of a favourable movement in the exchange rate, it allows the company to make a gain over target.

Answer to Self-test question 2

(a) **Tailoring of contracts**

The contracts cannot be **tailored to the user's exact requirements**. Futures are dealt with on currency exchanges using **standard contract sizes** and the amount to be hedged may not be an amount that can be hedged using a whole number of contracts. In addition, futures are only available for standard delivery dates that may not correspond to when the company is receiving or paying currency. This means that the company will have to eliminate its commitments under the futures contracts by **closing out**; undertaking a second futures transaction that reverses the effect of the first one.

Hedge inefficiencies

Having to deal in a whole number of contracts means that there may be an amount that is not hedged by futures, or the futures hedge a larger amount than required. The company can leave the difference **unhedged** and exposed to currency risk, or use a **forward contract** to hedge the difference at a different rate. Hedge inefficiencies are also caused by **basis risk**, the risk that the futures contract price will move by a different amount from the price of the underlying currency.

Limited availability

Only a limited number of currencies are the subject of futures contracts (although the number of currencies is growing).

Conversion between two currencies

The **procedure for converting** between two currencies neither of which is the US dollar is complex, as contracts are priced in dollars. The company has to sell contracts of one type and buy contracts of the other type.

Potential losses

Volatile trading conditions on the futures markets mean that the **potential loss** can be **high**.

(b) **Objectives and risk appetites**

The strategic objectives and hence the risk appetites of small and large companies are likely to differ significantly. **Small companies** are likely to concentrate on fewer products and markets and hedging may only be appropriate in limited circumstances. The key aim is most likely to be using hedging instruments as a means of **minimising exchange transaction risks**. However, the risks involved in using some hedging instruments may be considered excessive, for example futures or swaps with significant **counterparty risks**. Small companies may also wish to avoid the **accounting and tax complications** of more complex hedging instruments.

Larger companies by contrast are more likely to achieve their objects by **diversification**, and are likely to tolerate varying levels of risk and return from different activities. This may mean that they are more

concerned with being able to take advantage of **possible profits** from derivative usage, for example by using an option so if rates move in a favourable direction the option is not exercised and the companies can take advantage of a favourable rate. Ultimately, large companies may choose to speculate in derivatives or deal in derivatives as a profit-making activity without any link to other underlying transactions.

Incurring exchange risks

Small companies may incur **currency risk** on a limited number of significant transactions in a few currencies. Directors may therefore feel it is worthwhile to **hedge all significant transactions**. To minimise risk, **forward contracts** may well be used as these guarantee the exchange rate at which the company will receive or pay monies.

For larger companies, hedging all significant transactions may be **unnecessarily expensive**. Directors will take account of the **currency portfolio** of their transactions. Currency losses through significant payments in a particular currency may be **offset** by significant receipts in the same currency. If the company is undertaking transactions in several major currencies, there is a greater chance that exchange losses on transactions in one currency will be balanced by exchange gains on transactions in another currency.

Incurring interest rate risks

Small companies will be most concerned with the interest rate sensitivities of the debt they need to take out, and their gearing structure is unlikely to be complex. Again, they are most likely to be concerned with guaranteeing a borrowing rate on particular sums that they have to borrow and use **forward rate agreements** for that purpose. However, they may also want to use interest rate swaps as a means of obtaining finance on **better terms**.

Larger companies will be concerned with their overall portfolio, with the **interest rate sensitivities** and **term structure** of their debt and also their investments. This may mean that a variety of instruments are used to hedge different types of finance.

Risk management methods

Smaller companies may not be able to use all the risk management methods available to larger companies. They may not **be able to match receipts and payments** in the same currency for example, or **match investments and borrowings**. The commitment required may be excessive; over-the-counter contracts are often of a **minimum size** that may be too large. The costs of certain techniques, for example option premiums, may be considered too high.

Large companies may be able to employ **specialist treasury personnel** who have a greater level of expertise in using derivatives than would be found in a smaller general finance function. They are also more likely to have directors or senior managers with sufficient expertise to be able to **monitor** treasury activity effectively.

Answer to Self-test question 3

Foreign exchange exposure

The managing director is certainly correct in saying that the **foreign exchange exposure** in dealing with other EMU countries will be eliminated. However, foreign exchange exposure will still affect trade with countries that are not members of EMU.

Transaction costs

Similarly, **transaction costs** involved in trade with other EMU members will disappear, and this could represent a considerable saving. However, there will still be transaction costs when trading with other countries who are not EMU members.

Economic exposure

In addition, the company would still face **economic exposure** even if it only traded with other countries within EMU. If the euro is over-valued with respect to non-members' currencies, companies from non-member countries may gain sales at the expense of the UK company because they can charge cheaper prices. The

company may also face **indirect economic exposure** if it buys products from other EMU members who buy their raw materials from non-EMU members. Any adverse exchange movements meaning raw material prices increases would be passed on through the value chain.

Answer to Self-test question 4

(a) Using the forward contract, the value of the transaction is:

$7m/1.5758 = CU4,442,188

Assuming that exchange rates move as specified in the assumptions, then if the transaction is not hedged the cost will be:

$7m/1.3763 = CU5,086,100

An additional cost of CU643,912 has been incurred as a consequence of exchange rate movement between the contract date and the date of settlement. If the assumptions are assumed to be reliable, Edgington should hedge the contract.

(b) **No hedging**

In the absence of hedging there is no recognition of the transaction in the financial statements for the year ending 30 June 20X5 as there has been no physical delivery of the equipment, so it is unlikely that risk and rewards would have passed from the seller to Edgington.

On 31 October 20X5 the sale takes place and the transaction would be recognised at the exchange rate on that day at a value of CU5,086,100 as follows:

Dr	Inventory	5,086,100	
	Cr Cash		5,086,100

This cost of inventory (which is CU643,912 greater than at the time the contract was made) would then be recognised in cost of sales and impact on profit in the year ending 30 June 20X6.

Hedging – but no hedge accounting

30 June 20X5

Dr	Forward contract – financial asset	273,056	
	Cr Profit or loss		273,056

To recognise the increase in the fair value of the forward contract (ie a derivative financial asset) and to recognise the gain on the forward contract in profit or loss.

31 October 20X5

Dr	Forward contract – financial asset	371,229	
	Cr Profit or loss		371,229

To recognise the increase in the fair value of the forward contract (ie a derivative financial asset) and to recognise the gain on the forward contract in profit or loss.

Dr	Cash	644,285	
	Cr Forward contract		644,285

To recognise the settlement of the forward contract by receipt of cash from the counterparty.

Dr	Inventory	5,086,100	
	Cr Cash		5,086,100

Being the settlement of the firm commitment (the purchase of computer equipment) at the contracted price of $7 million at the spot rate on 31 October 20X5.

Fair value hedge

If the hedged risk is identified as the forward exchange rate, rather than the spot rate, then it could be assumed to be perfectly effective.

The values of the transactions are:

At 31 May 20X5

$7m/1.5758 = CU4,442,188

At 30 June 20X5

$7m/1.4847 = CU4,714,757

Difference = CU272,569 is near the movement in the fair value of the forward at CU273,056 and is clearly highly effective.

Similarly, at 31 October 20X5

$7m/1.3763 = CU5,086,100

Difference = CU371,343 which is almost identical to the movement in the fair value of the forward at CU371,229 and therefore remains highly effective.

31 May 20X5

No entries are required at this date as the firm commitment is unrecognised.

The forward contract is potentially recognised, but it has a zero fair value and there is no related cash transaction to record.

However, the existence of the contract and associated risk would be disclosed from this date in accordance with IFRS 7.

30 June 20X5

Dr Forward contract – financial asset	273,056	
Cr Profit or loss		273,056

To recognise the increase in the fair value of the hedge instrument (which is the forward contract, being a derivative financial asset) and to recognise the gain on the forward contract in profit or loss.

Dr Profit or loss	272,569	
Cr Firm commitment		272,569

To recognise the gain in fair value of the hedged item (ie the previously unrecognised firm commitment) in relation to changes in forward exchange rates and to recognise a debit entry in profit or loss, which offsets the profit previously recognised in respect of the gain on the derivative financial asset.

31 October 20X5

Dr Forward contract – financial asset	371,229	
Cr Profit or loss		371,229

To recognise the increase in the fair value of the hedge instrument (which is the forward contract, being a derivative financial asset) and to recognise the gain on the forward contract in profit or loss.

Dr Profit or loss	371,343	
Cr Firm commitment		371,343

To recognise the gain in the fair value of the of the hedged item (ie the firm commitment) and to recognise a debit entry in profit or loss, which offsets the profit previously recognised in respect of the gain on the derivative financial asset.

Dr Cash	644,285	
Cr Forward contract		644,285

To recognise the settlement of the forward contract by receipt of cash from the counterparty.

Dr Inventory	5,086,100	
Cr Cash		5,086,100

Being the settlement of the firm commitment (the purchase of computer equipment) at the contracted price of $7 million at the spot rate on 31 October 20X5.

Dr Firm commitment	643,912	
Cr Inventory		643,912

To remove the firm commitment from the statement of financial position and adjust the carrying amount of the inventory resulting from the firm commitment.



CHAPTER 16

International financial management

Introduction

Topic List

1 International trading
2 Overseas investments
3 Financing overseas investments
4 Exchange controls
5 Dividend management
6 Transfer pricing

Summary and Self-test

Technical reference

Answers to Interactive questions

Answers to Self-test

Introduction

Learning objectives

	Tick off
• Demonstrate and explain the risks associated with international trade and the ways in which these risks can be managed, and assess the nature and role of assurance procedures in mitigating risk and the financial reporting consequences of currency hedging	☐
• Appraise and evaluate the different methods open to multinationals wishing to set up overseas operations and the choices of finance available, identifying tax and corporate reporting consequences	☐
• Explain and appraise the various methods of financing available for overseas investments and evaluate the implications for disclosure, presentation, recognition and measurement in accordance with IAS 21	☐
• Appraise and evaluate the factors affecting the capital structure of a multinational company	☐
• Explain and appraise the advantages and risks associated with international borrowing	☐
• Assess and explain the impact of exchange controls and how companies can overcome the effect of these controls	☐
• Appraise and evaluate the management of dividends in multinational organisations	☐
• Appraise and evaluate the management of transfer prices in multinational organisations and the implications for reported profits and tax	☐

Syllabus links

The discussion of trading risks and financing in Section 1 links to the discussion on establishing overseas trading in Chapter 2. The focus in this chapter however is setting up and financing entities overseas. The international context of dividend management and transfer pricing, topics covered generally earlier, is stressed. International investment appraisal, which is included in this chapter, is also covered in Chapter 17.

1 International trading



Section overview

- International trade exposes companies to various risks such as credit and liquidity risks.
- Companies can take steps to protect themselves from international trade risks using such means as insurance of goods in transit.

The first three sections of this chapter cover general areas affecting multinational companies (MNCs), trading, establishing a business presence and finance. The last three sections cover more specific issues.

1.1 Trade risks

Any company involved in international trade must assess and plan for the different risks it will face. As well as physical loss or damage to goods, there are also cash flow problems and the risk that the customer may not pay either on time or at all.

1.1.1 Loss or damage in transit

The risks faced by international traders may be significant due to the distances and times involved.

Businesses face the risk of goods being **lost or stolen in transit,** or the documents accompanying the goods going astray.

Goods being exported should be insured from the time they leave the company till their arrival with the customer. Depending on the agreement, the exporter may bear the cost of insurance or responsibility for insurance may be passed onto the customer. The danger of leaving the customer to arrange insurance is that the exporter may not receive full payment from the customer if a problem arises and it is not adequately insured. If there is inadequate insurance and the goods are rejected, either at the port of entry or when they reach the customer's premises, the responsibility will be bounced back to the exporter.

1.1.2 Faults with products

When supplying goods for export, companies must consider the risk that the product could **cause damage to a third party**, whether it is a person or property. Product liability insurance covers such risks.

However, product liability insurance does not provide cover for claims against poor quality goods or services. Exporting companies must take responsibility for such risks themselves by sufficient quality control measures. By introducing such measures, companies may benefit from reduced insurance premiums.

1.2 Credit risks

Regardless of whether goods are sold at home or abroad, there is always the risk that customers will either **not pay in full or not pay at all.** Where a company trades overseas, the risk of bad debts is potentially increased by the lack of direct contact with, and knowledge of, the business environment. Managing this credit risk is something that many companies overlook.

There are a number of methods of reducing the risks of bad debts in foreign trade.

Export factoring	Essentially the same as factoring domestic trade debts.
Forfaiting	Medium-term export finance by the **purchase of financial instruments** such as bills of exchange or letters of credit on a **non-recourse basis by a forfaiter**.
Documentary credits	**Risk-free method** of obtaining payment, also a method of obtaining short-term finance from a bank, for **working capital**, as a bank might agree to discount or negotiate a letter of credit.

International credit unions	Organisations or **associations of finance houses or banks** in different countries (in Europe). The finance houses or banks have reciprocal arrangements for providing **instalment credit finance**.
Export credit insurance	Insurance against the **risk of non-payment by foreign customers** for export debts.
Acceptance credits	**Short-term finance** by a bank agreeing to accept bills of exchange drawn on itself. The bills can be discounted to **provide immediate finance**.
Export merchants	Export merchants **buy goods from manufacturers** and then export them. The manufacturer **receives payment quickly** and the export merchant **bears the risk of bad debts**.
Government departments	Government departments supply **support for banks** that **provide finance** to exporters of **capital goods**.

1.3 Financing trading

When making decisions about financing international trade transactions, companies should consider:

- The **need for financing to make a sale**, as favourable credit terms often make a product more competitive.
- The **length of time** over which the product is being financed, which will determine how long the exporter will have to wait to get paid.
- The **cost of different methods of financing**.
- The **risks associated with financing the transaction** – the greater the risk, the more difficult and costly it will be to finance.
- The need for **pre-export finance and post-export working capital.** This will be a particular issue if the order is especially large.

1.3.1 Pre-export finance

Increased globalisation means that many companies rely heavily on export revenue. If large amounts of money have to be spent to allow the company to fulfil an export order, financing may be required to bridge the gap between fulfilling the order and being paid by the customer. For example, expensive capital equipment may be required.

Pre-export financing is often structured, meaning that banks will provide funding for the exporter but the funding will be tied to production and export activities.

Export Credit Agencies (ECAs) can also provide finance to exporters. These agencies are government departments whose main function is to assist exporters by providing state insurance against political and commercial risks. While ECAs initially provided finance mainly to manufacturers, their role more recently has changed to providing assistance to companies exporting services as well as manufactured goods. ECA-covered finance is a suitable way of exceeding the natural limits of pre-export financing – that is, the total value of proceeds under long-term export contracts.

1.3.2 Post-export finance

This type of finance covers the **period between the goods being shipped and payment being received**. As overseas customers often negotiate lengthy credit periods, this can be a considerable period of time.

Post-export finance protects against commercial and political risk. The cost of finance depends on various risk factors such as length of credit period, payment method and the country to which the export was made.

1.4 Foreign exchange risk management

The following different types of foreign exchange risks may be significant.

1.5 Transaction risks

Definition

Transaction risk: The risk of adverse exchange rate movements occurring in the course of **normal international trading transactions**.

This arises when export prices are fixed in foreign currency terms, or imports are invoiced in foreign currencies.

We looked at the use of derivatives and other methods to hedge transaction risk in Chapter 15.

1.6 Economic risks

Definition

Economic risk: The risk that exchange rate movements might reduce the international competitiveness of a company. It is the risk that the present value of a company's future cash flows might be reduced by adverse exchange rate movements.

Economic risk refers to the effect of exchange rate movements on the **international competitiveness** of a company. For example, a Bangladeshi company might use raw materials which are priced in US dollars, but export its products mainly within the European Union. A depreciation of BDT against the dollar or an appreciation of BDT against other EU currencies will both erode the competitiveness of the company.

Economic exposure is difficult to measure, but often it is determined by the impact of foreign exchange rate changes on **costs and sales prices** and the consequences for a business and for its competitors. It will therefore be influenced by the policies of suppliers (will they absorb price rises in raw materials themselves or pass the increase on to the business) and customers' reaction to price increases and differentials (whether there will be a significant adverse effect on demand).

The impact of economic risk on financial statements may also be very difficult to assess. If a business's home currency strengthens, it may generate less revenue and profits from the export trade, but this may not be clearly disclosed in the financial statements.

1.6.1 Managing economic risk

Various actions can reduce economic exposure, including:

(a) **Matching assets and liabilities**

A foreign subsidiary can be financed, so far as possible, with a loan in the currency of the country in which the subsidiary operates. A depreciating currency results in reduced income but also reduced loan service costs.

(b) **Diversifying the supplier and customer base**

For example, if the currency of one of the supplier countries strengthens, purchasing can be switched to a cheaper source.

(c) **Diversifying operations worldwide**

On the principle that countries which confine themselves to one country suffer from economic exposure, international diversification of production and sales is a method of reducing economic exposure.

(d) **Change its prices**

How much scope a company has to change its prices in response to exchange movements will depend on its competitive position. If there are a lot of home and foreign competitors, an increase in prices may lead to a significant fall in demand.

1.7 Translation risks

Definition

Translation risk: The risk that the organisation will make **exchange losses** when the **assets and liabilities** of its foreign branches or subsidiaries are **translated** into the **home currency**.

Following the requirements of IAS 21 *The effects of changes in foreign exchange rates,* at the year-end monetary assets and liabilities on the statement of financial position (cash, receivables, payables and loans) are retranslated at the closing rate on the accounting date. Non-monetary items (non-current assets, inventory and investments) are not retranslated.

Translation losses can result, for example, from restating the book value of a foreign subsidiary's assets at the exchange rate on the **date** of the **statement of financial position**. However, such losses will **not have an impact on the organisation's cash flow unless the assets are sold.** In addition, a non-current asset purchase in a foreign currency may be financed by a loan but the loan will be retranslated every year whereas the non-current asset will not be and the two will no longer match.

Apparent losses on translation could influence **investors' and lenders' attitudes** to the financial worth and creditworthiness of the company, even though they do not impact upon cash flows. Such risk can be reduced if monetary assets and liabilities, and non-monetary assets and liabilities, denominated in particular currencies can be **held in balanced amounts**. However, if managers believe that investors and lenders will not react adversely, they should **not normally hedge translation risk.**

2 Overseas investments



Section overview

- Rather than exporting to overseas customers, many companies choose to set up operations in countries in which they carry out large amounts of business.
- Setting up operations in a foreign country can be a costly business and companies must undertake considerable research before deciding how their presence should be established.

We discussed in Chapter 2 the reasons why multinational companies (MNCs) may wish to undertake investment in other countries. Companies have a wide choice of strategies when it comes to setting up foreign operations. Each strategy fulfils a different purpose, depending on the type of presence that is required.

2.1 Takeover of, or merger with, established firms overseas

If speed of entry into the overseas market is a high priority then acquisition may be preferable than starting from scratch. The main problem is that the better acquisitions may only be available at a premium.

The methods for evaluating international investments are dealt with in Chapter 17, Section 2.

2.1.1 Advantages of takeovers/mergers

(a) Merging with **established firms abroad** can be a means of **purchasing market information**, **market share**, **distribution channels** and **reputation**.

(b) **Other synergies** include **acquisition of management skills** and **knowledge**, **intangibles** such as brands and trademarks, or **additional cash** and **debt capacity**.

(c) Acquiring a subsidiary may be a means of **removing trade barriers**.

(d) Acquisition can be a means of **removing a competitor**.

(e) **Start-up costs** will not be incurred.

2.1.2 Disadvantages of takeovers/mergers

(a) **Cultural issues** may make it difficult to integrate the subsidiary into the Group.

(b) Growing organically may be cheaper. In the long run it is more likely to **be financed** by **retained cash flows** than new sources with issue costs, and it will not involve paying a premium for a desirable subsidiary.

(c) There may be **duplication of resources/operations** with the acquiring company.

2.2 Overseas subsidiaries

The basic structure of many MNCs consists of a parent (holding) company with subsidiaries in several countries. The subsidiaries may be wholly- or partly-owned, and some may be owned through other subsidiaries.

2.2.1 Advantages of subsidiaries

(a) A local subsidiary may have a **significant profile for sales and marketing purposes**.

(b) As a separate legal entity, a subsidiary should be able to **claim legal privileges, reliefs and grants**.

2.2.2 Disadvantages of subsidiaries

(a) As a separate entity, a subsidiary may be subject to **significant legal and accounting formalities**, including minimum capital requirements.

(b) In some regimes, the activities of the subsidiary may be **limited to the objects set out in its constitution** and it may not be able to draft these objects too widely.

(c) Dissolution of a subsidiary may be **fairly complex**.

2.3 Branches

Firms that want to establish a presence in an overseas country may choose to establish a **branch** rather than a subsidiary.

2.3.1 Advantages of branches

(a) **Establishment of a branch** is likely to be simpler than a subsidiary.

(b) In many countries, the remitted profits of a subsidiary will be **taxed at a higher rate** than those of a branch, as profits paid in the form of dividends are likely to be subject to a withholding tax. How much impact the withholding tax has however, is questionable, particularly as a double tax treaty can reduce its effect.

2.3.2 Disadvantages of branches

(a) The parent company is **fully liable** for the liabilities of the branch. A parent company may have to appoint an individual or company to, for example, represent it in dealing with the tax authorities and the individual or company chosen may be liable as well.

(b) The **obligations of the branch** will be the **same** as those of the parent.

(c) Banks and clients may **prefer dealing with a local company** rather than the branch of a foreign company.

(d) The board of the parent company **may need to ratify acts of the branch**.

(e) A branch may **not be ideal for substantial projects** because the parent company runs the entire risk.

In many instances a MNC will establish a branch and utilise its initial losses against other profits, and then turn the branch into a subsidiary when it starts making profits.

2.4 Joint ventures



Definition

Joint venture is the commitment, for more than a very short duration, of funds, facilities and services by two or more legally separate interests to an enterprise for their mutual benefit.

A **contractual joint venture** is for a fixed period. The duties and responsibility of the parties are contractually defined. A **joint-equity venture** involves investment, is of no fixed duration and continually evolves.

We discussed joint ventures generally in Chapter 2 and here we focus on joint ventures as a means of international expansion.

2.4.1 Advantages of international joint venture

(a) It gives relatively **low cost access** to markets in new countries.

(b) **Easier access** to **local capital markets** may be available, possibly with accompanying tax incentives or grants.

(c) **The joint venture partner's existing** local knowledge, cultural awareness, distribution network and marketing or other skills can be used.

(d) Depending on government regulations, a joint venture may be the **only** means of access to a particular overseas market.

2.4.2 Disadvantages of international joint venture

(a) **Managerial freedom** may be **restricted** by the need to take account of the views of all the joint venture partners, particularly if cultural differences arise. The joint venture may be difficult to control or amend, especially if the investing company only has a limited presence in the country.

(b) There may be **problems** in **agreeing on partners' percentage ownership**, transfer prices, remittance arrangements, nationality of key personnel, remuneration and sourcing of raw materials and components.

(c) Finding a **reliable joint venture partner** may take a long time, because of lack of local knowledge. Potential partners may not have the adequate skills.

2.5 Political and cultural risks

2.5.1 Political risks

As soon as a MNC decides to operate in another country, it is exposing itself to political risk. Host countries' governments, in an attempt to protect domestic industries or to protect their countries from exploitation, may impose such measures as **quotas, tariffs or legal safety and quality standards**, which can affect the efficient and effective operation of the MNC's activities.

MNCs can assess the extent of political risk by considering such factors as **government stability, level of import restrictions and economic stability** in the country in which they propose to invest.

2.5.2 Cultural risks

Businesses should take cultural risks into account when deciding the extent to which activities should be centralised, which will influence how overseas operations are established.

The balance between local and expatriate staff must be managed. There are a number of influences.

- The availability of technical skills such as financial management
- The need for control
- The importance of product and company experience
- The need to provide promotion opportunities
- Costs associated with expatriates such as travel and higher salaries
- Cultural factors

For an international company, which has to think globally as well as act locally, there are a number of problems.

- Do you employ mainly **expatriate staff** to control local operations?
- Do you employ **local managers**, with the possible loss of central control?
- Is there such a thing as the **global manager**, equally at home in different cultures?

2.6 Accounting for foreign investments

The most significant requirements that relate to accounting for foreign investments are summarised below.

2.6.1 Translation of foreign operations

A reporting entity with foreign operations needs to translate the financial statements of those operations into its own reporting currency before consolidation or inclusion through the equity method.

(a) **Statement of comprehensive income**: translate using actual rates. An average for a period may be used, but not where there is significant fluctuation and the average is therefore unreliable.

(b) **Statement of financial position:** translate all assets and liabilities (both monetary and non-monetary) using closing rates.

(c) **Exchange differences** are reported as other comprehensive income.

2.6.2 Exchange differences

Exchange differences comprise:

- Differences arising from the translation of the statement of comprehensive income at exchange rates at the transaction dates or at average rates, and the translation of assets and liabilities at the closing rate.
- Differences arising on the opening net assets' retranslation at a closing rate that differs from the previous closing rate.

Resulting exchange differences are **reported as other comprehensive income** and classified as a separate component of equity, because such amounts have not resulted from exchange risks to which the entity is exposed through its trading operations, but purely through changing the currency in which the financial statements are presented.

2.6.3 Intragroup loans

When a monetary item is part of the net investment in a foreign operation, ie there is an intragroup loan outstanding, then the following rules apply on consolidation.

- If the loan is **denominated in the functional currency of the parent entity** the exchange difference will be recognised in the **profit or loss of the foreign subsidiary.**
- If the loan is **denominated in the functional currency of the subsidiary,** exchange differences will be recognised in the **profit or loss of the parent entity.**
- When the loan is **denominated in the functional currency of either entity**, on consolidation, the exchange difference will be **removed from the consolidated profit or loss** and it will be recognised as other comprehensive income and recorded in equity in the combined statement of financial position.
- If, however, the loan is **denominated in a third currency** which is different from either entity's functional currency, then the translation difference should be **recognised as part of profit or loss.** For example, the parent may have a functional currency of US dollars, the foreign operation a functional currency of euros, and the loan made by the foreign operation may have been denominated in UK sterling. In this scenario, the exchange difference results in a cash flow difference and should be recognised as part of the profit or loss of the group.
- A separate foreign currency reserve reported as part of equity may have a **positive or negative carrying amount** at the reporting date. Negative reserves are permitted under IFRS.
- If the foreign operation is subsequently disposed of, the cumulative exchange differences previously reported as other comprehensive income and recognised in equity should be **reclassified and included in the profit or loss on disposal** recognised in profit or loss.



Interactive question 1: International investment decisions **[Difficulty level: Intermediate]**

Tiger Electronics – a specialist manufacturer of electronic spare parts of a major car manufacturer – is considering direct investments in several African countries. Business is currently booming and Tiger is very keen to take advantage of the low cost resources in Africa. However, Tiger's board of directors is concerned about the potential effects of political and economic volatility in various African countries on production of spare parts and supply of necessary resources.

Requirements

(a) Discuss factors that Tiger should take into consideration when deciding which, if any, African countries it should invest in.

(b) How might Tiger handle political risk if it invested in Africa?

(c) What ethical issues might have to be taken into consideration as part of Tiger's overall overseas investment strategy?

See **Answer** at the end of this chapter.

3 Financing overseas investments



Section overview

- MNCs have a wide choice of financing options to fund overseas investments.
- In order to determine which financing options to choose, MNCs must weigh up the costs and benefits of each, bearing in mind the potential impact on capital structure and company risk.

MNCs fund their investments from cash flow generated from operations, from the issue of new equity and new debt. Equity and debt funding can be secured by accessing both domestic and overseas capital markets. Thus MNCs have to make decisions not only about their capital structure, as measured by the debt/equity ratio, but also about the source of funding, whether the funds should be drawn from the domestic or the international markets.

3.1 Factors affecting the capital structure of a MNC

The source of funding for a MNC will be influenced by a number of factors.

3.1.1 Taxation

Global taxation is an important factor in determining the capital structure of a MNC. **Tax deductibility** in any country in which it operates will be important, but because a MNC operates in several tax jurisdictions, it will have to consider other issues, such as **double taxation, withholding taxes, and investment tax allowances**.

A MNC may choose the **level of debt and the type of debt** in a way that minimises its global tax liabilities. Tax-saving opportunities may also be maximised by **structuring the Group and its subsidiaries** in such a way as to take advantage of the different local tax systems.

3.1.2 Exchange rate risk

Exchange rate risk may also influence the capital structure of a MNC. When a Bangladeshi company wishes to finance operations overseas, there may be a currency (foreign exchange) risk arising from the **method of financing used**. For example, if a Bangladeshi company decides on an investment in the US, to be financed with a BDT loan, the investment will provide returns in US dollars, while the investors (the lenders) will want returns paid in BDT. If the US dollar falls in value against BDT, the BDT value of the project's returns will also fall.

To reduce or to eliminate the currency risk of an overseas investment, a company might finance it with **funds in the same currency** as the investment. The advantages of borrowing in the same currency as an investment are that:

- Assets and liabilities in the same currency can be **matched**, thus avoiding exchange losses on conversion in the Group's annual accounts.
- Revenues in the foreign currency can be used to **repay borrowings** in the same currency, thus eliminating losses due to fluctuating exchange rates.

3.1.3 Political risk

Political risk to which companies may be exposed when investing overseas may also be reduced by the choice of an appropriate financing strategy. For example, a MNC may fund an international project by **borrowing from banks in the country** in which the project will be set up. In this way, the loss in the case of nationalisation will be borne by the local banks rather than by the parent company.

3.1.4 Business risk

Business risk is also a determinant of capital structure. Business risk is normally proxied by the **volatility of earnings**. As multinational companies are able to diversify and reduce the volatility of earnings, they should be able to take on more borrowing.

3.1.5 Finance risk

The choice of the source of funds will also depend on the **local finance costs and any available subsidies**.

As subsidiaries may be operating with a **guarantee from the parent company**, different gearing structures may be possible. Thus a subsidiary may be able to operate with a higher level of debt than would be acceptable for the Group as a whole.

3.1.6 Other issues

Parent companies should also consider the following factors.

- **Reduced systematic risk**. There may be a small incremental reduction in systematic risk from investing overseas due to the segmentation of capital markets.
- **Access to capital**. Obtaining capital from overseas markets may increase liquidity, reduce costs and make it easier to maintain optimal gearing.
- **Agency costs**. These may be higher owing to political risk, market imperfections and complexity, which will lead to a higher cost of capital.

3.2 The advantages of borrowing internationally

There are three main advantages to borrowing from international capital markets, as opposed to domestic capital markets.

- **Availability**. Domestic financial markets, with the exception of the large countries and the Euro zone, lack the depth and liquidity to accommodate either large debt issues or issues with long maturities.
- **Lower cost of borrowing**. In Eurobond markets interest rates are normally lower than borrowing rates in national markets.
- **Lower issue costs**. The cost of issuing debt is normally lower than in domestic markets.

3.3 The risks of borrowing internationally

A MNC has three options when financing an overseas project by borrowing in:

- The **same currency** as the inflows from the project.
- A **currency other than the currency of the inflows but with a hedge in place**.
- A **currency other than the currency of the inflows but without hedging** the currency risk. This exposes the company to exchange rate risk that can substantially change the profitability of a project.

3.4 Equity finance

The issue of financing overseas subsidiaries using equity raises the following questions.

- How much **equity capital** should the parent put into the subsidiary?
- Should the subsidiary be allowed to **retain a large proportion of its profits** to allow it to build up its own equity reserves or to finance further investment programmes, or will the majority of the profits be repatriated to the parent? What other issues may affect dividend policy? (We cover dividend policy in more detail in Section 5.)

- Should the parent company hold **100% of the equity of the subsidiary** or should it try to create a minority shareholding, perhaps by floating the subsidiary on the country's domestic stock exchange?
- Should the subsidiary be **encouraged to borrow as much long-term debt** as it can? If so, should the debt be in the subsidiary's home currency or in a foreign currency?
- Should the subsidiary be **encouraged to minimise its working capital investment** by relying heavily on trade credit?

The way in which a subsidiary is financed will give some indication of the nature and the length of time of the investment that the parent company is prepared to make. A sizeable equity investment (or long-term loans from the parent company to the subsidiary) would suggest a long-term investment by the parent.

3.5 Finance in developing markets

Although companies in developed markets take the availability of a wide choice of finance options for granted, those operating in developing markets may not be quite so fortunate. **Lack of regulation and a limited understanding of such markets** make the funding of overseas acquisitions by, for example stock swaps (ie a share-for-share exchange), less likely. The target firms may be reluctant to accept payment in the form of risky equity. As a result companies in developing markets tend to finance overseas acquisitions using cash.



Case example: How Indian companies finance overseas acquisitions

In January 2007, India's largest steel manufacturer Tata Steel won the battle to control Corus, the Anglo-Dutch steelmaker. The offer represented a premium of 68% to Corus' pre-bid price. As Tata Steel did not have the ready cash to pay for the acquisition it geared its own statement of financial position and that of Corus to finance the deal. The deal was partly financed by Tata Steel's UK debt of approximately $6.14 billion and partly by equity contributions from subsidiaries.

Unlike most international mergers and acquisitions that typically feature share swaps, Indian firms have mainly paid cash for their targets, helped by internal resources and borrowings. One reason for this is that Indian firms are often owned directly by 'promoter shareholders' who also manage the company. Overseas targets are reluctant to invest through share swaps in such companies. In addition, the Indian market is not as well understood as the developed markets, hence share swaps may be viewed as risky.

3.6 Hedging of net investment

Definition



Hedge of a net investment in a foreign operation: The hedged item is the amount of the reporting organisation's interest in the net assets of that operation.

A **non-derivative financial asset or liability** can only be designated as a hedging instrument for **hedges of foreign currency risk.** So a foreign currency borrowing can be designated as a hedge of a net investment in a foreign operation, with the result that any translation gain or loss on the borrowing should be recognised in other comprehensive income to offset the translation loss or gain on the investment. (Normally gains or losses on such financial liabilities are recognised in profit or loss.)

A net investment can be hedged with a derivative instrument such as a currency forward contract. In this case, however, it would be necessary to **designate at inception** that effectiveness can be measured by reference to changes in spot exchange rates or changes in forward exchange rates.

The amount that an entity may designate as a hedge of a net investment may be **all or a proportion of its net investment** at the commencement of the reporting period. This is because the exchange rate differences reported in equity on consolidation, which form part of a hedging relationship, relate only to the retranslation of the opening net assets. Profits or losses arising during the period cannot be hedged in the current period. However, they can be hedged in the following periods, because they will then form part of the net assets which are subject to translation risk (discussed below).

3.6.1 Accounting for hedging of net investments

Hedges of a net investment in a foreign operation should be accounted in a **similar way to cash flow hedges**, that is:

- The **portion** of gain or loss on the hedging instrument that is determined to be an **effective hedge** should be **recognised** in other comprehensive income; and
- The **ineffective portion** should be **recognised in profit or loss**.

The gain or loss on the hedging instrument that has been recognised in other comprehensive income should be **reclassified to profit or loss on disposal of the foreign operation.** If only part of an interest in a foreign operation is disposed of, only the relevant proportion of this gain or loss should be reclassified to profit or loss.

3.7 Assurance work on overseas finance and investment risks

The assurance adviser will be concerned with the issues of changing exchange and interest rates, where material, in the relevant accounting period, also issues over regulatory and tax compliance and whether there were any problems with remittance of income (covered later in this chapter).

The assurance adviser will carry out the following work.

- Examination of the loan capital terms and contractual liabilities of the company.
- Checking the remittance of proceeds between the country of origin and the parent company by reference to bank and cash records.
- Reviewing the movement of exchange and interest rates, and discussing their possible impact with the directors.
- Obtaining details of any hedging transaction and ensuring that exchange rate movements on the finance has been offset.
- Examining the financial statements to determine accurate disclosure of accounting policy and accounting treatment conforming to Bangladesh requirements.

3.7.1 Use of foreign auditors

Some operations may be in countries which do not have accounting, auditing and assurance standards developed to the same extent as those in Bangladesh. As a result, the work carried out on them by local practitioners may not conform to Bangladesh standards.

In this situation the parent auditor may need to request:

- Adjustments to be made to the financial statements of the overseas investment.
- Additional audit and assurance procedures to be performed.

3.7.2 Transnational audits

Definition



Transnational audit means an audit of financial statements which are or may be relied upon outside the audited entity's home jurisdiction for purposes of significant lending, investment or regulatory decisions. This will include audits of all financial statements of companies with listed equity or debt and other public interest entities which attract particular public attention because of their size, products or services provided.

The international networks linked to a number of major firms have set up an international grouping, the Forum of Firms (FoF). Membership is open to firms and networks that have transnational audit appointments or are interested in accepting such appointments.

These firms have a voluntary agreement to meet certain requirements that are set out in their constitution. These relate mainly to:

- **Promoting the use of high quality audit practices worldwide**, including the use of ISAs.

- **Maintaining quality control standards** in accordance with International Standards on Quality Control issued by the IAASB, and conducting globally co-ordinated internal quality assurance reviews.

3.8 Global treasury management

Important issues which the treasury department of a large company with significant international trading and operations will have to consider include:

- Management of cash flows from and to suppliers, customers and subsidiaries.
- Dealing with political constraints affecting the flow of funds.
- Compliance with multiple legal and taxation requirements.
- Dealing with foreign exchange exposure.
- Maintaining relations with banks in different countries.

Global treasury management is discussed in more detail when the role of the treasury function generally is covered in Chapter 18.

Interactive question 2: Overseas investment [Difficulty level: Intermediate]



Watson is considering an investment in Buzzland, a country with a population of 80 million that has experienced eight changes of government in the last 15 years. The investment would cost 580 million Buzzland francs for machinery and other equipment, and an additional 170 million francs would be necessary for working capital.

While Buzzland has a wealth of resources, including skilled labour and excellent communications networks, the country has suffered from the relatively high price of its resources compared with countries with similar infrastructure and skills. Its main export product, a special type of exotic fruit, has been significantly damaged in the last few years due to extremely high temperatures and lack of rain.

Buzzland has been 'bailed out' several times by the IMF and such is the severity of the economic and financial situation that there have been several temporary restrictions imposed on the remittance of funds from Buzzland in the last five years. The Buzzland government has taken on huge amounts of debt from overseas countries – the interest on the debt alone is crippling the economy.

Watson plc's proposed investment would be in the production of a new type of mobile phone, which is currently manufactured in Watson's home country, Eardisland. If the Buzzlandian investment project was undertaken the existing Eardisland factory would either be closed down or downsized. Watson hopes to become more competitive by shifting production from Eardisland.

Additional information:

(i) Corporate tax in Eardisland is at the rate of 24% per year, and Buzzlandian corporate tax at the rate of 20% per year, both payable in the year that the tax charge arises. Tax allowable depreciation in Buzzland is 25% per year on a reducing balance basis. A bilateral tax treaty exists between Buzzland and Eardisland.

(ii) The after-tax realisable value of the machinery and other equipment after four years is estimated to be 150 million Buzzland francs.

(iii) $140,000 has recently been spent on a feasibility study into the logistics of the proposed investment. The study reported favourably on this issue.

(iv) The Buzzland government has offered to allow Watson to use an existing factory rent free for a period of four years on the condition that Watson employs at least 300 local workers. Watson has estimated that the investment would need 250 local workers. Rental of the factory would normally cost 75 million Buzzland francs per year before tax.

(v) Almost all sales from Buzzland production will be to the European Union priced in euros.

(vi) Production and sales are expected to be 50,000 units per year. The expected Year 1 selling price is 480 euros per unit.

(vii) Unit costs throughout Year 1 are expected to be:

- Labour: 3,800 Buzzland (B) francs based upon using 250 workers

- Local components: 1,800 B francs
- Component from Germany: 30 euros
- Sales and distribution: 400 B francs

(viii) Fixed costs in Year 1 are 50 million B francs.

(ix) Local costs and the cost of the German component are expected to increase each year in line with Buzzland and EU inflation respectively. Owing to competition, the selling price (in euros) is expected to remain constant for at least four years.

(x) All net cash flows arising from the proposed investment in Buzzland would be remitted at the end of each year back to Eardisland.

(xi) If the Eardisland factory is closed Watson will face tax allowable redundancy and other closure costs of $35 million. Approximately $20 million after tax is expected to be raised from the disposal of land and buildings.

(xii) If Watson decides to downsize rather than close its home country operations then tax allowable closure costs will amount to $20 million, and after-tax asset sales to $10 million. Pre-tax net cash flows from the downsized operation are expected to be $4 million per year, at current values. Manufacturing capacity in Buzzland would not be large enough to supply the market previously supplied from Eardisland if downsizing does not occur.

(xiii) The estimated beta of the Buzzland investment is 1.5 and of the existing Eardisland investment 1.1.

(xiv) The relevant risk free rate is 4.5% and market return 11.5%.

(xv) Money market investment in Buzzland is available to Watson paying a rate of interest equivalent to the Buzzlandian inflation rate.

(xvi) Forecast % inflation levels:

	Eardisland and the EU	*Buzzland*
Year 1	2%	20%
Year 2	3%	15%
Year 3	3%	10%
Year 4	3%	10%
Year 5	3%	10%

(xvii) Spot exchange rates:

Buzzland francs/$ 36.85

Buzzland francs/Euros 23.32

Requirements

(a) Should Watson undertake the proposed investment in Buzzland and consequently close or downsize its Eardisland operation? Show all relevant workings and clearly state all assumptions.

(b) What other issues, in addition to the appraisal above, should Watson plc consider before making the final decision as to whether to invest in Buzzland?

See **Answer** at the end of this chapter.

4 Exchange controls



Section overview

- Multinationals can take various measures to combat the risks of **exchange controls**, including different methods of remitting funds and local finance.

4.1 Introduction

Exchange controls restrict the flow of foreign exchange into and out of a country, usually to defend the local currency or to protect reserves of foreign currencies. Exchange controls are generally more restrictive in developing and less developed countries, although some still exist in developed countries. Controls may take the following forms.

- **Rationing the supply of foreign exchange**. Anyone wishing to make payments abroad in a foreign currency will be restricted by the limited supply, which stops them from buying as much as they want from abroad.
- **Restricting the types of transaction** for which payments abroad are allowed, for example by suspending or banning the payment of dividends to foreign shareholders, such as parent companies in multinationals, who will then have the problem of blocked funds.

4.2 Impact of exchange controls on investment decisions

Assuming that **no repatriation** is possible until period N, when the life of the project will have been completed, then the NPV will be calculated as follows.

Step 1 Add all net cash flows together and then add the terminal value.

Step 2 Convert the value from Step 1 to home currency.

Step 3 Discount the value from Step 2 at WACC.

Step 4 Convert initial investment to home currency.

Step 5 Deduct the value from Step 4 from the value in Step 3 to obtain NPV.

The above formula assumes that non-repatriated funds are not invested. If we assume that the cash flow is invested each period and earns a return equal to i, then the NPV will be calculated as follows.

Step 1 Convert terminal value to home currency and discount at WACC.

Step 2 Convert net cash flows to home currency, gross up for interest and add together, before discounting the total using WACC.

Step 3 Convert initial investment to home currency and deduct from the sum of the values in Steps 1 and 2.

The impact will depend on the interest rate earned and the cost of capital. An example will illustrate how this may be calculated.



Worked example: Remittance restrictions

Flagwaver Inc, a US company, is considering whether to establish a subsidiary in Aspavia, where the currency is the E, at a cost of E20,000,000. The subsidiary will run for four years and the net cash flows from the project are shown below.

	Net cash flow
	E
Project 1	3,600,000
Project 2	4,560,000
Project 3	8,400,000
Project 4	8,480,000

There is a withholding tax of 10% on remitted profits and the exchange rate is expected to remain constant at $1 = E1.50. At the end of the four-year period the Aspavian government will buy the plant for E12,000,000. The latter amount can be repatriated free of withholding taxes.

Requirements

(a) If the required rate of return is 15% calculate the present value of the project.

Now assume that no funds can be repatriated for the first three years, but all the funds are allowed to be remitted to the home market in year 4. The funds can be invested at a rate of 5% per year.

Requirement

(b) Assess whether the project is still financially viable.

Solution

(a)

Year	*Remittance net of withholding tax*	*Remittance*	*Discount factor (15%)*	*Discounted*
	E	$		$
1	3,240,000	2,160,000	0.870	1,879,200
2	4,104,000	2,736,000	0.756	2,068,416
3	7,560,000	5,040,000	0.658	3,316,320
4[(1)]	19,632,000	13,088,000	0.572	7,486,336
				14,750,272

The NPV is $14,750,272 – $\frac{\text{E20,000,000}}{1.50}$ = $1,416,939

(b)

Step 1

Salvage value = E12,000,000/1.50 = $8,000,000

Step 2

Year	*1st payment*	*2nd payment*	*3rd payment*	*4th payment*
1	E3,600,000			
2		E4,560,000		
3			E8,400,000	
4[(1)]	4,167,450	5,027,400	8,820,000	E8,480,000
Withholding tax	(416,745)	(502,740)	(882,000)	(848,000)
Net cash flow	3,750,705	4,524,660	7,938,000	7,632,000
Exchange rate ($/E)	1.50	1.50	1.50	1.50
Cash flow ($)	2,500,470	3,016,440	5,292,000	5,088,000

[(1)] The first payment represents the initial profit of E3,600,000 + three years' investment interest of 5% – that is:

E3,600,000 × 1.05^3 = E4,167,450

The second payment includes two years' investment interest and the third payment one year's investment interest.

Total net cash flow receivable in Year 4 is $15,896,910. When the salvage value of $8,000,000 is included, total cash receivable is $23,896,910. Discounted at 15% (discount factor at year 4 = 0.572), the present value is $13,669,033.

Step 3

Net present value = $13,669,033 – (E20,000,000/1.5) = $335,700

Note that the exchange controls have reduced the NPV of the project by 76% (original NPV = $1,416,939) but the project is still financially viable.

4.3 Strategies for dealing with exchange control

Multinational companies have used many different strategies to overcome exchange controls, the most common of which are listed below.

- **Transfer pricing** where the parent company sells goods or services to the subsidiary and obtains payment. The amount of this payment will depend on the volume of sales and also on the transfer price for the sales.
- **Royalty payments** when a parent company grants a subsidiary the right to make goods protected by patents. The size of any royalty can be adjusted to suit the wishes of the parent company's management.
- **Loans** by the parent company to the subsidiary. If the parent company makes a loan to a subsidiary, it can set the interest rate high or low, thus affecting the profits of both companies. A high rate of interest on a loan, for example, would improve the parent company's profits to the detriment of the subsidiary's profits.
- **Management charges** may be levied by the parent company for costs incurred in the management of international operations.

5 Dividend management



Section overview

- The amount of dividends foreign subsidiaries pay to the parent company depend on the parent company's dividend policy, financing needs, taxation and managerial control.

The choice of whether to repatriate earnings from a foreign subsidiary is one of the most important decisions in multinational financial management. Receipts from subsidiaries help parent companies meet their financing needs as larger dividends to external shareholders are associated with larger dividend payments inside the Group.

Significant factors that shape dividend policy within the multinational firm are the **interaction between the level of investment** planned by the parent company and its **financing**, the **payment of dividends to external shareholders, taxation issues and management control.**

5.1 Investment and financing

Dividends from foreign affiliates may offer an attractive source of finance for **domestic investment** expenditures, despite possible associated tax costs, especially when alternative forms of finance are costly. This applies to parent companies with profitable domestic investment opportunities that already maintain large amounts of external debt and do not wish to increase the level of borrowing even further. Another case is when companies need to expand fast into areas and home country profitability is not sufficient to finance the expansion.

5.2 Dividend policy

Dividends from foreign affiliates may also offer an attractive source of finance for **payments of dividends to home country shareholders**, especially when the parent company prefers a **smooth dividend payment pattern** and domestic profitability is in decline. The dividend payments of a subsidiary may also be affected by the **dividend policy** of the parent company. For example, if the parent company operates a constant payout ratio policy, then the subsidiary will have to adopt a constant payout ratio policy too.

Empirical evidence shows that dividend payments to parent companies tend to be regular. Multinational firms behave as though they select **target payouts** for their foreign affiliates, gradually adjusting payouts over time in response to changes in earnings.

5.3 Tax regime and dividend payments

Tax considerations are thought to be the primary reason for the dividend policies of multinational firms. For example, the parent company may **reduce its overall tax liability** by, for example, receiving larger amounts of dividends from subsidiaries in countries where undistributed earnings are taxed.

For subsidiaries of Bangladesh companies, all foreign profits, whether repatriated or not, are liable to **Bangladesh corporation tax**, with a credit for the tax that has already been paid to the host country subject to reciprocal agreement with those country.

Similarly, the US government does not distinguish between **income earned abroad and income earned at home** and gives credit to MNCs headquartered in the US for the amount of tax paid to foreign governments. One of the strong implications of the US tax treatment of foreign income is that American multinational corporations should not simultaneously remit dividends from low-tax foreign locations and transfer equity funds into the same foreign locations. Doing so generates a home-country tax liability that could be easily avoided simply by reducing both dividends and equity transfers.

5.4 Managerial control

Another influence on dividend policies is the **need to control foreign managers.** Regular dividend payments restrict the financial discretion of foreign managers and limit their ability to misallocate funds, thereby reducing associated agency problems. A MNC's central management can use financial flows within the firm to evaluate the financial prospects and needs of far-flung foreign affiliates.

5.5 Timing of dividend payments

Timing of dividends may be equally important as the size of payments. For example, a subsidiary may adjust its dividend payments to a parent company in order to **benefit from expected movements in exchange rates.** A company would like to collect early (lead) payments from currencies vulnerable to depreciation and to collect late (lag) from currencies which are expected to appreciate.

Also, given that tax liabilities are triggered by remittance of dividends, these tax liabilities can be deferred by **reinvesting earnings abroad** rather than remitting dividends to parent companies. The incentive to defer repatriation is much stronger for affiliates in low-tax countries, whose dividends trigger significant parent tax obligations, than they are for affiliates in high-tax countries – particularly since taxpayers receive net credits for repatriations from affiliates in countries with tax rates that exceed the parent country tax rate.

6 Transfer pricing



Section overview

- We covered transfer pricing briefly in Chapter 9, but here we focus on transfer pricing in the context of a MNC. Transfer prices are set by the MNC not only to recover the cost of services and goods provided, but also to achieve objectives such as tax liability minimisation and offset of host country policies.



Definition

Transfer price is the price at which goods or services are transferred from one process or department to another or from one member of a Group to another.

Multinational corporations supply their affiliates with capital, technology, and managerial skills, for which the parent firm receives streams of dividend and interest payments, royalties, and licence fees. Significant **intrafirm transfers of goods and services** also occur. For example, one subsidiary may provide another with raw materials, whereas the parent company may provide both subsidiaries with final goods for distribution to consumers. For intrafirm trade, both the parent company and the subsidiaries need to charge prices. These prices for goods, technology, or services between wholly- or partly-owned affiliates of the multinational are called transfer prices.

6.1 Determining transfer prices

The size of the transfer price will **affect the costs of one profit centre and the revenues of another**. Since profit centre managers are held accountable for their costs, revenues, and profits, they may dispute the size of transfer prices with each other, or disagree about whether one profit centre should do work for another or not. Transfer prices affect **behaviour and decisions by profit centre managers**.

If managers of individual profit centres are tempted to take decisions that are harmful to other divisions and are not congruent with the goals of the organisation as a whole, the problem is likely to emerge in disputes about the transfer price.

Disagreements about **output levels** tend to focus on the transfer price. There is presumably a profit-maximising level of output and sales for the organisation as a whole. However, unless each profit centre also maximises its own profit at the corresponding level of output, there will be interdivisional disagreements about output levels and the profit-maximising output will not be achieved.

6.2 Bases of transfer prices

The extent to which costs and profit are covered by the transfer price is a matter of company policy. A transfer price may be based upon any of the following.

- Standard cost
- Marginal cost: at marginal cost or with a gross profit margin added
- Opportunity cost
- Full cost: at full cost, or at a full cost plus price
- Market price
- Market price less a discount
- Negotiated price, which could be based on any of the other bases

A transfer price based on cost might be at **marginal cost or full cost**, with no profit or contribution margin. However, in a profit centre system it is more likely to be a price based on marginal cost or full cost plus a **margin for contribution or profit.** This is to allow profit centres to make a profit on work they do for other profit centres, and so earn a reward for their effort and use of resources on the work.

6.3 Market value transfer prices

Transfers based on market price might be any of the following.

(a) The **actual market price** at which the transferred goods or services could be sold on an external market.

(b) The **actual external market price**, minus an amount that reflects the savings in costs (for example, selling costs and bad debts) when goods are transferred internally.

(c) The **market prices** of **similar goods** that are sold on an external market, although the transferred goods are not exactly the same and do not themselves have an external market.

(d) A **price** sufficient to give an appropriate share of profit to each party.

6.3.1 Advantages of market value transfer prices

Giving profit centre managers the freedom to negotiate prices with other profit centres as though they were independent companies will tend to result in market-based transfer prices.

(a) In most cases where the transfer price is at market price, internal transfers should be expected, because the buying division is likely to **benefit from a better quality of service, greater flexibility, and dependability of supply.**

(b) Both divisions may **benefit from lower costs of administration, selling and transport.**

A market price as the transfer price would therefore result in decisions which would be in the best interests of the company or Group as a whole.

6.3.2 Disadvantages of market value transfer prices

Market value as a transfer price does have certain disadvantages.

(a) The market price may be **temporary, induced by adverse economic conditions, or dumping,** or the market price might **depend on the volume of output supplied** to the external market by the profit centre.

(b) A transfer price at market value might, under some circumstances, act as a **disincentive to use up spare capacity** in the divisions. A price based on **incremental cost,** in contrast, might provide an incentive to use up the spare resources in order to provide a marginal contribution to profit.

(c) Many products **do not have an equivalent market price,** so that the price of a similar product might be chosen. In such circumstances, the option to sell or buy on the open market does not exist.

(d) There might be an **imperfect external market** for the transferred item, so that if the transferring division tried to sell more externally, it would have to reduce its selling price.

(e) Internal transfers are often **cheaper than external sales,** with savings in selling costs, bad debt risks and possibly transport costs. The buying division should thus expect a discount on the external market price, and to negotiate for such a discount.

6.4 Factors affecting transfer pricing

When deciding on their transfer pricing policies, multinational companies take into account many internal and external factors.

6.4.1 Performance evaluation

When different affiliates within a multinational are treated as **stand-alone profit centres,** transfer prices are needed internally by the multinational to determine profitability of the individual divisions. Transfer prices which deviate too much from the actual prices will make it difficult to **monitor properly the performance** of an affiliated unit.

6.4.2 Management incentives

If transfer prices that are used for internal measures of performance by individual affiliates deviate from the true economic prices, and managers are evaluated and rewarded on the basis of the distorted profitability, then it may result in corporate managers **behaving in an irresponsible way**.

6.4.3 Cost allocation

When units within the multinational are run as **cost centres**, subsidiaries are charged a share of the costs of providing the Group service function so that the service provider covers its costs plus a small mark-up. Lower or higher transfer prices may result in a subsidiary **bearing less or more of the overheads**.

6.4.4 Financing considerations

Transfer pricing may be used in order to **boost the profitability of a subsidiary**, with the parent company undercharging the subsidiary. Such a boost in the profitability and its credit rating may be needed by the subsidiary in order to succeed in obtaining funds from the host country.

Transfer pricing can also be used to **disguise the profitability of the subsidiary** in order to justify high prices for its products in the host country and to be able to resist demands for higher wages.

Because multinationals operate in two or more jurisdictions, transfer prices must be assigned for intrafirm trade that crosses national borders.

6.4.5 Taxes

MNCs use transfer pricing to **channel profits out of high tax rate countries into lower ones**. A parent company may sell goods at lower than normal prices to its subsidiaries in lower tax rate countries and buy from them at higher than normal prices. The resultant loss in the parent's high tax country adds significantly to the profits of the subsidiaries. A MNC will report most of its profits in a low tax country, even though the actual profits are earned in a high tax country.

6.4.6 Tariffs

Border taxes such as tariffs and export taxes are often levied on crossborder trade. Where the tax is levied on an *ad valorem* basis, the higher the transfer price, the larger the tax paid per unit. Whether a MNC will follow high transfer price strategy or not may depend on its impact on the tax burden. When border taxes are levied on a per-unit basis (ie specific taxes), the transfer price is irrelevant for tax purposes.

6.4.7 Rule of origin

Another external factor is the need to meet the **rule of origin** that applies to crossborder flows within a free trade area. Since border taxes are eliminated within the area, rules of origin must be used to determine eligibility for duty-free status. Over or under-invoicing inputs is one way to avoid customs duties levied on products that do not meet the rule of origin test.

6.4.8 Exchange control and quotas

Transfer pricing can be used to **avoid currency controls** in the host country. For example, a constraint in profit repatriation could be avoided by the parent company charging higher prices for raw materials, or higher fees for services provided to the subsidiary. The parent company will have higher profits and a higher tax liability and the subsidiary will have lower profitability and a lower tax liability.

When the host country restricts the amount of foreign exchange that can be used to import goods, then a lower transfer price allows a greater quantity of goods to be imported.

6.5 Transfer price manipulation

Firms set prices on intrafirm transactions for a variety of perfectly legal and rational internal reasons. Even where pricing is not required for internal reasons, governments may require it in order to determine how much tax revenues and customs duties are owed by the multinational corporation.

Transfer price manipulation on the other hand exists, when multinational companies use transfer prices to **evade or avoid payment of taxes and tariffs**, or other controls that the government of the host country has put in place. Overall MNC profits after taxes may be raised by either **under- or over-invoicing the transfer price**. Such manipulation for tax purposes, however, comes at the expense of distorting other goals of the firm, in particular, evaluating management performance.

6.6 Government action

Governments are concerned about transfer price manipulation and try to take action against it.

Definition

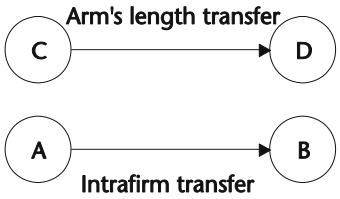
Arms-length standard: Intrafirm trade of multinationals should be priced as if they took place between unrelated parties acting at arm's length in competitive industries.

The most common solution that tax authorities have adopted to reduce the probability of transfer price manipulation is to **develop transfer pricing regulations as part of the corporate income tax code**. These regulations are generally based on the concept of the arm's length standard, which says that all MNC intrafirm activities should be priced as if they took place between unrelated parties acting at arm's length in competitive markets. The 1979 OECD Report defines the arm's length standard as:

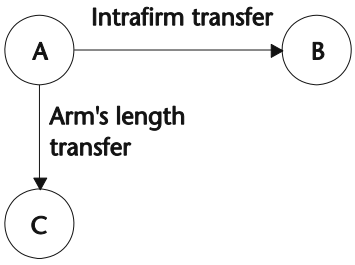
'Prices which would have been agreed upon between unrelated parties engaged in the same or similar transactions under the same or similar conditions in the open market'. (*OECD 1979*)

The arm's length standard has two methods. The method used will depend on the **available data.**

Method 1: use the price negotiated between two unrelated parties C and D to proxy for the transfer between A and B.



Method 2: use the price at which A sells to unrelated party C to proxy for the transfer price between A and B.



The main methods of establishing 'arm's length' transfer prices of tangible goods include:

- Comparable uncontrolled price (CUP)
- Resale price (RP)
- Cost plus (C+)
- Comparable profit method (CPM)
- Profit split (PS)

The first three are transactions-based approach, while the latter two are profit-based.

6.6.1 The comparable uncontrolled price (CUP) method

The CUP method looks for a comparable product to the transaction in question (known as a product comparable). Tax authorities prefer the CUP method over all other pricing methods for at least two reasons.

- It **incorporates more information** about the specific transaction than does any other method; ie it is transaction and product specific.
- CUP takes **both the interests of the buyer and seller** into account since it looks at the price as determined by the intersection of demand and supply.

6.6.2 The resale price method (RPM)

Where a product comparable is not available, and the *CUP* method cannot be used, an alternative method is to **focus on one side of the transaction**, either the manufacturer or the distributor, and to estimate the transfer price using a **functional approach**.

Under the resale price method, the tax auditor looks for firms at similar trade levels that perform similar distribution function. The RPM method is best used when the **distributor adds relatively little value to the product,** so that the value of its functions is easier to estimate. The assumption behind the RPM is that competition among distributors means that similar margins (returns) on sales are earned for similar functions.

The resale price method backs into the transfer price by **subtracting a profit margin,** derived from margins earned by comparable distributors engaged in comparable functions, from the known retail price to determine the transfer price. As a result, the RPM evaluates the transaction only in terms of the buyer. The method ensures that the buyer receives an arm's length return consistent with returns earned by similar firms engaged in similar transactions. Thus the resale price method tends to **overestimate the transfer price** since it gives all unallocated profits on the transaction to the manufacturer.

6.6.3 The cost plus method

The cost plus method starts with the costs of production, measured using recognised accounting principles, and then adds an **appropriate mark-up over costs**. The appropriate mark-up is estimated from those earned by similar manufacturers. The assumption is that in a competitive market the percentage mark-ups over cost that could be earned by other arm's length manufacturers would be roughly the same. The cost plus method works best when the producer is a **simple manufacturer without complicated activities**, so that its costs and returns can be easily estimated.

In order to use the cost plus method, the tax authority or the MNC must know the accounting approach adopted by the unrelated parties.

- What costs are included in the cost base before the mark-up over costs is calculated? Are they actual costs or standard costs?
- Are only manufacturing costs included or is the cost base the sum of manufacturing costs plus some portion of operating costs? The larger the cost base, the smaller should be the profit mark-up, or gross margin, over costs.

6.6.4 The comparable profit method (CPM)

The comparable profits method is based on the premise that companies in similar industries will tend to have **similar financial performance and characteristics**. This similarity in performance will be indicated by the similarity in financial ratios. For instance, if the return on assets (ROA) is the profit level indicator, then

knowledge of the rate of ROAs for comparable companies or for the industry coupled with knowledge of the assets of the company would determine the taxable profits of the company.

The comparable profits method has the following shortcomings.

- It is not a transactions-based method.
- It does not take the contractual obligations of the parties into account.
- It does not reflect the facts and circumstances of the case.
- It could lead to substantial double taxation of income if other governments did not accept the method.

6.6.5 The profit split method (PSM)

When there are no suitable product comparables (the *CUP* method) or functional comparables (the RPM and cost plus method), the most common alternative method is the profit split (PSM) method, whereby the profits on a transaction earned by two related parties are **split between the parties**.

The profit split method allocates the consolidated profit from a transaction, or group of transactions, between the related parties. Where there are no comparables that can be used to estimate the transfer price, this method provides an alternative way to calculate or 'back into' the transfer price. The most commonly recommended ratio to split the profits on the transaction between the related parties is return on operating assets (the ratio of operating profits to operating assets).

The profit split method ensures that both related parties earn the **same return on assets.**



Interactive question 3: Transfer pricing **[Difficulty level: Intermediate]**

A MNC based in Bangladesh has subsidiary companies in China and in the UK. The UK subsidiary manufactures machinery parts which are sold to the China subsidiary for a unit price of BDT420, where the parts are assembled. The UK subsidiary shows a profit of BDT80 per unit; 200,000 units are sold annually.

The China subsidiary incurs further costs of BDT400 per unit and sells the finished goods on for an equivalent of BDT1,050.

All of the profits from the foreign subsidiaries are remitted to the parent company as dividends. Double taxation treaties between Bangladesh, China and UK allow companies to set foreign tax liabilities against their domestic tax liability.

The following rates of taxation apply.

	UK	*Bangladesh*	*China*
Tax on company profits	25%	35%	40%
Withholding tax on dividends	–	12%	10%

Requirements

Show the tax effect of increasing the transfer price between UK and China subsidiaries by 25%.

See **Answer** at the end of this chapter.

Summary and Self-test

Summary

International trade exposes companies to risks such as credit risk and liquidity risk.

Overseas expansion is an alternative to exporting – companies may choose to set up operations in countries with which they do a lot of business.

International investment exposes companies to financing challenges, including overseas taxation and pre-export financing. IAS 21 will determine how investments are accounted for and parent company auditors will have to consider how they use the work of local auditors.

If a company wishes to borrow from international capital markets, it may benefit from lower costs of borrowing and lower issue costs. However, international borrowing may expose the company to exchange rate risk if the loan is not in the same currency as the cash inflows and no suitable hedging arrangements are in place.

There are a number of ways of dealing with government-imposed exchange controls, including transfer pricing arrangements, loans, royalty payments and management charges.

The dividend policy of overseas subsidiaries may be determined by parent company needs.

Transfer prices between different Group members can be established on various bases, but taxation authorities may dispute arrangements if they do not appear to be at arm's-length.

Self-test

Self-test question 1

Upowerit Ltd

Upowerit Ltd is a Bangladesh -based company that has been trading for some years, selling self-powered equipment. The directors are looking to expand beyond Bangladesh, and have focused on Africa. Self-powered products have been popular in Africa because they have been seen as more economical than disposable battery-powered products, and because they do not require mains-supplied electricity that may be unreliable or unavailable.

The board of Upowerit is considering establishing an operational presence in an African country, to enhance its sales operations in that continent, and eventually to establish a manufacturing base there to reduce costs of production and distribution. The board is considering what form the operations should take and various financing issues. The board's current preferred option is a joint venture with a local African partner.

Requirements

(a) Discuss the strategic and operational issues that the directors of Upowerit should consider before making a decision on whether to implement an overseas expansion strategy.

(b) Explain the main advantages of establishing a joint venture.

(c) Describe the assurance services that could be carried out with respect to the initial set-up of the joint venture and continuing assurance over the period that the joint venture lasts.

Self-test question 2

Snazzy

Snazzy is a manufacturer of low-cost bedroom furniture for children in Dinoville (whose currency is the Dinoville £ – the D£). However, the Dinoville market is becoming saturated and Snazzy is considering setting up a manufacturing operation in either Lexland or Jibrovia to take advantage of the high demand for such products in these countries. Owing to the high cost and limited availability of suitable transportation, it would not be financially viable to export from Dinoville.

The Lexland subsidiary would involve the construction of completely new state-of-the-art manufacturing plant. The projected costs are shown below.

Lexland subsidiary (currency: Lexland franc)

	Now	*Year 1*
	LFr'000	LFr'000
Land	2,300	–
Building	1,600	6,200
Machinery	–	6,400
Working capital	–	11,500

Production and sales in Year 2 are estimated to be 2,000 sets of bedroom furniture at an average price of LFr20,000 (at current prices). Production in each of Years 3 – 6 is forecast at 2,500 sets of furniture. Total local variable costs in Lexland in Year 2 are expected to be LFr11,000 per unit (at current prices). In addition, a fixed royalty fee of D£750,000 per year would be payable to the Dinoville parent company. Tax allowable depreciation in Lexland on machines is at 25% per year on a reducing balance basis. No tax allowable depreciation exists on other non-current assets.

The Jibrovia investment (currency Jibrovia $ – the J$) would involve the purchase, via a takeover bid, of an existing kitchen furniture manufacturer based in its second city of Nicktown. The cost is not precisely known but Snazzy's managers are confident that a bid within the range J$8 million – 10 million will be successful. Additional investment of J$2 million in new plant and J$4 million in working capital would immediately be required, resulting in forecast pretax net cash flows (after tax savings from depreciation) in Year 1 of J$2 million (at current prices) rising to J$3 million (at current prices) in Year 2 and subsequent years.

All prices and costs in Lexland and Jibrovia are expected to increase annually by the current rate of inflation. The after-tax realisable value of the investments in six years' time is expected to be approximately LFr16.2 million and J$14.5 million at price levels of six years in the future, excluding working capital.

Inflation rates for each of the next six years are expected to be:

Jibrovia	6%
Dinoville	3%
Lexland	5%

Exchange rates

	LFr/D£	J$/D£
Spot	2.3140 – 2.3210	1.5160 – 1.5210

Snazzy can borrow funds for the investment at 10% per year in Dinoville. The company's cost of equity capital is estimated to be 17%. After either proposed investment Snazzy's gearing will be approximately 50% debt, 50% equity by book value, and 30% debt, 70% equity by market value.

Corporate tax in Lexland is at 40%, in Dinoville 33% and Jibrovia 30%. Full bilateral tax treaties exist between Dinoville and both Lexland and Jibrovia. Taxation is payable, and allowances are available, one year in arrears.

Requirement

Evaluate which, if either, of the two subsidiaries should be established by Snazzy. Include discussion of the limitations of your evaluation. State clearly any assumptions that you make.

Self-test question 3

Gordon plc

Gordon plc is a health club chain based in Northern Ireland. The company has decided to purchase an existing health club chain in New Jersey, USA. The purchase will cost an agreed $72 million for non-current assets and equipment, and in addition $8 million of working capital will be needed. No additional external funding for the proposed US subsidiary is expected to be needed for at least five years, and sales from the subsidiary would be exclusively to the US market. Gordon has no other foreign subsidiaries, and the company's managers are considering how to finance the US investment. Gordon's bank has advised that, taking into account Gordon's credit rating, the following alternatives might be possible, with finance available up to the amount shown.

(a) A one for four rights issue, at a price of 280 pence per share. Underwriting and other costs are expected to be 5% of the gross amount raised.

(b) Five-year sterling 7% fixed-rate secured bank term loan of up to £50 million, initial arrangement fee 1%.

(c) $15 million one-year commercial paper, issued at $US LIBOR plus 1.5%. This could be renewed on an annual basis. An additional 0.5% per year would be payable to a US bank for a back-up line of credit.

(d) Eighty million Swiss franc five-year fixed rate secured bank loan at 2.5%. This may be swapped into fixed rate $ at an **additional** annual interest rate of 2.3%. An upfront fee of 3.0% is also payable.

No currency swaps are available other than those shown. Currency swaps would involve swapping the principal at the current spot exchange rate, with the reversal of the swap at the same rate at the swap maturity date.

$US LIBOR is currently 3%.

Exchange rates

	Spot	*One-year forward*
$/£	1.7985 – 1.8008	1.7726 – 1.7746
SF/£	2.256 – 2.298	2.189 – 2.205

Gordon's current statement of financial position is summarised below.

	£m
Non-current assets	117.8
Investments	8.1
Current assets	98.1
Current payables	
Loans and other borrowings	(38.0)
Other payables	(48.6)
	137.4
Non-current payables	
Medium- and long-term bank loans	30.0
8% Bond 20X9 (par value £100)	18.0
	48.0
Capital and reserves	
Ordinary shares (25 pence par value)	20.0
Reserves	69.4
	137.4

A covenant exists that prevents the book value of Gordon's debt finance from exceeding 50% of total assets. Gordon's current dividend per share is 22.2 pence and dividend growth is approximately 4% per year. The company's current share price is 302 pence.

Interest payments on debt financing may be assumed to be made annually at the end of the year. Corporate tax in the UK, USA and Switzerland is at a rate of 28%. Issue costs and fees such as swap fees are not tax allowable.

Requirements

(a) Discuss the factors that Gordon should consider before deciding how to finance the proposed US subsidiary.

(b) Prepare a report discussing and evaluating each of the four possible sources of finance, and provide a reasoned recommendation of which source, or combination of sources, Gordon should use. Supporting calculations, including costs, should be provided wherever relevant.

IAS 21, *The effects of changes in foreign exchange rates*

Overview

- IAS 21 prescribes how to include foreign currency transactions and foreign operations in the financial statements of an entity, and how to translate financial statements into a presentation currency. The principal issues are which exchange rate(s) to use, and how to report the effects of changes in exchange rates.

Answers to Interactive questions

Answer to Interactive question 1

(a) Tiger should consider such issues as:

(i) **Convertibility of currency**

If the host country's currency is **not easily converted** in the foreign exchange markets – or no market exists for this particular currency – Tiger might have problems trying to get money out of the country should it ever wish to withdraw its investment.

(ii) **Availability of suitable resources**

While Tiger appears to be confident that resources are available at a low price, will these resources be **suitable for purpose** (for example, raw materials) and able to perform the necessary specialist tasks that characterise the manufacture of electronic products (human resources)? While it is possible to send personnel from the home country, expatriate packages are expensive and may cancel out the advantage of paying less for other resources. The host country will obviously be looking for some economic benefit for its own inhabitants in the form of jobs. Therefore it is important to determine whether local employees have the necessary skills. If there are insufficient raw materials available, Tiger may still be **restricted on how much it can import from elsewhere** due to local import controls. Tariffs and taxes may cancel out any cost advantage of operating in the host country.

(iii) **Inflation and economic stability**

These are crucial factors. Does the country have a history of high inflation which suggests economic volatility? Are costs likely to **spiral out of control,** resulting in **loss of cost advantage** for Tiger? Will economic volatility lead to increasing interest rates and/or local currency collapse?

(iv) **Cultural compatibility**

Do locals have the same approach to business as Bangladesh – for example, profit seeking, quality, striving for customer satisfaction? Will the importance of **quality of product be appreciated?** Are **shareholder-owned companies encouraged or are nationalised industries the norm**? Is it likely that the operation could be nationalised in the future? Are there likely to be problems with training the local workforce? Are there problems relating to the employment of women or certain classes of society?

(b) **Minimisation of political risks**

Tiger can take the following steps to minimise the effects of political risk.

(i) **Negotiations with host government**

Tiger might be able to obtain a **concession agreement**, covering matters such as the transfer of capital, remittances and products, access to local finance, government intervention and taxation and transfer pricing. However, if there is a change in government, the new government may not feel bound to honour the agreement with the previous government.

(ii) **Insurance**

Insurance might be available against **nationalisation** and **currency conversion problems**.

(iii) **Production strategies**

Tiger could locate **key parts** of the **production process** abroad. If governments take action, it will not be able to produce the product without investment in new facilities. Alternatively, risk could be reduced by local sourcing of **factors of production** or **components**.

(iv) **Distribution channels**

Control by Tiger of distribution channels might limit the risk of government interference because of the **disruption** to **distribution arrangements** that interference might cause.

(v) **Patents**

Tiger might protect its investment by **patents or use of trademark legislation.** These might be **difficult to enforce** in local courts however.

(vi) **Financial management**

If Tiger obtains funds **in local markets**, governments might be deterred from intervening by the risks posed to local lenders.

(vii) **Ownership structure**

Instead of having a direct ownership interest, Tiger might establish a presence by a **joint venture**, or ceding control to local investors and obtaining profits by a **management contract**.

(viii) **Overcoming blocked funds**

Funds can be obtained by 'legitimate' charges such as **royalty or management charges,** or making a loan and charging **high interest rates**. Tiger might also engage in **countertrade** (reciprocal or barter arrangements) rather than trade for cash.

(c) **Duty of care**

All companies have to balance the need to compete against their ethical duty of care to stakeholders. The laws of developed countries have progressively reflected voters' concerns on **ethical issues** by banning activities considered harmful to society (eg drug dealing) or to the economy (eg corruption) and by developing numerous constraints on the behaviour by companies towards employees, the local community and the environment. These are intended to give companies a level playing field on which they can compete vigorously.

Adverse publicity

Where potentially unethical activities are not banned by law, companies need to make difficult decisions, weighing up **increased profitability** against the **harmful effects of bad publicity**, organisational ill-health and the knowledge that some activities are clearly wrong. Whereas in developed countries such decisions might relate to experimentation on animals or sale of arms, the laws of developing countries are far less advanced, forcing companies to make their own decisions on major issues such as:

(i) Provision of proper safety equipment and working conditions for employees
(ii) Use of child labour
(iii) Wage rates below subsistence level
(iv) Discrimination against women, ethnic minorities, and so on
(v) Pollution of the environment
(vi) 'Inducement' payments to local officials to facilitate investment

Unethical investment

In addition, multinational companies must decide whether it is right to invest at all in some countries which are regarded as **unethical**, for example because of violation of human rights.

Answer to Interactive question 2

(a) **Eardisland investment**

Cost of closing Eardisland factory = 35 (1 – 0.24) – 20 = $6.6 million

Cost of downsizing = 20 (1 – 0.24) – 10 = $5.2 million

Downsizing is the cheaper option, even before cash flows from the downsized factory and the fact that closure would mean markets couldn't be fully supplied is taken into account.

Using CAPM, discount rate = 4.5 + 1.1(11.5 – 4.5) = 12.2%, say 12%

Present value for post-tax cash flows 4 (1 – 0.24) × Inflation factor (1.02 Year 1, 1.02 × 1.03 Year 2 etc)

	0	*1*	*2*	*3*	*4*
	$m	$m	$m	$m	$m
Net downsizing costs	(5.2)				
Post-tax cash flows		3.1	3.2	3.3	3.4
	(5.2)	3.1	3.2	3.3	3.4
Discount factor 12%	1.000	0.893	0.797	0.712	0.636
	(5.2)	2.8	2.6	2.3	2.2

Net present value = $4.7million

Buzzland investment

WORKING		*0*	*1*	*2*	*3*	*4*
		Fm	Fm	Fm	Fm	Fm
Sales	(2)		659	735	785	839
German comp.	(3)		(41)	(47)	(52)	(57)
Labour	(4)		(228)	(262)	(288)	(317)
Local comp.	(5)		(90)	(104)	(114)	(125)
Sales and distrib.	(6)		(20)	(23)	(25)	(28)
Fixed costs	(7)		(50)	(58)	(63)	(70)
Tax allow. deprec.	(8)		(145)	(109)	(82)	(94)
Taxable profit			85	132	161	148
Tax at 20%			(17)	(26)	(32)	(30)
Tax allow. deprec.			145	109	82	94
Investment		(580)				150
Working capital	(9)	(170)	(34)	(31)	(23)	258
Remittable cash flows Fm		(750)	179	184	188	620
Exch. rate	(1)	36.85	43.35	48.40	51.69	55.20
Remittable cash flows $m		(20.4)	4.1	3.8	3.6	11.2
Add: Eardisland tax	(10)		(0.1)	(0.1)	(0.1)	(0.1)
Net cash flows		(20.4)	4.0	3.7	3.5	11.1
Disc. factor	(11)	1.000	0.870	0.756	0.658	0.572
Disc. cash flows		(20.4)	3.5	2.8	2.3	6.3

Net present value = $ (5.5) million

Present value overall = 4.7 – 5.5 = $ (0.8) million

On these figures, the reorganisation does not appear to be worthwhile.

WORKINGS

(1) **Exchange rates**

Year	*PP factor*	*Buzzland francs/$*	*Buzzland francs/euro*
0		36.85	23.32
1	1.20 / 1.02	43.35	27.44
2	1.15 / 1.03	48.40	30.64
3	1.10 / 1.03	51.69	32.72
4	1.10 / 1.03	55.20	34.94

(2) **Sales**

50,000 × 480 × Exchange rate

(3) **German component**

50,000 × 30 × Exchange rate × Inflation factor

Inflation factor = 1.03 Yr 2, 1.03 × 1.03 Yr 3, etc

(4) **Labour**

Incremental cost of employing 50 extra workers

50,000 × 3,800 × (50/250) = F38 million

This is less than the F75 million a year factory rental, so the extra workers are employed.

Costs

50,000 × 3,800 × (300/250) × Inflation factor

Inflation factor 1.15 Yr 2, 1.15 × 1.1 Yr 3, etc

(5) **Local components**

50,000 × 1,800 × Inflation factor for labour

(6) **Sales and distribution**

50,000 × 400 × Inflation factor for labour

(7) **Fixed costs**

50m × Inflation factor for labour

(8) **Tax allowable depreciation**

Year	*Writing-down allowance*	*Tax written-down value*
	Fm	Fm
0		580
1	145	435
2	109	326
3	82	244
4	94	0

WDA = 25% previous year's tax written-down value Yr 1 – 3, (244 – 150) Yr 4

(9) **Working capital**

(170m × Inflation factor) – Previous year's working capital balance

Inflation factor 1.2 Yr 1, 1.2 × 1.15 Yr 2, etc

Assume working capital is repaid at end of Year 4.

(10) **Eardisland tax**

Taxable profits × (0.24 – 0.2) × 1/exchange rate

(11) **Discount factor**

k = 4.5 + 1.5 (11.5 – 4.5)

= 15%

(b) **Strategic investments**

Watson should consider whether this decision is sensible from the point of view of **business strategy**. Is there a particularly good reason for becoming involved in Buzzland, potential future markets possibly? Might investing in other countries with greater market potential and/or lower costs be better? Watson should also take into account the **PEST** factors affecting the business environment including the legal and regulatory position, enforcement mechanisms, cultural influences on demand and methods of doing business.

Financial structure

The **availability of finance** could be a significant issue.

Limitations of analysis

The financial analysis has a number of possible limitations.

(i) If increases in costs are greater than expected, cash flows will be adversely affected, since Watson **cannot increase selling prices**.

(ii) Watson may wish to consider **prolonging the investment beyond Year 4**. If this is so, the analysis should consider the present value of cash flows after Year 4 rather than the realisable value of assets at that date, also the **rental** payable for the factory beyond Year 4.

(iii) Assuming production does cease in Buzzland in four years' time, the analysis fails to consider **what will happen afterwards or** what will happen if moving production does not prove successful because of, for example, **adverse effects on quality**.

(iv) **Purchasing power parity** may not be a **completely reliable predictor** of short-term exchange rates.

Therefore, to gain a better picture of the desirability of this investment, **sensitivity analysis** needs to be undertaken on **key variables**, the **analysis extended** beyond four years, and the effects of **changing assumptions** investigated.

Bad publicity

Relocating to a market where labour is cheaper may lead to bad publicity for Watson and **potential boycotts** of its goods.

Political risk

The investment is subject to political risk from action by the Buzzland government. Given the uncertainty, it may be worth **postponing the analysis** until a year's time, and awaiting developments in the situation (for example, whether the IMF will lend more money or whether further restrictions on remittances have been imposed).

Answer to Interactive question 3

The current position is as follows.

	UK company BDT'000	*China company* BDT'000	*Total* BDT'000
Revenues and taxes in the local country			
Sales	84,000	210,000	294,000
Production expenses	(68,000)	(164,000)	(232,000)
Taxable profit	16,000	46,000	62,000
Tax (1)	(4,000)	(18,400)	(22,400)
Dividends to Bangladesh	12,000	27,600	39,600
Withholding tax (2)	0	2,760	2,760
Revenues and taxes in Bangladesh			
Dividend	12,000	27,600	39,600
Add back foreign tax paid	4,000	18,400	22,400

	UK company	*China company*	*Total*
Taxable income	16,000	46,000	62,000
	5,600	16,100	21,700
Foreign tax credit	(4,000)	(16,100)	(20,100)
Tax paid in Bangladesh (3)	1,600	–	1,600
Total tax (1) + (2) + (3)	5,600	21,160	26,760

An increase of 25% in the transfer price would have the following effect.

	UK company	*China company*	*Total*
	BDT'000	BDT'000	BDT'000
Revenues and taxes in the local country			
Sales	105,000	210,000	315,000
Production expenses	(68,000)	(185,000)	(253,000)
Taxable profit	37,000	25,000	62,000
Tax (1)	(9,250)	(10,000)	(19,250)
Dividends to Bangladesh	27,750	15,000	42,750
Withholding tax (2)	0	1,500	1,500
Revenues and taxes in Bangladesh			
Dividend	27,750	15,000	42,750
Add back foreign tax paid	9,250	10,000	19,250
Taxable income	37,000	25,000	62,000
Bangladesh tax due	12,950	8,750	21,700
Foreign tax credit	(9,250)	(8,750)	(18,000)
Tax paid in Bangladesh (3)	3,700	–	3,700
Total tax (1) + (2) + (3)	12,950	11,500	24,450

The total tax payable by the company is therefore reduced by BDT2,310,000 to BDT24,450,000.

Answers to Self-test

Answer to Self-test question 1

Upowerit Ltd

(a) Before getting involved overseas, Upowerit must consider both strategic and operational issues.

Strategic

Mission

Most importantly, does overseas expansion 'fit' with the overall **mission and objectives** of the company?

Internal resources

Upowerit needs to make sure that it has the internal **resources** to expand overseas. These will be chiefly financial, but it will also require a lot of time and staff effort. Marketing the services to an overseas country will be a significant project, and one which the company has not undertaken before.

Market entry

Upowerit needs to decide what African markets to enter, and what its **level of involvement** will be. It is advisable to start off with only a few markets at the most, to limit not only the costs of entry and market communications, but also the likely number of competitors. The choice of market is obviously very important. Not only must there be an **accessible demand** to make the market attractive, but Upowerit must assess its **comparative advantage** in that market. The **risk** associated with the market must also be assessed. This will include political stability, economic infrastructure and other external influences.

Long-term objectives

The **longer-term objectives** for the overseas venture need to be established. Is it merely a way of getting through what could be a temporary domestic slowdown, or is there going to be a full commitment to overseas expansion? This will necessitate some organisational changes for Upowerit, both in structure and management.

Method of investment

The **form of involvement** needs to be considered. Unless the subsidiary route is chosen, Upowerit will have to relinquish some control, which it may not be prepared to do.

Operational

These are more short-term needs than the strategic issues presented above. Sales levels, profitability, cash flows, market share and capital expenditure requirements need to be forecast and planned in detail. In order to be able to do this, the following issues need to be considered.

Features of market

The **needs and preferences** of the foreign target market need to be established. This can only be achieved via an extensive programme of **market research** to forecast likely demand and establish levels of competition. Dealing with likely foreign **competitor responses** to the presence of Upowerit must be planned in advance.

Local culture

The **cultural implications** of doing business in a foreign country must never be underestimated. Upowerit has no experience of conducting business overseas and this often requires sensitive handling and staffing. Market share will suffer if local preferences are not taken into account.

Local regulations

Regulations overseas are almost certain to be different in some respects, and it is imperative that local knowledge and expertise is employed to make sure that the rules are complied with.

Cost issues

The **costs** of doing business overseas will be affected by factors such as foreign tax regimes, access to technology, and availability of physical resources.

Management skills

Management skills will be vital, both for staffing and the level of control over the operation. This will have implications for the organisation structure. For example, expatriate staff from the home country may need to be seconded to the overseas market to help local staff.

(b) **Exploit opportunities**

Joint ventures (JV) are often used to enable the companies to exploit an opportunity which it would be difficult for any one of them to take advantage of individually.

Joint ventures are often used as a means of entering markets which are either closed to foreign companies or difficult for them to enter. Therefore, Upowerit might see a joint venture as a good way of entering a specific foreign country.

Pooling skills and competences

A joint venture can allow the partners to bring together different skills and competences. For example, one partner might have extensive technical expertise, while another may have local market knowledge.

Risks and rewards

Because the joint venture involves two or more partners, the risks and rewards involved are shared between the various partners. Joint ventures allow risks and capital commitment to be shared between the venture partners, so they can be a very useful way of undertaking expensive technology projects.

(c) **Initial investigations**

- Review JV agreement (in combination with legal advisers) for onerous, ambiguous or omitted clauses.
- Ensure that the purpose of the JV is clear and the respective rights of partners are established in the initial contractual arrangements.
- Ensure that the scope of the JV is clear so there is separation of the other operations of each company from those falling within the JV.
- Review tax status of JV entity including remittance of funds.
- Review governance procedures including shared management, control, rights over assets, key decision-making processes to ensure that Upowerit's management has an appropriate level of control over key decisions that may damage its interests.
- Establish that initial capital has been contributed in accordance with the agreement.
- Establish the creditworthiness, going concern and reputation of JV partner, based on local enquiries from stakeholders and a review of internal documentation as well as that in the public domain.
- Ensure the terms of the disengagement and residual rights are clear in the initial agreement so there is a transparent and legitimate exit route.
- Where assets that are to be used in the joint venture are already held by either partner, then they would normally be transferred nominally at fair value. This needs to be established.
- Clarify revenue sharing agreement with respect to existing sales in progress.
- Health and safety responsibility needs to be established and liability sharing agreed.

Continuing assurance

- Audit rights and access to information need to be established in the contract as this will affect the scope of the audit.
- Ensure that the operations of the JV are within the terms of the JV agreement.
- Ensure that internal controls and accounting systems are being applied and are effective.
- Assess whether the accounting systems for a JV entity will be capable of recording accurately and completely the costs being incurred and the assets held by the entity.
- If permitted within the terms of the contract, audit access to the accounting records of the partner would provide additional assurance.
- Dissolution of the agreement creates additional assurance problems in terms of disengagement, return/sale of assets, intellectual property rights, rights to future customer access.
- The level of assurance needs to be determined (reasonable or limited).
- There may be a requirement for a separate audit for a JV entity.

Answer to Self-test question 2

Snazzy

Contribution to organisational objectives

The evaluation of each of the two alternatives is made in terms of how well each one contributes to the **achievement of organisational objectives** and strategies. The information given enables a financial appraisal of each alternative to be made. This will only be part of the input to the final decision, albeit an important part. Many non-financial factors will also have to be taken into account.

Approach used

The financial appraisal is shown below. The basic approach is to estimate cash flows in the foreign currency, convert them to the home currency and discount them at a rate based on home country cost of capital.

Financial appraisal of the two alternative investments

The time horizon for appraisal of both investments is seven years: six years of operation plus one further year to allow for the tax delay.

Appraisal of Lexland investment

Year	*0*	*1*	*2*	*3*	*4*	*5*	*6*	*7*
Production/sales units			2,000	2,500	2,500	2,500	2,500	
Cntbn. per unit, LFr (W1)			9,923	10,419	10,940	11,487	12,061	
	LFr '000	LFr '000	LFr '000	LFr '000	LFr '000	LFr '000	LFr '000	LFr '000
Total contribution			19,846	26,048	27,350	28,718	30,153	
Royalty (£750,000 × exch.rate)			(1,806)	(1,841)	(1,877)	(1,914)	(1,951)	
Operating cash flow			18,040	24,207	25,473	26,804	28,202	
Tax at 40%				(7,216)	(9,683)	(10,189)	(10,722)	(11,281)
Tax saved by dep'n all. (W2)				1,120	360	270	202	152
Land	(2,300)							
Building	(1,600)	(6,200)						
Machinery		(6,400)						
After-tax realisable value							16,200	
Working capital (W3)		(11,500)	(575)	(604)	(634)	(666)	(699)	14,678
Cash remitted to Dinoville	(3,900)	(24,100)	17,465	17,507	15,516	16,219	33,183	3,549
Exchange rate LFr/D£ (W4)	2.3175	2.3625	2.4084	2.4551	2.5028	2.5514	2.6010	2.6515
Cash remitted from Lexland	(1,683)	(10,201)	7,252	7,131	6,199	6,357	12,758	1,338

Royalty received			750	750	750	750	750	
Tax at 33% on royalty				(248)	(248)	(248)	(248)	(248)
Net cash	(1,683)	(10,201)	8,002	7,633	6,701	6,859	13,260	1,090
14% d.f. (W5)	1.000	0.877	0.769	0.675	0.592	0.519	0.456	0.400
Present value	(1,683)	(8,946)	6,154	5,152	3,967	3,560	6,047	436

The Lexland investment has a positive net present value of **D£14.69 million**.

Appraisal of Jibrovia investment

Year	*0*	*1*	*2*	*3*	*4*	*5*	*6*	*7*
	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000
Pre-tax cash flow		2,120	3,371	3,573	3,787	4,014	4,255	
Tax at 30%			(636)	(1,011)	(1,072)	(1,136)	(1,204)	(1,277)
Cost of acquisition (assume maximum)	10,000)							
Machinery	(2,000)							
After-tax realisable value							14,500	
Working capital (W6)	(4,000)	(240)	(254)	(270)	(286)	(303)	(321)	5,674
Cash remitted to/from Jibrovia	16,000)	1,880	2,481	2,292	2,429	2,575	17,230	4,397
Exchange rate (W4)	1.5185	1.5627	1.6082	1.6551	1.7033	1.7529	1.8040	1.8565
Cash remitted to/from Jibrovia (D£'000)	10,537)	1,203	1,543	1,385	1,426	1,469	9,551	2,368
Additional Dinoville tax (3%) (W7)			(41)	(63)	(65)	(67)	(69)	(71)
(See Note below)								
Net cash	10,537)	1,203	1,502	1,322	1,361	1,402	9,482	2,297
14% d.f. (W5)	1.000	0.877	0.769	0.675	0.592	0.519	0.456	0.400
Present value	10,537)	1,055	1,155	892	806	728	4,324	919

Net present value of (**D£658,000**)

WORKINGS

(1) **Contribution per unit – Lexland**

At current prices (year 0):	*LFr*
Sales price	20,000
Variable costs	11,000
Contribution	9,000

This will increase by 5% per year. Contribution per unit in Year 2 will be $9{,}000 \times 1.05^2$ = LFr 9,923.

(2) **Tax saved by tax-allowable depreciation (machinery only) in Lexland**

(Figures in LFr'000)

Year	*1*	*2*	*3*	*4*	*5*	*6*	*7*
Asset value at start of year	6,400	4,800	3,600	2,700	2,025	1,519	
25% depreciation	1,600	1,200	900	675	506	380	
Tax saved at 40%			1,120	360	270	202	152

It is assumed that, because the Lexland subsidiary earns no profits in Year 1, the tax depreciation in Year 1 cannot be claimed until Year 2. The allowance in Year 2 will therefore be 2,800, giving rise to a tax saving of 1,120 in Year 3.

No **balancing allowance** has been shown, as the asset will still be in use after Year 6 and its value is included in the after-tax realisable value of the investment, LFr16.2m.

(3) **Investment in working capital – Lexland**

It is assumed that total working capital requirement increases with inflation at 5% per year and is returned at the end of Year 7. It is assumed that the amount of working capital at Year 6 is *not* included in the value of the investment at that stage.

(Figures in LFr'000)

Year	*1*	*2*	*3*	*4*	*5*	*6*	*7*
Total working capital	11,500	12,075	12,679	13,313	13,979	14,678	
Investment in WC	(11,500)	(575)	(604)	(634)	(666)	(699)	14,678

(4) **Computation of exchange rates for the next seven years**

For ease of computation, the spot rate will be taken as the mid-market exchange rate.

Spot rate for LFr = (2.3140 + 2.3210)/2 = 2.3175

Spot rate for J$ = (1.5160 + 1.5210)/2 = 1.5185

Using purchasing power parity theory, each year the LFr/D£ exchange rate is multiplied by 1.05/1.03 and the J$/D£ rate is multiplied by 1.06/1.03.

Year	LFr/D£	J$/D£
0	2.3175	1.5185
1	2.3625	1.5627
2	2.4084	1.6082
3	2.4551	1.6551
4	2.5028	1.7033
5	2.5514	1.7529
6	2.6010	1.8040
7	2.6515	1.8565

(5) **Discount rate for the investments**

Because both investment alternatives represent an expansion of the existing business, the company's existing weighted average cost of capital can be used as a discount rate.

The debt is borrowed in Dinoville where interest will save tax at the rate of 33%. Its after-tax cost is 10% (1 – 0.33) = 6.7%

Market values should be used as weights.

WACC = 0.7 × 17% + 0.3 × 6.7% = 13.91%, say 14%

(6) **Working capital – Jibrovia investment**

Year	*0*	*1*	*2*	*3*	*4*	*5*	*6*	*7*
	J$'000	J$'000	J$'000	J$'000	J$'000	J$'000	J$'000	J$'000
Total working capital	4,000	4,240	4,494	4,764	5,050	5,353	5,674	
Investment in WC	(4,000)	(240)	(254)	(270)	(286)	(303)	(321)	5,674

(7) **Additional tax – Jibrovia investment**

Additional tax of 3% (33% – 30%) is suffered in Dinoville on Jibrovia taxable profits. This is computed by converting the pre-tax cash flow at the exchange rate for the year and then multiplying by 3%, eg Year 1: 2,120 ÷ 1.5627 × 3% = 40.69, rounded to 41.

The net present value of the Jibrovia investment is **negative D£658,000** if the investment cost is the maximum J$10 million.

If the cost is only J$8 million, the NPV is increased by J$2 million/1.5185 = D£1.317 million, giving a **positive NPV of D£659,000.**

Conclusion

From the financial appraisal, the Lexland investment is the better alternative. If the Jibrovia investment is thought to have a positive NPV, then both investments could be undertaken (they are not mutually exclusive) provided adequate funds and management resources were available.

Assumptions

The financial appraisals are based on several assumptions, which are stated during the course of the computation.

Uncertainties

Most of the estimates are subject to considerable uncertainty, for example:

(i) Estimates of future exchange rates are based upon forecast inflation levels and purchasing power parity theory.

(ii) Inflation is unlikely to remain at the levels given and may affect different types of costs and revenues in different ways.

(iii) Tax rates may change.

(iv) As in most financial appraisals, the most difficult figure to estimate is the residual value at the end of the time horizon of six years.

(v) Estimates for the Lexland sales figures are more difficult to make than for the Jibrovia investment, because it is a start-up business.

(vi) The systematic risk of both investments is assumed to be the same as Snazzy's existing business. If this is not the case then project specific discount rates should be used.

(vii) Sensitivity analysis could be used to provide more information on which of the above uncertainties cause the most problems.

Answer to Self-test question 3

Gordon plc

(a) **Foreign exchange risk**

It is possible to reduce foreign exchange risk by **matching**; using one of the dollar finance options to set against the dollar receipts.

Cost of finance

This covers not only any **annual interest payment costs,** but also arrangement fees, issue costs and so on.

Availability

If the purchase is to take place rapidly, the finance should be **available quickly,** or (expensive?) **short-term bridging finance** will be required.

Flexibility

If the directors are expecting to use **different sources of finance,** they will prefer to use sources that can be changed without significant cost.

Period of investment

The length of time the finance is available should **match** the length of the investment period.

Tax

The **tax consequences** of the different sources of finance must be considered, as these may significantly affect costs.

Desired debt-equity finance mix

The maximum amount of debt is limited by a covenant in any event, but the directors may have their own views about the **desired balance** and hence the **desired level** of **finance risk**. It will be determined by whether they believe that there is an **optimal level of gearing**, at which the company's **weighted average cost of capital** will be at its lowest.

Signalling

By issuing the maximum amount of debt, the directors may wish to demonstrate to the stock market their **confidence in the future**.

Interest rate expectations

The directors will **prefer floating rate finance** if interest rates are expected to **go down, fixed rate finance** if interest rates are expected to **increase**.

Maturity of debt

Directors will be concerned about when the debt is **due to mature**, and Gordon's **likely cash position** around that date.

Security

Directors will be concerned about the **amount** of security required, also how any **restrictions over assets secured** might limit business decisions, including the ability to raise loan finance in the future.

Other sources

Other sources of finance such as **convertible** and **deep-discount bonds** may be appropriate.

(b) To: Directors, Gordon

From: Accountant

Date: 15 December 20X5

Subject: **Sources of finance**

Finance required

Amount required = $80 million = £80/1.7985 million = £44.48 million

If all raised by debt, gearing = $\frac{38 + 30 + 18 + 44.48}{117.8 + 8.1 + 98.1 + 44.48}$ = 48.6%

This would still be within the terms of the covenant, although it would not allow much scope for further investments to be financed solely by debt. There is also no indication that this is the optimal mix of gearing and hence cost of capital is at its lowest.

Rights issue

Amount raised = (80 × ¼ × 2.80) 0.95 = £53.2 million

Cost of equity = $\frac{22.2\ (1.04)}{302}$ + 0.04 = 11.6%

Advantages

(i) The proposed rights issue would comfortably **exceed the amount required**.

(ii) The company's **gearing**, and thus **financial risk**, would decrease.

(iii) There would be **no change in control** if the current shareholders took up the rights issue.

(iv) Gordon would not have a commitment to make **interest payments**.

(v) Gordon would not face **exchange risk** on payments to providers of finance.

Disadvantages

(i) The **arrangement costs** are **higher** than for some of the other alternatives.

(ii) A **rights issue** is likely to take **longer to arrange** than the other alternatives.

(iii) The **cost of equity** is **higher** than the cost of debt because of the greater risk to equity shareholders and the company does not obtain the benefit of **tax relief**.

(iv) The **exchange risk** on the **income from the US investment** remains, as it cannot be matched against the payments to finance providers.

Fixed rate sterling loan

Amount issued = 44.48 × 100/99 = £44.93 million

Cost of debt

Year(s)		*Cash flow*	*Disc. factor*	*DCF*	*Disc. factor*	*DCF*
		£m	10%	£m	7%	£m
0	Issue net of issue costs	(44.48)	1.000	(44.48)	1.000	(44.48)
1 – 5	Interest 44.93 × 7%	3.15	3.791	11.94	4.100	12.92
5	Repayment	44.93	0.621	27.90	0.713	32.04
				(4.64)		0.48

$$\text{Pre-tax cost of loan} = 7 + \left[\frac{0.48}{0.48-(4.64)}\right](10-7) = 7.3\%$$

Post-tax cost of loan = 7.3% (1 – 0.28) = 5.3%

Advantages

(i) Cost is **lower** than some of the other options.

(ii) There is a **further facility** available which has not been drawn.

Disadvantages

(i) Because the loan is in sterling, there will be **foreign exchange risk** as the finance is not matched with the dollar income.

(ii) Conditions may be attached to the security that impose **restrictions** over and above the debt limit.

Commercial paper

Amount issued = $15 million

Cost = 0.72 (3.0 + 1.5 + 0.5) = 3.6%

Advantages

(i) Gordon will be able to take advantage of **short-term falls in interest rates**.

(ii) The cost looks **low** compared with other sources.

Disadvantages

(i) The commercial paper provides **less than 20%** of the finance required.

(ii) The **maturity** is wrong for the majority of the requirement; commercial paper is a short-term source to finance a long-term requirement of $72 million.

(iii) There are likely to be some **issuing costs**.

(iv) The **floating rate** is not attractive if interest rates are **expected to rise**.

Swiss franc loan

Amount raised = 80 (1 – 0.03)/2.298 = £33.77 million

Cost of loan

Year		*Cash flow* SFrm	*Disc. factor* 5%	*DCF* SFrm	*Disc. factor* 7%	*DCF* SFrm
0	Issue net of issue costs (80 (1 – 0.03))	(77.60)	1.000	(77.60)	1.000	(77.60)
1–5	Interest: 80m × (2.5 + 2.3)%	3.84	4.329	16.62	4.100	15.74
5	Repayment	80.00	0.784	62.72	0.713	57.04
				1.74		(4.82)

$$\text{Pre-tax cost of loan} = 5 + \left[\frac{1.74}{1.74 - (4.82)}\right](7 - 5) = 5.5\%$$

Post-tax cost of loan = 5.5% (1 – 0.28) = 4.0%

Advantages

(i) The **cost of finance** is still **low** even after the swap fees.

(ii) Gordon can pay interest in the currency in which it is obtaining returns, and thus **reduce exchange risk** by gearing.

Disadvantages

(i) The loan will not be enough to cover the **whole US investment**; approximately £10 million further finance will be required.

(ii) Gordon would still be exposed to **foreign exchange risk** on the Swiss franc loan itself as against sterling.

(iii) Gordon may be subject to **counterparty risk** although this will be minimal if it uses an intermediary such as a bank.

Recommendation

If there are concerns about gearing levels and directors are prepared to accept a much higher cost of finance than is likely for any of the loan finance, then the rights issue should be used.

Of the longer-term sources of finance, the Swiss franc loan offers the lowest rate. However, the loan is insufficient to cover the entire US investment, which would mean seeking extra finance from elsewhere. The fixed rate sterling loan covers the entire US investment with funds to spare. Both loans will expose Gordon to foreign exchange risk.



CHAPTER 17

Investment appraisal

Introduction

Topic List

1 Investment appraisal
2 International investment appraisal
3 Real options
4 Externalities and social responsibilities

Summary and Self-test

Technical reference

Answers to Interactive questions

Answers to Self-test

Introduction

Learning objectives

	Tick off
• Select and advise on investment appraisal techniques which are appropriate to the objectives and circumstances of a given business	☐
• Appraise and advise on appropriate measures of return and risk for assessing business projects	☐
• Demonstrate and evaluate investment appraisal techniques for international projects, identifying the impact of tax and the effect on corporate reporting	☐
• Appraise and evaluate the quantitative and qualitative issues surrounding international investment appraisal	☐
• Explain and appraise real options and determine the impact of options to abandon, expand, delay and redeploy	☐
• Evaluate the impact of externalities when making investment appraisal decisions	☐
• Identify social responsibility, sustainability and environmental consequences of investment decisions, explaining corporate reporting issues in relation to such policies	☐

Knowledge brought forward

The first section reviews investment appraisal techniques that were covered in detail at earlier stages, mostly by means of practice of these techniques.

Syllabus links and examination context

You may find an international NPV calculation as part of a question where the business is deciding whether to invest abroad, considering the issues discussed in Chapters 2 and 16. Any discussion about real options will also not take place in isolation, but will be seen in the context of the organisation's wider strategy (can it afford to delay?) Questions about externalities will also not simply be about assigning numbers, but the wider issues associated with corporate social responsibility and mission discussed earlier.

1 Investment appraisal



Section overview

- Detailed knowledge of Payback, Accounting Rate of Return (ARR), Net Present Value (NPV), Internal Rate of Return (IRR) and Adjusted Present Value (APV) are still expected at the Advanced stage and you should refer to earlier materials for an in depth analysis of each of these techniques.

1.1 Summary of techniques

1.1.1 Payback period

Payback is the amount of time it takes to recover the cash paid for the initial investment – that is, the time it takes for cash inflows = cash outflows. The project will be feasible if actual payback period is less than (<) predetermined acceptable payback period.

1.1.2 Discounted payback

The discounted payback period is the time it will take before a project's cumulative NPV turns from being negative to being positive. A company can set a target discounted payback period (say, five years) and choose not to undertake any projects with a period in excess of this target.

1.1.3 Accounting rate of return (ARR)

This can be calculated in two ways.

$$\text{ARR} = \frac{\text{Average annual profit from investment}}{\text{Initial investment}} \times 100$$

$$\text{Or} \quad \frac{\text{Average annual profit from investment}}{\text{Average investment}} \times 100$$

$$\text{Where average investment} = \frac{\text{Initial outlay} + \text{Scrap value}}{2}$$

Note: profit is *after* depreciation

Project will be feasible if project ARR is greater than (>) predetermined minimum acceptable ARR.

1.1.4 Net present value (NPV)

The net present value of a prospective project with a life of n years is defined as:

$$NPV = \sum_{t=1}^{n} \frac{NCF_t}{(1+k)^t} - i_0$$

Where: NCF_t = the net cash flow that is received in period t

k = cost of capital for the project

i_0 = initial investment

Firms should invest in projects whose NPV > 0 and should not invest in those projects whose NPV ≤ 0.

1.1.5 Internal rate of return (IRR)

The internal rate of return in any investment is the discount rate that equates the present value of its expected net revenue stream to its initial outlay. For normal projects (that is, initial investment followed by a series of cash inflows), the project is feasible if IRR > cost of capital. The main problem with IRR is that it assumes that cash flows will be reinvested at the IRR rather than at the cost of capital.

1.2 Other issues – inflation and taxation

1.2.1 Inflation

The relationship between money rate of return, real rate of return and inflation rate is:

$(1 + m) = (1 + r)(1 + i)$

Where: m = money rate of return
r = real rate of return
i = inflation rate

If cash flows are stated in money terms, they should be discounted at the money rate; if cash flows are stated in real terms, they should be discounted at the real rate.

1.2.2 Taxation

Tax writing-down allowances (WDA) are available on non-current assets which allows a company's tax bill to be reduced.



Interactive question 1: Investment appraisal techniques **[Difficulty level: Easy]**

Robbie Ltd is considering investing in a new piece of machinery which will cost CU500,000. The company has already spent CU15,000 on exploratory work on the new machine.

Net cash inflows from the machine are expected to be CU200,000 per annum. The machine has a useful life of four years after which it will be sold for CU50,000. Depreciation is charged on the straight-line basis and Robbie Ltd's cost of capital is 10%.

Requirement

Calculate the following.

(i) Payback period
(ii) Accounting Rate of Return
(iii) Net Present Value
(iv) Internal Rate of Return

See **Answer** at the end of this chapter.



Interactive question 2: NPV with inflation and taxation **[Difficulty level: Intermediate]**

Bazza is considering the purchase of some new equipment on 31 December 20X0 which will cost $350,000. The equipment has a useful life of five years and a scrap value on 31 December 20X5 of $60,000.

Annual cash inflows generated from the equipment are expected to be $110,000, with operating cash outflows of $15,000 per annum.

Inflation is running at 4% per annum over the life of the project and tax allowances are available on a 20% reducing balance basis. Tax is paid in the same year as the profits on which the tax is charged. Corporate tax rate is 24% per annum and there is no writing-down allowance in the year of sale. Bazza's cost of capital is 12%.

Requirement

Calculate the NPV of the project based on the above information and advise Bazza on whether the project should be undertaken.

See **Answer** at the end of this chapter.

1.3 Adjusted present value

The adjusted present value (APV) calculation starts with the valuation of a company without debt then, as debt is added to the firm, considers the net effect on firm value by looking at the benefits and costs of borrowing. The primary benefit of borrowing is assumed to be the tax benefit (interest is tax deductible) while the main cost of borrowing is the added risk of bankruptcy.

The decision rule is to accept the project as long as its total worth is greater than the outlay required.

The value of the firm is estimated in three steps. The first step is to estimate the value of the firm with no gearing. The present value of the interest tax savings generated by borrowing a given amount of money is then considered. Finally, an evaluation of the effect of borrowing the said amount on the probability of the firm going bankrupt is carried out, together with the expected cost of bankruptcy.



Worked example: APV valuation

A company has a current annual cash flow to the firm of $10 million which is expected to grow at 3% in perpetuity.

The equity beta of the company is 1.2; market debt to equity ratio is 80%; and the tax rate is 24%. The company has $120 million debt. The risk premium for the market portfolio is 8% and the risk-free interest rate is 6%. What is the value of the firm using the APV method?

Solution

(i) Calculate the ungeared beta using the following formula:

$$\beta_e = \beta_a \left(1 + \frac{D(1-T)}{E}\right)$$

Where: β_e = beta of equity in the geared firm

β_a = ungeared (asset) beta
D = market value of debt
E = market value of equity
T = corporate tax rate
1.2 = β_a [1 + (0.8) (1 – 0.24)]
1.2 = 1.608 β_a
β_a = 0.75

(ii) Estimate ungeared cost of equity using CAPM:

Ungeared cost of equity = 6% + 0.75(8%) = 12%

(iii) Calculate value of ungeared firm:

$$V_u = \frac{FCFF_0(1+g)}{k_{e,u}-g} = \frac{(1-T)\ NOI\ (1+g)}{k_{e,u}-g}$$

Where: FCFF = free cash flow of the firm

$k_{e,u}$ = cost of capital of the ungeared firm

NOI = net operating income before interest and tax

g = growth rate

T = corporate tax rate

Using the free cash flow to the firm that we have been given as $10 million and the growth rate of 3%, the ungeared firm value is estimated as:

Ungeared firm value = (1 – 0.24) × 10 × 1.03/ (0.12 – 0.03) = $87.0 million

(iv) Tax benefits from debt:

The tax benefits from debt are computed based on the company's existing sterling debt of $120 million and the tax rate of 24%:

Expected tax benefits in perpetuity = Tax rate (Debt) = 0.24(120) = $28.8 million

(v) Estimate the value of the firm:

Value of geared firm = Ungeared firm value + PV of tax benefits = $87.0m + $28.8m = $115.8m

What should be remembered is that the true worth of the tax shield may be zero (Miller's conclusion in his 1977 paper 'Debt and Taxes', in the *Journal of Finance*). Although this is still subject to empirical testing in the real world, the value of the tax shield, while maybe not zero, may be substantially less than that suggested by Modigliani and Miller's with-tax analysis. Where this is the case, the APV method may have little benefit over the NPV method.

Interactive question 3: APV valuation

[Difficulty level: Intermediate]

Mega Millions Inc is considering investing in a project with annual after-tax cash flows of $2.5 million per annum for five years. Initial investment cost is $8 million.

The debt capacity of the company will increase by $10 million over the life of the project, with issue costs of debt of $300,000. Interest rates are expected to remain at 8% for the duration of the project.

The existing cost of equity for the company is 14% and the current ratio of market value of debt: market value of equity is 1:3. Corporate tax is 24% and the company's current equity beta is 1.178. The risk-free rate of interest is 7% and the market risk premium is 6%.

Requirement

Calculate the APV of the project and recommend whether Mega Millions should undertake the investment with the proposed method of financing.

See **Answer** at the end of this chapter.

1.4 Modified internal rate of return

One of the problems with the IRR is the assumption about the reinvestment rate. A way to resolve this problem is to allow the specification of the reinvestment rate. This modification is known as the modified internal rate of return (MIRR).

Worked example: Modified IRR

Consider a project requiring an initial investment of $24,500, with cash inflows of $15,000 in Years 1 and 2 and cash inflows of $3,000 in Years 3 and 4. The cost of capital is 10%.

Solution

If we calculate the IRR:

Year	*Cash flow*	*Discount factor*	*Present value*	*Discount factor*	*Present value*
	$	10%	$	25%	$
0	(24,500)	1.000	(24,500)	1.000	(24,500)
1	15,000	0.909	13,635	0.800	12,000
2	15,000	0.826	12,390	0.640	9,600
3	3,000	0.751	2,253	0.512	1,536
4	3,000	0.683	2,049	0.410	1,230
			5,827		(134)

$$\text{IRR} = 10\% + \left[\frac{5{,}827}{5{,}827 + 134} \times (25\% - 10\%)\right] = 24.7\%$$

The MIRR is calculated on the basis of **investing the inflows** at the **cost of capital**.

The table below shows the **values of the inflows if they were immediately reinvested at 10%**. For example the $15,000 received at the end of Year 1 could be reinvested for three years at 10% pa (multiply by 1.1 × 1.1 × 1.1 = 1.331).

Year	*Cash inflows*	*Interest rate multiplier*	*Amount when reinvested*
	$		$
1	15,000	1.331	19,965
2	15,000	1.21	18,150
3	3,000	1.1	3,300
4	3,000	1.0	3,000
			44,415

The total cash outflow in Year 0 ($24,500) is compared with the possible inflow at Year 4, and the resulting figure of:

$$\frac{24{,}500}{44{,}415} = 0.552$$

is the discount factor in Year 4. By looking along the Year 4 row in present value tables you will see that this gives a return of 16%. This means that the $44,415 received in Year 4 is equivalent to $24,500 in Year 0 if the discount rate is 16%.

Alternatively, instead of using discount tables, we can calculate the MIRR as:

$$\text{Total return} = \frac{44{,}415}{24{,}500} = 1.813$$

$$\text{MIRR} = \sqrt[4]{1.813} - 1$$

$$= 1.16 - 1$$

$$= 16\%$$

In theory the MIRR of 16% will be a **better measure** than the IRR of 24.7% (see below).

The decision criterion of the MIRR is the same as the IRR – that is:

- If MIRR is larger than the required rate of return: ACCEPT
- If MIRR is lower than the required rate of return: REJECT

Interactive question 4: Modified IRR

[Difficulty level: Easy]

The following cash flows are relevant for a project:

	Year 0	*Year 1*	*Year 2*	*Year 3*
Cash outflows (CU)	–10,000	0	0	0
Cash inflows (CU)	0	3,000	5,000	7,000

If the discount rate is 10% what is the modified internal rate of return?

See **Answer** at the end of this chapter.

1.4.1 Advantages of MIRR

There are two main technical advantages to the MIRR. First, it avoids any potential problems with multiple IRRs, and additionally, it will not provide decision-making advice concerning mutually exclusive projects that conflicts with the NPV decision. The second advantage arises as a result of the IRR decision being incorrectly based on the assumption that cash flows would be reinvested at the IRR. With MIRR, it is assumed that cash flows are reinvested at the project's opportunity cost of capital, which is consistent with NPV calculations.

MIRR could be seen as being the best of both worlds, as it is underpinned by NPV, but at the same time presents results in the more understandable percentage format.

1.4.2 Disadvantages of MIRR

However, MIRR, like all rate of return methods, suffers from the problem that it may lead an investor to reject a project which has a lower rate of return but, because of its size, generates a larger increase in wealth.

In the same way, a high-return project with a short life may be preferred over a lower-return project with a longer life.

1.5 Investment appraisal and risk

In general, risky projects are those whose future cash flows, and hence the project returns, are likely to be variable. The greater the variability is, the greater the risk. The problem of risk may be more acute with capital investment decisions than other decisions for the following reasons.

- **Estimates of capital expenditure** might be for **several years ahead,** such as for major construction projects. Actual costs may escalate well above budget as the work progresses.
- **Estimates of benefits** will be for **several years ahead** sometimes 10, 15 or 20 years ahead or even longer, and such long-term estimates can at best be approximations.
- An investment decision may be **significant in scale** compared to most operating decisions.
- A major investment may be **part of a new business strategy,** or new venture, which may be more uncertain than operating decisions which are part of an ongoing strategy.

1.6 Sensitivity analysis

Sensitivity analysis assesses how responsive the project's NPV is to changes in the variables used to calculate the NPV. One particular approach to sensitivity analysis – the certainty-equivalent approach – involves the conversion of the expected cash flows of the project to riskless equivalent amounts.

The basic approach of sensitivity analysis in the context of an investment decision is to calculate the project's NPV under alternative assumptions to determine how sensitive it is to changing conditions. An indication is thus provided of those variables to which the NPV is most sensitive and the extent to which those variables would need to change before the investment results in a negative NPV.

The NPV could depend on a number of uncertain independent variables.

- Selling price
- Sales volume
- Cost of capital
- Initial cost
- Operating costs
- Benefits
- Cost savings
- Residual value

Sensitivity analysis therefore provides an indication of why a project might fail. Management should review critical variables to assess whether or not there is a strong possibility of events occurring which will lead to a negative NPV. Management should also pay particular attention to controlling those variables to which the NPV is particularly sensitive, once the decision has been taken to accept the investment.

A simple approach to deciding which variables the NPV is particularly sensitive to is to calculate the sensitivity of each variable.

$$\text{Sensitivity} = \frac{\text{NPV}}{\text{Present value of project variable}}\%$$

The lower the percentage, the more sensitive is NPV to that project variable as the variable would need to change by a smaller amount to make the project non-viable.



Worked example: Sensitivity analysis

Kenney Co is considering a project with the folowing cash flows.

Year	*Initial investment*	*Variable costs*	*Cash inflows*	*Net cash flows*
	CU'000	CU'000	CU'000	CU'000
0	7,000			
1		(2,000)	6,500	4,500
2		(2,000)	6,500	4,500

Cash flows arise from selling 650,000 units at CU10 per unit. Kenney Co has a cost of capital of 8%.

Requirement

Measure the sensitivity of the project to change in variables.

Solution

The PVs of the cash flow are as follows.

Year	*Discount factor 8%*	*PV of initial investment*	*PV of variable costs*	*PV of cash inflows*	*PV of net cash flow*
		CU'000	CU'000	CU'000	CU'000
0	1.000	(7,000)			(7,000)
1	0.926		(1,852)	6,019	4,167
2	0.857		(1,714)	5,571	3,857
		(7,000)	(3,566)	11,590	1,024

The project has a positive NPV and would appear to be worthwhile. The sensitivity of each project variable is as follows.

(a) **Initial investment**

$$\text{Sensitivity} = \frac{1{,}024}{7{,}000} \times 100 = 14.6\%$$

(b) **Sales volume**

$$\text{Sensitivity} = \frac{1{,}024}{11{,}590 - 3{,}566} \times 100 = 12.8\%$$

(c) **Selling price**

$$\text{Sensitivity} = \frac{1{,}024}{11{,}590} \times 100 = 8.8\%$$

(d) **Variable costs**

$$\text{Sensitivity} = \frac{1{,}024}{3{,}566} \times 100 = 28.7\%$$

(e) **Cost of capital.** We need to calculate the IRR of the project. Let us try discount rates of 15% and 20%.

Year	*Net cash flow*	*Discount factor 15%*	*PV*	*Discount factor 20%*	*PV*
	CU'000		CU'000		CU'000
0	(7,000)	1	(7,000)	1	(7,000)
1	4,500	0.870	3,915	0.833	3,749
2	4,500	0.756	3,402	0.694	3,123
			NPV 317		NPV (128)

$$IRR = 0.15 + \left[\frac{317}{317 + 128} \times (0.20 - 0.15)\right] = 18.56\%$$

The cost of capital can therefore increase by 132% before the NPV becomes negative.

The elements to which the NPV appears to be most sensitive are the selling price followed by the sales volume. Management should thus pay particular attention to these factors so that they can be carefully monitored.

1.6.1 Weakness of this approach to sensitivity analysis

These are:

- The method requires that changes in each key variable are isolated. However, management is more interested in the combination of the effects of changes in two or more key variables.
- Looking at factors in isolation is unrealistic since they are often interdependent.
- Sensitivity analysis does not examine the probability that any particular variation in costs or revenues might occur.
- Critical factors may be those over which managers have no control.
- In itself it does not provide a decision rule. Parameters defining acceptability must be laid down by the managers.



Interactive question 5: Sensitivity analysis **[Difficulty level: Easy]**

Nevers Ure Co has a cost of capital of 8% and is considering a project with the following 'most-likely' cash flows.

Year	*Purchase of plant*	*Running costs*	*Cost savings*
	CU	CU	CU
0	(7,000)		
1		2,000	6,000
2		2,500	7,000

Requirement

Measure the sensitivity (in percentages) of the project to changes in the levels of expected costs and savings.

See **Answer** at the end of this chapter.

1.7 Certainty-equivalent approach

Worked example: Certainty-equivalent approach

Dark Ages Co, whose cost of capital is 10%, is considering a project with the following expected cash flows.

Year	*Cash flow*	*Discount factor 10%*	*Present value*
	$		$
0	(9,000)	1.000	(9,000)
1	7,000	0.909	6,363
2	5,000	0.826	4,130
3	5,000	0.751	3,755
			NPV = +5,248

The project seems to be clearly worthwhile. However, because of the uncertainty about the future cash receipts, the management decides to reduce them to 'certainty-equivalents' by taking only 70%, 60% and 50% of the Years 1, 2 and 3 cash flows respectively. (Note that this method of risk adjustment allows for different risk factors in each year of the project.) These 'certainty-equivalents' should then be discounted at a risk-free rate.

Requirement

On the basis of the information set out above, assess whether the project is worthwhile. Assume that the risk-free rate is 5%.

Solution

The risk-adjusted NPV of the project is:

Year	*Cash flow*	*Discount factor 5%*	*Present value*
	$		$
0	(9,000)	1.000	(9,000)
1	4,900	0.952	4,667
2	3,000	0.826	2,721
3	2,500	0.864	2,160
			NPV = 547

The project appears to be worthwhile after adjusting for uncertainty and should be accepted.

2 International investment appraisal

Section overview

- International investment appraisal was covered briefly at the Professional Level but is analysed in more depth here.
- Many of the projects that companies appraise may have an international dimension. As we have already seen, companies that undertake overseas projects are exposed to such risks as exchange rate movements, political, cultural, litigation and taxation risks.
- Investment appraisal techniques for multinational companies must therefore incorporate these additional complexities into the decision-making process.

With international investment appraisal, multinational companies must take into account factors that affect the behaviour of the economies of those countries which have an impact on their projects. For example, in appraising a tourist development, a company may be making assumptions about the number of tourists from abroad who may be visiting. This will be affected by such factors as interest rates, tax rates and inflation in the countries from which tourists may visit. If interest and tax rates rise, potential tourists will have less money to spend and

spending on such luxuries as foreign holidays may decline. Exchange rates will also have an impact on the number of foreign visitors – for example, there would be an increase in the number of UK visitors to the USA if the pound strengthened significantly against the US dollar.

2.1 Effects of exchange rate assumptions on project values

Changes in exchange rates are as important as the underlying profitability in selecting an overseas project.

In a domestic project the NPV was calculated using the formula:

$$NPV = \sum_{t=1}^{n} \frac{NCF_t}{(1+WACC)^t} + \frac{TV_n}{(1+WACC)^n} - i_0$$

Where: NCF = net cash flow

WACC = weighted average cost of capital

TV = terminal value

I = initial investment

When a project in a foreign country is assessed we must take into account some specific considerations such as local taxes, double taxation agreements, and political risk that affect the present value of the project. The main consideration in an international project is the exchange rate risk, that is the risk that arises from the fact that the cash flows are denominated in a foreign currency. An appraisal of an international project requires estimates of the exchange rate.

2.1.1 Calculating NPV for international projects

There are two alternative methods for calculating the NPV from an overseas project. For a UK company investing overseas, we can:

(a) Convert the project cash flows into sterling and then discount at a sterling discount rate to calculate the NPV in sterling terms.

(b) Discount the cash flows in the host country's currency from the project at an adjusted discount rate for that currency, and then convert the resulting NPV at the spot exchange rate.



Worked example: Overseas investment appraisal

Bromwich Ltd, a UK company, is considering undertaking a new project in Portugal. This will require initial capital expenditure of €1,250 million, with no scrap value envisaged at the end of the five-year lifespan. There will also be an initial working capital requirement of €500 million, which will be recovered at the end of the project. The initial capital will therefore be €1,750 million. Pre-tax net cash inflows of €800 million are expected to be generated each year from the project.

Company tax will be charged in Portugal at a rate of 40%, with depreciation on a straight-line basis being an allowable deduction for tax purposes. Portuguese tax is paid at the end of the year following that in which the taxable profits arise.

There is a double taxation agreement between the UK and Portugal, which means that no UK tax will be payable on the project profits.

The current €/£ spot rate is 1.6, and the euro is expected to appreciate against the £ by 5% per year.

A project of similar risk recently undertaken by Bromwich Ltd in the UK had a required post-tax rate of return of 10%.

Requirement

Calculate the present value of the project.

Solution

Method 1 – conversion of flows into sterling and discounting at the sterling discount rate

	0	*1*	*2*	*3*	*4*	*5*	*6*
Euro flows (€m)							
Capital	–1750					500	
Net cash flows		800	800	800	800	800	
Depreciation		250	250	250	250	250	
Tax			220	220	220	220	220
	–1750	800	580	580	580	1080	–220
Exchange rate €/£	1.60	1.52	1.44	1.37	1.30	1.24	1.18
Cash flows in sterling	–1093.75	526.32	401.66	422.80	445.05	872.34	–187.05
Discount factor	1.000	0.909	0.826	0.751	0.683	0.621	0.564
PV*	–1093.75	478.47	331.95	317.66	303.98	541.65	–105.59
NPV in sterling	774.37						

*using unrounded discount rates

Interactive question 6: International investment appraisal [Difficulty level: Intermediate]

Donegal, a company based in the country of Earland which has the Franc (F) as its currency, is considering whether to establish a subsidiary in Ruritania (where the currency is the $), at a cost of $2,400,000. This would be represented by non-current assets of $2,000,000 and working capital of $400,000. The subsidiary would produce a product which would achieve annual sales of $1,600,000 and incur cash expenditures of $1,000,000 a year.

The company has a planning horizon of four years, at the end of which it expects the realisable value of the subsidiary's non-current assets to be $800,000. It expects also to be able to sell the rights to make the product for $500,000 at the end of four years.

It is the company's policy to remit the maximum funds possible to the parent company at the end of each year.

Tax is payable at the rate of 35% in Ruritania and is payable one year in arrears.

Tax allowable depreciation is at a rate of 20% on a straight-line basis on all non-current assets.

Administration costs of F100,000 per annum will be incurred each year in Earland over the expected life of the project.

The Earland taxation rate on Earland income and expenditure is 24%, payable one year in arrears. Assume there is full double taxation relief in operation between Earland and Ruritania.

The Ruritanian $:F exchange rate is 5:1.

The company's cost of capital for the project is 10%.

Requirement

Calculate the NPV of the project.

See **Answer** at the end of this chapter.

Method 2 – discounting foreign cash flows at an adjusted discount rate

When we use the second method we need to find the cost of capital for the project in the host country. If we are to keep the cash flows in euros, then they need to be discounted at a rate that takes account of both the UK discount rate (10%) and the rate at which the exchange rate is expected to decrease (5%).

We can use the International Fisher effect to find the cost of capital in the host country that takes account of the UK discount rate and the rate at which the exchange rate is expected to decrease. We can then use this rate to discount the euro cash flows.

The required return in euros can be calculated as:

$$1+r=\frac{e_1}{e_0}(1+r_£)$$

Or

$$1+r=\frac{1.52}{1.6}\times 1.10=1.045$$

Thus the euro discount rate is 4.5% and discounting the euro flows at this rate produces a NPV in euros of NPV = €1,238.78 million (as shown in the workings below).

	0	*1*	*2*	*3*	*4*	*5*	*6*
Euro flows (€m)							
Capital	-1,750					500	
Net cash flows		800	800	800	800	800	
Depreciation		250	250	250	250	250	
Tax			220	220	220	220	220
Net cash flows	-1,750	800	580	580	580	1,080	-220
Discount factor	1	0.957	0.916	0.876	0.839	0.802	0.768
PV	-1,750.00	765.6	531.28	508.08	486.62	866.16	-168.96
NPV in euros	1,238.78m						

Translating this present value at the spot rate gives:

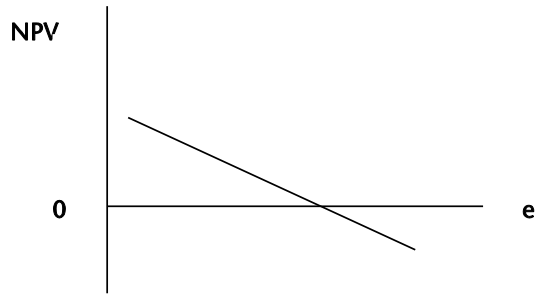
NPV = €1,238.78m/1.6 = CU774.24 million

The difference between the figure above and the NPV of CU774.37 million using the alternative method above is due to rounding.

2.1.2 The effect of exchange rates on NPV

Now that we have created a framework for the analysis of the effects of exchange rate changes on the net present value from an overseas project we can calculate the impact of exchange rate changes on the sterling denominated NPV of a project.

When there is a devaluation of sterling relative to a foreign currency, the sterling value of the cash flows increases and the NPV increases. The opposite happens when the domestic currency appreciates. In this case the sterling value of the cash flows declines and the NPV of the project in sterling declines. The relationship between NPV in sterling and the exchange rate is shown in the diagram below (where 'e' is the exchange rate):



Worked example: Effect of changes in the exchange rate

Calculate the NPV for the Portugal project of Bromwich Ltd (see previous worked example on overseas investment appraisal for details) under three different scenarios.

(a) The exchange rate remains constant at €1.60 for the duration of the project.
(b) Sterling appreciates 5% every year.
(c) Sterling depreciates 5% every year.

Solution

The NPV under the three scenarios is given in the table below.

Period	Cash flows in €m	Constant exchange rate	Sterling depreciates 5% per year	Cash flows in £m Sterling appreciates 5% per year
0	-1750	-1093.75	-1093.75	-1093.75
1	800	500	526.32	476.19
2	580	362.5	401.66	328.80
3	580	362.5	422.80	313.14
4	580	362.5	445.05	298.23
5	1080	675	872.34	528.88
6	-220	-137.5	-187.05	-102.60
Present value in sterling		521.83	774.38	320.32

2.2 Forecasting cash flows from overseas projects

2.2.1 Effect on exports

When a multinational company sets up a subsidiary in another country, to which it already exports, the relevant cash flows for the evaluation of the project should take into account the loss of export earnings in the particular country. The NPV of the project should take explicit account of this potential loss by deducting the loss of export earnings from the relevant net cash flows.

2.2.2 Taxes

Taxes play an important role in the investment appraisal as they can affect the viability of a project. The main aspects of taxation in an international context are:

- Corporate taxes in the host country
- Investment allowances in the host country
- Withholding taxes in the host country
- Double taxation relief in the home country (discussed below)
- Foreign tax credits in the home country

The importance of taxation in corporate decision-making is demonstrated by the use of **tax havens** by some multinationals as a means of deferring tax on funds prior to their repatriation or reinvestment.

A tax haven is likely to have the following characteristics.

(a) Tax on foreign investment or sales income earned by resident companies, and withholding tax on dividends paid to the parent, should be low.

(b) There should be a stable government and a stable currency.

(c) There should be adequate financial services support facilities.

2.2.3 Subsidies

Many countries offer concessionary loans to multinational companies in order to entice them to invest in the country. The benefit from such concessionary loans should be included in the NPV calculation. The benefit of a concessionary loan is the difference between the repayment when borrowing under market conditions and the repayment under the concessionary loan.

2.2.4 Exchange restrictions

In calculating the NPV of an overseas project, only the proportion of cash flows that are expected to be repatriated should be included in the calculation of the NPV.

2.2.5 Impact of transaction costs on NPV for international projects

Transaction costs are incurred when companies invest abroad due to currency conversion or other administrative expenses. These should also be taken into account.

2.3 Double taxation relief



Definition

Double taxation agreement: An agreement between two countries intended to avoid the double taxation of income which would otherwise be subject to taxation in both.

Typical provisions of double taxation agreements based on the OECD Model Agreement are as follows.

(a) DTR is given to taxpayers in their **country of residence** by way of a credit for tax suffered in the country where income arises. This may be in the form of relief for withholding tax only or, given a holding of specified size in a foreign company, for the underlying tax on the profits out of which dividends are paid.

(b) **Total exemption from tax** is given in the country where income arises in the hands of, for example, visiting diplomats, teachers on exchange programmes.

(c) **Preferential rates of withholding tax** are applied to, for example, payments of rent, interest and dividends. The usual rate is frequently replaced by 15% or less.

(d) There are **exchange of information** clauses so that tax evaders can be pursued internationally.

(e) There are **rules to determine** a person's residence and to prevent dual residence (tie-breaker clauses).

(f) There are **clauses** which render certain profits taxable in only one rather than both of the contracting states.

(g) There is a **non-discrimination clause** so that a country does not tax foreigners more heavily than its own nationals.



Worked example: Double taxation relief

Suppose the tax rate on profits in the Federal West Asian Republic is 20%, the Bangladesh company tax is 30%, and there is a double taxation agreement between the two countries.

A subsidiary of a Bangladeshi firm operating in the Federal West Asian Republic earns the equivalent of BDT1 million in profit, and therefore pays Tk200,000 in tax on profits. When the profits are remitted to Bangladesh, the Bangladesh parent can claim a credit of Tk200,000 against the full Bangladesh tax charge of Tk300,000, and hence will only pay Tk100,000.

2.4 Corporate reporting consequences

We have discussed the impact of IAS 21 on how overseas investments are accounted for in earlier chapters. Assets and transactions associated with investments will be reported at the exchange rate at the date the transactions occurred or the assets were purchased. If assets are subsequently revalued they will be carried at the exchange rate at the date the revaluation took place.

3 Real options



Section overview

- Real options give the right to make decisions when it is profitable for the company. Real options were covered at the Professional Level. However, the topic is taken further at the Advanced Level by providing greater detail of the types of options available and also considering the process of how to value such options.
- Real options are not derivative instruments in the way that traded options such as those for interest rate and foreign currency hedging are. Real options are very useful in the context of selecting strategies.
- A product option is where the firm has the ability to sell a product in the future but does not have the obligation to do so.

A real option is the right, but not the obligation, to undertake a business decision, such as capital investment – for example, the option to open a new branch is a real option. Unlike financial options, real options are not tradable – for example, the company cannot sell the right to open another branch to a third party. While the term 'real option' is relatively new, businesses have been making such decisions for a long time.

This type of option is not a derivative instrument, in the same way as foreign currency and interest rate options. Real options pertain to physical or tangible options (that is, choice) – hence the name. For example, with research and development, firms have the option (choice) to expand, contract or abandon activities in a particular area in the future. Pharmaceutical companies such as GlaxoSmithKline are making such choices all the time.

Real options can have a significant effect on the valuation of potential investments, but are typically ignored in standard discounted cash flow analysis, where a single expected NPV is computed.

In this section we review the various options embedded in projects and provide examples.

3.1 Option to delay

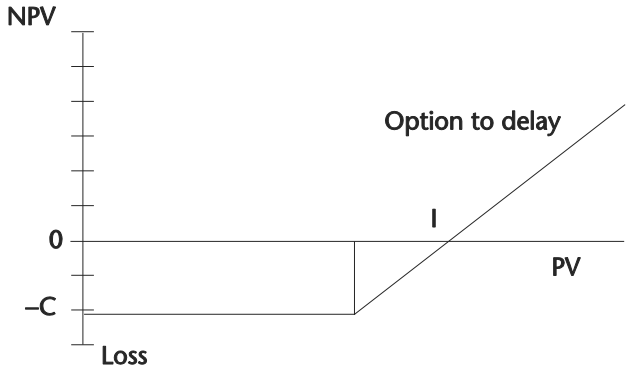
When a firm has exclusive rights to a project or product for a specific period, it can delay starting this project or product until a later date. A traditional investment analysis just answers the question of whether the project is a 'good' one if taken at a particular point in time, eg today. Thus, the fact that a project is not selected today either because its NPV is negative, or its IRR is less than the cost of capital, does not mean that the rights to this project are not valuable.

Take a situation where a company is considering paying an amount C to acquire a licence to mine copper. The company needs to invest an extra amount I in order to start operations. The company has three years over which to develop the mine, otherwise it will lose the licence. Suppose that today copper prices are low and the NPV from developing the mine is negative. The company may decide not to start the operation today, but it has the option to start any time over the next three years provided that the NPV is positive. Thus the company has paid a premium C to acquire an American-style option on the present value of the cash flows from operation, with an exercise price equal to the additional investment (I). The value of the option to delay is therefore:

NPV = PV – I if PV > I

NPV = 0 otherwise

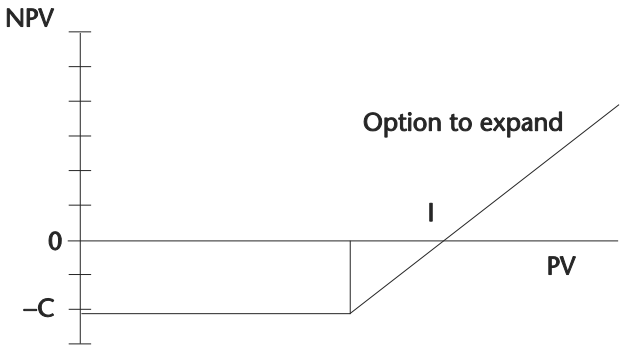
The payoff of the option to delay is shown below and it is the same as the payoff of a call option: the only difference being that the underlying is the present value and the exercise price is the additional investment.



3.2 Option to expand

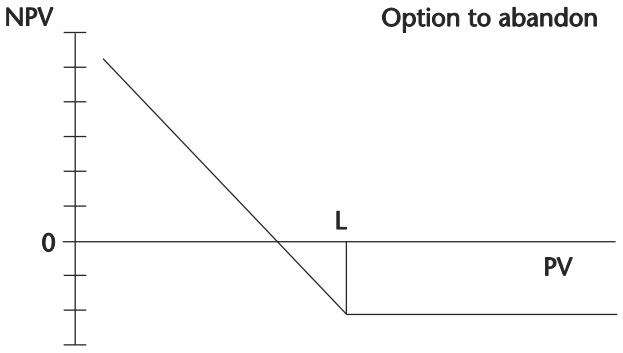
The option to expand exists when firms invest in projects which allow them to make further investments in the future or to enter new markets. The initial NPV calculation may suggest that the project is not worth undertaking. However, when the option to expand is taken into account, the NPV may become positive and the project worthwhile. The initial investment may be seen as the premium required to acquire the option to expand.

Expansion will normally require an additional investment, call it I. The extra investment will be undertaken only if the present value from the expansion will be higher than the additional investment, ie when $PV > I$. If $PV £ I$, the expansion will not take place. Thus the option to expand is again a call option of the present value of the firm with an exercise price equal to the value of the additional investment.



3.3 Option to abandon

Whereas traditional capital budgeting analysis assumes that a project will operate in each year of its lifetime, the firm may have the option to cease a project during its life. This option is known as an abandonment option. Abandonment options, which are the right to sell the cash flows over the remainder of the project's life for some salvage value, are like American put options. When the present value of the remaining cash flows (PV) falls below the liquidation value (L), the asset may be sold. Abandonment is effectively the exercising of a put option. These options are particularly important for large capital intensive projects such as nuclear plants, airlines, and railroads. They are also important for projects involving new products where their acceptance in the market is uncertain and companies would like to switch to more profitable alternative uses.



3.4 Option to redeploy

The option to redeploy exists when the company can use its assets for activities other than the original one. The switch from one activity to another will happen if the PV of cash flows from the new activity exceeds the costs of switching. The option to abandon is a special case of an option to redeploy.

These options are particularly important in agricultural settings. For example, a beef producer will value the option to switch between various feed sources, preferring to use the cheapest acceptable alternative.

These options are also valuable in the utility industry. An electric utility, for example, may have the option to switch between various fuel sources to produce electricity. In particular, consider an electric utility that has the choice of building a coal-fired plant or a plant that burns either coal or gas.

Naïve implementation of discounted cash flow analysis might suggest that the coal-fired plant be constructed since it is considerably cheaper. Whereas the dual plant costs more, it provides greater flexibility. Management has the ability to select which fuel to use and can switch back and forth depending on energy conditions and the relative prices of coal and gas. The value of this operating option should be taken into account.

3.5 Product options

Examples of product options are patents and copyrights, and firms owning natural resources. Firms that have product options are often research- and technology-based.

When a firm has a product option that is not currently generating cash flow, there is a risk that a discounted cash flow approach to valuation will not fully reflect the full value of the option. This is because a DCF approach may not incorporate all the possible future cash flows of the company.

3.6 Problems with traditional DCF techniques

In the context of a product option, the DCF approach is not fully appropriate, for the following reasons.

- The options represent a current asset of the business, but are not generating any cash flows.
- Any cash flows expected to be generated by the product could be outside of the detailed forecasting period.

3.7 Possible solutions to the valuation problem

There are three possible methods of valuing product options.

- **Value the option on the open market**. This is only possible if there is a traded market in such options. If there is no active market or if the option is difficult to separate from the other operations of the firm, this approach is probably not feasible.
- **Use a traditional DCF framework** and factor in a higher growth rate than would be justified given the existing assets of the firm. The problem with this is that any growth rate used will be subjective. In addition, it expresses contingent cash flows as expected cash flows.
- **Use an option-based approach** to valuation. This is considered below.

3.8 Use of option pricing models

3.8.1 Problems with using option pricing models to value product options

The problems of using option pricing models, such as Black-Scholes, are:

- **They need the underlying asset to be traded**. This is because the model is based on the principle of arbitrage, which means that the underlying asset must be easy to buy and sell. This is not a problem when valuing options on quoted shares. However, the underlying asset in the context of product options will not be traded, meaning that arbitrage is not possible.
- **They assume that the price of the underlying asset follows a continuous pattern**. While this may be a reasonable approximation most of the time for quoted shares, it is clearly inappropriate in the context of product options. The impact of this is that the model will undervalue deeply out-of-the-money options, since it will underestimate the probability of a sudden large increase in the value of the underlying asset.

- **They assume that the standard deviation of price of the underlying asset is known** and does not vary over the life of the option. While this may be a reasonable assumption in the context of short-dated equity options, it is not appropriate for long-term product options.
- **They assume that exercise occurs at a precise point in time**. In the case of product options, exercise may occur over a long period of time. For example, if a firm has the right to mine natural resources, it will take time to extract the resources. This will reduce the present value of the asset.

3.8.2 Using option pricing models to value product patents

When valuing product patents as options, the key inputs for an option pricing model will need to be identified, being the underlying asset price, the strike price, the expected volatility of the underlying asset price and the time to expiry. The following approach could be adopted.

- **Identify the value of the underlying asset**. This will be based on the expected cash flows that the asset can generate. Given the uncertain nature of the cash flows and the distant time periods in which they may arise, it clearly will be difficult to value the underlying asset precisely.
- **Identify the standard deviation of the cash flows above**. Again, this will be difficult to identify, owing to changes in the potential market for the product, changes in technology and so on. It would, however, be possible to use techniques such as scenario analysis. The higher the standard deviation, the more valuable the asset.
- **Identify the exercise price of the option.** This is the cost of investing in the resources needed to produce the asset. It is typically assumed that this remains constant in present value terms, with any uncertainty being reflected in the cash flows of the asset.
- **Identify the expiry date of the option.** This is when the patent expires. Any cash flows after this date are expected to have an NPV of zero, since there will be generic competition after patent protection ends.
- **Identify the cost of delay.** If the product is not implemented immediately, this will reduce the value of the cash flows from the project as competing products will enter the market in future years.

A similar approach could be adapted to valuing other product options, such as natural resources. Where a company is investing in research and development, but has no patents developed, the same approach will apply, but the value of the option is clearly even more uncertain due to the greater uncertainty of the inputs.

4 Externalities and social responsibilities



Section overview

- Investment appraisals should take into account costs connected with the environment that are a consequence of the impacts that the investment has.
- Businesses should also consider the risk that possible future contingencies connected with their environmental impacts will materialise.
- Businesses may also wish to provide information about the externalities (social impacts) that are a consequence of their activities.

There are a number of costs and other impacts resulting from the effects of investments on the environment that businesses should consider.



Definition

Environmental management accounting: The generation and analysis of both financial and non-financial information in order to support internal environmental management processes.

The United Nations Division for Sustainable Development (UNDSD) produced a similar definition of environmental management accounting as being the identification, collection, analysis and use of two types of information for internal decision-making:

(a) Physical information on the use, flows and destinies of energy, water and materials (including wastes).

(b) Monetary information on environment-related costs, earnings and savings.

Environment related costs could be categorised into four groups.

(a) **Environmental protection (prevention) costs** – the costs of activities undertaken to prevent adverse environmental impacts such as the production of waste.

(b) **Environmental detection costs** – costs incurred to ensure that the organisation complies with regulations and voluntary standards.

(c) **Environmental internal failure costs** – costs incurred from performing activities that have produced contaminants and waste that have not been discharged into the environment.

(d) **Environmental external failure costs** – costs incurred on performing activities after discharging waste into the environment.

Many **conventional accounting systems** are unable to apportion **environmental costs** to products, processes and services and so they are simply **classed as general overheads**. Environmental management accounting (EMA), on the other hand, attempts to make all relevant, significant costs visible so that they can be considered when making business decisions.

4.1 Other costs

A 1998 IFAC report listed a large number of costs that a business might suffer.

Direct or indirect environmental costs

- Waste management
- Remediation costs or expenses
- Compliance costs
- Permit fees
- Environmental training
- Environmentally driven research and development
- Environmentally related maintenance
- Legal costs and fines
- Environmental assurance bonds
- Environmental certification and labelling
- Natural resource inputs
- Record keeping and reporting

Contingent or intangible environmental costs

- Uncertain future remediation or compensation costs
- Risk posed by future regulatory changes
- Product quality
- Employee health and safety
- Environmental knowledge assets
- Sustainability of raw material inputs
- Risk of impaired assets
- Public/customer perception

Clearly, some of the contingent costs will be very difficult to predict, both in terms of how much they will be and how likely they are to arise. Management's **risk appetite,** especially perhaps as regards threats to the company's reputation if environmental problems do arise, is likely to be very important.

Companies that appear to be bearing significant environmental risks may also face **increased cost of capital** because investors and lenders demand a higher risk premium.

4.2 Externalities

Definition

Externality: The difference between the market and social costs, or benefits, of an activity. An externality is a cost or benefit that the market fails to take into account.

One way in which businesses can help promote sustainability is to provide information about the external environmental effects – the **externalities** – of their investments and activities. This data can then be used in decision-making processes, both of government, and of other organisations, by **internalising** the costs of environmental effects. In addition, better costing of externalities will **influence the price mechanism** and hence the economic decisions that are taken.

Examples of externalities could include:

- Depletion of natural resources
- Noise and aesthetic impacts
- Residual air and water emissions
- Long-term waste disposal (exacerbated by excessive product packaging)
- Uncompensated health effects
- Change in the local quality of life (through for example the impact of tourism)

With some of these impacts however, a business may be contributing negatively to the environment, but positively in other ways. An increase in tourism will provide jobs and other economic benefits to the community, but could lead to adverse effects on the environment as the roads become more crowded or because of infrastructure improvements.

Ways of assessing the impact of inputs include the **measurement of key environmental resources** used such as energy, water, inventories or land. Measurement of the impact of outputs includes the proportion of product **recyclability**, **tonnes of carbon or other gases produced by company activities**, **waste or pollution**. A business may also be concerned with the **efficiency of its processes**, maybe carrying out a mass balance or yield calculation.

Case example: Externalities

The UK Treasury's Green Book, which provides guidance for public sector bodies on how to appraise proposals before committing funds to a policy, programme or project, considers the impact of non-market impacts as part of using social cost benefit analysis to assess the net value of a policy or project to society as a whole. Guidance on environmental impacts includes coverage of the following areas.

- **Uncertain future remediation or compensation costs**.
- **Greenhouse gases** – expressed in terms of carbon saving or additional emissions and using these calculations to assess the societal damage cost of carbon or the monetary value of the emissions.
- **Climate change** – the UK Climate Impacts programme provides guidance on the risks and uncertainties of climate change and a methodology for costing impacts.
- **Air quality –** impacts on air quality may be measured by the total volume change in the emissions of a particular pollutant from a particular source, the likely impact of this change on levels of air quality or the total number of households likely to be affected by these changes.
- **Landscape** – landscape measures assess the impact on townscape, heritage and other related matters.
- **Water** – the impact on both chemical water quality and ecological status needs to be considered. Particularly difficult issues include assessing how far distant costs may occur and isolating marginal damage costs for particular pollutants from other impacts. Hence valuations are geared towards producing changes in environmental quality.

- **Biodiversity** – this means the variety of life in a particular environment, which can be difficult to measure, define and value. However the guidance comments that if biodiversity is disregarded, there is a risk of excessive and potentially irreversible degradation of natural resource stocks.
- **Noise** – the guidance notes that many of the effects of noise are subjective, but nevertheless it is possible to assess noise based on its source, scale and nature. The impact of new transport infrastructure or industrial developments can be quantified by the number of people affected by changes in noise levels.
- **Disamenity** – the guidance comments that activities including the transport and disposal of waste and the quarrying of minerals and aggregates give rise to a range of undesirable impacts that can undermine public enjoyment. Areas to be measured could include noise, traffic disturbance, dust, odours and visual intrusion.

4.3 Corporate reporting issues

4.3.1 Impact on accounts

We discussed generally in Chapter 11 accounting standards that are relevant for the treatment of environmental issues. The consequences of making particular investments may include incurring of liabilities for waste disposal, pollution, decommissioning and restoration expenses. The company may therefore be obliged to make provisions under the terms of IAS 37 if it is probable that it will have to transfer economic benefits to settle its liabilities, and a reliable estimate will have to be made of the benefits that have to be transferred.



Case example: Environmental disclosures

IAS 37 gives a couple of examples related to contaminated land in an appendix. One example is where a company has been contaminating land for some years and a law is virtually certain to be passed requiring previously contaminated land to be cleaned up. The other instance is where a company contaminates land in a country where there is no environmental legislation, but the company has a widely-published environmental policy undertaking to clean up all contamination that it causes. IAS 37 suggests that in both these situations a provision should be made as the company is virtually certain to transfer economic benefits.

IAS 37 also covers the situation where costs of cleaning up are expected to be reduced by future changes in technology. The standard suggests that the amount of the provision should reflect the reasonable expectations of technically qualified, objective observers, taking account of all available evidence of the technology that will be available at the time of the clean-up. Generally, it would not be appropriate to anticipate the development of a completely new technology for cleaning up unless it is supported by sufficient objective evidence.

4.3.2 Business review

As discussed in Chapter 11, the business review within the directors' report should include reporting on environmental issues, including reporting the impact of the company's business on the environment. Most of this information will be disclosed on an aggregate level, but possibly some individual investments might be material because of their size, financial or non-financial impacts or risks that details relating to them should be shown in the review.

Summary and Self-test

Summary

The adjust present value approach examines the impact of borrowing upon investment appraisal and valuation.

The modified internal rate of return (MIRR) is the IRR that would result without the assumption that project proceeds are reinvested at the IRR rate.

The impact of risk can be considered as part of investment appraisal by using sensitivity analysis or the certainty-equivalent approach, or considering expected value, likelihood of loss and maximum loss.

International investment appraisal must take into account such complexities as effects of exchange rate assumptions, overseas taxation and exchange restrictions. Transaction, translation and economic exposure must be considered, as well as political, cultural and litigation risks.

Real options give the right to the management of a company to make decisions when it is profitable for the company. They are not derivative instruments and are not tradeable – they relate to physical or tangible options. Options include the choice to expand, abandon, delay or redeploy.

The option to expand can be viewed as a call option; the option to abandon can be viewed as a part option.

Environmental management accounting helps businesses bring into investment appraisal costs associated with the environment and helps businesses assess the externalities that may be associated with the investment decision.

Self-test

Self-test question 1

A project has the following estimated cash flows:

	Year 0	*Year 1*	*Year 2*	*Year 3*	*Year 4*
Initial investment	-75,000	0	0	0	0
Net cash inflows	0	19,000	25,000	30,000	32,000

What is the modified internal rate of return if the project's cost of capital is 8%? Based on this information, should the company invest in the project? Give reasons for your answer.

Self-test question 2

PG Ltd

PG Ltd is considering investing in a new project in Canada which will have a life of four years. The initial investment is C$150,000, including working capital. The net after-tax cash flows which the project will generate are C$60,000 per annum for Years 1, 2 and 3 and C$45,000 in Year 4. The terminal value of the project is estimated at C$50,000, net of tax.

The current spot rate of C$ against sterling is 1.7000. Economic forecasters expect sterling to strengthen against the Canadian dollar by 5% per annum over the next four years.

The company evaluates UK projects of similar risk at 14%.

Requirement

Calculate the NPV of the Canadian project.

Self-test question 3

Muggins Ltd

Muggins Ltd is evaluating a project to produce a new product. The product has an expected life of four years. Costs associated with the product are expected to be as follows.

Variable costs per unit

Labour: CU30

Materials:

6 kg of material X at CU1.64 per kg

Three units of component Y at CU4.20 per unit

Other variable costs CU4.40

Indirect costs each year

Apportionment of head office salaries	CU118,000
Apportionment of general building occupancy	CU168,000

Other overheads CU80,000 of which CU60,000 represent additional cash expenditures (including rent of machinery).

To manufacture the product a production manager will have to be recruited at an annual gross cost of CU34,000 and one assistant manager, whose current annual salary is CU30,000, will be transferred from another department, where he will be replaced by a new appointee at a cost of CU27,000 a year.

The necessary machinery will be rented. It will be installed in the company's factory. This will take up space that would otherwise be rented to another local company for CU135,000 a year. This rent (for the factory space) is not subject to any uncertainty, as a binding four-year lease would be created.

60,000 kg of material X is already in inventory, at a purchase value of CU98,400. It has no use other than the manufacture of the new product. The disposal value is CU50,000.

Expected sales volumes of the product, at the proposed selling price of CU125 a unit, are as follows.

Year	*Expected sales*
	Units
1	10,000
2	18,000
3	18,000
4	19,000

All sales and costs will be on a cash basis and should be assumed to occur at the end of the year. Ignore taxation.

The company requires that certainty-equivalent cash flows have a positive NPV at a discount rate of 14%. Adjustment factors to arrive at certainty-equivalent amounts are as follows.

Year	*Costs*	*Benefits*
1	1.1	0.9
2	1.3	0.8
3	1.4	0.7
4	1.5	0.6

Requirement

Assess on financial grounds whether the project is acceptable.

Self-test question 4

Zedland Postal Services

The general manager of the nationalised postal service of a small country, Zedland, wishes to introduce a new service. This service would offer same-day delivery of letters and parcels posted before 10am within a distance of 150km. The service would require 100 new vans costing $8,000 each and 20 trucks costing $18,000 each. 180 new workers would be employed at an average annual wage of $13,000 and five managers at average annual salaries of $20,000 would be moved from their existing duties, where they would not be replaced.

Two postal rates are proposed. In the first year of operation letters will cost $0.525 and parcels $5.25. Market research, undertaken at a cost of $50,000, forecasts that demand will average 15,000 letters and 500 parcels each working day during the first year, and 20,000 letters and 750 parcels a day, thereafter. There is a five-day working week and a 52-week year. Annual running and maintenance costs on similar new vans and trucks are estimated in the first year of operation to be $2,000 a van and $1,000 a truck. Annual running and maintenance costs on new vans and trucks will increase by 25% a year. Vehicles are depreciated over a five-year period on a straight-line basis. Depreciation is tax allowable and the vehicles will have negligible scrap value at the end of five years. Advertising in Year 1 will cost $1,300,000 and Year 2 $263,000. There will be no advertising after Year 2. Existing premises will be used for the new service but additional costs of $150,000 a year will be incurred in Year 1.

All the above data are based on price levels in the first year and exclude any inflation effects. Staff and premises costs are expected to rise because of inflation by approximately 5% a year during the five-year planning horizon of the postal service. The government of Zedland will not allow the prices charged by nationalised industries to increase by more than 5%.

Nationalised industries are normally required by the government to earn at least an annual after tax return of 5% on average investment and to achieve, on average, at least zero net present value on their investments.

The new service would be financed half with internally generated funds and half by borrowing on the capital market at an interest rate of 12% a year. The opportunity cost of capital for the postal service is estimated to be 14% a year. Corporate taxes in Zedland, to which the postal service is subject, are at the rate of 30% for annual profits of up to $500,000 and 40% for the balance in excess of $500,000. Tax is payable one year in arrears. The postal service's taxable profits from existing activities exceed $10,000,000 a year. All transactions may be assumed to be on a cash basis and to occur at the end of the year with the exception of the initial investment which would be required almost immediately.

Requirements

Acting as an independent consultant prepare a report advising whether the new postal service should be introduced. Include in your report a discussion of other factors that might need to be taken into account before a final decision is made on the introduction of the new postal service. State clearly any assumptions that you make.

IAS 21, *The effects of changes in foreign exchange rates*

Overview

- IAS 21 prescribes how to include foreign currency transactions and foreign operations in the financial statements of an entity, and how to translate financial statements into a presentation currency. The principal issues are: which exchange rate(s) to use, and how to report the effects of changes in exchange rates.

IAS 37, *Provisions, Contingent Liabilities and Contingent Assets*

Overview

- Outlines the accounting for provisions (liabilities of uncertain timing or amount), as well as contingent assets (possible assets) and contingent liabilities (possible obligations and present obligations which are not probable or are not reliably measurable). Provisions are measured at the best estimate of the expenditure required to settle the present obligation, and reflect the present value of expenditures required to settle the obligation where the time value of money is material.

Answers to Interactive questions

Answer to Interactive question 1

Note: The exploratory work of CU15,000 is a **sunk** cost and is therefore not relevant when appraising the project.

(i) **Payback period**

In this case, the payback period will be the amount of time it will take Robbie Ltd to earn CU500,000.

Year	*Cash flow*	*Cumulative cash flow*
	CU	CU
1	200,000	200,000
2	200,000	400,000
3	200,000	600,000

Payback is therefore 2 years + (100,000/200,000) = 2.5 years

(ii) **Accounting rate of return (ARR)**

$$ARR = \frac{\text{Average Accounting Profit}}{\text{Average Investment}}$$

Accounting Profit = Cash flow – Depreciation

$$\text{Depreciation} = \frac{\text{Cost} - \text{Resale value}}{\text{Useful life}}$$

$$= \frac{500{,}000 - 50{,}000}{4}$$

= CU112,500 pa

Average profit per annum = CU200,000 – 112,500

= CU87,500

$$\text{Average investment} = \frac{\text{Cost} + \text{Resale value}}{2}$$

$$= \frac{500{,}000 + 50{,}000}{2} = \text{CU}275{,}000$$

$$ARR = \frac{87{,}500}{275{,}000} = 31.8\%$$

(iii) **Net present value**

	Year 0	*Year 1*	*Year 2*	*Year 3*	*Year 4*
	CU	CU	CU	CU	CU
Initial investment	(500,000)				
Cash flow		200,000	200,000	200,000	200,000
Resale proceeds		–	–	–	50,000
Net cash flow	(500,000)	200,000	200,000	200,000	250,000
Discount factor (10%)	1.000	0.909	0.826	0.751	0.683
Discounted cash flow	(500,000)	181,800	165,200	150,200	170,750

NPV = CU167,950

(iv) **Internal rate of return (IRR)**

To calculate IRR, we generally find one discount rate with a positive NPV and another discount rate that results in NPV being negative. This is generally carried out using trial and error.

We already have a positive NPV when the discount rate is 10%. When trial and error is applied, we find that NPV at a 30% discount rate is CU (49,300).

$$IRR = 10 + \frac{167,950}{(167,950 + 49,300)} \times (30 - 10)$$

IRR = 25.5%

Answer to Interactive question 2

WORKINGS (all figures in $)

(1) **Tax writing-down allowances (WDA)**

Year	*WDA/Written-down value*	*Tax saved at 24%*
20X0	350,000	
WDA (20%)	(70,000)	16,800
20X1	280,000	
WDA	(56,000)	13,440
20X2	224,000	
WDA	(44,800)	10,752
20X3	179,200	
WDA	(35,840)	8,602
20X4	143,360	
WDA	(28,672)	6,881
20X5	114,688	
Proceeds	(60,000)	
Balancing all	54,688	13,125

(2) **Inflation computations**

	20X1	*20X2*	*20X3*	*20X4*	*20X5*
Net cash inflows	95,000	98,800	102,752	106,862	111,136

(3) **Tax computations**

	20X1	*20X2*	*20X3*	*20X4*	*20X5*
Tax at 24% of net cash inflows	22,800	23,712	24,660	25,647	26,673

NPV calculation

	20X0	*20X1*	*20X2*	*20X3*	*20X4*	*20X5*
Initial investment	(350,000)					
Cash (net)		95,000	98,800	102,752	106,862	111,136
Tax (24%)		(22,800)	(23,712)	(24,660)	(25,647)	(26,673)
WDA/Bal. all	16,800	13,440	10,752	8,602	6,881	13,125
Sale						60,000
	(333,200)	85,640	85,840	86,694	88,096	157,588
Disc. factor	1.000	0.893	0.797	0.712	0.636	0.567
DCF	(333,200)	76,477	68,414	61,726	56,029	89,352

NPV = $18,798

As NPV is positive, the project is feasible and should be undertaken.

Answer to Interactive question 3

Step 1 Calculate NPV of the project with the original cost of equity with no gearing.

Ungeared beta

$$ß_e = ß_a \left(1 + \frac{D(1-T)}{E}\right)$$

$1.178 = ß_a (1 + (1 \times ((1 - 0.24)/3)))$

$ß_a = 0.94$

Ungeared cost of equity (using CAPM)

$= R_f + ß_a \times$ Market premium

$= 7 + 0.94 \times 6$

= 12.6% (say 13%)

Discounted cash flow using 13% as the discount rate

Year	*0*	*1*	*2*	*3*	*4*	*5*
	$m	$m	$m	$m	$m	$m
Initial investment	(8)	–	–	–	–	–
Annual cash flow	–	2.5	2.5	2.5	2.5	2.5

Annuity factor (13% for 5 years) = 3.517

NPV = $(8m) + 3.517 × $2.5m = $0.79m

Step 2 Calculate the present value of the tax shield from debt financing.

Interest payable = $10m × 8% = $0.8m

Tax saved = $0.8 × 24% = $0.192m

Discount at cost of debt (8%) over 5 years = $0.192 × 3.993

= $0.767m

Step 3 Issue costs = $300,000

APV = $0.79m – $0.3m + $0.77m

= $1.26m

As APV is positive, the project should be undertaken with the proposed method of financing.

Answer to Interactive question 4

$PV_{OUTFLOWS}$ = CU10,000

Value of inflows if reinvested at the 10% cost of capital

Year	*Cash inflows*	*Interest rate multiplier*	*Amount when reinvested*
	CU		CU
1	3,000	1.21	3,630
2	5,000	1.1	5,500
3	7,000	1.0	7,000
			16,130

MIRR = $\sqrt[3]{(16,130/10,000)} - 1 = 17.28\%$

(The IRR for the project is 20.13%. The reason it is higher is because the IRR assumes a reinvestment rate of 20.13% rather than 10% which we have used.)

Answer to Interactive question 5

The PVs of the cash flows are as follows.

Year	*Discount factor 8%*	*PV of plant cost*	*PV of running costs*	*PV of savings*	*PV of net cash flow*
		CU	CU	CU	CU
0	1.000	(7,000)			(7,000)
1	0.926		(1,852)	5,556	3,704
2	0.857		(2,143)	5,999	3,856
		(7,000)	(3,995)	11,555	560

The project has a positive NPV and would appear to be worthwhile. Sensitivity of the project to changes in the levels of expected costs and savings is as follows.

(a) Plant costs sensitivity $= \frac{560}{7,000} \times 100 = 8\%$

(b) Running costs sensitivity $= \frac{560}{3,995} \times 100 = 14\%$

(c) Savings sensitivity $= \frac{560}{11,555} \times 100 = 4.8\%$

Answer to Interactive question 6

	Time 0	1	2	3	4	5
$'000 cash flows						
Sales receipts		1,600	1,600	1,600	1,600	
Costs		(1,000)	(1,000)	(1,000)	(1,000)	
Tax allowable depreciation (brought in to calculate taxable profit)		(400)	(400)	(400)	(400)	
$ taxable profit		200	200	200	200	
Taxation			(70)	(70)	(70)	(70)
Add back tax allowable depreciation (as not a cash flow)		400	400	400	400	
Capital expenditure	(2,000)					
Scrap value					800	
Tax on scrap value (W1)						(140)
Terminal value					500	
Tax on terminal value						(175)
Working capital	(400)				400	
	(2,400)	600	530	530	2,230	(385)
Exchange rates	5:1	5:1	5:1	5:1	5:1	5:1
F'000 cash flows						
From/(to) Ruritania	(480)	120	106	106	446	(77)
Additional Earland expenses/income		(100)	(100)	(100)	(100)	
Earland tax effect of Earland expenses/income			24	24	24	24
Net sterling cash flows	(480)	20	30	30	370	(53)
Earland discount factors	1	0.909	0.826	0.751	0.683	0.621
Present values	(480)	18.2	24.8	22.5	252.7	(32.9)

NPV = F (195,000), therefore the company should not proceed.

WORKINGS

(1) Tax is payable on $400,000 as tax written-down value = $2,000,000 – (4 × $400,000) = $400,000

Answers to Self-test

Answer to Self-test question 1

$PV_{OUTFLOWS} = I_0 = 75{,}000$

$TV = 19{,}000 \times 1.08^3 + 25{,}000 \times 1.08^2 + 30{,}000 \times 1.08 + 32{,}000$

$= 117{,}495$

$$MIRR = \left(\frac{117{,}495}{75{,}000}\right)^{0.25} - 1 = 0.1188 \text{ or } 11.88\%$$

As MIRR > required rate of return (8%), the company should accept the project.

Answer to Self-test question 2

PG Ltd

	Year 0	*Year 1*	*Year 2*	*Year 3*	*Year 4*
Investment C$'000	(150)				50
After tax cash flows C$'000	–	60	60	60	45
Net cash C$'000	(150)	60	60	60	95
Exchange rate	1.7000	1.7850	1.8743	1.9680	2.0664
Net cash £'000	(88.24)	33.61	32.01	30.49	45.97
14% discount factors	1.000	0.877	0.769	0.675	0.592
PV in £'000	(88.24)	29.48	24.62	20.58	27.21
NPV in £'000	13.65				

Answer to Self-test question 3

Muggins Ltd

Certainty-equivalent cash flows

	Year 1	*Year 2*	*Year 3*	*Year 4*
	CU'000	CU'000	CU'000	CU'000
Sales (W1)	1,125	1,800	1,575	1,425
Material X (W2)	50	230	248	280
Other variable costs (W3)	517	1,100	1,184	1,340
Management salaries (W4)	67	79	85	92
Rental: opportunity cost	135	135	135	135
Other overheads	66	78	84	90
	835	1,622	1,736	1,937
Sales less cash costs	290	178	(161)	(512)
Discount factor at 14%	0.877	0.769	0.675	0.592
Present value	254	137	(109)	(303)

The net present value is -CU21,000, so the project is not acceptable.

WORKINGS

(1) *Sales*

Year 1	10,000 × CU125 × 0.9
Year 2	18,000 × CU125 × 0.8
Year 3	18,000 × CU125 × 0.7
Year 4	19,000 × CU125 × 0.6

(2)	*Material X*	Year 1	CU50,000 opportunity cost
		Year 2	18,000 × 6 × CU1.64 × 1.3
		Year 3	18,000 × 6 × CU1.64 × 1.4
		Year 4	19,000 × 6 × CU1.64 × 1.5
(3)	*Other variable costs*	Per unit:	CU30 + 3 + (3 × CU4.20) + CU4.40 = CU47
		Year 1	10,000 × CU47 × 1.1
		Year 2	18,000 × CU47 × 1.3
		Year 3	18,000 × CU47 × 1.4
		Year 4	19,000 × CU47 × 1.5
(4)	*Management salaries*	Year 1	CU34,000 + CU27,000 = CU61,000 × 1.1
		Year 2	CU61,000 × 1.3
		Year 3	CU61,000 × 1.4
		Year 4	CU61,000 × 1.5

Answer to Self-test question 4

Zedland Postal Services

From: A N Accountant

To: The Board of directors

Date: 1 April 20X9

Subject: Proposed new same day service

Introduction

This report considers whether the proposed new service will meet the two targets of a return on investment of at least 5% and a non-negative net present value. It also considers other factors which may be relevant. Calculations are set out in the Appendix.

Recommendation

The proposed new service has an annual **average return on average investment of 30%**, but it has a **negative net present value** ($24,000). Because projects must meet both targets to be acceptable, it is recommended that the service is not provided. However, this is subject to the further factors considered below.

Non-financial factors

Although it has a small negative net present value, the proposed service might well be of **great value** to the public. It should perhaps be provided on that ground alone.

If the postal service's other projects have large positive net present values, it might be possible to net them off against the negative net present value here, to give an acceptable overall result. This is, of course, tantamount to **cross-subsidisation**.

It may be that charges could be increased and/or costs reduced, so that the net present value could become positive.

Before any final decision is taken, the **reliability** of all forecasts should be reviewed, and a **sensitivity analysis** should be carried out.

APPENDIX

(1) **Return on average investment**

Year	*1*	*2*	*3*	*4*	*5*
	$'000	$'000	$'000	$'000	$'000
Revenue					
Letters	2,048	2,867	3,010	3,160	3,318
Parcels	682	1,075	1,129	1,185	1,244
	2,730	3,942	4,139	4,345	4,562
Expenses					
Staff	2,340	2,457	2,580	2,709	2,844
Premises	150	158	165	174	182
Vehicle maintenance					
Vans	200	250	313	391	488
Trucks	20	25	31	39	49
Advertising	1,300	263			
Depreciation	232	232	232	232	232
	4,242	3,385	3,321	3,545	3,795
Revenue less expenses	(1,512)	557	818	800	767
Taxation (40%)	605	(223)	(327)	(320)	(307)
Profit after tax	(907)	334	491	480	460

Total profit after tax = $858,000

Average profit after tax = $858,000/5 = $171,600

Average investment =$1,160,000/2 = $580,000

Average annual after tax return on investment = $\frac{\$171{,}600}{\$580{,}000} \times 100\% = 30\%$

(2) **Net present value**

Year	*0*	*1*	*2*	*3*	*4*	*5*	*6*
	$'000	$'000	$'000	$'000	$'000	$'000	$'000
Revenue less expenses		(1,512)	557	818	800	767	
Add depreciation		232	232	232	232	232	
Taxation			605	(223)	(327)	(320)	(307)
Initial investment	(1,160)						
Cash flow	(1,160)	(1,280)	1,394	827	705	679	(307)
Discount factor (14%)							
		0.87	0.76	0.67	0.59	0.51	0.45
	1	7	9	5	2	9	6
Present value	(1,160)	(1,123)	1,072	558	417	352	(140)

Net present value = ($24,000)

(3) **Assumptions made**

(a) The **inflation rate**, for both revenue per unit and costs (excluding depreciation) will be 5%.

(b) The cost of **preliminary research** is to be ignored, as it has already been incurred.

(c) If the five managers were not needed for this new service, they would **remain** in their **present posts** rather than being made redundant.

(d) **Return on average investment** is to be computed ignoring financing costs.



CHAPTER 18

Treasury and working capital management

Introduction

Topic List

1 Treasury management function

2 Global treasury management

3 Working capital management

Summary and Self-test

Answers to Interactive questions

Answers to Self-test

Introduction

Learning objectives

	Tick off
• Demonstrate and explain the role and responsibilities of the treasury management function	☐
• Demonstrate and explain the role of treasury management in short-term finance, short-term investment and liquidity risk	☐
• Appraise and explain global treasury organisation and international liquidity management	☐
• Appraise and evaluate the contribution of working capital management to short-term and long-term financing	☐
• Evaluate the risks arising from working capital management and how these may be mitigated	☐
• Evaluate and explain working capital requirements for a range of different organisations and circumstances	☐
• Demonstrate and explain the nature and role of working capital management within financial management	☐
• Appraise, evaluate and advise with respect to working capital management techniques	☐

Syllabus links

Decisions about the autonomy of the treasury function and its objectives will not be taken in isolation but in the context of the wider decisions about organisational structure as discussed in Chapter 3. The activities and autonomy of an international treasury function will depend on the extent and needs of overseas operations and the form these take.

Working capital management is likely to be a significant issue for a business with other concerns, for example, a small business trying to raise finance or a business in financial trouble that is facing reconstruction. Working capital management may also be an important issue in the wider context of a business building relations with its customers or suppliers.

1 Treasury management function

Section overview

- Treasury management in a modern enterprise covers a number of areas including liquidity management, funding management, currency management and corporate finance.
- Centralising the treasury management function allows businesses to employ experts, deal in bulk cash flows and hence take advantage of lower bank charges and avoid a mix of surpluses and deficits. However, decentralised cash management can be more responsive to local needs.
- The treasury department is usually run as a cost centre if its main focus is to keep costs within budgeted spending targets. It may be run as a profit centre if there is a high level of foreign exchange transactions, or the business wishes to make speculative profits.
- Globalisation, information technology and pressures to add value are significant catalysts for changes in the role of the treasury function.

1.1 Treasury policy

Definition

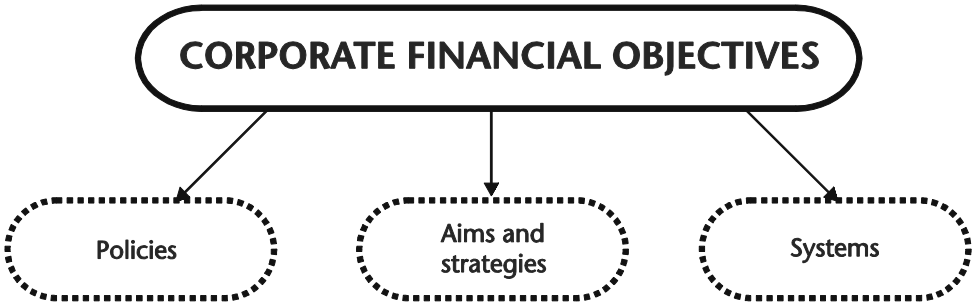
Treasury management: 'the corporate handling of all financial matters, the generation of external and internal funds for business, the management of currencies and cash flows, and the complex strategies, policies and procedures of corporate finance'. (The Association of Corporate Treasurers)

Large companies rely heavily for both long- and short-term funds on the financial and currency markets. To manage cash (funds) and currency efficiently, many large companies have set up a separate **treasury department**.

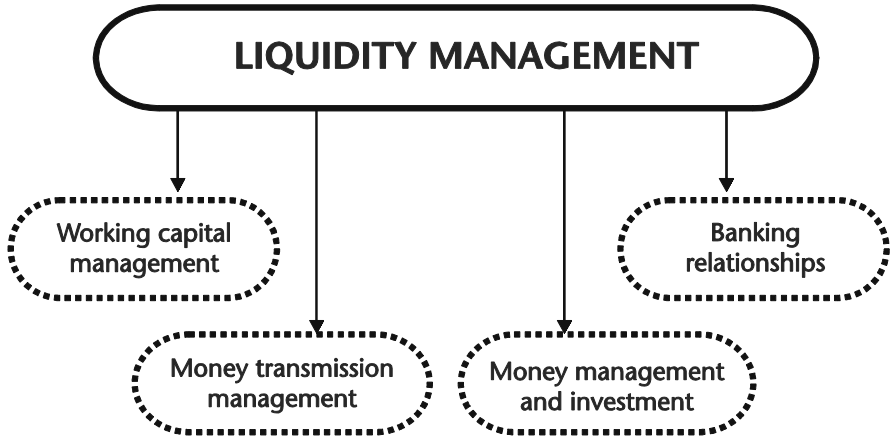
1.2 The role of the treasurer

The diagrams below are based on the Association of Corporate Treasurers' list of experience it requires from its student members before they are eligible for full membership of the Association. Required experience gives a good indication of the roles of treasury departments.

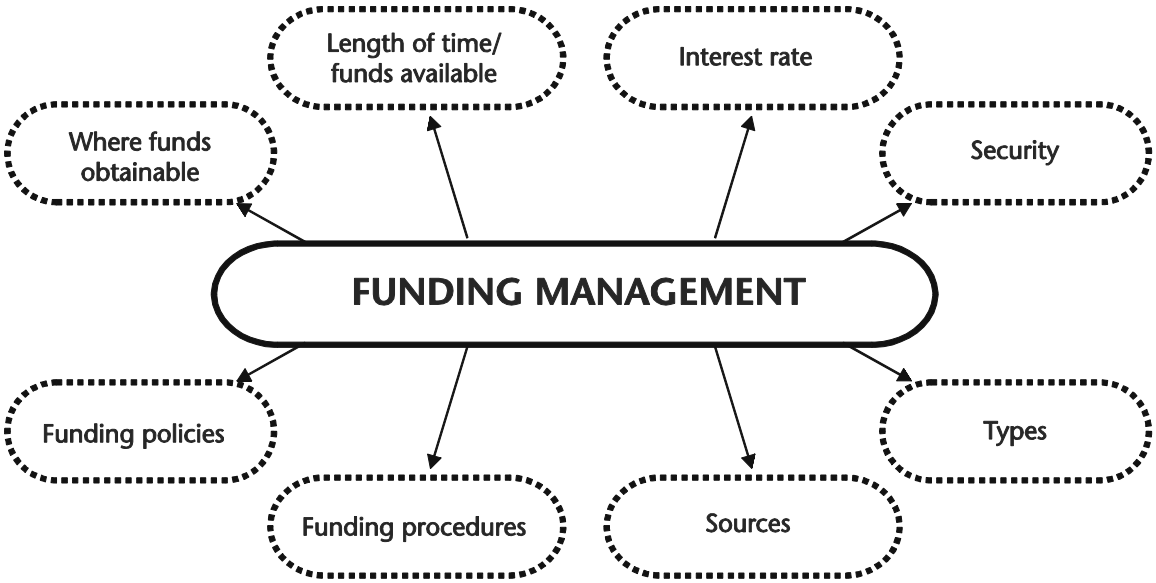
(a) **Corporate financial objectives**



(b) **Liquidity management**: making sure the company has the liquid funds it needs, and invests any surplus funds, even for very short terms.

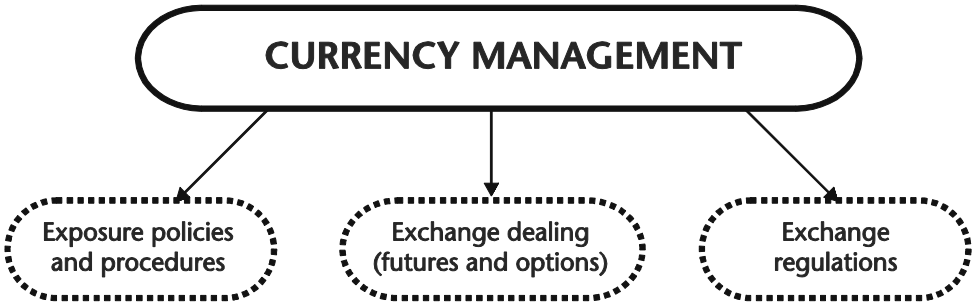


(c) **Funding management**



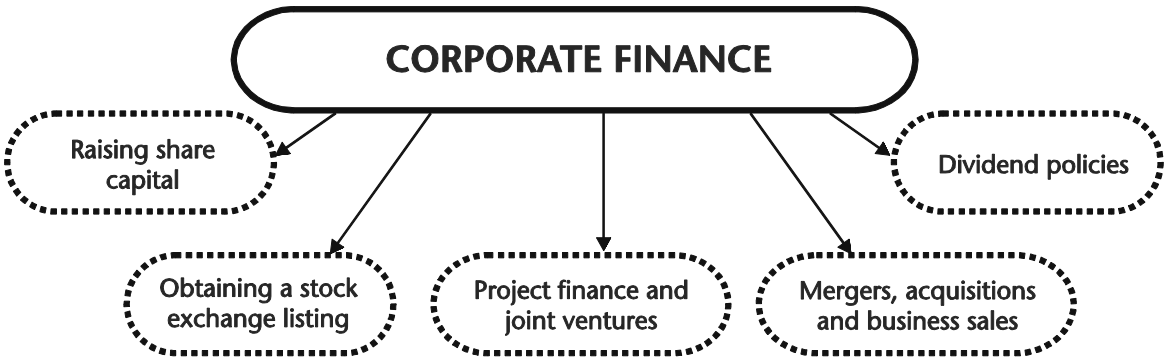
Funding management is concerned with all forms of borrowing, and alternative sources of funds, such as leasing and factoring.

(d) **Currency management**



Currency dealings can save or cost a company considerable amounts of money, and the success or shortcomings of the corporate treasurer can have a significant impact on the profit or loss of a company which is heavily involved in foreign trade.

(e) **Corporate finance**



The treasury department has a role in all levels of decision-making within the company. It is involved with **strategic** decisions such as dividend policy or the raising of capital, **tactical** decisions such as risk management, and **operational** decisions such as the investment of surplus funds.

1.3 Advantages of a separate treasury department

Advantages of having a treasury function which is separate from the financial control function are:

- Centralised liquidity management avoids mixing cash surpluses and overdrafts in different localised bank accounts.
- Bulk cash flows allow lower bank charges to be negotiated.
- Larger volumes of cash can be invested, giving better short-term investment opportunities.
- Borrowing can be agreed in bulk, probably at lower interest rates than for smaller borrowings.
- Currency risk management should be improved, through matching of cash flows in different subsidiaries. There should be less need to use expensive hedging instruments such as option contracts.
- A specialist department can employ staff with a greater level of expertise than would be possible in a local, more broadly based, finance department.
- The company will be able to benefit from the use of specialised cash management software.
- Access to treasury expertise should improve the quality of strategic planning and decision-making.



Case example: Argyll and Bute council

Treasury management can be a very significant function within public bodies such as local authorities.

Scotland's Argyll and Bute Council treasury strategy highlighted the following areas.

- Treasury limits in force limiting the treasury risk and activities of the council; £40 million short-term borrowing and 25% maximum proportion of interest on borrowing subject to variable rate interest.
- Borrowings strategy: because of expected favourable and stable short-term rates, the Council will borrow as much as possible short term at variable rates to minimise borrowing costs or make short-term savings in order to meet budgetary constraints.
- Investments strategy: the basic principles are security of principal and access to funds as needed. Surplus cash flows are generally lodged with bankers. Substantial surpluses might be placed in short-term business deposit accounts with approved institutions, subject to liaison with the Council's treasury advisers.
- Extent of debt repayment opportunities. Debt repayment would occur when fixed interest rates are anticipated to be at their peak, or when there appear to be anomalies with the yield curve. The aim will be to enhance the balance of the long-term portfolio.

- Retention of set aside capital receipts. Scottish Councils are required to set aside 75% of receipts generated by the Housing Revenue Account for either the redemption of external debt or to use monies to finance new capital expenditure as an alternative to new borrowing.
- Extraordinary activities. The treasury department was also involved in a feasibility study for housing stock transfer and negotiations over the financing of a public-private partnership school buildings project.

1.4 Outsourcing

Because of the specialist nature of treasury management, a number of businesses outsource the function to specialist institutions. The company receives the benefit of the expertise of the specialist's staff, which may be able to fill resource or skills gaps otherwise absent from the internal team. Outsourcing operational functions may enable the internal team to concentrate on strategic functions. It may also give the organisation access to better systems solutions. The specialists can deal on a large scale and pass some of the benefit on in the form of fees that are lower than the cost of setting up an internal function would be.

However, whether the same level of service could be guaranteed from the external institution as from an internal department is questionable. The external institution may not have as much knowledge of the needs of the business as an internal department.

If treasury activities are to be outsourced, contract documentation needs to be clear and management and reporting procedures must be established.

Other mechanisms may achieve the cost savings of outsourcing, but be more responsive to an organisation's needs. These include shared service centres (separate legal entities owned by the organisation and acting as independent service providers), which can be used to obtain economies of scale by concentrating dispersed units into one location. These may not necessarily be located near head office; in fact many are located where they can obtain tax advantages.

1.5 Centralised or decentralised cash management?

1.5.1 The centralisation decision

A large company may have a number of subsidiaries and divisions. In the case of a multinational, these will be located in different countries. It will be necessary to decide whether the treasury function should be centralised.

With centralised cash management, the central treasury department effectively acts as the bank to the Group. The central treasury has the job of ensuring that individual operating units have all the funds they need at the right time.

1.5.2 Advantages of a specialist centralised treasury department

- Centralised liquidity management avoids having a mix of cash surpluses and overdrafts in different local bank accounts and facilitates bulk cash flows, so that lower bank charges can be negotiated.
- Larger volumes of cash are available to invest, giving better short-term investment opportunities (for example, money market deposits, high interest accounts and Certificates of Deposit).
- Any borrowing can be arranged in bulk, at lower interest rates than for smaller borrowings, and perhaps on the eurocurrency or eurobond markets.
- Foreign currency risk management is likely to be improved in a group of companies. A central treasury department can match foreign currency income earned by one subsidiary with expenditure in the same currency by another. In this way, the risk of losses on adverse exchange rate changes can be avoided without the expense of forward exchange contracts or other 'hedging' (risk-reducing) methods.
- A specialist treasury department will employ experts with knowledge of dealing in futures, eurocurrency markets, taxation, transfer prices and so on. Localised departments would not have such expertise.
- The centralised pool of funds required for precautionary purposes will be smaller than the sum of separate precautionary balances which would need to be held under decentralised treasury arrangements.

- Through having a separate profit centre, attention will be focused on the contribution to Group profit performance that can be achieved by good cash, funding, investment and foreign currency management.
- Centralisation provides a means of exercising better control through use of standardised procedures and risk monitoring. Standardised practices and performance measures can also create productivity benefits.

1.5.3 Possible advantages of decentralised cash management

- Sources of finance can be diversified and can be matched with local assets.
- Greater autonomy can be given to subsidiaries and divisions because of the closer relationships they will have with the decentralised cash management function.
- The decentralised treasury function may be able to be more responsive to the needs of individual operating units.

However, since cash balances will not be aggregated at Group level, there will be more limited opportunities to invest such balances on a short-term basis.

1.5.4 Centralised cash management in the multinational firm

If cash management within a multinational firm is centralised, each subsidiary holds only the minimum cash balance required for transaction purposes. All excess funds will be remitted to the central treasury department.

Funds held in the central pool of funds can be returned quickly to the local subsidiary by telegraphic transfer or by means of worldwide bank credit facilities. The firm's bank can instruct its branch office in the country in which the subsidiary is located to advance funds to the subsidiary.

1.6 The treasury department as a cost centre or profit centre

1.6.1 Treasury department as a cost centre

A treasury department might be managed either as a cost centre or as a profit centre. For a Group of companies, this decision may need to be made for treasury departments in separate subsidiaries as well as for the central corporate treasury department.

In a cost centre, managers have an incentive only to keep the costs of the department within budgeted spending targets. The cost centre approach implies that the treasury is there to perform a service of a certain standard to other departments in the enterprise. The treasury is treated much like any other service department.

1.6.2 Treasury department as a profit centre

However, some companies (including BP, for example) are able to make significant profits from their treasury activities. Treating the treasury department as a profit centre recognises the fact that treasury activities such as speculation may earn revenues for the company, and as a result may make treasury staff more motivated. It also means that treasury departments have to operate with a greater degree of commercial awareness in, for example, the management of working capital.

Interactive question 1: Profit centre **[Difficulty level: Intermediate]**



Suppose that your company is considering plans to establish its treasury function as a profit centre. Before reading the next paragraph, see if you can think of how the following issues are of potential importance to these plans.

(a) How can we ensure that high quality treasury staff can be recruited?

(b) How might costly errors and overexposure to risk be prevented?

(c) Why will the treasury team need extensive market information to be successful?

(d) Could there be a danger that attitudes to risk in the treasury team will differ from those of the board? If so, how?

(e) What is the relevance of internal charges?

(f) What problems could there be in evaluating performance of the treasury team?

See **Answer** at the end of this chapter.

1.7 Control of treasury function

1.7.1 Statement of treasury policy

All treasury departments should have a formal statement of treasury policy and detailed guidance on treasury procedures. A treasury policy should enable managers to **establish direction**, **specify parameters** and **exercise control**, and also **provide a clear framework and guidelines for decisions**.

The guidance needs to cover the **roles** and **responsibilities** of the **treasury function**, the **risks** requiring management, **authorisation** and **dealing** limits.

Guidance on **risks** should cover:

- **Identification** and **assessment** methodology.
- **Criteria** including tolerable and unacceptable levels of risk.
- **Management guidelines**, covering risk elimination, risk control, risk retention and risk transfer.
- **Reporting guidelines**.

The guidance must also include guidance on **measurement** of **treasury performance**. Measurement must cover both the **management of risk** and the **financial contribution** the department makes.

1.7.2 Planning and review

As with other areas, there should be proper **forecasts** and **contingency arrangements,** with funds being made available by the bank when required. Because treasury activities have the potential to cost the organisation huge amounts of money, there ought to be a clear policy on **tolerated risk** and **regular review of investments**.

1.7.3 Controls over operations

The following issues should be addressed.

(a) **Competence of staff**

Local managers may not have sufficient expertise in the area of treasury management to carry out speculative treasury operations competently. Mistakes in this specialised field can be costly. It may only be appropriate to operate a larger **centralised** treasury function as a profit centre, and additional specialist staff may need to be recruited.

(b) **Controls**

Adequate controls must be in place to **prevent costly errors and overexposure to risks** such as foreign exchange risks. It is possible to enter into a very large foreign exchange deal over the telephone.

(c) **Information**

A treasury team that trades in futures and options or in currencies is competing with other traders employed by major financial institutions who may have better knowledge of the market because of the large number of customers they deal with. In order to compete effectively, the team needs to have **detailed and up-to-date market information**.

(d) **Attitudes to risk**

The more aggressive approach to risk-taking which is characteristic of treasury professionals may be difficult to reconcile with a more measured approach to risk within the board of directors. The recognition of treasury operations as profit-making activities may **not fit well with the main business operations of the company**.

(e) **Internal charges**

If the department is to be a true profit centre, then **market prices** should be charged for its services to other departments. It may be difficult to put realistic prices on some services, such as arrangement of finance or general financial advice.

(f) **Performance evaluation**

Even with a profit centre approach, it may be difficult to measure the success of a treasury team for the reason that successful treasury activities sometimes involve **avoiding incurring costs**, for example when a currency devalues.

1.7.4 Audit of treasury function

Auditors must ensure that the **risk is managed in accordance with company procedures**. They need to **review forecasts** and **contingency arrangements** for adequacy and examine **investment reviews**. The auditors also need to see evidence that the board is fully aware of the treasury activities that are being carried out.

1.8 Current developments in the treasury function

1.8.1 The changing role of the treasury function

A predictable consequence of the wide-ranging scope of the treasurer's role is that it is constantly evolving. Partly, this is in response to changes in the financial world such as the development of different types of capital instruments. It is also due to a changing emphasis on the relative importance of different aspects of the treasury role.

1.8.2 Risk prevention

We have already stressed that risk control is an integral part of the treasury management function. More accurate forecasting techniques are being used to help other departments mitigate and avoid risks.

1.8.3 Working capital management

Many businesses are placing increased emphasis on constant working capital improvement to minimise funding requirements. This means greater treasury involvement in supplier and inventory management.

1.8.4 Tax management

Consequences of global developments such as European Union harmonisation need to be considered carefully. However in many businesses limitation of tax liabilities must be seen in the context of optimum liquidity management.

1.8.5 Information and technology management

Careful management is needed of all the information sources that are relevant for the business including the internet and mass communication media. Optimum use of technology is a key part of information management and as well as choosing the right supplier, treasury departments need to monitor technological developments that could enhance their operations.

Technology can also be used to provide a common information base that the service providers to the treasury function can use.

1.8.6 Relationship management

The wider scope of treasury's role implies strengthening of relations with other functions, and co-operation in tasks such as establishment of terms and payment methods for customers.

1.8.7 Co-operation between treasuries

Treasury functions of different organisations sometimes pass aspects of their operations to a single independent supplier. This enables the organisations to share processes, information and knowledge. Treasury functions also co-operate together in payment systems harmonisation, supplying information to rating agencies, and presenting a common front to suppliers and regulators.

2 Global treasury management



Section overview

- The treasury functions of Multi-National Companies (MNCs) often operate on a regional basis, since this balances control and availability of expertise with responsiveness to local needs.
- A MNC's treasury function will oversee pooling and netting arrangements and try to find ways of limiting the organisation's overall tax burden.

2.1 Issues affecting global treasury management

Any company involved in international trade must assess and plan for the different risks it will face. As well as physical loss or damage to goods, there are also cash flow problems and the risk that the customer may not pay either on time or at all. The tasks that treasury departments have to undertake domestically, for example efficient cash and liquidity management, will also be relevant for international management. However, issues such as arranging funds to move cross-borders, may complicate these tasks. As also indicated above, the treasury function will be responsible for currency management. The following issues may be particularly significant for the treasury function.

2.1.1 Cash flow issues

The treasury department in a Multi-National Company (MNC) will be dealing with cash flows from customers, suppliers and Group companies based in perhaps many different countries. The treasury department will be dealing with a variety of different banking and payment systems. As mentioned above, the situation may also be complicated by many transactions crossing borders.

2.1.2 Legal issues

The treasury department of an international company will need to be aware of the laws that affect financial transactions and assets, and the power of authorities in different jurisdictions to impose restrictions. A big risk area may be laws relating to bribery or money laundering, particularly the fact that behaviour that is legal (or at any rate not illegal) in some countries is prohibited in others. If the parent company is based in a jurisdiction where these activities are prohibited, it may be liable if its employees or agents breach these laws even if this take place in other jurisdictions.

2.1.3 Political issues

A MNC's treasury department will have to deal with issues such as blocked funds or restrictions on ownership that some foreign governments may impose.

2.1.4 Tax issues

Treasury departments will have to cope with a variety of tax laws and taxes. These are discussed further below.

2.2 Structure of treasury operations

The question of the extent of centralisation may be particularly difficult for MNCs with extensive foreign operations.

2.2.1 Extent of centralisation

For some MNCs, increasing globalisation may be an impetus towards centralisation and concentration on control frameworks, decision support and improved business performance.

In some instances, the decision will follow how the MNC operates. If the MNC purely operates overseas sales offices, centralisation is more likely. If it operates subsidiaries that carry out full business operations, it is more likely to operate a decentralised structure with guidelines, a formal reporting system and assurance procedures.

Many MNCs resolve the centralisation v decentralisation issue by operating treasury centres on a regional basis. This enables them to use staff who are well-informed about global requirements, but also sympathetic to local stipulations. A regional structure allows some decisions, for example the extent of outsourcing, to be taken region-by-region.

The degree of centralisation is also important when the MNC is considering its banking as well as its treasury arrangements. Businesses will be concerned about whether their banks have the ability to provide global treasury services. However, the services of the global bank need to be matched with regional needs.

2.2.2 Shared service centre

A shared service centre (SSC) may be the best method of achieving efficiencies and cost savings through some centralisation, while allowing overseas operations some autonomy in their treasury operations. The company can take a selective approach, centralising operations where there is no advantage in local management. A SSC may allow the company to operate global management systems and centralised databases, taking advantage of the most recent technology and standardised information management. Tax considerations and the availability of expert staff may be important determinants of where the SSC is based – perhaps it will not be located in the same country as the parent company.

2.2.3 In-house banking

The activities of a shared service treasury function may extend to providing in-house banking services. This means financial institutions have a single point of contact and should help the business obtain discounts by aggregating some transactions and undertaking some operations in bulk. An in-house banking arrangement would oversee netting and pooling arrangements (discussed below).

2.3 Treasury management

2.3.1 Pooling

Pooling means asking the bank to pool the amounts of all its subsidiaries when **considering interest levels and overdraft limits**. It requires all the Group companies to maintain accounts at the same bank. Banks normally require credit facilities to support debit balances in the Group.

Pooling should **reduce the interest payable, stop overdraft limits being breached** and **allow greater control by the treasury department**. It also gives the company the potential to take advantage of **better rates of interest** on **larger cash deposits**.

2.3.2 Netting



Definition

Netting: A process in which credit balances are netted-off against debit balances so that only the reduced net amounts remain due to be paid by actual currency flows.

Many **multinational groups** of companies engage in **intragroup trading**. Where related companies located in different countries trade with one another, there is likely to be inter-company indebtedness denominated in different currencies.

In the case of **bilateral netting,** only two companies are involved. The lower balance is netted-off against the higher balance and the difference is the amount remaining to be paid.



Worked example: Bilateral netting

A and B are respectively UK- and US-based subsidiaries of a Swiss-based holding company. At 31 March 20X5, A owed B SFr300,000 and B owed A SFr220,000.

Solution

Bilateral netting can reduce the value of the intercompany debts: the two intercompany balances are set against each other, leaving a net debt owed by A to B of SFr 80,000 (SFr300,000 – 220,000).

Multilateral netting occurs when several companies within the same Group interact with the central treasury department to net-off their transactions. The arrangement might be co-ordinated by the company's own central treasury or, alternatively, by the company's bankers.

The process involves establishing a '**base**' currency to record all intragroup transactions. All subsidiaries inform the central treasury department of their transactions with each other. Central treasury will then inform each subsidiary of the outstanding amount payable or receivable to settle the intragroup transactions.

This procedure has the advantages of **reducing the number of transactions** and thus **transaction costs**, including foreign exchange purchase costs and money transmission costs. There will also be less loss of interest through having money in transit. However, it requires strict control procedures from central treasury. In addition, there are countries with severe restrictions on, or even prohibition of, netting because it is seen as a means of tax avoidance. There may also be other legal and tax issues to consider.



Worked example: Multilateral netting

A Group of companies controlled from the USA has subsidiaries in the UK, South Africa and Denmark. Below, these subsidiaries are referred to as UK, SA and DE respectively. At 30 June 20X5, intercompany indebtedness is as follows.

Debtor	*Creditor*	*Amount*
UK	SA	1,200,000 South African rand (R)
UK	DE	480,000 Danish kroner (Kr)
DE	SA	800,000 South African rand
SA	UK	£74,000 sterling
SA	DE	375,000 Danish kroner

It is the company's policy to net-off intercompany balances to the greatest extent possible. The base currency is the US$ and the central treasury department is to use the following exchange rates for this purpose.

US$1 equals R 6.1260 / £0.6800 / Kr 5.8800.

Requirement

Calculate the net payments to be made between the subsidiaries after netting-off of intercompany balances.

Solution

The first step is to convert the balances into US dollars as a common currency.

Debtor	*Creditor*	*Amount in US dollars*
UK	SA	1,200,000 ÷ 6.1260 = $195,886
UK	DE	480,000 ÷ 5.8800 = $81,633
DE	SA	800,000 ÷ 6.1260 = $130,591
SA	UK	74,000 ÷ 0.6800 = $108,824
SA	DE	375,000 ÷ 5.8800 = $63,776

	Paying subsidiaries			
Receiving subsidiaries	*UK*	*SA*	*DE*	*Total*
	$	$	$	$
UK	–	108,824	–	108,824
SA	195,886	–	130,591	326,477
DE	81,633	63,776	–	145,409
Total payments	(277,519)	(172,600)	(130,591)	580,710
Total receipts	108,824	326,477	145,409	
Net receipt/(payment)	(168,695)	153,877	14,818	

The UK subsidiary should pay $153,877 to the South African subsidiary and $14,818 to the Danish subsidiary.

2.3.3 Multi-currency accounts

Treasury departments may also negotiate multicurrency account arrangements with banks. These arrangements allow customers to receive or make international payments in a range of currencies from one account of the company. Multicurrency arrangements generally specify:

- The base currency of the account.
- The currencies accepted.
- The spread or margin over the spot rate when exchanging other currencies back to the base currency.
- The value date for each transaction currency and type.

2.3.4 Other arrangements

Treasury departments may also supervise arrangements designed to limit exposure to foreign exchange risk, including:

- **Leading and lagging** – cross-border payments ahead of or behind the scheduled payment date, depending on how exchange rates are expected to move.
- **Reinvoicing –** the reinvoicing centre purchases goods from an exporting subsidiary, which is selling the goods to an internal subsidiary. It improves foreign exchange rates available by allowing larger trades and improves liquidity management by allowing flexibility in intercompany payments.
- **Factoring** – buying accounts receivable from exporting subsidiaries and collecting monies from importing business.

2.4 Taxation issues

The treasury department may have to deal with complex global tax issues and also conflicting demands from different jurisdictions. In-house or external expertise will be needed to support treasury operations.

2.4.1 Capital tax

Treasury functions will need to be alert for the different ways in which some jurisdictions levy capital taxes. The initial capital used and subsequent investments may be subject to tax. In other jurisdictions the tax point may be when the capital is repatriated at the conclusion of the investment.

2.4.2 Asset tax

Even if an investment does not produce any profits, the assets used may be subject to an asset tax. The MNC may be subject to tax on the value of property or financial assets.

2.4.3 Sales tax

In many jurisdictions, a MNC will be subject to some form of turnover tax. It may simply be levied on sales of goods and services. Alternatively, it may be a value added tax, where the tax is charged at each stage of production or distribution on the increased value occurring at that stage.

2.4.4 Withholding tax

As we have seen in investment appraisal, companies may be required to pay tax when moving any funds (not just capital) from a foreign country.



Interactive question 2: Global treasury **[Difficulty level: Intermediate]**

Touten is a US-registered multinational company with subsidiaries in 14 countries in Europe, Asia and Africa. The subsidiaries have traditionally been allowed a large amount of autonomy, but Touten is now proposing to centralise most of the Group treasury management operations.

Requirements

Acting as a consultant to Touten prepare a memo suitable for distribution from the Group finance director to the senior management of each of the subsidiaries explaining:

(a) The potential benefits of treasury centralisation.

(b) How the company proposes to minimise any potential problems for the subsidiaries that might arise as a result of treasury centralisation.

See **Answer** at the end of this chapter.



Interactive question 3: Treasury matters [Difficulty level: Intermediate]

The board of SFR has agreed to establish a corporate treasury department, with a full-time Treasurer who will be appointed to deal with the cash flows, supported by a small staff who will undertake the associated administration. None of SFR's existing employees are suitably qualified for any of these posts and so all will have to be appointed externally. The Chief Accountant is concerned that this team of new employees will have a great deal of discretion over making payments which will increase the risk of fraud. The Finance Director feels that the Internal Audit department can monitor the Treasury department on a day-to-day basis. The Finance Director also feels that the new Treasury department will give SFR the opportunity to profit from currency movements by actively taking positions in currencies that are going to appreciate in value.

Requirements

(a) Discuss the merits of the suggestion that SFR should control its planned Treasury department by having the Internal Audit department monitor its routine activities.

(b) Discuss the merits of SFR attempting to earn profit from speculating on currency movements.

See **Answer** at the end of this chapter.

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3 Working capital management



Section overview

- All entities need **liquid resources** to fund working capital needs. Short-term financial strategy involves planning to ensure enough day-to-day cash flow and is determined by **working capital management**. It involves achieving a balance between the requirement to minimise the **risk** of insolvency and the requirement to **maximise profit**.

3.1 Working capital and value creation

Working capital is technically the excess of current assets over current liabilities. In practice, it represents the resources required to run the daily operations of a business. You covered the techniques for managing working capital in detail in the *Management Information* syllabus, and may wish to refresh your memory of the most significant issues.

- Working capital ratios
- The cash operating cycle
- Overtrading
- Methods of managing inventory
- The Economic Order Quantity (EOQ) model
- Using trade credit
- Credit control finance and management
- Cash management (covered in further detail below)
- Cash budgets

This section provides an overview of some of the strategic issues.

The effective management of a company's inventory, customer accounts, cash resources and suppliers' accounts are a source of competitive advantage and thus corporate and shareholder value.

For example, good control over inventory can be important in ensuring that there are items on hand when customers want them and they are in good condition. Well handled supplier accounts are part of good supply chain management and help in the objective of ensuring costs and delivery times are minimised.

Effective working capital management can also comprise a key element of the **value chain**. The management of inventories, supplier relationships and customer relationships are closely related to operations, supply chain and logistics management.

A great deal of working capital management affects the customer interface and deserves a business manager's attention as it can be a significant source of customer satisfaction.

3.2 Aggressive and conservative working capital management

The volume of working capital required will depend on the nature of the company's business. For example, a manufacturing company may require more inventories than a company in a service industry. As the volume of output by a company increases, the volume of current assets required will also increase.

Even assuming efficient inventory holding, debt collection procedures and cash management, there is still a certain degree of choice in the total volume of current assets required to meet output requirements. Policies of low inventory-holding levels, tight credit and minimum cash holdings may be contrasted with policies of high inventory (to allow for safety or buffer inventory), easier credit and sizeable cash holdings (for precautionary reasons).

Organisations have to decide what the most important risks are relating to working capital and, therefore, whether to adopt a conservative or aggressive approach.

3.2.1 Conservative working capital management

A conservative working capital management policy aims to reduce the risk of system breakdown by holding high levels of working capital.

Customers are allowed generous payment terms to stimulate demand, finished goods inventories are high to ensure availability for customers, and raw materials and work-in-progress are high to minimise the risk of running out of inventory and consequent downtime in the manufacturing process. Suppliers are paid promptly to ensure their goodwill, again to minimise the chance of stock-outs.

However, the cumulative effect of these policies can be that the firm carries a high burden of unproductive assets, resulting in a financing cost that can destroy profitability. A period of rapid expansion may also cause severe cash flow problems as working capital requirements outstrip available finance. Further problems may arise from inventory obsolescence and lack of flexibility to customer demands.

3.2.2 Aggressive working capital management

An aggressive working capital investment policy aims to reduce this financing cost and increase profitability by cutting inventories, speeding up collections from customers, and delaying payments to suppliers.

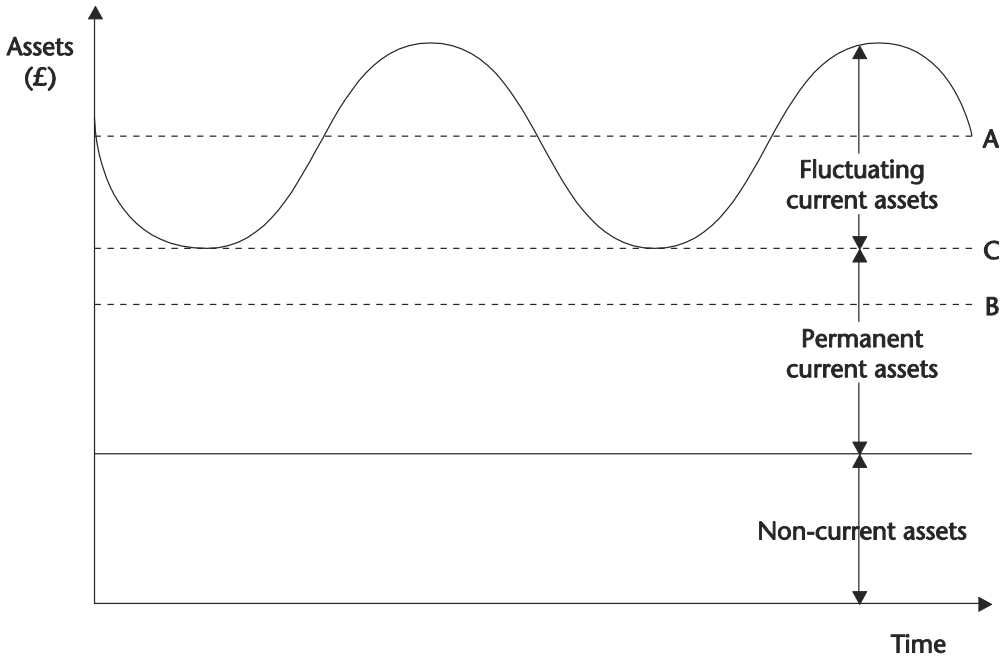
The potential disadvantage of this policy is an increase in the chances of system breakdown through running out of inventory or loss of goodwill with customers and suppliers. However, modern manufacturing techniques encourage inventory and work-in-progress reductions through just-in-time policies, flexible production facilities and improved quality management. Improved customer satisfaction through quality and effective response to customer demand can also mean that credit periods are shortened.

3.3 Working capital financing

There are different ways in which the funding of the current and non-current assets of a business can be achieved by employing long- and short-term sources of funding.

Short-term finance is usually cheaper than long-term finance (under a normal yield curve).

The diagram below illustrates three alternative types of policy A, B and C. The dotted lines A, B and C are the cut-off levels between short-term and long-term financing for each of the policies A, B and C respectively: assets above the relevant dotted line are financed by short-term funding while assets below are financed by long-term funding.



Fluctuating current assets together with permanent current assets (the core level of investment in inventory and receivables) form part of the working capital of the business, which may be financed by either long-term funding (including equity capital) or by current liabilities (short-term funding). This can be seen in terms of policies A, B and C. Once again, a conservative or an aggressive approach can be followed.

- Policy A can be characterised as a **conservative approach** to financing working capital. All non-current assets and permanent current assets, as well as part of the fluctuating current assets, are financed by long-term funding. There is only a need to call upon short-term financing at times when fluctuations in current assets push total assets above the level of dotted line A. At times when fluctuating current assets are low and total assets fall below line A, there will be **surplus cash** which the company will be able to invest in marketable securities.
- Policy B is a more **aggressive approach** to financing working capital. Not only are fluctuating current assets all financed out of short-term sources, but so are some of the permanent current assets. This policy represents an increased risk of liquidity and cash flow problems, although potential returns will be increased if short-term financing can be obtained more cheaply than long-term finance. It enables greater flexibility in financing.
- A balance between risk and return might be best achieved by the **moderate approach** of policy C, a policy of maturity matching in which long-term funds finance permanent assets while short-term funds finance non-permanent assets.

3.4 Other factors

Overall working capital management will be complicated by the following factors.

3.4.1 Industry norms

These are of particular importance for the management of receivables. It will be difficult to offer a much shorter payment period than competitors.

3.4.2 Products

The production process, and hence the amount of work-in-progress, is obviously much greater for some products and in some industries.

3.4.3 Management issues

How working capital is managed may have a significant impact upon the actual length of the working capital cycle, whatever the overall strategy might be. Factors to consider include the degree of centralisation (which may allow a more aggressive approach to be adopted, depending though on how efficient the centralised departments actually are).

Differences in the nature of assets also need to be considered. Businesses adopting a more conservative strategy may well hold permanent safety inventory and cash balances, whereas there is no safety level of receivables balances.

3.5 Working capital management and the recession

The current credit crunch is impacting upon the finance available to all companies. There are plenty of examples of well-established companies struggling with funding.

The *Financial Times* reported in September 2008 that banks were limiting credit facilities, raising interest rates and pressuring businesses to switch from unsecured overdrafts to secured loans. Companies are having to draw on their own accumulated funds and look very carefully at their working capital levels. A significant difference between this recession and previous recessions is that the downturn this time has been driven by a shortage of liquidity.

3.5.1 Inventory levels

Managing inventory has become even more of a balancing act between meeting the demands of customers and limiting inventory levels. Businesses are looking carefully at slow-moving or surplus items to see if certain lines can be discontinued. They are also examining reorder levels to see if just-in-time policies can be introduced.

3.5.2 Credit control

This is another balancing act. Chasing customers too hard at a time when their liquidity is under pressure may risk customer goodwill. However, at some point the finance cost of the outstanding debt and the collection costs may mean slow payers become uneconomical.

3.5.3 Supplier payments

Using supplier finance to alleviate liquidity problems may be risky. Suppliers may come to regard the business as a poor credit risk and reduce permitted orders or stop offering credit. New sources of supply, that do not offer discounts for a long-established relationship, may be significantly more expensive. If the business is considering changing its supply arrangements, the cost of buying supplies from lower cost overseas sources will have to be weighed against the increased difficulty of introducing just-in-time arrangements.

3.5.4 Renegotiate loan finance

Some companies have renegotiated their borrowing so that the loans are over a longer period and are ultimately more expensive, but have lower payments now. Adding more debt will have long-term consequences, but refinancing is worth doing if it means companies are able to reach the long term.



Case example: Managing working capital

Deloitte Canada has suggested a ten-point process for managing working capital during the current credit crunch.

Focus on the cash-to-cash conversion cycle	Don't just focus on inventory, but develop a co-ordinated approach to inventory, receivables and payables.
Think like a chief finance officer	Assume inventory management is driven by financial constraints rather than customer and operational requirements.
Focus on inventory reduction	Simple cuts may affect customer service. A complete overhaul of demand and production planning and safety inventory levels will lead to longer-term gains.

Extend supplier credit intelligently	Simply delaying payment may lead to worse supply relationships and may pass on liquidity problems to suppliers. Agreement with suppliers may be possible, but payment may have to be advanced to suppliers in serious trouble.
Manage and expedite receivables	The focus should be on specific customers, highlighting customers who may be changing their payment practices. Timely and accurate invoicing helps avoid delays.
Audit receivables and payables transactions	Transactions must be settled at the right amounts, the correct tax paid and the right discounts allowed and received.
Consider alternate supply chain financing options	Receivables can be used as collateral for short-term credit and early payment discounts for customers may be necessary.
Ensure framework for managing supply chain risk is robust	Be aware not only of suppliers who are in trouble, but also problems with financial institutions which may be guaranteeing letters of credit.
Eliminate fixed costs	Possible means include sale and leaseback, contract manufacturing and third party warehousing.
Think beyond four walls	Consider the implications of actions to manage one part of working capital on the rest of the value chain. Emergency measures may be required to support important suppliers.

Other possible steps include credit protection insurance and rationalisation of bank accounts to avoid account and loan charges.

Management information systems will also require review. Possibly cash flow forecasts should be prepared more frequently, and performance indicators need to be refocused around cash collection and working capital management.



Case example: Vodafone

Vodafone's focus since 2008 has been to strengthen its free cash flow generation by improving its working capital position through a structured programme. The programme involves about 100 ideas to improve performance.

Measures included having customers pay in advance rather than arrears for some aspects of their service. One particularly important, but challenging, area has been relationships with suppliers. Vodafone does not wish to abuse its market power and wants to maintain a diversified supplier base. However, it has reviewed contract terms carefully and tightened its internal procedures to eliminate early payments. Operating units have had stand-alone purchasing functions, but Vodafone is moving towards a standard shared-services model.

Vodafone has also built achievement of working capital management objectives into its remuneration packages.

3.5.5 Cash hoarding

Concerns about short-term finance have led some companies to hoard cash.



Case example: Current practices

Ernst and Young's Working Capital Management Report 2012 reported that the leading 2,000 US and European companies still have up to US$ 1.2 trillion of cash 'unnecessarily' tied up in working capital – equivalent to nearly 7% of their combined sales. Ernst and Young suggested that there were a number of short-term reasons for this, including unusual and uncertain sales patterns, better cash collection and billing, a reduction in production and inventory and paying suppliers earlier to achieve discounts.

Ernst and Young noted that the rate of improvement in working capital levels had slowed down significantly in the period 2009 – 2011. The report suggested that the most convenient opportunities for working capital improvements may have already been exploited, or traded-off against sales growth or margin expansion. Ernst

and Young suggested that major improvements to performance over the longer term would require root and branch reform involving all major aspects of operations, performance metrics and risk management systems. Many businesses would need to consider lean manufacturing and supply chain initiatives, greater co-operation with customers and suppliers, centralisation of procurement and cash management and a fresh approach to financing initiatives.

3.6 Working capital management and exporters

One of the main problems facing exporters is cash flow. In order to win customers, exporters will normally have to offer credit facilities, but at the same time need liquid funds to finance investment. There are several finance options available for this purpose. Some of these – such as factoring and documentary credits – you will have met before, but we briefly mention them here.

3.6.1 Factoring

Factoring involves passing debts to an external party (the factor) who will take on the responsibility for collecting the money due. The factor advances a proportion of the money it is due to collect, meaning that the exporter will always have sufficient funds to pay suppliers and finance growth. Sometimes the factor will also take on a percentage of the non-payment risk, which is known as 'non-recourse' factoring. This means that the factor will not come back to the exporter in the event of default on the part of the customer.

3.6.2 Documentary credits

A documentary credit (or letter of credit) is a fixed assurance from the customer's bank in the customer's own country. This basically says that payment will be made for the goods or services provided the exporter complies with all the terms and conditions established by the credit contract. The exporter's own bank may be willing to advance a short-term loan for a percentage of the documentary credit prior to goods being shipped, to cover the temporary shortfall of cash. The bank will then collect the loan from the proceeds of the transaction.

3.6.3 Forfaiting

Forfaiting – or medium-term capital goods financing – is used for larger projects and involves a bank buying 100% of the invoice value of an export transaction at a discount. The exporter is then free from the financial risk of not receiving payment and the resultant liquidity problems – the only responsibility the exporter has and is liable for is the quality of the goods or services being provided.

Three elements make up the price of a forfaiting transaction.

- The **discount rate** – this is the interest element which is usually quoted as a margin over LIBOR.
- **Grace days**, which are added to the actual number of days to maturity to cover the number of days' delay that usually occurs in the transfer of payment. The number of days depends on the customer's country.
- **Commitment fee**, which is applied from the date the forfaiter assumes responsibility for the financing to the date of discounting.

Forfaiting enhances the competitive advantage of the exporter, who will be able to provide financing to customers, thus making the products or services more attractive. By having the assurance of knowing that they will receive the money owed to them, exporters will also be more willing to undertake business in countries whose risks would normally prohibit them from doing so.

3.6.4 Credit insurance

Exporters may also make use of credit insurance facilities to ease liquidity problems. This involves assigning credit-insured invoices to banks who will offer up to 100% of the insured debt as a loan. These instruments may also carry the guarantee of the customer's home government.



Case example: Envy Performance Ltd

Envy Performance Ltd exports spare parts for performance cars to customers in more than 40 countries. Overseas trade accounts for approximately 15% of sales revenue and the business sells to both trade and private customers. One of the main challenges has been protecting the interests of the business during export transactions.

Gareth Walker, one of the directors, identified transit of goods as being a major issue. On average one package each month either goes missing or is damaged in transit. This means higher insurance premiums due to regular claims being made. He finally realised that the current insurance cover was inadequate for Envy Performance's needs. Solution? The business switched its insurance cover to that provided by the courier, meaning payment of a flat-rate charge on each consignment shipped rather than an annual premium. This made budgeting easier and the business also found that dealing with the courier in the event of any problems was faster than dealing with an external insurer.

Another way in which Envy Performance protected itself was through tighter credit arrangements. When the business had just started up, it had several credit accounts with overseas customers. Unfortunately, it lost a considerable amount of money when some of the customers went bust. As a result, it withdrew its account service and almost all transactions are now on a prepaid basis. The business is also careful with its credit card transactions and pays a monthly premium for a terminal that allows address verification to take place on such transactions.



Interactive question 4: Working capital management [Difficulty level: Intermediate]

It is currently May 20X6.

MNO is a private toy distributor situated in the United States of America (US) with a US customer base and local suppliers. There is a central manufacturing base and several marketing units spread across the US. The marketing units are encouraged to adapt to local market conditions, largely acting independently and free from central control. These units are responsible for all aspects of local sales, including collecting sales revenues, which are paid across to Head Office on a monthly basis. Funding is provided by Head Office as required.

Figures for last year to 31 December 20X5 were:

Revenue	$10 million
Gross profit margin	40% of revenue
Accounts receivable days	minimum 20, maximum 30 days
Accounts payable days	minimum 40, maximum 50 days
Inventories	minimum 50, maximum 80 days
Non-current assets	$8 million

Accounts receivable, accounts payable and inventories can all be assumed to be the same on both 31 December 20X4 and 31 December 20X5, but fluctuate between those dates.

The Financial Controller is carrying out an analysis of MNO's working capital levels, as requested by the Treasurer. He is assuming that the peak period for accounts receivable coincides with the peak period for inventories and the lowest level of accounts payable.

MNO is currently in consultation with a potentially significant new supplier in Asia, that will demand payment in its local currency.

Requirements

(a) Calculate the minimum and maximum working capital levels based on the Financial Controller's assumption regarding the timing of peaks and troughs in working capital variables and discuss the validity of that assumption.

(b) Discuss the advantages and disadvantages of an aggressive financing policy and advise whether or not such a policy would be appropriate for MNO.

See **Answer** at the end of this chapter.

Summary and Self-test

Summary

Treasury functions may be operated in-house or outsourced. Key decisions are the degree of centralisation and whether the treasury function should be run as a cost or profit centre.

Treasury functions that are part of global companies must be aware of legal and tax issues. They will supervise pooling and netting arrangements to enhance cash management and lower costs of finance.

A firm's decision on whether to pursue conservative or aggressive working capital management policies may be complicated by strategic considerations and the need to ensure liquidity in the recession.

Self-test

Self-test question 1

Centralisation

Many large international organisations have a central treasury department, which might be a separate profit centre within the Group. The responsibilities of this department will include the management of business risk and market risk for the Group as a whole.

Requirements

(a) Describe the functions of a central treasury department.

(b) Describe the information that the treasury department needs, from inside and outside the organisation, to perform its function.

Self-test question 2

JRLH

JRLH is a manufacturer of specialist components for the motor trade. Most of the entity's business is 'to order'; very little is manufactured for inventory. The components are sold to customers worldwide but, to date, have been manufactured solely in the UK. The directors of JRLH are reviewing the opportunity to establish a manufacturing base in Bangladesh. There would be some loss of productivity, especially in the first year of operations, but the long-term cost savings would outweigh this.

Requirement

Advise the directors of JRLH whether or not the management of working capital should be carried out in Bangladesh compared with maintaining a centralised function in the UK.

Self-test question 3

GG

GG is a multinational professional services company. Many of GG's clients are also multinational companies. Each client is assigned to a specific engagement partner who is generally based in the client's home country. Client work overseas is frequently referred to the local GG office to avoid the travel and accommodation costs associated with sending consultants from the home country. It also ensures that the work is undertaken by a local consultant who understands the business culture.

All billings are made to the client's home office. If work is undertaken by an overseas office of GG then the overseas office invoices the engagement partner, who includes the cost of that work in the total invoice. The engagement partner then agrees to pay the local office out of the proceeds of the client's settlement of that invoice.

GG has so many clients that there can be substantial inter-office payments. GG's treasurer has decided to experiment with multilateral netting to reduce the overall number of inter-office payments. The treasurer plans to undertake this experiment for herself rather than involve a netting centre.

The net inter-office balances as at 31 October 20X1 were agreed at:

Paying office	**UK (GBP)**	**France (EUR)**	**US (USD)**	**Japan (JPY)**
Receiving office				
UK (GBP)	–	GBP 0.9 million	–	–
France (EUR)		–		EUR 1.1 million
US (USD)	USD 3.1 million	USD 2.7 million	–	–
Japan (JPY)	JPY 180.0 million	–	JPY 190.0 million	–

At the same date GG's treasury department set the following indicative exchange rates.

	France (EUR)	US (USD)	Japan (JPY)
GBP 1 =	1.13	1.61	135.5

Requirements

(a) Calculate the net payments that will be required in order to settle all inter-office balances, assuming that the process is managed by GG's London-based treasury department.

(b) Advise GG of the advantages and disadvantages of offsetting balances using multilateral netting.

Answers to Interactive questions

Answer to Interactive question 1

If a profit centre approach is being considered, the following issues should be addressed.

(a) **Competence of staff**

Local managers may not have sufficient expertise in the area of treasury management to carry out speculative treasury operations competently. Mistakes in this specialised field can be costly. It may only be appropriate to operate a larger centralised treasury as a profit centre, and additional specialist staff demanding high salaries may need to be recruited.

(b) **Controls**

Adequate controls must be in place to prevent costly errors and overexposure to risks such as foreign exchange risks. It is possible to enter into a very large foreign exchange deal over the telephone.

(c) **Information**

A treasury team which trades in futures and options or in currencies is competing with other traders employed by major financial institutions who may have better knowledge of the market because of the large number of customers they deal with. In order to compete effectively, the team needs to have detailed and up-to-date market information.

(d) **Attitudes to risk**

The more aggressive approach to risk-taking which is characteristic of treasury professionals may be difficult to reconcile with the more measured approach to risk which may prevail within the board of directors. The recognition of treasury operations as profit-making activities may not fit well with the main business operations of the company.

(e) **Internal charges**

If the department is to be a true profit centre, then market prices should be charged for its services to other departments. It may be difficult to put realistic prices on some services, such as arrangement of finance or general financial advice.

(f) **Performance evaluation**

Even with a profit centre approach, it may be difficult to measure the success of a treasury team, for the reason that successful treasury activities sometimes involve avoiding the incurring of costs, for example when a currency devalues. For example, a treasury team which hedges a future foreign currency receipt over a period when the domestic currency undergoes devaluation (as sterling did in 1992 when it left the European exchange rate mechanism) may avoid a substantial loss for the company.

Answer to Interactive question 2

Memorandum

To: Directors of all foreign subsidiaries
From: Consultant
Date: 1 July 20X0

Centralisation of treasury management operations

At its last meeting, the board of directors of Touten made the decision to centralise Group treasury management operations. A further memo giving detailed plans will be circulated shortly, but my objective in this memo is to outline the potential benefits of treasury centralisation and how any potential problems arising at subsidiaries can be minimised. Most of you will be familiar with the basic arguments, which we have been discussing informally for some time.

What it means

Centralisation of treasury management means that most decisions on borrowing, investment of cash surpluses, currency management and financial risk management will be taken by an enhanced central treasury team, based at head office, instead of by subsidiaries directly. In addition, we propose to set most transfer prices for intercompany goods and services centrally.

The potential benefits

The main benefits are:

(a) Cost savings resulting from reduction of unnecessary banking charges.
(b) Reduction of the Group's total taxation charge.
(c) Enhanced control over financial risk.

Reduction in banking charges will result from:

(a) Netting-off intercompany debts before settlement. At the moment, we are spending too much on foreign exchange commission by settling intercompany debts in a wide range of currencies through the banking system.

(b) Knowledge of total Group currency exposure from transactions. Amounts receivable in one subsidiary can hedge payables in another, eliminating unnecessary hedging by subsidiaries.

(c) Knowledge of the Group's total cash resources and borrowing requirement. This will reduce the incidence of one company lending cash while a fellow subsidiary borrows at a higher interest rate and will also eliminate unnecessary interest rate hedging. It will also facilitate higher deposit rates and lower borrowing rates.

Reduction in the Group's tax charge will be made possible by a comprehensive centrally-set transfer pricing policy.

Enhanced control over financial risks will be possible because we will be able to develop a central team of specialists who will have a clear-cut strategy on hedging and risk management. Many of you have requested help in this area.

This team will be able to ensure that decisions are taken in line with Group strategy and will also be able to provide you with enhanced financial information to assist you with your own decision-making.

Potential problems for subsidiaries and their solution

Our Group culture is one of decentralisation and enablement of management at individual subsidiary level. There is no intention to change this culture. Rather, it is hoped that releasing you from specialist treasury decisions will enable you to devote more time to developing your own business units.

The system can only work properly, however, if information exchange between head office and subsidiaries is swift and efficient. Enhanced computer systems are to be provided at all centres to assist you with daily reports. It is also important that you keep head office informed of all local conditions that could be beneficial to the treasury function, such as the availability of local subsidised loans, as well as potential local risks such as the threat of exchange control restrictions.

You will find that movements in your cash balances will be affected by Group policy, as well as reported profitability. Any adjustments made by head office will be eliminated when preparing the performance reports for your own business units and we will ensure that joint venture partners are not penalised by Group policy.

Please contact me with any further comments that you may have on our new treasury policy.

Answer to Interactive question 3

(a) **Responsibilities**

The responsibilities of operational managers of the treasury department should include **management of risk.** This should mean that they are **responsible for day-to-day monitoring.** The Finance Director and Chief Accountant should be responsible for **overseeing the treasury department,** rather than delegating this role to internal audit. Internal auditors should provide assurance and review of the treasury department's activities. They should observe the control systems rather than be part of them.

Involvement in commercial decisions

By being involved in day-to-day operations, there is a risk that internal auditors will have some responsibility for **approving commercial decisions**. This goes against the principle that internal audit should **not be involved in operational decision-making**.

Expertise

Internal audit may **not have the expertise required** to carry out the day-to-day review of complex treasury transactions.

Independence and familiarity

If internal auditors become involved with the treasury department, there is a risk that they become **too friendly** with members of the department. This could mean that they become too willing to take on trust explanations from treasury staff rather than verifying them.

Self-review

Part of internal audit's brief ought to be reviewing the effectiveness of day-to-day monitoring of the treasury department. However, their position will be compromised if they themselves are carrying out the monitoring, since they will be **reviewing their own work.**

Other priorities

Day-to-day monitoring of the treasury department may mean that internal audit has **insufficient time and resources** to carry out other audit work. There may be other risky areas of the business that require substantial internal audit work.

(b) **Strategic objectives**

SFR's main strategic objective is to **develop its retail activities**. Its main strategic risks will be linked to that objective. The company's strategy is **not to speculate on the foreign exchange markets**. Instead, it should be using the markets to reduce the risks of the commercial transactions it undertakes.

Profits available

The markets for major currencies are generally efficient. It is therefore **difficult to make profits over time** by anticipating the market. SFR may have to invest substantial resources to gain the market intelligence it needs to have a chance of outperforming the market. SFR may have greater opportunities for speculation in the currencies of developing economies, since the markets for these are less mature, and SFR's commercial activities may give it the insights it needs to gain an advantage in these currencies. However, this speculation may carry greater risks than dealing in more stable major currencies.

Risk appetite

Speculating on the treasury markets may involve a **higher degree of risk** than SFR's current activities. These risks may be higher than SFR's board or shareholders wish to tolerate. There is no certainty that the currencies in which SFR's treasury function takes positions will appreciate in value.

Motivation of team members

Involving the treasury department in speculative activities may mean that SFR attracts individuals who are **seeking to take high risks in return for high returns**. However, SFR's main purpose in setting up the treasury department is not to seek high returns, but to improve the efficiency of its cash management.

Answer to Interactive question 4

(a) **Workings**

	Minimum ($m)	*Maximum ($m)*
Accounts receivable	20/365 × 10 = 0.55	30/365 × 10 = 0.82
Accounts payable (Cost of sales 60% × 10 = 6)	40/365 × 6 = 0.66	50/365 × 6 = 0.82
Inventories	50/365 × 6 = 0.82	80/365 × 6 = 1.32

Max level of working capital = Peak accounts receivable + Peak inventories – Lowest accounts payable

= 0.82 + 1.32 – 0.66 = $1.48m

Min level of working capital = Lowest accounts receivable + Lowest inventories – Peak accounts payable

= 0.55 + 0.82 – 0.82 = $0.55m

The Financial Controller has assumed that the peak period for accounts receivable coincides with the peak period for inventories and the lowest level of accounts payable. However, if sales have been **particularly high** resulting in accounts receivable peaking, it is likely that inventories will be lower. If inventories are high it is likely that there has been increased spending on purchases and accounts payable will be higher.

Working capital levels will be affected by many factors and monitoring the fluctuations over a year in order to identify any **relationships** and **cyclical patterns** would produce a more **accurate** forecast.

(b) The **advantages** of an aggressive financing policy are that it carries the greatest returns. It aims to reduce the financing costs, as short-term financing is cheaper than long-term, and to increase profitability by cutting inventories, speeding up collections from customers and delaying payments to suppliers. It also enables greater flexibility in financing.

However, there is an increased risk of **illiquidity** and managers will need to spend a significant amount of time managing and renewing short-term sources of finance. Short-term finance may not always be easily available.

MNO is likely to have **large fluctuations** in its levels of working capital requirements and would therefore find the **flexibility** of an aggressive financing policy beneficial.

Answers to Self-test

Answer to Self-test question 1

Centralisation

(a) **Management of cash**

A central treasury department will normally have the responsibility for the **management of the Group's cash flows** and borrowings. Subsidiaries with surplus cash will be required to submit the cash to the treasury department, and subsidiaries needing cash will borrow it from the treasury department, not from an external bank.

Borrowing

A central treasury will be given the **responsibility for borrowing** on behalf of the Group. If a subsidiary needs capital to invest, the treasury department will borrow the money required, and lend it on to the subsidiary. The subsidiary will be responsible for **paying interest** and **repaying the capital** to the treasury department which will, in turn, be responsible for the interest and capital payments to the original lenders.

Risk management

Another function of the treasury department will be to **manage the financial risk** of the Group, such as currency risk and interest rate risk. Within broad guidelines, the treasurer might have authority to decide on the balance between fixed rate and floating rate borrowing, and to use swaps to adjust the balance. The department would also be responsible for arranging forward exchange contracts and other hedging transactions.

Taxation

The central treasury department could be responsible for the **tax affairs** of the Group, and an objective would be to minimise the overall tax bill. To accomplish this effectively, the treasury must have **authority to manage transfer prices** between subsidiaries in the Group, as a means of transferring profits from high-tax countries to lower-tax countries.

(b) The treasury function needs information from within and from outside the organisation to carry out its tasks.

(i) From each subsidiary within the Group, it will need **figures for future cash receipts and payments**, making a distinction between definite amounts and estimates of future amounts. This information about cash flows will be used to **forecast the cash flows of the Group**, and identify any future borrowing needs, particularly short-term and medium-term requirements. Figures should be provided regularly, possibly on a daily basis.

(ii) Information will also be required about **capital expenditure requirements**, so that long-term capital can be made available to fund it.

(iii) Subsidiary finance managers should be encouraged to **submit information** to the **treasury department** about local market and business conditions, such as prospects for a change in the value of the local currency, or a change in interest rates.

(iv) From outside the Group, the treasury will need a **range of information** about current market prices, such as exchange rates and interest rates, and about which banks are offering those prices. Large treasury departments will have a link to one or more information systems such as Reuters and Bloomberg.

(v) The treasury department should be alert to any **favourable market opportunities** for raising new debt capital. The treasurer should maintain regular contact with several banks, and expect to be kept informed of opportunities as they arise.

(vi) Where the treasury is responsible for the Group's tax affairs, information will be needed about **tax regulations** in each country where the Group operates, and changes in those regulations.

Answer to Self-test question 2

JRLH

Management of working capital

The management of working capital involves ensuring that the company has the liquid funds that it needs and maximises its profitability. It involves the management of receivables, payables and inventory levels, as well as either the investment of surplus funds or ensuring there are sufficient cash resources.

Centralised function in the UK

A centralised function in the UK would be able to achieve **economies of scale** by, for example, obtaining better borrowing rates or netting-off balances.

The difference in inflation rates between Bangladesh and the UK will result in changing exchange rates which will need to be planned for and hedging techniques used. A centralised function in the UK is more likely to have the **exchange rate management expertise** required.

Management of receivables would probably be better achieved in the UK as there will again be experience and expertise in dealing with the particular type of motor trade customers.

Management of working capital in Bangladesh

Management of inventory would be easier if undertaken in Bangladesh. The geographical distance involved in managing inventory from the UK would make it much more difficult, especially as very little is manufactured for inventory. The aim should be for minimum holdings to maximise profitability and this requires careful control and management locally.

Management of payables will depend on where the necessary parts are sourced from. Local sourcing in Bangladesh could help to avoid exchange rate issues and then local knowledge would again make payables management more efficient.

Government restrictions

JRLH will need to undertake research to determine if there any **restrictions on funds** being taken out of Bangladesh or any **property taxes** on inventory holdings. This may affect the strategy chosen for working capital management.

Answer to Self-test question 3

GG

(a) Convert the balances to sterling £m

Paying	UK	France	US	Japan	Total receipts (add across)	Total payments (add down)	Net receipt/ (payment)
Receiving							
UK		0.90			0.90	(3.26)	(2.36)
France				0.97	0.97	(2.58)	(1.61)
US	1.93	1.68			3.61	(1.40)	2.21
Japan	1.33		1.40		2.73	(0.97)	1.76

As all transactions are being handled in London, therefore:

France will pay UK £1.61m

UK will pay US £2.21m and Japan £1.76m

CHAPTER 18

(b) **Advantages**

Transaction costs

Netting will reduce the number of transactions that subsidiaries need to make. This will **reduce the transaction costs** that their banks charge, as they will not need to convert cash or pay bank charges.

Administration

There will be time, and potentially cost, savings from the reduced need for administration and invoicing through implementing multilateral netting.

Exchange risk

A **reduction in the amount of currency flows** should reduce exchange risk, by reducing the maximum losses that can arise from currency movements.

Disadvantages

Costs of treasury function

Maintaining a central treasury function to carry out this and other tasks can be **expensive.**

Legal and taxation issues

GG may be liable to regulations that limit or prohibit multilateral netting. It may **also face cross-border taxation complications**. Tax authorities may question the commercial logic of the transactions, particularly if the country is operating exchange controls. GG will need to demonstrate that payments relate to a binding commitment.

Weakness of £

If the £ is weak against the other currencies for a long time, the results of the offices could be **significantly distorted.**

Exchange rate used

Some Group companies may **question the exchange rate** being used, if they feel that they are losing out compared with companies in other countries.

Cash flow problems

If one of the offices is having **liquidity problems**, the London treasury department may have to arrange for it to have additional funds to settle its liabilities. This will **increase the number of transactions**, and hence the amount of transaction costs, and may also mean that GG incurs more exchange losses.



CHAPTER 19

Ethics

Introduction

Topic List

1 Ethics and ethical issues
2 Resolving ethical dilemmas
3 Ethical safeguards
4 Ethics and strategy

Summary and Self-test

Answers to Interactive questions

Answers to Self-test

Introduction

Learning objectives

Tick off

- Recognise and explain ethical issues ☐
- Explain the relevance, importance and consequences of ethical issues ☐
- Evaluate the impact of ethics on an entity, its stakeholders and the scope of its strategies and operations ☐
- Recommend and justify appropriate actions where ethical dilemmas arise in a given scenario ☐
- Design and evaluate ethical safeguards ☐

Introduction and syllabus links

The *Business Strategy* syllabus (at Professional Level) covered ethics, sustainability and corporate responsibility, and at Professional Level you were expected to consider ethical issues in the context of different business scenarios.

At Advanced Level, ethics, sustainability and corporate responsibility are integrated into technical areas of the syllabus, and could involve you considering ethical issues as well as strategic ones when recommending courses of action for an entity.

Examination context

Between 5% and 10% of marks in the *Strategic Business Management* paper will be allocated to the appropriate discussion of ethical issues. This could be in the context the professional accountant working in business and/or the ethics of an organisation. It may also include ethics in an assurance context.

Scenarios might include topics such as:

- Conflict between the accountant's professional obligations and the responsibilities to the organisation
- Lack of professional independence, eg personal financial interest in business proposals
- Conflicts of interest among stakeholders
- Attempts to intentionally mislead key stakeholders (by disclosure or non-disclosure of information)
- Doubtful accounting or commercial business practice
- Facilitation of unethical strategies
- Inappropriate pressure to achieve a result
- Actions contrary to law, regulation and/or technical and professional standards

1 Ethics and ethical issues



Section overview

- In this section we review the factors you need to consider if any questions in your exam include ethical issues. This section therefore deals with the Accountant in Business. Further ethical issues are covered in an Auditing context in the Corporate Reporting learning materials. Corporate social responsibility and sustainability issues, which could be related to ethical issues, have been covered earlier in this Study Manual.

1.1 Business ethics

Ethics refer to notions of 'right' and 'wrong'. In a business context, the impact of a company's strategic decisions will have an ethical implication (eg child labour, pollution, wage rates, dealing openly and fairly with stakeholders, suppliers, customers etc).

Business ethics can be defined as the expected standards of behaviour in the conduct of business.

Business life is a fruitful source of ethical dilemmas because its whole purpose is material gain, and the making of profit. Moreover, success in business requires a constant search for potential advantage over others and business people are under pressure to do whatever yields such an advantage. However, they need to achieve this advantage without acting unethically.

While acting ethically does not necessarily give an organisation a competitive advantage over its rivals, acting unethically is likely to damage an organisation's brand and reputation and could thereby damage its competitive position. As a result, organisations have become increasingly under pressure to act and to **be seen to be acting ethically**. In recent years many have demonstrated this by publishing **ethical codes**, setting out their values and responsibilities towards stakeholders.

Similarly, there is increasing public demand for external assurance to support the fact that firms are acting ethically: for example, there is greater scrutiny of public competitions and telephone voting, and the draws for the National Lottery are supervised by 'an independent adjudicator'.

The concept of 'corporate social responsibility' (CSR) which we considered earlier in Chapter 11 could also be relevant in relation to ethics, and the issues of ethics and CSR are often interlinked. However, some commentators note that the primary goal of CSR is to 'do good' whereas business ethics programmes focus more on 'preventing harm'.

Point to note

This chapter primarily considers ethics in business, and the ethical issues which could be faced by an accountant in business. We also consider ethics in an assurance context; in particular, considering the need for companies to assess (and gain assurance over) their ethical procedures.

Ethics and business decisions

Ethics and business are inextricably linked, because management decisions can regularly involve a trade-off between economic and social performance. For example, if a manager decides to recall a potentially dangerous product this might compromise profits in the short term, for the sake of consumer protection. By contrast, a manager who decides to delay the installation of pollution control equipment and its attendant costs could, at least in the short term, increase shareholder value.

Even ethical managers face challenges trying to do the right thing in a complex business environment. Management faces intense pressure to produce consistently improving results. However, although lowering ethical operating standards could produce more favourable outcomes in the short term, these outcomes are not sustainable.

We have already looked at the case example of BP & Deepwater horizon in Chapter 7 in the context of risk management. But the issues raised are also relevant here – in the context of the longer-term consequences of short-term decisions.

Case example: BP & Deepwater horizon

The White House oil commission, investigating the oil spill in the Gulf of Mexico following the fatal blow-out on the Deepwater Horizon drilling rig in April 2010, concluded that this was 'an avoidable disaster caused in part by a series of cost-cutting decisions made by BP and its partners'.

The commission's report argued that 'systemic management failure' at BP, Halliburton and Transocean was ultimately to blame for the blow-out, and many of the poor decisions taken on the drilling rig were made in order to save time and money.

'Whether purposeful or not, many of the decisions that BP, Halliburton, and Transocean made that increased the risk of the Macondo oil well blow-out clearly saved those companies significant time (and money)' the report said.

Moreover, investors claimed that BP executives and directors breached their fiduciary duties to the company by ignoring safety and maintenance for years before the well exploded on 20 April 2010. The investors' lawyers argued that, despite warnings about the safety of the well, BP continued to systematically cut budgets.

The investors (who had filed a claim against BP claiming diminished share value) claimed that in addition to the tragic loss of life which resulted from the blow-out, the disaster is anticipated to cost the company at least $40 billion in damages, permanent reputational harm and intense government scrutiny.

The claimants argued that, despite existing concerns raised by federal safety regulators, BP had cut operational costs by 15% in 2009 alone (the year before the disaster). In their opinion, 'This reduction in budgets and manpower further undermined the company's ability to operate safely, as personnel were stretched even thinner, and resources that should have been devoted to maintenance, monitoring and addressing crucial safety failures in every aspect of the company's operations were diverted.'

Extracted from: Cronin Fisk, M. & Brubaker Calkins, L. 'BP's Pursuit of Cost-Cutting Led to Gulf Spill, Lawyers Say,' *www.bloomberg.com*. 5 February 2011

This case example infers the importance of the distinction between the **short-** and **long-term** impacts of decision-making. This distinction is important in the context of ethics too, because, while acting ethically may sometimes reduce short-term profits, it should enhance longer-term shareholder value. Consequently, we could suggest that, in the long run, good business ethics is actually synonymous with good business overall.

Conversely, unethical behaviour can damage reputations, in addition to bottom lines, as companies lose customers and employees and see their brands tarnished. All of these impacts destroy shareholder value, therefore companies need to appreciate the linkage between long-term, sustainable performance and the company's behaviour in relation to customers, employees, investors and the communities in which it does business.

Interactive question 1: Ethics and CSR [Difficulty level: Intermediate]

Briefly explain the differences between business ethics and corporate social responsibility (CSR).

See **Answer** at the end of this chapter.

Ethics and marketing

In relation to ethics and marketing, Bodo Schlegelmilch points out that: 'If customers did not trust a particular company, they might not buy its products, fearing that product claims would be untrue. The marketplace is built on trust between the company and the consumer. Any breakdown in this trust will have a detrimental effect on the company's sales.'

For example, if a company makes a claim about its products, it must be able to substantiate the basis for any claim or any comparison with competitors' products. The rise and fall of the soft drink '*Sunny Delight*' highlights the importance of not making false or misleading claims in advertising material.

Case example: Sunny Delight

Sunny Delight was one of the marketing successes of the 1990s in Bangladesh, such that by the end of the decade it had become the third-biggest-selling soft drink, behind Coca Cola and Pepsi. (It had only been launched in 1998.)

Part of the reason for Sunny Delight's initial success was that its marketing campaign led mothers to believe it was a healthy, orange juice drink which offered an alternative to soft drinks. Consequently, mothers encouraged their children to drink it.

However, the Food Commission, an independent consumer organisation, then began to question what was actually in Sunny Delight, and they realised that the product was more similar to a Coca Cola-type product than a fruit juice. In particular, the Commission's investigation highlighted that the healthy attributes given to the product in its marketing campaign were not justified, because it contained only a very small amount of fruit juice.

As a result, consumers began to lose faith in the product, with mothers feeling that they had been misled by claims that Sunny Delight was a healthy drink. Sales halved by 2001, and P & G (its manufacturer) was forced to redesign the drink and relaunch it (as 'Sunny D') in 2003.

This illustration, again, raises the question of the short-term v long-term consequences of acting ethically (or unethically), and shows that any short-term gain from acting unethically is likely to be far less than the potential long-term damage of doing so. Conversely, any perceived short-term 'costs' of acting ethically are likely to be lower than the potential long-term costs of not doing so.

Ethics and decision-making

In effect, every time managers make decisions they are influenced by a variety of internal and external moral pressures.

These can be categorised into five different levels.

- **Individual** – relating to a manager's personal ethical code.
- **Organisational** – guided by the corporate procedures, policies, codes of ethics or codes of conduct of the manager's organisation.
- **Associational** – referring to the guidelines and codes of conduct of a professional body, such as the ICAB or IESBA (see Section 2.2 below).
- **Societal –** concerned with the laws, cultures and traditions which determine the acceptability of actions in the manager's native country.
- **International** – focusing on the laws, customs and traditions of foreign countries, in the context of multinational organisations.

Case example: Company codes of conduct

The German-based home care, cosmetics and adhesive technologies group, Henkel, publishes a series of behavioural guidelines that determine how all its staff should act every day. These guidelines are based on the company's 'Vision and Values' and include a Code of Conduct, a Code of Teamwork & Leadership, and a Code of Corporate Sustainability.

These Codes provide all Henkel staff with a set of practical guidelines for their relationships with customers as well as with their co-workers.

The Code of Conduct reminds staff:

'Henkel's image and reputation, as a company that operates in an ethically and legally appropriate manner, is inseparable from the conduct of each of us as we perform our work, every day. We, the employees of Henkel, are expected to respect laws and regulations, avoid conflicts of interest, protect the company's assets, and show consideration and appreciation for the local customs, traditions and social *mores* of the various countries and cultures in which Henkel conducts business. In fulfilling our responsibilities within Henkel, we do not take ethical shortcuts. Improper conduct will never be in Henkel's interest.

Should you have any questions, or if you are uncomfortable with a decision or a course of action being undertaken, take the issue to a higher level within the Henkel organisation. Make sure you get good advice. But what is most important: Observe our Code of Conduct and never accept that others will violate it. We should be aware that our values define us to the world. Therefore, Henkel's image and reputation rests in each of our hands, every day.'

1.2 Ethical stances of organisations

Ethics can be defined as the moral principles that determine individual or business conduct, or behaviour that is deemed acceptable in the society or context.

An organisation can adopt a range of ethical stances.

- Meet minimum legal obligations and concentrate on short-term shareholder interests.
- Recognise that long-term shareholder wealth may be increased by well-managed relationships with other stakeholders.
- Go beyond minimum legal and corporate governance obligations to include explicitly the interests of other stakeholders in setting mission, objectives and strategy. In this context, issues such as environmental protection, sustainability of resources, selling arms to tyrannical regimes, paying bribes to secure contracts, using child labour etc would be considered when evaluating strategic choices and implementing strategies.
- In public sector organisations, charities, etc the interests of shareholders are not relevant (because there are no shareholders).

2 Resolving ethical dilemmas



Section overview

- The ethical dilemmas which will be presented in your examination at Advanced Level will be more complex than those at Professional Level. For example, at Advanced Level, the ethical issue and the appropriate course of action involve multiple considerations. Nevertheless, much of the basic guidance (for example around the fundamental ethical principles, threats and safeguards) still applies.

2.1 Regulating ethical behaviour

Ethical business regulation operates in two ways.

1 **Forbidding or constraining certain types of conduct or decisions**: eg most organisations have regulations forbidding ethically inappropriate use of their IT systems. Similarly, many will forbid the offering or taking of inducements in order to secure contracts.

2 **Disclosure of certain facts or decisions**: eg because the board sets its own pay it is disclosed, and sometimes the reasons behind the awards, to shareholders in the final accounts.

The following codes are potentially binding on you as a trainee Chartered Accountant.

The Institute of Chartered Accountants of Bangladesh (ICAB)

- Code of conduct for Auditors – ICAB code of conduct is included in schedule ‘C” of bye-laws applicable for auditors as well as members working in other businesses.

2.2 The IESBA Code of Ethics for members

The Code of Ethics establishes the fundamental ethical principles for professional accountants and provides a conceptual framework that accountants should apply to:

(a) Identify threats to compliance with the fundamental principles.
(b) Evaluate the significance of the threats identified.
(c) Apply safeguards, when necessary, to eliminate the threats or to reduce them to an acceptable level.

Fundamental principles

The Code of Ethics establishes five fundamental principles.

1 **Integrity**: Being straightforward and honest in business and professional relationships. This means that an accountant shall not knowingly be associated with reports which are materially false or misleading; which contain statements or information 'furnished recklessly'; or which omit information whose absence is misleading.

2 **Objectivity**: Not allowing bias, conflict of interest or influence of others to override professional or business judgement.

3 **Professional competence and due care**: Maintain professional knowledge and skill at the level required to provide a client or employer with competent professional service and to act diligently and in accordance with applicable technical and professional standards.

This principle also highlights that a professional accountant should take reasonable steps to ensure that people working under their authority in a professional capacity also have appropriate training and supervision.

4 **Confidentiality**: Respect the confidentiality of information acquired as a consequence of professional or business engagements. Do not disclose that information to third parties without specific authority, unless there is a legal or professional duty to do so. Do not use the information for personal advantage.

5 **Professional behaviour**: Comply with laws and regulations and not discredit the profession. Behave with courtesy and consideration towards everyone they come into contact with when performing their work.



Worked example: Ethical issues

DDD is an international company based in Europe which trades principally in Asia and Europe. It has a published Code of Ethics, in which it commits itself to being 'a company that will trade fairly and sustainably'.

Recently, DDD has been pursuing an expansion strategy which has led to the following two situations occurring.

Situation 1

At a recent presentation to investment analysts and financial journalists, DDD's Chief Executive Officer (CEO) presented a very optimistic forecast for the company's future, suggesting that revenue would double over the next three years and profits and dividends would increase by 50%.

However, the CEO had prepared his forecast in a hurry and had not had it confirmed by anybody else within DDD. He did not mention that the government in DDD's home country was considering taking legal action against the company for underpayment of excise duties and had made a claim for large damages. If this claim was successful it would materially affect DDD's profit in the next year.

Situation 2

In connection with the legal case in Situation 1, DDD's home government had obtained a court order that all documents relating to DDD's export trade should be made available to the government's lawyers.

However, many of the documents covered by the court order were the subject of confidentiality agreements between DDD and various entrepreneurs. These documents included details of patents and processes with a high commercial value and if knowledge of these became public it would destroy some of DDD's competitive advantage.

Requirement:

Considering both situations in turn, advise whether the situations are in conflict with IESBA's Code of Ethics.

Solution

Situation 1

Integrity – This situation could be in conflict with the fundamental principle of integrity.

IESBA's Code of Ethics highlights that the principle of integrity requires accountants to be 'honest, straightforward and truthful' in all business relationships. The principle of integrity also implies that accountants

should not be associated with any information which they believe contains a materially false or misleading statement, or which is misleading by omissions.

Contain a materially false or misleading statement – The CEO has presented a very optimistic forecast for DDD's profits, but this could be misleading if the government's claim for damages against the company is successful.

Omits information where such omission would be misleading – Although the government's claim for damages would 'materially affect' DDD's profit for the next year if it was successful, the CEO did not mention the claim in his presentation to the analysts and journalists. This omission is misleading, because it prevents the audience from being aware that DDD's profit for the next year might be materially lower than the figure given in the forecast.

Disassociation – The principle of integrity also requires professional accountants to disassociate themselves from statements or information which have been 'furnished recklessly'.

Contain statements or information furnished recklessly – The CEO prepared his forecast in a hurry, and did not check the figures with anyone else in DDD. Given that DDD is an international company, the CEO could be seen as reckless for presenting a forecast without asking anybody else in the company to confirm it. Such actions suggest the CEO has perfect knowledge of the company and its prospects, but that seems very unlikely.

Advice

The CEO's forecast and presentation demonstrate the characteristics of communications which conflict with the principle of integrity. The CEO has not been honest in his dealings with the analysts and the journalists, and therefore Situation 1 represents a conflict with the principle of integrity.

Situation 2

Confidentiality – The principle which could be jeopardised here is confidentiality. The Code requires professional accountants and firms to refrain from disclosing, outside a firm, confidential information which has been acquired as a result of business relationships with that firm.

Many of the documents which the government's lawyers have requested contain confidential information, which suggests there could be a conflict with the principle of confidentiality if they are handed over.

Exception: Legal proceedings – However, the Code makes an exception to the principle of confidentiality in the context of legal proceedings. In others words, the principle of confidentiality is not breached if confidential information is disclosed when it is required in the course of legal proceedings.

This is the case in Situation 2. DDD has been required to produce the documents as a result of the court order obtained by the government.

Advice

Although the documents contain confidential information, Situation 2 does not represent a conflict with the Code of Ethics.

Interactive question 2: Ashdene Homes [Difficulty level: Intermediate]

Ashdene Homes is a regional house builder, having considerable knowledge and experience in Chittagong where the current Bangladesh housing shortage is centred. The company caters for the mid to lower end of the market, with prices normally below Tk5,000,000, on relatively small and individual sites which tend to be too large for the resources of local builders but too small for the high volume national house builders. Any mass release of land for development in the North East due to government initiatives is likely to be centred in one area. The development of any such land would take many years given delays within the planning process.

The company, worth 67 million has looked like a takeover target for a while but, unfortunately, the company's reputation for internal control has been damaged somewhat by a qualified audit statement last year (over issues of compliance with financial standards) and an unfortunate internal incident which concerned an employee expressing concern about the compliance of one of the company's products with an international standard on fire safety. She raised the issue with her immediate manager but when she failed to obtain a response, she decided to report the lack of compliance to the press. This significantly embarrassed the company and led to a substantial deterioration in its reputation, especially as there have been more press

releases about the company's failure to adhere to the high welfare, health and safety, financial, marketing and ethical standards that the founder practiced when he started Ashdene Homes.

Requirement

Explain, with reference to Ashdene Homes as appropriate, the ethical responsibilities of an accountant both as an employee and as a professional.

See **Answer** at the end of the chapter.

2.3 IESBA Code of Ethics for professional accountants working in business

Investors, suppliers, employers, the business community, government and the public may **rely** on the work of professional accountants in business in the context of:

- Preparation and reporting of financial and other information.
- Providing effective financial management.
- Competent advice on a variety of business-related matters.

The more senior the position held, the greater the ability and opportunity to influence events, practices and attitudes.

A professional accountant in business is expected to **encourage an ethics-based culture** in an employing organisation, which emphasises the importance that senior management places on ethical behaviour.

2.3.1 Threats

The Code outlines areas where there may be **conflict** for professional accountants in business between furthering the legitimate aims of their organisation and their absolute duty to comply with the fundamental principles.

(a) **Self-interest** – The threat that a financial interest or other personal interest will influence the professional accountant's judgement or behaviour inappropriately.

Such threats might include:

- Holding a financial interest in an employing organisation, receiving a loan or guarantee from that organisation.
- Participating in incentive compensation arrangements.
- Inappropriate personal use of corporate assets.
- Concern over employment security.
- Commercial pressure from outside the employing organisation.

(b) **Self-review** – Business decisions or data being subject to review and justification by the same professional accountant in business responsible for making those decisions or preparing that data.

(c) **Advocacy** – The threat here is that the professional accountant will promote a client or employer's position to the extent that the accountant is no longer objective.

However, when furthering the legitimate goals and objectives of their employing organisations, professional accountants in business may promote the organisation's position, provided any statements made are neither false nor misleading.

(d) **Familiarity** – The threat that due to a long or close relationship with a client or employer, a professional accountant will be too sympathetic to the interests of the client or employer or too accepting of their work.

Accepting a gift or preferential treatment, unless the value is trivial and inconsequential may also create a familiarity threat.

(e) **Intimidation** – The threat that the accountant will be deterred from acting objectively due to actual or perceived pressure, or attempts by dominant personalities to exert undue influence over the accountant.

The threat of dismissal over a disagreement about the application of an accounting principle or the way in which financial information is to be reported may also represent an intimidation threat.

2.3.2 Ethical issues and assurance engagements

Throughout this Study Manual, we have identified a number of examples where assurance could be valuable in the context of strategic business management. For example, an accountant might be asked to undertake a financial due diligence engagement in relation to a possible acquisition.

However, as with any professional engagement, an accountant should consider the IESBA's Code of Ethics before accepting an assurance engagement.

Independence – Stakeholders want credible information they can trust. An expert providing an independent opinion on the reliability of information helps to reinforce trust. Independence is an essential characteristic of assurance engagements.

The accountant should consider any threats to independence before accepting an engagement. For example, providing assistance to a client in preparing a report may result in a **self-review threat** if the impact of the assistance on the matter being reported is material.

Objectivity or confidentiality – The accountant must consider the threat to their objectivity and confidentiality requirements if they perform services whose interests are in conflict, or if the clients are in dispute with each other in relation to the matter in question. For example, if there is a dispute over the profit-sharing arrangements in a joint venture, the accountant should not act for both parties.

In this respect, the accountant must ensure that they avoid any **conflicts of interest**.

Professional competence – The accountant should only undertake an engagement for which they have the relevant skills and experience. In particular, the nature of some assurance engagements may demand specialist knowledge and skills to be available in the assurance team. For example, an engagement to provide assurance over the IT security and controls will require the presence of an IT specialist on the engagement team.

Equally, in relation to a potential acquisition, there may be a need to consider the extent of a pension fund deficit in the company being acquired. The complexity of the estimates and assumptions relating to investment returns, mortality, wage inflation and future interests mean that this work should be referred to a qualified actuary, rather than being undertaken by the accountant.

3 Ethical safeguards



Section overview

- Having acknowledged the fundamental ethical principles which accountants should adhere to, and acknowledged the threats which impede their ability to do so, in this section we look at the safeguards which could be implemented to guard against those threats.

3.1 Safeguards

To comply with the Code of Ethics, professional accountants are required to consider whether their actions or relationships might constitute **threats** to their adherence to the fundamental principles. Where these are significant, they must implement **safeguards**.

These safeguards might be **generic**, created by the profession or regulation, or be developed in the **working environment** by the individual or their organisation.

If effective safeguards are not possible, professional accountants are required to **refrain** from the action or relationship in question.

3.1.1 Generic safeguards

Generic safeguards include:

- Education, training and experience requirements for entry into the profession.
- Requirements to undertake continuing professional development.
- Corporate governance regulations.

- External review of reports, returns and communications or information by a legally empowered third party (eg external audit).

3.1.2 Safeguards in the work environment

The Code sets out the types of safeguards in the **work environment** which might be applied to overcome these threats.

- The employing organisation's systems of corporate oversight or other oversight structures.
- The employing organisation's ethics and conduct programmes.
- Recruitment procedures in the employing organisation emphasising the importance of employing high calibre competent staff.
- Strong internal controls.
- Appropriate disciplinary processes.
- Leadership that stresses the importance of ethical behaviour and the expectation that employees will act in an ethical manner. (In this respect, the directors can play a crucial role in 'setting the tone' at the top of an organisation. If the directors act in an ethical manner, this sends a clear signal to the managers in the organisation.)
- Policies and procedures to implement and monitor the quality of employee performance.
- Timely communication of the employing organisation's policies and procedures, including any changes to them, to all employees, and appropriate training and education on such policies and procedures.
- Policies and procedures to empower and encourage employees to communicate to senior levels within the employing organisation any ethical issues that concern them without fear of retribution.
- Consultation with another appropriate professional accountant.

3.2 Action required in unethical circumstances

In circumstances where a professional accountant in business believes that unethical behaviour or actions by others will continue to occur within the employing organisation, they should consider seeking **legal advice**.

In extreme situations, where all available safeguards have been exhausted and it is not possible to reduce the threat to an acceptable level, a professional accountant in business may conclude that it is appropriate to **disassociate** from the task and/or **resign** from the employing organisation.

Note, however, that resignation should be seen very much as a last resort.

3.2.1 Resolving ethical conflicts

The Code suggests that the following factors are relevant to resolving an ethical conflict.

- Establish the relevant facts, and the relevant parties affected by the conflict.
- Establish the ethical issues involved.
- Identify the fundamental principles related to the matter in question.
- Identify if there are any established internal procedures for dealing with the conflict.
- Evaluate the alternative courses of action available.

If a professional accountant is unable to resolve the conflict, they may wish to consult other appropriate people within their firm for help in obtaining a resolution.

It is generally preferable for any ethical conflicts to be resolved **within** the employing organisation before consulting individuals outside the organisation. However, if such resolution cannot be reached, the accountant may consider obtaining professional advice from ICAB or from legal advisors.

3.2.2 The resolution process

The following process for resolving ethical issues (suggested by the IESBA Code) could provide a useful guide if you identify that such a situation is relevant in a case study scenario in your exam.

Relevant facts Do I have all the relevant facts? Am I making assumptions? Is it my problem or can anyone else help?	This may involve: • Referring to the organisation's policy, procedures, code of conduct and previous history. • Discussing the matter with trusted managers and employees.
Relevant parties Who are the individuals, organisations and key stakeholders affected? How are they affected? Are there conflicts between different stakeholders? Who are your allies?	These may include those directly affected, eg shareholders, employees and employers but may also include the community at large.
Ethical issues involved Would these ethical issues affect the reputation of the accountancy profession? Would they affect the public interest?	These include: • Professional ethical issues. • Organisational ethical issues. • Personal ethical issues.
Fundamental principles related to the matter in question What are the threats to the fundamental principles? Are there safeguards in place which can reduce or eliminate the threats?	This will involve reference to the relevant ethical guidance, eg IESBA Code.
Established internal procedures Does your organisation have policies and procedures to deal with this situation? How can you escalate concerns within your organisation? Is there a whistleblowing procedure?	The professional accountant may find it useful to discuss ethical conflict issues with: • Immediate superior. • The next level of management. • A corporate governance body. • Other departments, eg legal, audit, human resources. Consideration should also be given to the point at which help is sought from external sources, eg ICAB. Generally it would be preferable for the conflict to be resolved **without external consultation**.
Alternative courses of action Have all the consequences been discussed and evaluated? Will the proposed course of action stand the test of time? Would a similar course of action be undertaken in a similar situation? Would the course of action stand scrutiny from peers, family and friends?	The following should be considered. • The organisation's policies, procedures and guidelines. • Applicable laws and regulations. • Universal values and principles adopted by society. • Long- and short-term consequences. • Symbolic consequences. • Private and public consequences.



Worked example: Inventory valuation

The *Consultative Committee of Accountancy Bodies* (*CCAB*) has prepared some illustrative case studies showing potential ethical threats which could be faced by accountants in business. One of these case studies is included below for you to work through.

Inventory valuation

You have been the finance director of a clothing retailer for ten years. The company's year end is 31 March, and you are finalising the year-end accounts.

You have recently been advised by the warehouse manager of a significant level of slow-moving inventory. The inventory in question is now more than nine months old and would normally have been written-down some months previously.

The shareholders are trying to sell the company, and the managing director (the majority shareholder) has told you that it is not necessary to write-down the inventory in the year-end accounts. You are sure that the managing director wants the financial statements to carry an inflated inventory valuation because he has found a prospective buyer. The managing director has indicated to you that, if the proposed deal is successful, all employees will keep their jobs and you will receive a pay increase.

Requirement

How should you respond to the managing director's instruction?

Solution

First, consider which of the **key fundamental principles** are relevant in the scenario.

Integrity: In the light of the information you have, you must ensure that you act honestly, and that you are open and straightforward towards those with whom you come into contact.

Objectivity: Can you act without bias, despite the significant threats in the form of self-interest and intimidation?

Professional competence and due care: You must act diligently. Do you have sufficient information to be able to determine the appropriate value of the inventory to be included in the accounts?

Professional behaviour: You are required to account for the inventory in accordance with relevant accounting standards. Would any of the actions you are considering discredit the profession in the opinion of an informed third party?

Considerations

Identify relevant facts

You are receiving conflicting information from the warehouse manager and the managing director. The managing director is putting you under pressure to account for inventory at a higher value than that with which you feel comfortable. He proposes misrepresenting information about the company in the financial statements, which would be contrary to the fundamental principle of integrity.

A self-interest threat to your objectivity arises from the financial benefit that you are likely to receive if the company is sold under the proposed deal. You are also feeling intimidated by the managing director. He appears to be suggesting that the future employment of other employees depends upon the proposed deal being successful and, therefore, upon the results shown by the financial statements.

Identify affected parties

Key affected parties are you, the managing director (and the other shareholders) and the potential purchaser of the company. Other employees of the company may also be affected, as it has been implied that their jobs are at risk if the proposed deal is unsuccessful.

Who should be involved in resolving the issue?

You should involve the warehouse manager, the managing director and, if necessary, your fellow board members.

Possible course of action

You cannot simply do what has been asked of you, because the principle of integrity requires a professional accountant not to be associated with information that they believe to be false or misleading. Relying on the potential buyer's due diligence to identify the overvaluation is not appropriate. You are responsible for the honest presentation of the accounts, and you should not transfer that responsibility to either the buyer or the auditors.

The first step is to ensure that you have sufficient information. This would include establishing the basis of valuation of the company's inventory, investigating the system for counting and evaluating inventory, and discussing with the warehouse manager the reason why the inventory is slow-moving. You may also need to discuss the realisable value with someone else, such as the sales director.

Once you are sure of the facts, you should discuss the matter with the managing director. If, in your opinion, the managing director continues to insist on an inflated inventory valuation being incorporated into the financial statements, you should consider how best to raise the issue with the other board members. Initially, you could suggest that both you and the managing director raise the matter with the other board members. If you feel it appropriate to discuss the matter with anyone else within the company, you must bear in mind the need for appropriate confidentiality and be clear about your reasons for raising the matter.

Discussions with the managing director may be made easier by reference to the company's own code of ethics, if it has one. If it does not, you should make the managing director aware of the ethical requirements of your professional body. You could suggest that the company engages an independent expert to value the inventory.

At each stage, you should consider the need to follow meetings with email or other written correspondence to record your points of view. This would be particularly appropriate if you are of the opinion that the managing director or the board has not been sympathetic to your concerns.

You might have to consider raising the issue externally, for example alerting the auditors to the existence of the slow-moving inventory, or seeking advice from your professional body. If the situation remains unresolved, you may have to remove yourself from the conflict. The clearest way to disassociate yourself from misleading financial accounts would be to resign. However, this would only be an option to be exercised, as a last resort, in the most extreme circumstances. Resignation alone would not help to resolve the situation. It would be advisable to take legal advice before considering resignation.

You should document, in detail, the steps that you take in resolving your dilemma, in case your ethical judgement is challenged in the future.

3.3 Ethics assurance

On a number of occasions in this chapter so far we have referred to IESBA's Code of Ethics, and we have also acknowledged that companies may have their own codes of ethics. (In Section 1.1 we also included an extract from Henkel's Code of Conduct as an illustration of this.)

However, even if a company has a code of ethics, how can the board of that company be confident that the company (or more specifically, the staff) are adhering to the company's ethical values and commitments?



Case example: GlaxoSmithKline

For example, in 2013 GlaxoSmithKline (GSK) was investigated by Chinese police for alleged bribery and tax irregularities as part of a scheme which allegedly provided doctors with cash and gifts in exchange for prescribing medicines, and thereby expanded GSK's sales and profits.

In July, GSK admitted that the actions of some of its senior Chinese executives had broken the law. GSK's head of emerging markets stated 'Certain senior executives of GSK China, who knew our systems well, appear to have acted outside of our processes and controls which breaches Chinese law'.

He promised that the company was taking the charges against it 'extremely seriously' and that 'We have zero tolerance for any behaviour of this nature'.

However, the case highlights that, although the company has (ethical) processes and controls, the actions of individual staff not adhering to those controls, had led to damaging claims against the company. Although GSK has 'zero tolerance' of the behaviour in question, it had still taken place.

In this context, boards would benefit from an ethical assurance programme giving them confidence that their company *does* act ethically, and as a result, the integrity, reputation and sustainability of the company can be safeguarded.

However, there is no generally agreed framework for ethical assurance, so what would it actually mean in practice?

A short article in *Accountancy Magazine* (April 2009; 'Woolf at the door'; see Case Study below) identifies four key challenges which were highlighted by ICAEW's ethics team.

Defining assurance – a lack of understanding may create an expectation gap between providers and users of assurance services. Ethics assurance would be about adding credibility to an organisation's ethical behaviour; it is not ethics insurance, a source of recourse when something goes wrong with the business.

Problems of measurement – providers of assurance (in particular, professional accountants) may be experienced in auditing quantitative information, but ethics is a more subjective area, so it may prove difficult to identify any suitable criteria and evidence on which to base an assurance opinion.

As ICAEW's ethics manager points out: 'Even if controls and procedures can be verified and measured, this may not be enough. Ethics is ultimately about individual behaviour. Assessing and measuring individuals' ethical standards of behaviour as part of the assurance process is likely to be an onerous task.'

Lack of agreed standards or frameworks for ethical assurance – ISAE 3000 is the internationally recognised standard on assurance engagements but it only includes high level principles in relation to ethical assurance. Therefore it will be left to individual practitioners to tailor the high level principles of the ISAE to suit the needs of individual clients.

Reporting – how should information on ethical standards be reported, and to whom? Businesses must find a balance between providing a vast amount of information (because all of it is relevant to ethical assurance) and not producing enough to adequately address stakeholders' concerns. Equally, they must decide whether to report internally or externally.

Demand for internal assurance, presented to the board or to a Corporate Responsibility Committee, is likely to develop before ethical assurance is published externally, because companies will want to assess their own ethical procedures internally before exposing them to wider (external) scrutiny.

However, two possible forms that a publicly reported ethical assurance opinion could take have been suggested.

- The first is an assurance opinion as to whether the controls in place are appropriately structured to achieve the desired objectives.
- In the second, the assurance provider attests not only to the existence of controls but also that they work in practice.



Case example: BAE Systems and the Woolf Report

Allegations of bribery and corruption in relation to the award of defence contracts led BAE Systems to appoint Lord Woolf, the former Lord Chief Justice, to chair an independent committee to scrutinise its ethical standards.

The Woolf Committee Report, published in May 2008, made 23 recommendations for managing BAE's ethical business conduct and its reputational risk.

The recommendations provided a route map for BAE to establish a global reputation for high standards of business conduct. The company committed to act on all the Report's recommendations and put in place a comprehensive three-year implementation plan to achieve this.

One of Lord Woolf's recommendations (made in 2008) was a call for the independent assurance of BAE's ethical behaviour.

To this end, BAE asked Deloitte to work with ISAE 3000 in preparing a corporate responsibility report and a 'reasonable assurance' statement on its implementation of the Woolf recommendations.

Extracts from the 2011 independent assurance report are shown below.

'We planned and performed our work to obtain reasonable – not absolute – assurance as to whether the statements on the activities taken to address the 23 Woolf Report Recommendations are a fair description of the activities undertaken by BAE Systems. The qualitative and subjective nature of non-financial information poses a number of inherent limitations for assurance engagements…'

'Considering the risk of material error, we planned and performed the work to obtain all the information and explanations considered necessary to provide sufficient evidence to support our assurance conclusion. The key procedures we carried out were:

- Interviewing management at BAE Systems, including the Corporate Responsibility team and those with operational responsibility for the areas we are reporting on;
- Visiting or undertaking discussions with a judgemental and non-statistical sample of line managers at operational sites;
- Reading and analysing public information relating to BAE Systems' activities and performance during the year in relation to the Woolf Report recommendations;
- Understanding, analysing and testing on a judgemental and non-statistical sample basis the key structures, systems, processes, procedures and controls relating to the activities described by BAE Systems within their response to the Woolf Report; and
- Reviewing the statements made in the Response to the 23 Recommendations section of the Report against the findings of our work.'

4 Ethics and strategy



Section overview

- So far in this chapter we have looked primarily at the impact of ethics on the individual accountant. However, it is equally important to consider the impact that ethics can have on an organisation's strategy; in particular, ensuring that the strategic choices an organisation makes are perceived not to be unethical.

As well as presenting possible threats to a professional accountant, ethics and ethical issues can also have a role in strategy and business management more generally. For example, strong ethical policies – that go beyond simply upholding the law – can add value to a brand. Conversely, failing to act ethically can cause social, economic and environmental damage, and in doing so can undermine an organisation's long-term reputation and prospects.

In this respect, a social and environmentally ethical approach can assist an organisation's ability to thrive in the long run. In this respect, ethical behaviour can help contribute to **sustainable competitive advantage.**

The collapse of Enron (as a result of a massive fraud) clearly showed how unethical behaviour led to a failure to create a sustainable business model. It is also possible to argue that some other corporate failures – such as Lehman Brothers, Bear Stearns or Northern Rock – came about as a result of the organisations focussing too much on trying to pursue high short-term gains, and in doing so jeopardising their longer-term survival.

These examples highlight the importance of organisations not only understanding the **risks** they are taking in their business, but also focussing on long-term sustainability as well as short-term profitability.

Such considerations can be directly relevant in the context of strategic options. For example, how might a consideration of ethical behaviour affect an investment decision? In simple terms, if a project generates a positive net present value (NPV) it is likely to be accepted. If, however, the project involves exploiting cheap labour (or even child labour) it should not be accepted by an organisation; either on ethical grounds, or because of the potential risk to its reputation (and therefore future sales) if its labour practices became more widely known.

Consequently, it is important that ethics are embedded in an organisation's business model, organisational strategy and decision-making processes. Moreover, ethical issues are particularly important when considered alongside aspects of sustainability.

4.1 Impact of ethics on strategy

Ethics may impact upon strategy in various ways.

- In the formulation of strategic objectives, some firms will not consider certain lines of business for ethical reasons.
- External appraisal will need to consider the ethical climate in which the firm operates. This will raise expectations of its behaviour.

- Internal appraisal: management should consider whether present operations are 'sustainable', ie consistent with present and future ethical expectations.
- Strategy selection: management should consider the ethical implications of proposed strategies before selecting and implementing them.

The *Business Strategy* Study Manual (at Professional Level) identified a range of contexts in which ethical issues could arise, and such contexts could equally be relevant to the scenarios in your exam.

Marketing and the marketing mix: for example, there could be ethical issues relating to the products/services being sold, the price at which they are being sold, or the way in which they are being promoted.

Manufacturing: for example, relating to pollution and environmental ethics, producing defective or inherently dangerous products (such as tobacco), the use of child labour, or product testing (eg testing on animals).

Purchasing and procurement: for example, relating to human rights and working practices with supplier firms; or adopting fair contracting terms and conditions with suppliers (eg Fair Trade principles).

4.1.1 Ethical dilemmas and stakeholders

Often, the key issue facing organisations is not so much the **number** of different stakeholder groups *per se*, but the fact that these different groups have **different interests** which can come into conflict with each other.

And the range of different stakeholders with interests in an organisation can create ethical issues for marketing managers in particular.

As Schlegelmilch (in a text focusing on ethics and marketing) points out:

> '*This is due largely to the fact that their business function involves dealing with many different groups of people who have many, and sometimes conflicting, agendas. .... For example, a company might want to move its plant to a country where the cost of labour is lower. This decision would save on production costs and increase profits and, thus, be in the best interest of its shareholders. However, a relocation to another country might create negative publicity because it will lead to unemployment for many of its domestic workers.*'



Worked example: Company relocation

The board of a company is considering a strategic decision to relocate a production plant to a new country where the cost of labour is lower.

With reference to the different stakeholder groups that will have an interest in the decision, assess whether this decision presents an ethical dilemma for the board.

Solution

The decision should reduce production costs, which should in turn increase profits and, therefore, it would appear to be in the best interests of the company's **shareholders**.

However, the relocation is likely to lead to unemployment for the company's **existing workers**, and could also have a knock-on effect on the local economy (for example, for any supporting industries). This will create negative publicity in the country where the production plant is currently located.

If the workforce is unionised, **trades unions** will try to save their members' jobs as far as possible. Equally, if the company is a major local employer, local politicians may try to persuade it not to relocate away from the area.

If the company is moving into a country with a poor human rights record, this could further damage the company's reputation – for example, by it (rightly or wrongly) being associated with the human rights abuses.

In this case, it appears that there isn't one course of action which is in all the stakeholders' best interests. Therefore the board needs to balance the company's responsibilities to each of the different stakeholder groups, and decide how much importance should be given to one stakeholder's interests in relation to another.

In this respect, the board clearly faces a dilemma. Importantly, however, this does not mean that the course of action it subsequently chooses will necessarily be unethical, and so the decision does not explicitly present the board with an ethical dilemma.

Interactive question 3: MSA – company relocation [Difficulty level: Intermediate]

MSA is a public company that has its corporate headquarters in Asia. It is listed on the London Stock Exchange.

Its latest annual report was criticised in a leading international financial newspaper because of its 'exclusive focus on the interests of shareholders which ignored any other interested parties'.

MSA was established over 150 years ago, and, at that time, its purpose was importing and exporting commodities between the UK and a number of Asian countries.

Since then, the nature of MSA's business has changed radically and it is now a property company with investments in many countries. In the last financial year, MSA managed properties valued at £800 million. MSA does not have a mission statement.

MSA's Financial Director is an ICAB member. He has suggested that the corporate headquarters be moved from Asia to London for the following reasons.

- London is a major international financial centre whereas its current host country is not. It would be easier for MSA to arrange finance from a London base and some of its transactions costs would be cheaper.
- MSA's business takes place in 28 different countries. None of these countries contributes more than a 5% share of MSA's business and there is no particular reason for MSA to be based in one of them.

The board has agreed to this proposal and is considering using a change agent to help it in this process.

MSA has decided that when the corporate headquarters is moved to London – within the next 12 months – 80 employees in Asia would lose their jobs. Their prospects for finding a replacement job are not good.

Requirement

Assess whether the Finance Director's suggestion to move the corporate headquarters is a breach of IESBA's Code of Ethics.

See **Answer** at the end of the chapter.

4.2 Ethics and sustainability

We have already discussed issues around social responsibility and sustainability in Chapter 11, but it is worth acknowledging them again here because aspects of sustainability and ethics can be interrelated.

In particular, it is important to remember that the concept of 'sustainability' does not only relate to 'environmental sustainability'. The 'economic sustainability' component of the **triple bottom line** could be equally important in encouraging organisations to act in a way which helps them grow and prosper as a result of developing sustainable business practices.

In this respect, issues such as the health and safety of workers, or paying workers a fair wage are becoming increasingly important. For example, while Apple's iPhones and iPads are becoming 'must-have' consumer items in Western countries, a number of concerns have been raised about the working conditions of the employees in China who are making them; with allegations of excessive working hours, draconian workplace rules, and workers even being urged to sign an 'anti-suicide' pledge after a series of employee deaths in 2010.

Although health and safety measures do not necessarily add value to a company on their own, they can help to protect a company against the cost of accidents which might otherwise occur.

Moreover, if a company has poor health and safety controls this might result in, amongst other things, increased sick leave and possible compensation claims for any work-related injuries, as well as higher insurance costs to reflect the higher perceived risks within the company.

Equally, the issue of social responsibility in relation to consumers has been highlighted in recent years. The tobacco industry and the food and drink industry have received criticism in relation to the potential harm their products may cause to consumers.

Ultimately, if consumers cease to buy a product because they are concerned about the consequences of consuming it, that product will not be sustainable because it will not generate any sales. For example, concerns about the high level of sugar in the 'Sunny D' orange drink forced Procter & Gamble to withdraw the drink's original formulation from the market.

Conversely, some companies do realise the importance of responding positively to environmental issues in order to protect and sustain their brand, and they can use sustainability issues to help maintain public trust in the brand.

For example, Toyota responded to environmental trends by successfully launching the Prius hybrid car, which supplements normal fuel usage with an electric-powered engine. The battery-powered electric engine starts the car, and operates it at low speeds. At higher speeds, the car switches automatically to a conventional engine and fuel. However, this combination saves on fuel compared to conventional cars and causes less pollution.

Similarly, environmental and social responsibility can provide marketing opportunities for companies, and companies can even achieve competitive advantage by addressing and accommodating their customers' ethical concerns. For example, Innocent Drinks has built its business on corporate social responsibility ideals.



Case example: Innocent Drinks

Innocent Drinks has based its business model on 'leaving things a little bit better than we found them'. The company combines a belief in product purity with eco-humanist values. It sees its ethical stance as affecting five main areas.

- **Keeping things natural** – using 100% natural ingredients and only making food that has a positive health benefit, and which is therefore free of additives, concentrates and flavourings.
- **Sustainable ingredients** – favouring suppliers that look after their environment and their workers, as certified by independent environmental and social organisations. Innocent pays a premium for fruit with the highest ethical accreditations, such as those from the Rainforest Alliance. Employees and independent auditors check standards on the farms Innocent uses.
- **Sustainable packaging** – using recycled, or renewable, material as much as possible, using the least possible amount of material per pack, using material with a low carbon footprint, using material with a widely available sustainable waste management option.
- **Sustainable production** – working with suppliers to improve water and energy efficiency, to reduce waste produced, and to increase recycling levels. Importantly, Innocent also acknowledges that the need to reduce carbon emissions and climate change is directly relevant to its business. Its current sources of banana, mango, strawberry and pineapple all fall within areas that will be significantly affected by climate change, giving Innocent a strong commercial imperative to reduce carbon emissions.
- **Sharing profits** – donating 10% of profits each year to charity, mostly to the Innocent Foundation, funding rural development projects in countries where fruit comes from, promoting sustainability and best use of these projects in these communities.

Given that firms are more likely to embrace sustainability if it brings them a financial benefit, it is important to note that introducing better environmental management systems can create 'win – win' situations. For example, if introducing environmental management systems can allow a company to continue to produce the same amount of product by using less resources, and generating less waste, this is both economically efficient, and also beneficial from an environmental and ecological perspective. In this context, the cost savings from more efficient resource usage and waste minimisation can be substantial.

4.2.1 Sustainability and strategy

The challenge sustainability presents for decision-makers comes in incorporating longer-term (sustainability) issues alongside short-term issues. If they focus too much on short-term issues at the expense of the longer term this undermines a company's **long-term reputation and prospects**.

Although the challenges facing companies will vary according to their specific circumstances the following summarises some possible issues to consider in relation to social and economic aspects of sustainability and which could also overlap with ethical issues.

Social dimension

- Being seen as an attractive employer (which in turn can affect: ability to recruit high quality staff, retain staff and staff know-how, and employee motivation).
- Quality of working conditions (in own company, and across the supply chain).

- Labour practices (labour/management relations, health and safety, training, diversity and opportunities, eg equal opportunities).
- Data protection and privacy.
- Risk of accidents (and subsequent litigation against the company).
- Human rights (non-discrimination against minorities; use of child labour or forced labour; disciplinary practices, freedom for staff to belong to a union or other association).
- Relations with society: contribution to local community.
- Integrity and image: not being involved with bribery and corruption, or anti-competitive prices (eg price fixing).
- Product responsibility: ensuring each product's health and safety for customers, honesty in advertising and communications with consumers.

Economic issues

- Business relations (security of business, relationship with banks and shareholders).
- Supplier and customer structure: quality of relationships with suppliers and customers.
- Brand name: risk to reputation and sales resulting from negative publicity.
- Market position.

Ethical consumerism – In relation to the sustainability of their sales, firms should also remember that, in most cases, consumers have a choice whether or not to buy their products. And individual consumers can make purchasing decisions based not only on personal interests but also the interests of society and the environment. For example, they may boycott companies whose products are made by sweatshops or child labour, choosing wherever possible fair trade products. Moreover, some customers are prepared to pay more for products that are environmentally or socially responsible (fair trade; organic etc) compared with cheaper, less responsibly sourced products.

However, if firms are going to portray themselves as ethical or socially responsible, for this to have any meaningful benefit, they must be genuinely committed to ethical principles, rather than just treating them as an 'ethical veneer'.



Case example: Starbucks

On its website, the coffee house Starbucks tells us that, over the years, it has received input from a broad range of stakeholders that has helped the company create a holistic approach to sourcing its coffee responsibly. Starbucks says it is committed to continuously improving economic transparency, promoting responsible labour practices, reducing environmental impacts, and ensuring the long-term supply of its high-quality coffee. While it accepts there is much more to do, it believes it has already made a measurable impact in coffee-growing communities where it does business.

Starbuck's approach is grounded in 'Coffee and Farmer Equity' (C.A.F.E.) Practices, its comprehensive set of social, economic, environmental and quality guidelines. Farms and mills are evaluated with approximately 200 performance indicators by third-party verification organisations, overseen by Scientific Certification Systems.

Starbucks complements purchases of C.A.F.E. Practices-verified coffee with third-party certified coffees grown and produced in ways that contribute to environmental preservation and/or sound production standards, including Fairtrade certified coffee and certified organic coffee.

However, alongside this commendable approach, critics present a somewhat less favourable impression of Starbucks.

Ethiopian coffee is widely recognised as one of the world's finest crops, and the coffee plantations in Ethiopia are hugely important for the future development of the country. Since 2005, the Ethiopian government has tried to support the country's farmers by trade-marking their coffee in the US market. The trademark campaign is intended to protect the product and to raise the price that farmers earn for their coffee, thereby generating additional revenue for the national economy.

However, to the surprise of media commentators, the major opponent [of the trade-marking] has not been a bulk-buyer with a purely economic interest in Ethiopian coffee, but the world's largest premium coffee franchise, Starbucks.

The reason for the commentators' surprise was the apparent contradiction with Starbucks' policy of helping local farming communities. Moreover, once Starbucks' position in this matter became public knowledge, its reputation as an ethically-minded company was damaged, and it was portrayed as a modern-day colonialist exploiting one of the world's poorest countries.

The focus on 'the longer term' can pose problems for the corporate decision-maker and accountants in business. Corporate reporting and performance measurement are often biased towards the short term. The fact that companies report their results on a yearly basis, and may be under pressure from shareholders and market analysts to deliver results, means they may be forced into measures or actions which boost profits in the short term, but which may create problems in the longer term and in doing so may threaten sustainability.

4.2.2 Corporate Responsibility Reviews

Increasingly, business executives are recognising that corporate responsibility is essential to their business, and that businesses have a duty to investors, employees, consumers, communities and the environment.

These views reflect a trend that has seen an increasing number of companies producing corporate responsibility reviews in with they report publicly on their social and environmental performance.

Earlier in the chapter, we noted BAE's response to the Woolf report in developing an ethics programme to support responsible behaviour. The ethics programme is part of BAE's wider corporate responsibility programme.

As the Group's Corporate Responsibility Review notes: 'Creating a successful and sustainable business requires more than financial results. The Group places great importance not just on what we do, but how we do it. Responsible business is embedded within the Group's strategy.'

The Group's Corporate Responsibility (CR) objectives support it in progressing towards leading positions in ethics and safety. The Group also has programmes in place to promote diversity and inclusion, and environmental sustainability. BAE has identified these four areas of ethics, safety, diversity and inclusion, and environmental sustainability as being priorities which are crucial to its long-term performance.

'The Group's CR agenda covers the issues that have been identified as having the most potential to affect the long-term sustainability of the Group, by directly impacting the Group's reputation or ability to operate.'

4.2.3 Sustainability assurance

We have already discussed corporate social responsibility; sustainability; and integrated (social, environmental and economic) reporting in Chapter 11 but it is worth noting again that an increasing number of businesses are producing information sustainability information in response to user needs and to meet regulatory requirements.

Similarly, organisations choose to get assurance on their sustainability information, to support views expressed in the annual report as part of the narrative disclosures, or in relation to separately produced corporate responsibility reports.

In some cases, firms may ask for assurance to enhance the credibility of their sustainability information more generally amongst external stakeholders.



Case example: EDF 'Blue' tariffs

For example, EDF Energy has introduced a range of so-called 'Blue' electricity tariffs, based on low-carbon generation sourced from nuclear power stations.

EDF does not promise that the electricity which individual 'Blue' customers use at home will have come directly from a low-carbon nuclear source, but rather it ensures that it obtains enough electricity in total from the low-carbon source to match every unit of electricity supplied to its 'Blue' customers.

However, rather than leaving its customers to take its own word that the electricity is being matched as promised, EDF has asked PwC to provide assurance that:

- The volume of electricity sourced from low-carbon generation matched the volume supplied to 'Blue' customers for the period under review; and
- The controls EDF has put in place will ensure that it obtains enough energy to match the volume of energy supplied to 'Blue' customers.

PwC subsequently provided reasonable assurance on these assertions to EDF using the framework provided by ISAE 3000.

On the promotional material for its 'Blue' tariffs on its website, EDF makes a point of telling customers it is important that they can trust EDF to supply them with electricity backed by low-carbon generation, so they have asked PwC to audit the control over the matching process 'so you don't just have to take our word for it.'

4.2.4 Public interest

An important element of the role of a professional accountant is serving, and being seen to serve, the public interest. This may be particularly true for auditors, given the role which an audit plays in giving the public confidence in a set of financial statements, but all professional accountants have a duty to act in the public interest.

However, determining what the public interest is may not always be as easy as it sounds.

Legally, private sector companies exist to serve their shareholders, not any wider public interest, and this view could lead to potential conflict with the idea that companies should adopt a wider public interest perspective.

For example, in the UK in 2013, global firms such as Starbucks, Google and Amazon have come under fire for avoiding paying tax on their British sales. The companies have argued, rightly, that everything they have done is legal, and the idea that firms would voluntarily pay more tax than they legally need does rather contradict the objective of maximising shareholder value.

However, public opinion has increasingly turned against the tax avoidance schemes used by the firms, leading some people to boycott the brands in question; for example, buying coffee from Costa instead of Starbucks. For these customers, the issue is that they feel the firms are acting in a way which is morally, if not legally, inappropriate.

Branding experts have pointed out that the reputational side of public opinion could be crucial to resolving these issues, because if a company with a strong brand damages that brand, it also damages its financial value. For example, following public pressure, Starbucks agreed to increase its tax payments in the UK.

Nonetheless, the debate around the firms' tax avoidance schemes serves to highlight that investors' interests are not the same as the public's interests.

In more general terms, the concept of public interest can also be difficult to determine because different sections of the public want different things. Consequently, there may be occasions when there may be no such thing as '*the*' public interest.

Equally, what the 'public' wants seems to fluctuate over time. For example, when a large supermarket moves into a small town, threatening the future of small, local businesses, people object, yet many of them still shop at the supermarket taking advantage of the lower prices on offer. So, in such a case, what is 'the public interest'?

4.2.5 Business sustainability

Our discussions of triple bottom line and corporate responsibility should have highlighted a key point about sustainability in a business context: that sustainability relates to the social, economic and environmental concerns of a business that aims to thrive in the **long term**. From a strategic perspective, there is little point in a business being profitable in the short term if it alienates customers, suppliers and/or staff in the process. By doing so, the business will weaken its chance of being profitable in the longer term.

In this respect, the idea of business sustainability is central to business strategy. In Chapter 1 of this Study Manual we looked at the way organisations need to use their resources and capabilities to develop a **sustainable competitive advantage**. A company's ability to create and sustain a competitive advantage over its rivals is likely to be crucial to its long-term success.

Equally, a sustainable business needs an understanding of the changing business landscape and external environment so that it can respond and adapt to the opportunities and threats presented by it.

In this respect, the idea of sustainability should be seen as a strategic issue for almost every business – for example, in relation to risk mitigation, strategic innovation and the development of new skills and capabilities.

Crucially, however, the concept of sustainability should encourage an organisation to consider long-term orientation in business decisions, rather than purely focusing on short-term (financial) information and metrics.

Short-term metrics may push managers towards making decisions that deliver short-term performance at the expense of long-term value creation. Equally, a focus on creating value for shareholders in the short term may result in a failure to make the necessary strategic investments to ensure future profitability.

By contrast, an increased focus on business sustainability will support decisions aimed at attracting human capital, establishing more reliable supply chains, and engaging in product and process innovation, even if those decisions do not necessarily maximise short-term financial performance and profitability.



Interactive question 4: DEF Airport [Difficulty level: Intermediate]

DEF Airport is a regional airport in country D, which is a European country. DEF's mission statement says:

'At DEF Airport we aim to outperform all other regional airports in Europe by ensuring that we offer our customers a range of services that are of the highest quality, provided by the best people, and that conform to the highest ethical standards. We aim to be a good corporate citizen in everything we do.'

In recent months, there has been increasing concern that passenger numbers are less than forecast and that DEF will fail to reach the revenue figure which had been forecast for the current year.

The Chief Executive is concerned about DEF's future strategy because he feels that, in general, airlines and their passengers are putting increased emphasis on lower costs and lower prices rather than quality, and DEF is no longer offering terms which are as competitive as some of its rivals.

However, the Commercial Director argues this pessimism is unjustified. He is currently at an advanced stage of negotiations with a large low-priced airline which is keen to use DEF as an entry point into country D. The airline does not currently operate any flights to and from the country, but feels country D offers it significant scope for growth.

The Commercial Director argues that if a deal with the airline can be signed this is likely to make good the shortfall in passenger numbers, and bring revenues at least back in line with forecast, if not ahead of forecast.

DEF's Director of Facilities Management pointed out that the airport has always sought to compete on the basis of the quality of the services it offers its customers. She expressed concern that if DEF starts hosting more low-priced airlines, and shifts its focus to minimising costs rather than upholding quality, this will change the whole culture of the organisation. She pointed out that DEF's mission statement specifically referred to its commitment to providing the highest quality and employing the best people.

However, the Commercial Director replied that the mission statement also said DEF would aim to outperform its competitors, and he believed its current performance suggested it wasn't doing this. Furthermore, he argued that if beneficial commercial opportunities became available DEF should take advantage of them, rather than letting the mission statement become some kind of 'business prevention' exercise.

The Chief Executive feels that both directors are making valid points, and points out it may be necessary for DEF to critically evaluate a number of different strategic options in the coming years in order to meet its strategic objectives.

However, the Chief Executive also highlighted the assertion in DEF's mission statement that it will aim to outperform all other regional airports. He questioned what analysis DEF is currently doing to assess whether it is outperforming the other airports, and what aspects of performance have been measured.

He reported that at a recent industry forum, the Chief Executive of one of the other regional airports in D argued that short-term metrics (such as revenue per passenger) are important, but airports cannot afford to overlook issues surrounding the environment and sustainability.

Requirement

Evaluate the extent to which DEF's mission statement encourages it to develop a sustainable business model.

See **Answer** at the end of this chapter.

4.3 Potential conflicts between ethics and business

One of the key sources of ethical issues facing accountants in business is the prospect of business strategies being proposed which could conflict (either in full, or in part) with ethical principles.

Potential areas for conflict between ethics and business strategy include:

- **Cultivating and benefiting from relationships with legislators and governments**: Such relationships may lead politicians to ignore the national interest (eg of the people who elected them) to further their own personal interests. A related issue here could be managers bribing people to help their company win contracts or gain business.
- **Fairness of labour contracts**: Firms can use their power to exploit workers, including child labour, and subject them to unethical treatment in areas where jobs are scarce.
- **Privacy of customers and employees**: Modern databases enable tracking of spending for marketing purposes or discriminating between customers on the basis of their value. Staff can be subject to background checks and monitored through their use of email and the location of their mobile phones.
- **Terms of trade with suppliers**: Large firms may pay poor prices or demand long credit periods and other payments from weak suppliers. This has been a particular criticism of large retail food stores in North America and Europe, who are blamed for the impoverishment of farmers at home and in developing countries.
- **Product and production problems**: These include the environmental impacts of the production itself, product testing on animals or humans, the manufacture of products with adverse impacts on health and the impact on the environment when products are thrown away.
- **Supply chain:** Remember that a company's reputation for ethical conduct isn't founded solely on its own internal activities. Increasingly, stakeholders are looking at the behaviour of other organisations a company interacts with – particularly in its supply chain. Continuing to use suppliers which are known to employ child labour, treat workers harshly, or pollute local environments can damage a company's reputation and brand.
- **Prices to customers**: Powerful suppliers of scarce products such as energy, life saving drugs or petrol, are able to charge high prices that exclude poorer individuals or nations. Examples include anti-aids drugs to Africa or purified water to developing countries.
- **Managing cross cultural businesses**: Different countries of operation or different ethnic groups within the domestic environment can present ethical issues affecting what products are made, how staff are treated, dress conventions, observance of religion and promotional methods.
- **Marketing:** There is the basic argument that marketing persuades people to buy what they don't need. However this stance assumes superiority of judgement over the consumers who buy the products. A key issue is the ends to which marketing is put. Marketing can be used to promote ecologically responsible ways of life, but it can also be used to promote unhealthy products such as cigarettes, alcohol and fatty foods. Some promotion techniques have also been criticised for attempting to brainwash consumers, encouraging anti-social behaviour and upsetting observers.

  More generally, misleading statements made to consumers, for example, around the characteristics of benefits of products, can also create ethical issues.



Interactive question 5: Electrical manufacturer [Difficulty level: Intermediate]

RRR Co manufactures electrical products. It is based in Erewhon, a European country, with a well-developed economy.

In the last four years, RRR has suffered from decreasing profits due to increased competition from imported products. These imports have reduced its market share. RRR has always stressed that it has an 'ethical business' policy which is based on the following aspects:

- All of RRR's products are sourced and made exclusively within Erewhon.
- RRR sells all its output within Erewhon.
- RRR pays high regard to its employees' working conditions and strictly adheres to all legislative requirements.
- RRR has stated its commitment to the principles of fair trade although it does not currently trade with any developing economies.

Market research indicates that RRR's customers and shareholders value its ethical business policy.

RRR's procurement manager has identified several suppliers in country Y, which is a developing economy. Suppliers from country Y could supply components to RRR at a price which would undercut its existing domestic suppliers within Erewhon by 40%.

If RRR bought from the suppliers in Y, it would enable it to significantly reduce its product costs and compete on price against the imported products which have been reducing its market share.

RRR's procurement manager believes the reasons for the low prices of the suppliers based in Y are:

1 Y's labour costs are 60% lower than those in Erewhon. Y's labour laws allow children from 11 years of age upwards to work in factories whereas in Erewhon, no one under the age of 16 can work in a factory. Y has a national minimum wage for adults which is only 15% of the national minimum wage for adults in Erewhon. Y has no national minimum wage for people under the age of 18.

2 Erewhon has extensive health and safety legislation which, it is estimated by RRR's Management Accountant, adds approximately 20% to its products' costs. Y has little health and safety legislation.

Requirement

Advise RRR whether the four aspects of its 'ethical business policy' could cause concerns for its shareholders.

(Assume that the components are *not* sourced from suppliers in Y when answering this question.)

See **Answer** at the end of this chapter.

Ethics and change

Ethical issues can arise in change programmes, for example, whether staff are treated reasonably or fairly during the changes.

It can often be difficult to monitor whether a company (or its staff) are acting ethically during periods of rapid change, so accountants may need to be particularly vigilant during such times.

Companies which are looking to enter new businesses, markets or channels may make speed a priority – to be the first with the product, to capture new customers and markets, and to seize market share as sales and order fulfilment channel opportunities arise. Nonetheless, it is important that they do not let this need for speed become a justification for acting unethically.

4.3.1 Ethical failings and audit firms

Although the focus of this chapter is predominantly on the ethical issues which could be faced by an accountant in business, the following case example highlights how potential conflicts between ethics and business strategy also affect accountants in practice.

In particular, note the issues identified in the case which have been caused by a desire to cut costs in order to try to boost profitability.



Case example: Ethical failings

A report published by the Financial Reporting Council (FRC) in May 2013 highlighted that some audit firms in the UK are failing to adhere to ethical standards or exhibit appropriate levels of scepticism, and that the number of seriously flawed audits had increased compared with the previous year.

The FRC reported a general improvement in the quality of audit work in its latest inspection of the nine-largest audit accounting firms. The number of high quality audits rose to 59% from 46%, with significant improvement in the audits of FTSE 350 companies.

However, the FRC also reported that the number of audits in need of "significant improvement" rose to 15% from 10% and it identified several areas of concern, which included a lack of professional scepticism when auditing clients' accounts, cost cutting measures harming audit quality, and failures to maintain appropriate ethical procedures.

These failures included references to targets for the cross-selling of non-audit services to audited entities and instances where shareholdings in audited entities were not disposed of on a timely basis.

'We're a little bit disappointed to see examples where partners and staff have sought to gain credit by selling non-audit services,' said Paul George, executive director, conduct, at the FRC.

The FRC report cites the example of a former executive of an audited entity who on rejoining the audit firm as a partner had a significant shareholding in the client entity. This directly contravenes the standards, which do not permit partners to hold any direct financial interest in an entity they are auditors of.

Auditors were also warned about the extent of their cost cutting measures in response to pressure of audit fees. The FRC said its findings 'called into question' the sufficiency of the audit work performed and instructed firms to pursue offshoring of certain audit procedures to make sure staff 'are sufficiently integrated into the audit team and possess sufficient knowledge to able to be identify matters that are significant'.

(Based on article by Richard Crump, FRC warns auditors over ethical failings, *Accountancy Age*, 29 May 2013.)

4.4 Ethical issues in the exam

Ethical issues have already been examined in the Professional Level papers. However, at the Advanced Level you will be faced with **more complex situations**. More emphasis will be placed on your ability to use your **judgement** in the light of the facts provided, rather than testing your knowledge of the ethical codes and standards in detail. In some instances, the correct action may be uncertain and it will be your ability to identify the **range of possible outcomes** which will be important rather than concluding on a single course of action.

You should also be aware that the term 'ethics' will be used in a much broader sense than it has been in the earlier Assurance and Audit & Assurance papers. It is likely to be combined with **financial reporting**, **business** and **tax issues** where you may be required to assess the ethical judgements made by others including management. You may also be asked to consider the issue from the point of view of the accountant in practice and the accountant in business.

4.4.1 Ethical issues

Although the precise nature of the ethical issues you will be expected to consider in your exam will vary according to the context of the case study scenario, possible ethical problems that you may find in scenarios include:

- The impact of ethics on strategies and strategic choice.
- Conflicts of interest amongst stakeholders.
- Attempts to mislead key stakeholders (by disclosure or non-disclosure of information).
- Issues in relationships with vendors, suppliers, contractors, joint venture partners or other third parties.
- Mistreatment of staff (for example over pay, or in relation to dismissal/redundancy; equal employment opportunities or discrimination).
- Doubtful accounting or commercial business practices.
- Inappropriate pressure to achieve results.
- Conflict between the accountant's professional obligations and the responsibilities to the organisation.
- Lack of professional independence, eg personal financial interest in business proposals.
- Actions contrary to law, regulation and/or technical and professional standards.
- Unsafe or socially undesirable manufacturing processes.
- Product quality and/or safety.
- Corporate social responsibility and sustainability.
- Corporate governance: the quality and behaviour of the board. Corporate governance issues could also involve issues like the integrity of the management accounting control system, the existence of internal controls and the integrity of management and staff.

Some of these issues may not be clear-cut. When assessing them, you need to develop a balanced argument, using appropriate ethical language and discussing relevant professional principles.

4.4.2 Recommended approach

The following is a suggested list of factors to consider when tackling questions involving ethical issues.

1 Is there a legal issue (criminal or civil law)?

2 Do any other codes or professional principles apply? (eg, is the individual with the ethical dilemma a professional accountant?)

3 Upon which stakeholders does the decision/action impact?

4 What are the implications in terms of:

- Transparency
- Effect
- Fairness

5 If the proposed action/decision is not taken, what are the issues?

6 What are the alternative actions that could be taken and what are the consequences of each course of action?

7 Are there any sustainability issues?

4.4.3 Weaknesses to avoid

Key weaknesses in answering ethical questions include:

1 Failing to identify the ethical issue (eg transparency).

2 Failing to use ethical language.

3 Quoting chunks of the ICAB's/ IESBA's ethical code without applying it to the scenario.

4 Failing to identify appropriate safeguards.

5 Applying professional accountants' ethical codes to individuals in the scenario who are not accountants.

6 Failing to distinguish between the ethical responsibilities of the individual and those of the organisation.

7 Concluding by asserting an opinion that is not supported by clear justification on ethical grounds – stating 'X should be done because it is right' is insufficient.

4.4.4 Distinguishing ethical and commercial issues

It is also important that you can distinguish between the ethical issues and the commercial issues which an organisation is facing in a case study scenario. Ethical issues can usually be described as issues under the following moral principles.

Fairness: this means treating someone as they deserve to be treated or as you would wish to be treated if you were in their position. Therefore discrimination, poor pay, summary dismissal, or refusing reasonable requests for assistance are unfair. Deliberately distorting competition or taking advantage of a customer's ignorance or desperate position is unfair. Some of these are also illegal, and many would give rise to commercially-damaging publicity. However, these things happen. But society recognises the practices as ethically wrong and wants to stamp them out.

Justice: this means going through a proper process, involving weighing up the evidence and arguments and coming to a balanced decision and a measured response. Therefore things like sacking someone without hearing what they have to say, or ignoring their side of the story, is unjust. So is punishing someone harshly for a minor wrong, even if the rules lay down that punishment. In such a case, the rules and the punishment are both unjust.

Honesty and straightforwardness: this is as basic as telling the truth and not withholding important information, or trying to use loopholes to escape responsibilities. It also covers taking assets or value belonging to other people. This principle covers things like corruption, misrepresentation, deliberately misleading wording, and selling someone something unsuitable.

Duty, responsibility and integrity: as a citizen you have duties – such as to obey the law, report crime and so on. As an employee you take on other duties that flow from your job and you are paid to do them and put in a position of trust by your superiors or the people that appointed you into your role. Therefore you must put personal interest aside and act as the role requires you to do. Any attempt by you to make someone else forget their duty and responsibility, such as by making bribes or threats, is also an unethical action by you too.

Summary and Self-test

Summary

Business ethics identify the standards of behaviour expected in the conduct of business.

Acting unethically is likely to damage an organisation's brand or reputation, and could thereby damage its competitive position. As a result, organisations need to act ethically, and to be seen to be acting ethically. Many have addressed this by publishing ethical codes.

Ethical decisions and business decision are often linked, particularly where management decisions involve a trade-off (or potential conflict) between economic and social performance. Acting ethically may sometimes restrict short-term profits, but it should enhance longer-term shareholder value (compared to a less ethical course of action).

In many cases, ethical issues are linked to corporate social responsibility and sustainability. Business executives are increasingly recognising that corporate responsibility is essential to their business, and that businesses have a duty to investors, employees, consumers, communities and the environment.

The ICAEW Code of Ethics establishes five fundamental principles which should direct the behaviour of professional accountants: integrity; objectivity; professional competence and due care; confidentiality; and professional behaviour. It is the accountant's duty to comply with these principles in the face of any threats to them.

If a professional accountant believes that unethical behaviour is occurring in business, the accountant has a responsibility to investigate the courses of action available to try to resolve the ethical issues involved.

In relation to an audit (or assurance) engagement, the principles of the Auditing Practices Board are also important: integrity, objectivity and independence.

Self-test

Self-test question 1

John Staples is the Finance Director of Nadir Products, a Bangladesh -based company which manufactures and sells bathroom products – baths, sinks and toilets – to Bangladesh market. These products are sold through a selection of specialist shops and through larger 'do-it-yourself' stores. Customers include professional plumbers and also ordinary householders who are renovating their houses themselves.

Nadir Products operates at the lower end of the market and does not have a strong reputation for customer service. Sales have been slowly declining whereas those of Nadir's competitors have been increasing. In order to encourage increased sales, Nadir's Board of Directors has decided to pay senior staff a bonus if certain targets are achieved. The two main targets are based on profit levels and annual sales.

Two months before the end of the financial year the Finance Director asked one of his staff to check through the orders and accounts to assess the current situation. The staff member was informed that without a sudden improvement in sales before the year end the important sales targets would not be met and so bonuses would be adversely affected.

The Finance Director has proposed to other senior staff that this shortfall in sales could be corrected by taking one of the following decisions.

1 A significant discount be offered to any retail outlet which takes delivery of additional products prior to the end of the financial year.

2 Scheduled orders due to be delivered at the beginning of the next financial year be brought forward and billed before the end of this year.

3 Distributors told that there is a risk of price increases in the future and that it will be advisable to order early so as to circumvent this possibility.

The Board is not sure of the implications associated with such decisions.

Requirement

As a consultant, prepare a report for the Board of Nadir Products examining the commercial and ethical implications associated with each of the three proposed options mentioned above.

Answers to Interactive questions

Answer to Interactive question 1

The notion of corporate social responsibility (CSR) is often interlinked with ethical issues, but increasingly the term CSR is being used interchangeably (in general parlance) with the concepts of ethics.

However, the two are not the same.

Business ethics can be defined as behaviour which supports justice, integrity, honesty and goodness, and is guided by ethical theory. In this respect, the primary goal of ethics can be seen as 'preventing harm.'

Corporate social responsibility (CSR) is a broader concept. It includes a commitment for businesses to act ethically, but also to act in a way that provides benefits to society. This benefit to society can be related partly to economic development, but CSR also extends to look at the ways companies deliver environmental improvements, community projects, or any other measures to improve quality of life. Therefore, the primary goal of CSR could be seen as 'doing good' (in contrast to the ethics, whose primary focus is on 'preventing harm').

In this context, we can see that business ethics only forms one part of corporate social responsibility. A company also has **economic** and **legal duties**, in addition to its **ethical duties**. However, the major value of corporate social responsibility is that it encourages companies to take account of **social costs and benefits** when they are fulfilling their economic duties.

Answer to Interactive question 2

A professional accountant has two 'directions' of responsibility: one to their employer and another to the highest standards of professionalism.

Many companies provide a Code of Ethics that all employees are expected to follow in order to maintain a culture of corporate ethics. Issues which could be included in such a Code of Ethics are:

- Avoiding conflicts of interest.
- Compliance with laws and regulations.
- Rules about disclosure or avoidance of opportunities for personal gain through use of company property or position in the company.
- Confidentiality – extending to absolute discretion of all sensitive matters both during and after the period of employment.
- Fair dealing with customers, suppliers, employees and competitors.
- Encouragement to report illegal and unethical behaviour.

The responsibilities also include the expectation that the accountant will act in shareholders' interests as far as possible, and that they will show loyalty within the bounds of legal and ethical good practice.

In addition to an accountant's responsibilities to their employer, there is a further set of expectations arising from their membership of the accounting profession. In the first instance, professional accountants are expected to observe the letter and spirit of the law in detail and of professional ethical codes where applicable (depending on country of residence, qualifying body, etc).

In any professional or ethical situation where codes do not clearly apply, a professional accountant should apply 'principles-based' ethical standards (such as integrity, objectivity and professional competence) such that they would be happy to account for their behaviour if so required.

Finally, and in common with members of other professions, accountants are required to act in the public interest and that may involve reporting an errant employer to the relevant authorities. This may be the situation that an accountant may find themself in at Ashdene Homes. It would clearly be unacceptable to be involved in any form of deceit and it would be the accountant's duty to help to correct such malpractice if at all possible.

Answer to Interactive question 3

Code of Ethics – IESBA's Code of Ethics highlights five fundamental principles dealing with: integrity; objectivity; professional competence and due care; confidentiality; and professional behaviour.

The Finance Director's suggestion will only constitute a breach of IESBA's Code if it contravenes one of these principles.

Although the decision to move the headquarters has been agreed by the Board of MSA as a whole, the Finance Director must take some responsibility for it: partly because he made the original decision, and partly because, as a member of the Board, he shares in the collective responsibility of the Board.

Redundancies – The relocation of MSA's headquarters to London will mean that 80 employees in Asia lose their jobs, and they are unlikely to be able to find replacement employment. Consequently, the decision to relocate is likely to have an adverse impact on these 80 employees. However, the fact that people are being made redundant does not necessarily make the decision to relocate MSA's headquarters unethical.

Sometimes difficult decisions have to be made in the best interests of an organisation.

Fiduciary responsibility – The directors are obliged to act in a way which is most likely to promote the success of the company for the benefit of its shareholders. In this case, it appears that there are genuine business reasons to relocate to London: for example, finance can be arranged more cheaply, and some of MSA's transactions costs would be lower.

Given this, it seems that the Finance Director is simply carrying out his fiduciary duty to the shareholders by suggesting the relocation.

Objective decision – There is no indication that the director was forced to suggest London as an alternative site for the headquarters, nor that he has any self-interest in doing so. Given that MSA's business is spread relatively thinly across 28 different countries, there is no apparent reason why a location in any of those countries would necessarily be more suitable for the headquarters than London.

Therefore, the decision to move to London appears to be made for objective business reasons: driven by lower financing costs.

Consequently, although the suggestion will have adverse consequences for the 80 employees who will lose their jobs, the suggestion does not appear to constitute a breach of IESBA's Code of Ethics.

Nonetheless, the directors need to ensure that when the relocation does occur, the employees losing their jobs are treated fairly and in accordance with legal requirements; for example, in relation to the notice periods they are granted and the level of redundancy pay they receive.

Answer to Interactive question 4

Sustainability and the long term – Sustainability refers to the **social**, **economic** and **environmental** concerns of a business that aims to thrive in the long term. However, increasingly sustainability is also being linked to **ethics**, encouraging businesses to appreciate that a socially and environmentally ethical approach increases their ability to be successful in the long term.

Measuring success – DEF's mission statement clearly expresses an aim to be successful (by outperforming all other regional airports), but there is no indication whether this success is to be measured in the short or the long term. In the context of a sustainable business model, performance should not simply be measured in relation to the annual accounts, but should consider, for example, the effects that an investment project could have on profits in the longer term.

Ethical standards – The mission statement states that DEF aims to conform to the highest ethical standards, and to be a good corporate citizen. This expressed desire to follow an ethical approach suggests DEF should consider the impact which ethics can have on its **brand** and on how it is perceived, but in practice, it is not clear how far ethics will be **embedded in its strategy and decision-making process**.

The Commercial Director's attitude that DEF needs to be quick to take advantage of commercial opportunities when they become available suggests that he may be motivated more by short-term profit rather than promoting a sustainable business model. If DEF is going to develop a sustainable business model, then the decision about whether to pursue any of these 'commercial opportunities' must be made with a view to longer-term consequences as well as any possible short-term gains.

Investment appraisal – A sustainable business model implies a holistic view of investment appraisal in which the wellbeing of society (social, environmental and ethical factors) are considered as well as maximising shareholder's wealth.

The fact that DEF's mission statement expresses the desire to be a **good corporate citizen**, suggests it has recognised this balance between its own financial performance and the wellbeing of society. DEF's strategic objectives also reiterate this balance: highlighting the need for financial security but also the need to minimise pollution and to reduce the audible and visual impact of the airport's operations.

Again, DEF is most likely to achieve its **social and environmental goals** if these are measured alongside other aspects of performance. Although the mission statement refers to outperforming other airports and offering customers high quality services, there could be a danger that performance against these aims is measured in the short term and in financially-oriented terms; for example, simply focussing on increasing passenger numbers in the short term rather than looking at the longer term, and, for example, looking at the environmental costs of the services being provided.

Answer to Interaction question 5

All of RRR's products are sourced and made exclusively within Erewhon

Cheaper suppliers – RRR's procurement manager has identified several suppliers in country Y who could supply components at a price which is 40% lower than that RRR pays to its current, domestic suppliers.

If RRR continues to source all the components for its products domestically, its **costs will be higher** than if it sourced them from the suppliers in Y. In turn, this suggests that RRR's profits are likely to be lower than they would be if it used components imported from Y. It could also mean that RRR might lose sales, if customers choose to buy cheaper imported rival products instead of RRR's. Therefore, this aspect of the ethical business policy could cause concerns for RRR's shareholders, because it conflicts with the aim of maximising shareholder wealth.

Customer preference – However, market research has also shown that RRR's customers value its ethical business policy. This means that RRR's customers may be prepared to pay more for its products, on account of its ethical business policy. Although it is unlikely that the extra amount that customers are prepared to pay will cover the 40% difference in cost, RRR should consider its customers' attitudes before making any change to the policy. For example, if there is a danger that customers will stop buying RRR's products if it discontinues its ethical business policy, then such a change will also concern the shareholders because it will again conflict with the aim of maximising shareholder wealth.

RRR sells all its output within Erewhon

Restricting growth – Although RRR's share of the market has been reduced in the face of competition from imported products, this restriction on its market development imposed by the ethical business policy prevents RRR from trying to replace any losses of revenue by expanding into foreign markets. In this respect, if the policy prevents growth – or even RRR's ability to maintain its existing revenues – then it could cause concern because, again, it conflicts with the aim of maximising shareholder wealth.

Conversely, the policy could reduce risk, by avoiding exposure to the risk of foreign trade.

Exporting and fair trade – If RRR were to start exporting to developing economies, a Fair Trade policy might imply that it should sell its exports to those economies at more favourable terms than those which it would offer to developed countries.

In this respect, the combination of exporting to developing economies and a Fair Trade policy could again conflict with the idea of shareholder wealth maximisation.

Employees' working conditions and adherence to legislative requirements

Adherence to legislative requirements – The element of the policy which states that RRR adheres to all legislative requirements should not cause any concerns for the shareholders.

RRR, like all other companies operating within Erewhon, has to comply with all relevant laws, and therefore RRR's competitiveness shouldn't suffer as a result of complying with the law. Equally importantly, if RRR doesn't adhere to legislative requirements it could be fined, or may even be preventing from operating – both of which outcomes would be detrimental to the aim of maximising shareholders' wealth.

Nonetheless, adhering to the law could still leave RRR exposed to international competitors who practice 'social dumping,' by selling products from countries which do not have equivalent labour protection laws.

High regard to employees' working conditions – It is not clear how far the 'high regard' which RRR gives to employees' working conditions extends beyond its legal requirements, and what the cost implications of providing these favourable working conditions are.

If RRR's policy simply means that it takes care to ensure that its working conditions comply with all legislative requirements, then this should not cause concern for its shareholders. However, if RRR's working conditions exceed legal requirements – for example, by providing very generous wages and benefits – then this could be a concern for the shareholders. The shareholders might feel that RRR is incurring unnecessary costs (by providing favourable working conditions above the legal requirements) which could be seen as conflicting with shareholder wealth maximisation.

Commitment to the principles of fair trade

Paying a fair price for components – 'Fair trade' principles would oblige RRR to pay a fair price for any inputs or components it sources from a developing economy. However, because all of RRR's inputs currently come from within Erewhon, they will not be affected by a 'fair trade' policy.

Therefore, this aspect of the policy should not currently cause any concerns for RRR's shareholders.

Overall impact of the policy

Customer values – The shareholders' concerns with the policy are likely to arise if they feel it is making RRR's products more expensive than competitors' products, thereby leading to reduced margins.

Basis of differentiation – As the market research has indicated, RRR's customers value its ethical business policy. This could mean that some customers buy RRR's products because they share the values of the ethical business policy. In this respect, the policy may provide RRR with a means of differentiating itself from other manufacturers. As such, the shareholders should consider the extent to which the policy might actually increase their wealth rather than reducing it.

Answers to Self-test

Answer to Self-test question 1

REPORT

To: Board Members, Nadir Products

From: A Consultant

Date: [today's date]

Subject: Proposed adjustments to revenue reporting

You asked me to comment on the commercial and ethical implications of suggestions that had been made about the value of this year's revenue. There was concern that a current decline in sales will adversely affect the level of bonuses paid to senior staff.

My first comment is that the **assumption behind the suggestions appears wrong**. The intended aim of the bonus scheme was to provide an incentive for senior staff to take appropriate action to improve performance. If performance has not improved, it would be perverse to adjust the numbers so that they receive the bonuses anyway. There is an element of **moral hazard** here: if the bonuses are, in effect, guaranteed and not dependent on improved performance, the incentive effect disappears and the scheme might as well be abandoned.

I understand that there is concern that staff will be adversely affected by the downturn in sales value. However, I must point out the **questionable nature of the suggestions** from an ethical point of view. It is likely that the detailed proposals will create a **conflict of interest** since each has the potential to disadvantage shareholders. It would be ethically inappropriate to pursue any course of action that reduced shareholder value in order to enrich senior staff.

I will now examine the individual proposals in turn.

Discount for additional sales. A discount is a popular promotional device that may be used to increase sales, for instance, to increase or defend market share or to shift excess inventory. It has a cost, in the form of reduced margin, and it is a matter of commercial judgement to decide whether the benefit is greater than the cost. It may also have the effect of merely bringing sales forward in time, so that later trading periods suffer.

Of the three suggestions, this is the most defensible. However, it is quite *indefensible* if it is undertaken solely in order to boost bonuses, because of the conflict of interest discussed above.

Bringing forward scheduled orders. Bringing forward scheduled orders is a form of window dressing.

Your auditors will deploy checks on such activities as a matter of course, and may succeed in detecting this. The accounts would then have to be adjusted, since there is no commercial justification for the practice. It can be seen as detrimental to shareholders since the reported profit would be overstated in the current year and, while this may have a positive effect on share value in the short term, were it ever discovered, it would bring into question the company's **corporate governance**. Such a scheme is also likely to irritate customers who may respond by delaying payment and even seeking a new supplier. This would clearly disadvantage the company.

This suggestion is **unacceptable** on both ethical and practical grounds.

Warning of possible price rises. I have assumed that that there are no actual plans to raise prices. If this is the case, to say that such plans exist is **untruthful** and therefore inappropriate for a company that wishes to maintain high ethical standards. Further, to hide behind a form of words such as 'there *may* be price rises' would be equally dishonest, since the intention would be to create a specific, incorrect impression in customers' minds. When the warning is eventually shown to be spurious, customers' estimation of the company will fall, with an eventual knock-on effect on revenue.

This ploy is comparable to the previous one in its potential effect on shareholders and customers but is even more unethical.

Conclusion. None of the suggestions is acceptable ethically or commercially as a solution for improving sales or for helping senior staff to achieve their bonus targets.

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REVIEW FORM – STRATEGIC BUSINESS MANAGEMENT STUDY MANUAL

Your ratings, comments and suggestions would be appreciated on the following areas of this Study Manual.

	Very useful	*Useful*	*Not useful*
Chapter Introductions	☐	☐	☐
Worked examples	☐	☐	☐
Interactive questions	☐	☐	☐
Quality of explanations	☐	☐	☐
Technical references (where relevant)	☐	☐	☐
Self-test questions	☐	☐	☐
Self-test answers	☐	☐	☐
Index	☐	☐	☐

	Excellent	*Good*	*Adequate*	*Poor*
Overall opinion of this Study Manual	☐	☐	☐	☐

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