ACCA

Advanced Financial Management (AFM)

Pocket Notes

KAPLAN PUBLISHING

British library cataloguing-in-publication data

A catalogue record for this book is available from the British Library.

Published by:
Kaplan Publishing UK
Unit 2 The Business Centre
Molly Millars Lane
Wokingham
Berkshire
RG41 2QZ

ISBN 978-1-78740-654-4

Printed and bound in Great Britain.

Contents

The aim of AFM

AFM builds on earlier work and aims to develop in students the ability to make (or provide information for others to take) senior level decisions regarding the financial management of organisations.

Format of the exam

Section A: one compulsory question worth 50 marks.

Section B: 2 compulsory questions worth 25 marks each.

AFM is a 3 hour 15 minutes exam. Check locally to see whether your exam centre offers a paper exam or a computer based exam.

Exam Guidance – keys to success in this paper

Key topic areas:

- cost of capital
- capital investment
- mergers and acquisitions – including valuation
- financing options
- risk management
- emerging issues
- ethical considerations.

Key Point

Success comes from learning the material and applying it in a clear, concise and professional way.

Exam focus

Professional marks are available in the exam – these are for presentation, clarity, quality and standard of argument, judgement and persuasiveness.

The examiner has indicated that he is going to take a broader scope in setting questions and wishes to see evidence of wider reading and reflection and where possible the use of practical experience and local knowledge to enhance answers. He also wishes to see students manipulating the data provided, assessing its quality, interpreting it, using reasoning skills and then communicating their findings.

Key Point

Don't just learn the syllabus and read quality newspapers and accountancy journals – think about what you read and how it affects what you are learning in your studies.

Exam focus

If you are not already doing so – keep an eye on the ACCA website (ACCAglobal.com), for technical articles relevant to each paper you are studying – those written about 6 to 12 months prior to exam often highlight likely exam topics (especially if they are written by the examiner).

Quality and accuracy are of the utmost importance to us so if you spot an error in any of our products, please send an email to mykaplanreporting@kaplan.com with full details, or follow the link to the feedback form in MyKaplan.

Our Quality Co-ordinator will work with our technical team to verify the error and take action to ensure it is corrected in future editions.

chapter

1

The role and responsibility of the financial manager

In this chapter

- Past exam history.
- Introduction.
- Overview of roles and responsibilities.
- Treasury departments.
- Assessing the impact of the financial manager's decisions.

Past Exam History

Topic	J17	S17	D17	M18	J18	S18	D18	M19	J19	S19	D19
Ethical considerations		Q2							Q1	Q2	
Discussion of strategic issues											
Discussion of financial issues											
Discussion of treasury function		Q4		Q4		Q1			Q2		Q1
Stakeholder discussion				Q3	Q3				Q3		Q3
Environmental issues / sustainability											
Behavioural finance						Q2					

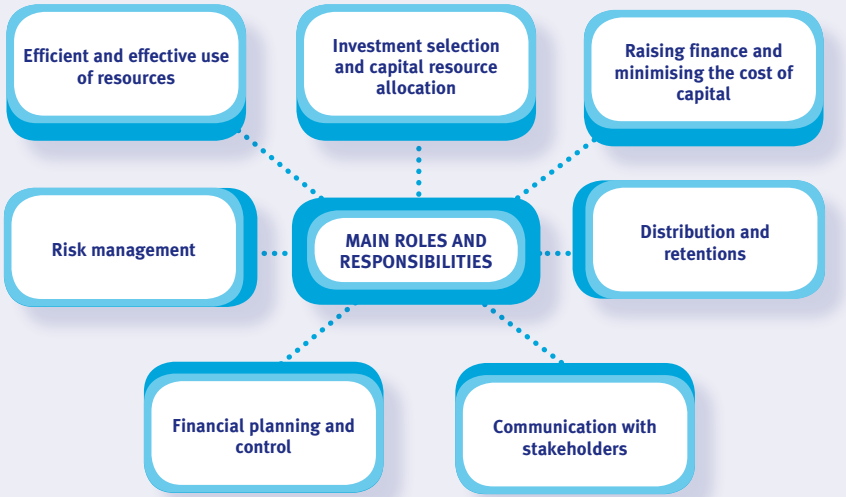
Introduction

The financial manager is responsible for making decisions which will increase the wealth of the company's shareholders.

The specific areas of responsibility are listed below.

However, it is also important that the financial manager considers the impact of his role on the other stakeholders of the firm.

Overview of roles and responsibilities



Treasury departments

Short-term management of resources

- Short term cash management – lending/borrowing funds as required.
- Currency management.

Long-term maximisation of shareholder wealth

- Raising long term finance, including equity strategy, management of debt capacity and debt and equity structure.
- Investment decisions, including investment appraisal, the review of acquisitions and divestments and defence from takeover.
- Dividend policy.

Risk management

- Assessing risk exposure.
- Interest rate risk management.
- Hedging of foreign exchange risk.

Those functions specific to international groups:

- Setting transfer prices to reduce the overall tax bill.
- Deciding currency exposure policies and procedures.
- Transferring of cash across international borders.
- Devising investment strategies for short-term funds from the range of international money markets and international marketable securities.
- Netting and matching currency obligations.

Assessing the impact of the financial manager's decisions

You may be asked in the exam to assess the

- strategic impact
- financial impact
- regulatory impact
- ethical impact
- environmental impact

of a financial manager's decisions.

Strategic impact

Key considerations:

- Does the new investment project help to enhance the firm's competitive advantage?
- Fit with environment
- Use of resources
- Stakeholder reactions
- Impact on risk.

Financial impact

Key considerations:

- Likely impact on share price
- Likely impact on financial statements
- Impact on cost of capital.

Regulatory impact

Key considerations:

- What type of industry the firm operates in
- Whether the firm is listed.

Ethical impact

Key considerations:

- Treatment of stakeholders
- Clarity and transparency.

Environmental impact

Key considerations:

- Sustainable development
- Pollution
- Social and cultural factors.

Exam focus

The topics in this chapter are unlikely to be sufficient to be tested in a full question, but they are often tested as a part of a question. The subheadings identified here will give you a useful structure to work with if ever you are asked to comment on "other factors to be considered" after performing a calculation in an earlier part of a question.

chapter

2

Investment appraisal

In this chapter

- Past exam history.
- Free cash flows.
- Inflation.
- DCF and taxation.
- Capital rationing.
- Internal rate of return (IRR).
- Modified IRR (MIRR).
- Discounted payback period.
- Duration.
- Financial reporting and investment appraisal.

Past Exam History

Topic	J17	S17	D17	M18	J18	S18	D18	M19	J19	S19	D19
MIRR			Q2								
IRR			Q2								
NPV			Q2		Q1				Q1	Q1	Q2
Duration										Q1	
Capital rationing					Q1						

Exam focus

NPV is a very commonly tested topic, often in Section A.

Free cash flows

Definition

Cash that is not retained and reinvested in the business is called free cash flow and can be calculated as:

Free cash flow = Revenue – Costs – Investments

(they are essentially the net relevant cash flows)

The free cash flows are then discounted to find the NPV of the project.

Uses of free cash flow

- As a basis for evaluation using NPV techniques.
- As an indicator of company performance.
- To calculate the value of a firm.
- In valuing potential share prices.
- As a representation of cash flow available to all capital providers or for additional projects.

Relevant cash flows include future incremental cash flows arising as a direct result of the decision.

Exam focus

In an exam explain briefly what you have done – stating you have ignored a sunk cost will gain you marks!

When assessing a project you should ignore all financing cash flows (e.g. interest

charges, loan repayments, dividends, etc.) and all their tax effects (e.g. interest tax relief).

This is because these are all implicitly taken into account through the discounting process via the discount rate used.

Inflation

Exam focus

There are two acceptable approaches to dealing with inflation: the real method and the money/nominal method. The main problem is that students often mix up the methods. Either method gives the same result.

- Inflation affects both future cash flows and the discount rate used and must be taken into account when calculating the free cash flows to be discounted.

r = real discount rate
i = money discount rate
h = inflation rate

$$(1 + r) = \frac{(1 + i)}{(1 + h)},$$

$$(1 + i) = (1 + r)(1 + h)$$

DCF and taxation

There are three important tax effects to consider.

- Tax payments on operating profits.
- Tax benefit from tax allowable depreciation.
- Tax relief on interest payments on debt.

Tax relief on interest payments on debt is taken into account by adjusting the discount rate.

Capital rationing

Definition

Capital rationing is where there are insufficient funds to undertake all positive NPV projects. Can be:

- hard capital rationing – an absolute limit on the amount of finance available imposed by the lending institutions
- soft capital rationing – A company may impose its own rationing on capital.

Methods for solving capital rationing problems

1 Multi-period capital rationing – A situation where there is a shortage of funds in more than one period. Linear programming may be used.

2 Single period capital rationing – calculate the profitability index (NPV per $1 invested) and allocate the funds in rank order.

$$\textbf{Profitability Index} = \frac{\text{NPV}}{\text{Investment}}$$

Can only be used if the possible investments are divisible, and no projects are mutually exclusive. Otherwise, use trial and error.

Dual values are the change in the objective function from having one more or less unit of scarce resource available, they can be used in capital rationing to:

- calculate the impact of raising funds to facilitate further investment
- calculate the impact of diverting funds away from current projects to newly discovered ones.

Internal Rate of Return (IRR)

The rate of interest (discount) at which the NPV = 0.

May be found by linear interpolation or extrapolation.

The formula for the IRR is:

$$IRR \approx L + \left(\frac{N_L}{N_L - N_H} \right) x\ (H - L)$$

Where
- L = Lower rate of interest
- H = Higher rate of interest
- NL = NPV at lower rate of interest
- NH = NPV at higher rate of interest

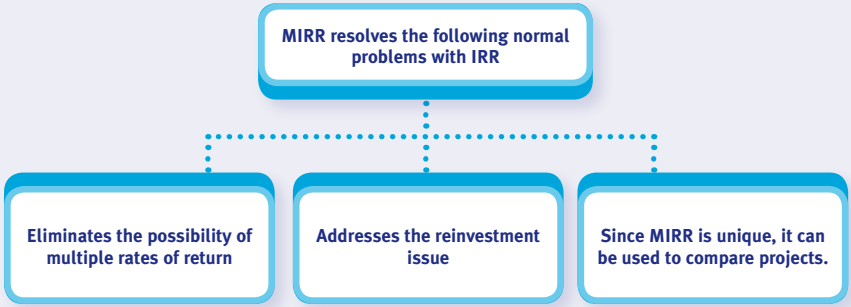
Modified IRR (MIRR)

Definition

MIRR measures the economic yield of the investment under the assumption that any cash surpluses are reinvested at the firm's current cost of capital.

Calculation of MIRR

$$MIRR = \left(\frac{PV_r}{PV_i} \right)^{\frac{1}{n}} (1 + r_e) - 1$$


MIRR resolves the following normal problems with IRR
Eliminates the possibility of multiple rates of return
Addresses the reinvestment issue
Since MIRR is unique, it can be used to compare projects.

Discounted payback period

This measures the length of time before the discounted cash flows from the project are sufficient to cover the initial investment.

Duration

This measures the average time to recover the present value of the project (if discounted at the cost of capital).

Projects with high durations are relatively high risk projects.

Financial reporting and investment appraisal

Exam focus

When evaluating capital investment projects as well as the impact on shareholder value, the impact on:

- the share price
- gearing
- ROCE
- earnings per share

need to be considered.

Areas for consideration

- **Timing differences** between cash flows and profits – can affect key ratios.
- **Dividend policy** – a cut in proposed dividends to fund increased investment may be seen as a negative signal to the market and may affect ROCE.
- **Share prices** – may fall.
- **Gearing levels** – these are usually based on market values and the NPV of proposed projects will be built into the calculations of the value of equity.
- **Rights issues** – research shows that despite the theory there is often an unfavourable reaction to rights issues lowering the price further than would be projected.

chapter

3

International operations and international investment appraisal

In this chapter

- Past exam history.
- Multinational companies.
- International trade.
- Trade agreements.
- International financial institutions.
- The global credit crunch and toxic assets.
- Strategic issues for multinational organisations.
- Forecasting foreign exchange rates.
- Foreign projects and investment appraisal.

Past Exam History

Topic	J17	S17	D17	M18	J18	S18	D18	M19	J19	S19	D19
Foreign NPV	Q3	Q1				Q1				Q1	
Discussion of risks associated with foreign expansion						Q1				Q1	
International financial institutions discussion		Q1									
Discussion of transfer prices	Q3			Q4							
Securitisation								Q1			

Multinational companies

Definition

A multinational company (MNC) is defined as one which generates at least 25% of its sales from countries other than its own.

MNCs are largely unregulated however, national governance regulations will affect their behaviour.

International trade

Exam focus

Reasons for overseas trade:

- choice
- competition
- economies of scale
- specialisation.

Countries can seek to restrict imports by using trade barriers including:

- quotas
- tariffs
- exchange controls
- administrative controls
- embargos.

Trade agreements

Policies adopted by governments to encourage free trade include:

- bi-lateral trade agreements (e.g. CER)
- multi-lateral trade agreements (e.g. NAFTA)
- free trade areas (e.g. AFTA)
- customs unions (e.g. Mercosur)
- economic communities – single markets (ECOWAS)
- economic unions (Eurozone).

Note: the opposition of the **WTO** to the development of trading blocs and customs unions because they often impose high trade barriers to non-members. A major aim of the WTO being to negotiate and ensure trade liberalisation agreements.

International financial institutions

The most important of these are:

- the International Monetary Fund (IMF)
- the International Bank for Reconstruction and Development (IBRD) – more popularly known as the World Bank
- World Trade Organisation (WTO)
- the Bank for International Settlements.

The global "credit crunch" and toxic assets

Over the last few years, since the "Credit Crunch", the phrase "toxic assets" has been used by the international media to describe the range of financial products traded by banks and other financial institutions in order to earn income and lay off risk.

As a consequence of the credit crunch, the banks have been more reluctant to lend and have set more stringent lending criteria. This has meant that many businesses have struggled to refinance their debts.

Strategic issues for multinational organisations

Implications of an increased mobility of capital:

- lower costs of capital
- ability to switch between countries and to avoid national restrictions
- possible increased exposure to foreign currency risk.

Transfer pricing

- can be used to switch profits into lower tax countries, but tax authorities will investigate if prices are set unfairly high or low.

Economic risk

- will be reduced if a company operates in several different economies (less reliance on any one currency).

Political risk is the possibility of loss arising to a firm from actions taken by the government or people of a country.

Political risk:

- confiscation political risk
- commercial political risk
- financial political risk.

Exchange control risk – surplus funds can accumulate in a subsidiary's country which cannot be remitted out. This can be mitigated using FOREX hedging (again later).

Goal incongruence may arise in MNCs when divisional managers place their own interests above the organisation as a whole.

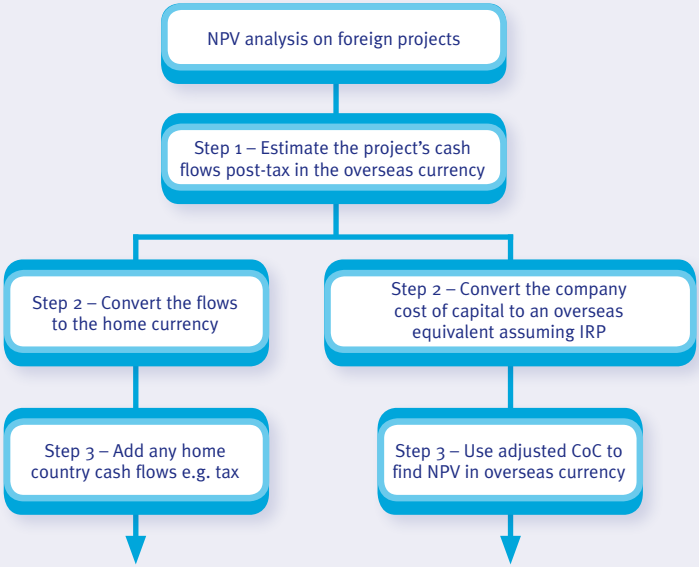
Forecasting foreign exchange rates

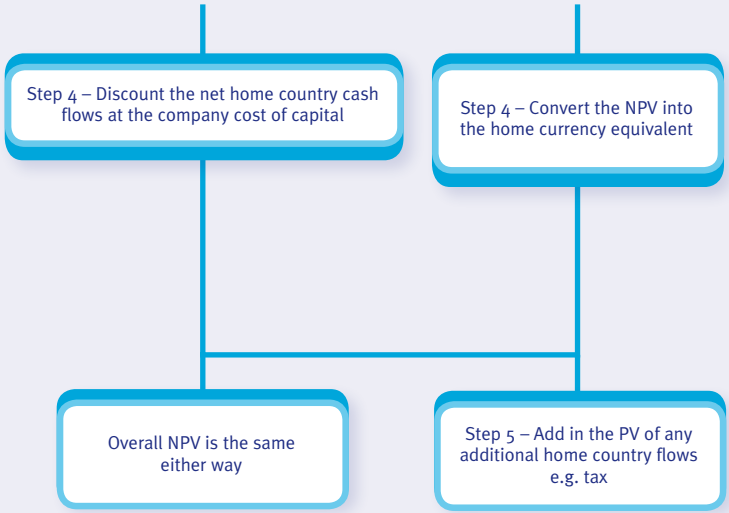
Key Point

The calculation of exchange rates may be required in answering a question.

Difference in interest rates $\frac{1 + i_{1st}}{1 + i_{2nd}}$	**EQUAL** International Fisher Effect	**Expected difference in inflation rates** $\frac{1 + infl_{1st}}{1 + infl_{2nd}}$
EQUAL Interest Rate Parity Theory		**EQUAL** Purchasing Power Parity Theory
Difference between forward and spot rates $\frac{spot}{forward}$	**EQUAL** Expectations theory	**Expected change in spot rates** $\frac{spot}{expected\ future\ spot}$

Foreign projects and investment appraisal




Step 4 – Discount the net home country cash flows at the company cost of capital
Step 4 – Convert the NPV into the home currency equivalent
Overall NPV is the same either way
Step 5 – Add in the PV of any additional home country flows e.g. tax

The NPV of an overseas investment is done in the same way as a domestic NPV appraisal but also taking into consideration:

1 Taxation

The question will always assume a **double-taxation** treaty. Therefore projects profits get taxed at whatever is the **highest** rate between the two countries.

2 Inter company cash flows

In the exam assume such cash flows **are** allowable for tax (and state it) unless the question says otherwise.

Key Point

If an inter-company cash flow is allowable for tax relief in one country, there will be a corresponding tax liability in the other.

Key Point

Assume that the tax authorities will only allow 'arm's length' / open market prices for tax relief and will not allow an artificially high or low transfer price.

3 Remittance restrictions

Overseas government placing limits on the funds that can be repatriated back to the holding company.

Key Point

It is the 'Parent Company's Cash Flow' that should be converted into the parent's currency terms and discounted to NPV.

4 Working capital

Assume (unless told otherwise) that the working capital requirement for the overseas project will increase by the annual rate of inflation in that country.

Exam focus

Use the simpler 4-step method in an exam unless told otherwise.

Further reading

Two recent articles on the ACCA website covered international project appraisal in detail.

chapter

4

The financing decision

In this chapter

- Past exam history.
- The financial system.
- Key considerations when raising finance.
- The WACC.
- The principal theories.
- Static trade-off theory.
- Pecking order theory.
- Gearing drift.
- Agency effects.
- Equity financing options.
- Dark pool trading systems.
- Debt financing options.
- Islamic finance.
- Financial foreign projects.
- Specific foreign financing options.

Past Exam History

Topic	J17	S17	D17	M18	J18	S18	D18	M19	J19	S19	D19
Discussion of financing options	Q2	Q2	Q3	Q2		Q3	Q3	Q1			
Gearing calculations and discussion			Q1							Q2	Q3
M+M discussion											

The financial system

- Channels funds from lenders to borrowers
- Provides a mechanism for payments
- Creates liquidity
- Provides financial services such as insurance and pensions
- Offers facilities to manage investment portfolios

Includes:

- Financial markets
  - Capital markets (> 1 year)
  - Money markets (< 1 year)
- Financial institutions
- Financial assets and liabilities

Key considerations when raising finance

- The firm's **optimal capital structure**.
- **Availability** of sources of finance – some sources of finance may not be available to the firm.
- **Tax** – if the company does not pay tax then the benefits of debt will be reduced.
- **Risk** profile – directors may be more cautious than investors.
- **Covenants** – the company's Articles of Association or previous loan agreements may limit its debt capacity.

The WACC

Definition

The weighted average cost of capital is a weighted average of all the various sorts of finance used by the company.

Debt is cheaper than equity.

- Lower risk.
- Tax relief on interest.

BUT

Finance risk increases the cost of equity (and thus WACC).

The principal theories

- Looking at the trade-off between cheaper debt and the increase in financial risk and K_{eg}.

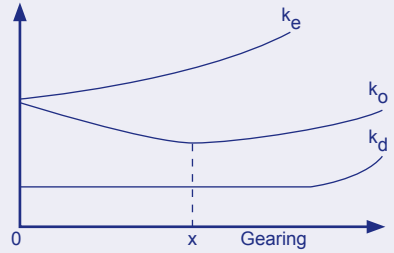
Traditional view of gearing

The diagram below demonstrates this position in which:

k_e is the cost of equity

k_d is the cost of debt, and

k_o is the overall or weighted average cost of capital.



X = optimal level of gearing, where ko is at a minimum.

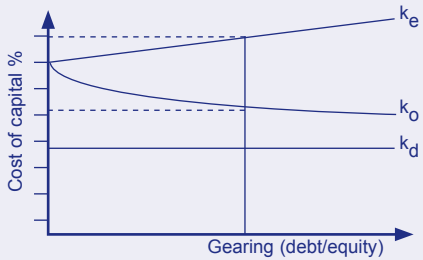
- There is an optimal capital structure where weighted average cost of capital is at a minimum (X on the diagram).

Exam focus

Maximising market value and minimising weighted average cost of capital are identical concepts.

Modigliani and Miller

Graph of M & M model with tax



- As gearing increases, the WACC steadily decreases.
- The higher the level of taxation, the lower the combined cost of capital.
- The higher the level of the company's gearing, the greater the value of the company.
- Theoretically, companies should choose a 99.9% gearing level.

Other practical problems dissuade companies from taking on high levels of gearing:

- bankruptcy costs
- agency costs
- tax exhaustion
- personal taxes
- signalling to investors.

Static trade-off theory

There is a trade-off between the tax shield which increases the firm's value and the reduction in value caused by the costs of financial distress, bankruptcy and agency costs.

Firms assess this trade – off in an attempt to find the optimal capital structure.

This is the conclusion reached if bankruptcy risks are incorporated into MM's model and is the same position as the traditional model.

Above the target ratio – financial distress and agency costs exceed the benefits of debt.

Reduce debt levels.

Firms in a stable (static) position will alter their gearing to optimal.

Increase levels of debt.

Below target the marginal value of debt is greater than the cost of debt.

Key Point

Empirical evidence does not support this view.

Pecking order theory

Preferred order for financing decisions of firms is:

- internally generated funds
- debt
- new equity issue.

Key Point

This has implications for investment and gearing levels of firms using the pecking order.

Investment

- The value of a project will alter with the choice of finance for it.
- Choice of finance may impact on the decision to accept or reject a project.
- Higher geared companies with less cash may under- invest.

Gearing

- The higher the cash flow the lower the resultant gearing.
- Equity may be issued at a time of high information asymmetry.

Key Point

The different theories can be reconciled and firms can select a long run target gearing ratio.

- Decisions on financing should be governed by the static trade-off theory when the target is far from being met, and by the pecking order theory when it is close to being achieved.

Gearing drift

Definition

Profitable companies will tend to find that their gearing level gradually reduces over time as accumulated profits help to increase the value of equity. This is known as "gearing drift".

Key Point

Gearing drift can cause a firm to move away from its optimal gearing position.

The firm might have to occasionally increase gearing (by issuing debt, or paying a large dividend or buying back shares) to return to its optimal gearing position.

Agency effects

Key Point

When the level of gearing is high the interests of management and shareholders may conflict with those of creditors.

Management and creditors may both act in a way which is detrimental to the company – for example, by lenders imposing covenants.

The overall impact may encourage the use of retained earnings by restricting future borrowing and making new issues less attractive.

Actions that may be taken by management when gearing is high

- gamble on high risk projects
- pay large dividends
- hide problems
- cut back on discretionary spending
- invest in areas of higher risk than intended when the loan was raised.

Restrictions that may be imposed by lenders:

- level of dividends
- level of additional debt
- ratio levels
- disposal of major assets.

Equity financing options

The main options for raising equity finance are:

- rights issue
- public issue
- private placing.

Dark pool trading systems

Dark pool trading relates to the trading volume in listed stocks created by institutional orders that are unavailable to the public.

The rise in popularity of dark pool trading means that information asymmetry becomes an issue of greater importance.

Debt financing options

A company seeking to raise long term debt finance will be constrained by its size, its debt capacity and its credit rating.

The usual starting point for most businesses is to approach a bank, who will make a lending decision based on the company's business plan.

Larger companies have the following additional options:

- bond issue (sometimes with warrants)
- debenture issue
- convertible bond issue
- mezzanine finance
- syndicated loan.

Further reading

A recent article on the ACCA website – "Bond valuation and bond yields" – covers bond finance in more detail.

Islamic finance

- Murabaha (trade credit)
- Ijara (lease finance)
- Sukuk (debt finance)
- Mudaraba (equity finance)
- Musharaka (venture capital)

Further reading

Two recent articles on the ACCA website cover Islamic Finance in detail.

Financing foreign projects

The key issue is whether to borrow in domestic or foreign currency.

The foreign currency borrowing provides a hedge of the value of the project or subsidiary to protect against changes in value due to currency movements.

The foreign currency borrowing can be serviced from cash flows arising from the foreign currency investment.

Specific foreign financing options

Sources of finance available.

- Short-term
  - eurocurrency
  - short-term syndicated credit facilities
  - multiple option facilities
  - euronotes.
- Long-term
  - eurobonds.
  - syndicated loans.

chapter

5

The dividend decision

In this chapter

- Past exam history.
- Dividend irrelevancy theory.
- Clientele theory.
- Practical influences on dividend policy.
- Dividend capacity.
- Dividend policy in practice.
- Share buyback schemes.
- Dividend policy in multinationals.
- Transfer pricing.

Past Exam History

Topic	J17	S17	D17	M18	J18	S18	D18	M19	J19	S19	D19
Calculation of dividend capacity	Q1				Q3					Q2	
Discussion of dividend policy	Q1				Q3					Q2	

Dividend irrelevancy theory

If all retained earnings are invested in positive NPV projects – the pattern of dividend payouts is not important to shareholders.

Key Point

In developing the dividend irrelevancy theory **Modigliani and Miller** assumed that markets were efficient and that it is investment policy that is important. Real-world imperfections mean that a different approach may be required.

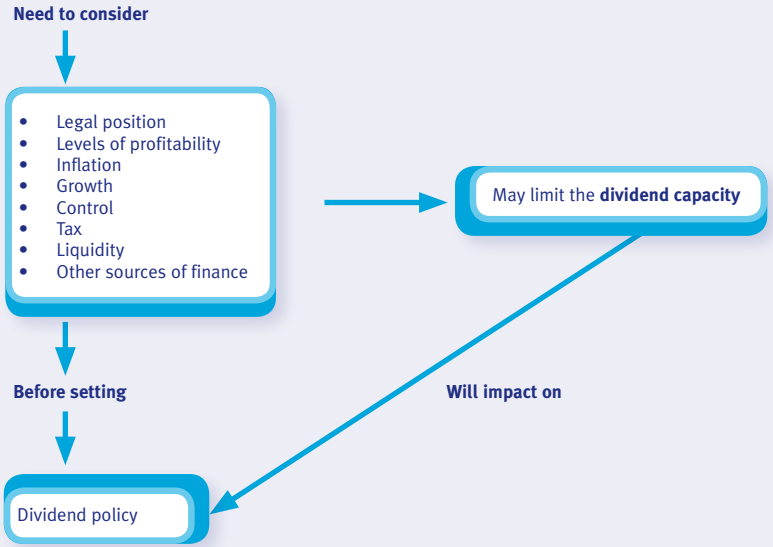
Clientele theory

- Dividend signalling – reductions in dividends may be read as 'bad news'.
- Changes in policy may lead to shareholders having to sell to meet liquidity requirements and incur transaction costs.
- Investors may have chosen a particular company for tax planning reasons.
- Many investors have a preference for current income.

Key Point

The **clientele theory** states that a firm should attempt to adopt a stable and rising dividend payout ratio. This is needed to maintain confidence in the company.

Practical influences on dividend policy



Dividend capacity

Definition

The ability at any given time of a firm to pay dividends to its shareholders.

Key Point

Legally, the firm's dividend capacity is determined by the amount of accumulated distributable profits.

More practically, the dividend capacity can be calculated as the Free Cash Flow to Equity (after reinvestment).

Dividend policy in practice

- Stable dividend policy.
- Constant payout ratio.
- Zero dividend policy.
- Residual approach.
- Ratchet patterns.
- Scrip dividends.

All have advantages and disadvantages – some may be more appropriate than others at different places in the company's life-cycle.

Most companies adopt a **ratchet pattern** – (variant of the stable dividend policy).

- Paying out a stable but rising DPS.
- Dividends lag earnings.
- Dividends can be maintained when earnings fall.
- Avoids bad news signals.
- Avoids altering investors tax position.

Definition

Scrip dividends are dividends in the form of new shares.

- Scrip dividends allow shareholders to increase shareholding without paying broker's commission or stamp duty
- Help with company liquidity and may reduce tax paid

Share buyback schemes

Definition

A scheme through which a company 'buys back' its shares from shareholders and cancels them.

- Needs to be allowed by the Articles of Association.
- Often occurs when the company has no positive NPV projects.
- Can be cosmetic exercise to increase the share price.
- Reduces the cost of capital by increasing gearing.
- An alternative to a special 'one-off dividend'.

Advantages	Constraints
• Flexibility if excess cashflows are thought to be temporary. • Increase EPS. • Adjusts equity base to a more suitable level. • Buy out dissident shareholders. • Create a market for shares. • Reduction in cost of capital. • Reduces likelihood of a takeover. • Gives shareholders a choice – hold or sell. • Saves transaction costs.	• Price paid may be too high. • Approval of shareholders needed. • Shareholder discontent. • May reduce future dividend capacity. • Can be seen as failure. • Shareholders may not be happy.

Dividend policy in multinationals

Exam focus

The general dividend policy considerations need to be borne in mind when looking at the dividend policy of a MNC.

Additional factors to be considered by multinationals:

- Need to consider dividends between group companies as well as to external shareholders.
- Many of the external shareholders may be institutions requiring stability in dividend flows.
- When considering dividend capacity – remittance blocking can limit funds available to pay dividends to parent company shareholders.
- Liquidity – all of the following can impact on the free cash flow to equity.
  - Intra-group dividends.
  - Transfer pricing.
  - Timing of central remittances.
  - Reinvestment policy.
  - Tax regimes.
  - Reorganisations.

Despite the financial sense of a **residual** approach to dividends most MNCs adopt a **ratchet** pattern of dividends.

Methods adopted to prevent or minimise the effect of blocked remittances include:

- transfer pricing
- intra-group lending
- royalty and patent payments

- management fees and charges
- parallel loans.

The host government may try and prevent many of these.

Definition

The gross free cash flow to equity =

Operating cash flow + dividends from joint ventures – net interest paid – tax

Net free cash flow to equity =

gross free cash flow to equity – capital expenditure +/- acquisitions/disposals – new capital issued

Net free cash flow to equity takes account of capital re-investment which is necessary for determining potential dividend capacity.

Tax regimes can affect the attractiveness of host countries and the way in which funds are repatriated.

Transfer pricing

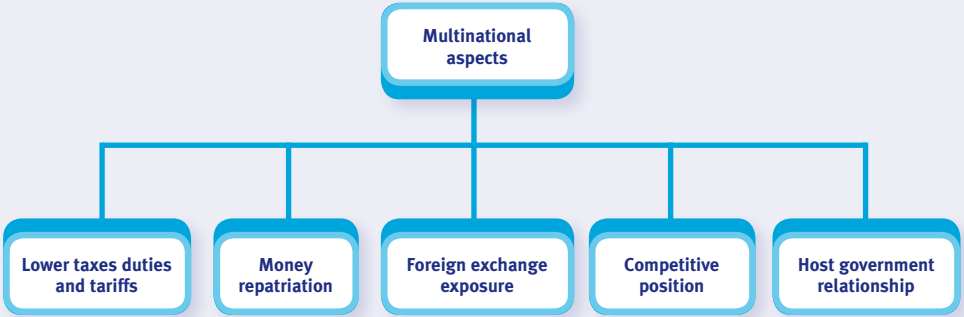
Definition

The transfer price is the price charged by one part of an organisation when supplying goods or services to another part of the same organisation.

A good transfer pricing system:

- maintains divisional autonomy
- maintains motivation for managers
- assesses divisional performance objectively
- ensures goal congruence
- is simple to operate
- is understandable
- is flexible.

Multinational national transfer pricing systems attempt to do this by deciding on appropriate prices for goods and services sold intra-group across national borders.


Multinational aspects
Lower taxes duties and tariffs
Money repatriation
Foreign exchange exposure
Competitive position
Host government relationship

Ethical issues e.g. social responsibility and acting as a responsible citizen need to be considered when setting transfer prices as do the potential negative aspects of bad publicity and loss of reputation.

chapter

6

The weighted average cost of capital (WACC)

In this chapter

- Past exam history.
- Introduction to WACC.
- The cost of equity – ke.
- More details on CAPM – which beta factor should be used.
- The cost of debt – kd.
- Use of the WACC as a discount rate.

Past Exam History

Topic	J17	S17	D17	M18	J18	S18	D18	M19	J19	S19	D19
WACC				Q1	Q1			Q1	Q3		
Cost of equity				Q1	Q1			Q1	Q3		
Cost of debt								Q1			
Degearing / regearing beta factors				Q1				Q1	Q3		
Bond valuation and credit ratings	Q2		Q1					Q1			
Bond duration			Q1								

Introduction to WACC

Definition

The WACC is derived by finding a firm's cost of equity and cost of debt and averaging them according to the market value of each source of finance. The formula for calculating WACC is given on the exam formula sheet as:

$$WACC = \left(\frac{V_e}{V_e + V_d}\right) k_e + \left(\frac{V_d}{V_e + V_d}\right) k_d (1 - T)$$

The cost of equity – ke

The three main methods of calculating cost of equity are:

CAPM (the capital asset pricing model)

$$k_e = R_f + ß (R_m – R_f)$$

Note that the examiner often refers to (Rm-Rf) as the Equity Risk Premium.

DVM (the dividend valuation model)

$$k_e = \frac{D_o (1 + g)}{P_o} + g$$

M+M (Modigliani and Miller) Proposition 2

$$k_e = k_e^i + (1 - T)(k_e^i - k_d) \frac{V_d}{V_e}$$

Exam focus

These formulae are all given on the exam formula sheet. The examiner will never tell you which method to use. Based on the information presented in a question, you will have to pick the correct formula. For example, if the question gives information on risk free rate, beta and market return, but does not refer to dividends or gearing, the CAPM should be used.

More details on CAPM – which beta factor should be used?

To calculate the current cost of equity of a firm, the current beta factor can be used.

Key Point

However, if the firm's current beta factor cannot be derived easily, a proxy beta from a similar quoted company may be used.

Need to consider

The beta values for companies reflect both:

- business risk (resulting from operations)
- finance risk (resulting from their level of gearing).
- There are therefore two types of beta:
- “Asset” or “ungeared” beta, ßa , which reflects purely the systematic risk of the business area.
- “Equity” or “geared” beta, ße , which reflects the systematic risk of the business area and the company specific gearing ratio.

Exam focus

In the exam, you will often have to degear the proxy equity beta (using the gearing of the quoted company) and then regear to reflect the gearing position of the company in question.

The formula to regear and degear betas is:

$$\beta a = \left(\frac{V_e}{V_e + V_d(1 - T)}\ \beta e\right) + \left(\frac{V_d\,(1 - T)}{V_e + V_d(1 - T)}\ \beta d\right)$$

The cost of debt – k_d

Exam focus

The examiner has confirmed that if a question mentions cost of debt, it means kd, the PRE TAX cost of debt unless otherwise stated. The cost of debt to the company is then reduced to kd(1-T) by the tax relief on debt interest.

The three main methods of calculating cost of debt are:

DVM

for irredeemable debt: $k_d(1 - T) = \frac{I(1 - T)}{MV}$

for redeemable debt: kd(1-T) = the IRR of MV, post tax interest and redemption amount

CAPM

$k_d = R_f + \beta_d (R_m - R_f)$,

then cost of debt is $k_d(1-T)$

Use of credit spreads

kd(1-T) = (Risk free rate + credit spread)(1-T)

The credit spread can be calculated from an assessment of the company's probability of default.

Use of WACC as a discount rate

Key Point

When evaluating a project, it is important to use a cost of capital which is appropriate to the risk of the new project. The existing WACC will therefore be appropriate as a discount rate if both:

1 the new project has the same level of business risk as the existing operations.

2 undertaking the new project will not alter the firm's gearing (financial risk).

chapter

7

Risk adjusted WACC and adjusted present value

In this chapter

- Past exam history.
- Risk adjusted WACC.
- Adjusted present value (APV).

Past Exam History

Topic	J17	S17	D17	M18	J18	S18	D18	M19	J19	S19	D19
Risk adjusted WACC				Q1	Q1			Q1			
APV				Q2			Q3	Q1		Q1	

Risk adjusted WACC

If the business risk of the new project is different from the business risk of a company's existing operations, the company's shareholders will expect a different return to compensate them for this new level of risk.

Hence, the appropriate WACC which should be used to discount the new project's cashflows is not the company's existing WACC, but a "risk adjusted" WACC which incorporates this new required return to the shareholders (cost of equity).

Example of risk adjusted WACC

Y is a boat-building company with a D:E ratio of1:3. It wishes to evaluate a project in the fashion industry using NPV and does not intend to change its capital structure.

Suppose X is a 'typical' fashion company with an equity beta of 1.3 and a D:E ratio of 1:2.

If Rf = 6%, Rm = 14%, T = 30% assume that corporate debt is risk-free (and so the debt beta is zero), and calculate a suitable discount rate for the project.

1 Get the asset beta for X:

$$ßAsset = 1.3\times \frac{2}{2 + 1\ (1-0.3)} = 0.963$$

2 Gear up the beta using Y's gearing:

$$0.963 = ßEquity\ x \frac{3}{3 + 1\ x\ (1-0.3)} \text{ i.e. } 1.188$$

3 Project ke = 6 + (14–6) x1 .188 = 15.5%

4 kd(1-T) = Rf (1–T) = 6 x (1-0.3) = 4.2%

WACC = $^{3}/_{4}$ x 15.5 + $^{1}/_{4}$ x 4.2 = 12.7%

- The project needs the same financial risk as the company for the discount rate to be appropriate.
- Overvalues the tax shield where debt is finite as assumes debt is perpetual.
- Issue costs on equity are ignored.

Adjusted present value (APV)

APV takes a three-stage approach:

(i) Stage one: the project is evaluated

(ii) Stage two: the project's finance package is evaluated

(iii) Stage three: stages one and two are combined to produce the APV.

Stage one

- Find the β asset.
- Put the β asset in the CAPM formula to give the base case discount rate.
- Use this base case discount rate to find the base case NPV.

Example

For example suppose we are evaluating a telecoms project. Z is a quoted telecoms company with an equity beta of 1.5 and a debt beta of 0.1. The company's gearing ratio (D:E) is 1:2 and Tc = 30%. Therefore Z's asset beta can be found as:

$$1.5 \times \frac{2}{2 + 1(1-0.3)} + 0.1 \times \frac{1\ (1-0.3)}{2 + 1(1-0.3)} = 1.137$$

This asset beta is then input into the CAPM. If the Treasury bill yield is 7% and the market return is 15% then our telecoms project's base-case discount rate can be calculated as:

$7\% + (15\% - 7\%) \times 1.137 = 16.1\%$

This can then be used to discount the project cash flows to get the base case PV.

Stage two

Example

A project will be financed as follows:

$1m of retained earnings

$2m rights issue of new equity

$4m 3-year subsidised loan at 4%

$2m 3-year bank loan at 10%.

The administration costs associated with the rights issue total 5% of the finance raised. The bank loan involves a $60,000 'arrangement fee'. Assume that tax is paid at 30%.

Required:

Calculate the present value of the financing side effects, to be included in the APV calculation.

Narrative	CF ($000s)	Timing	DF @ 10%	PV
Admin costs re rights issue = $2m × 5/95	(105)	0	1	(105)
Loan arrangement fee	(60)	0	1	(60)
Bank loan – tax relief on interest ($2m×10%×30%)	60	1-3	2.487	149
Subsidised loan – tax relief on interest ($4m×4%×30%)	48	1-3	2.487	119
Subsidised loan – gross interest saved ($4m×6%)	240	1-3	2.487	597
Subsidised loan –tax relief lost on interest saved ($4m×6%×30%)	(72)	1-3	2.487	(179)
Overall PV of financing side effects				521

Stage three

APV = Base case PV + PV of financing side-effects

Example

	$m
Base case NPV	(10)
PV of finance	15
APV	+ 5

These figures would suggest that the project viewed in isolation is not worthwhile but with this method of finance is worth undertaking.

Key questions:

Is the finance dependent on this particular project – e.g. a development loan?

Are there any better projects available that are not currently being undertaken because of capital rationing?

Debt capacity

A project's 'debt capacity' denotes the project's ability to act as security for a loan. If a $10m project has a 60% debt capacity this indicates that the project is capable of acting as security for a $6m loan.

Example

Suppose we are choosing amongst three different finance packages, for the above project:

Package A: $6m of debt $4m of equity

Package B: $5m of debt $5m of equity

Package C: $7m of debt $3m of equity

Package A fully utilises debt capacity: the project is 'fully geared'.

Package B under utilises debt capacity: the project is 'under-geared'. It has $1m of unused debt capacity.

Package C fully utilises the project's own debt capacity plus $1m of another project's spare debt capacity. The project is 'over geared'.

In the APV analysis the present value of the tax relief on interest should not be calculated on the basis of the actual amount of debt but on the project's debt capacity of $6m because tax relief on interest ('tax shield') is valuable and to avoid a cross-subsidisation of one project with another project's debt capacity.

Key Point

Calculations involving debt must take account of the tax effects – debt issue costs are tax deductible (often with 1 year's delay) but equity issue costs are not tax deductible.

Practical problems of the APV approach

- The process of degearing the industry beta to obtain a beta for an all-equity firm does not include market imperfections such as bankruptcy costs.
- The discount rates used to evaluate the various side effects can be difficult to determine.
- In complex investment decisions the calculations can be extremely long.

Advantages of the APV approach

- To adjust the WACC we would also have to use M & M's 1963 equations and once again the assumptions of perpetual risk free debt would be problematic.
- APV can incorporate the tax shield on any size of loan, for any duration and with any type of repayment structure.
- M & M's 1963 equations assume that the tax relief on debt interest is risk-free.
- APV can easily handle problems of changing capital structure.
- APV is useful for valuing any type of financial advantage.

chapter

8

Option pricing

In this chapter

- Past exam history.
- The principles of option pricing theory.
- Option value.
- The Black-Scholes option pricing model.
- The delta hedge.
- Real options in investment appraisal.

Past Exam History

Topic	J17	S17	D17	M18	J18	S18	D18	M19	J19	S19	D19
Real options				Q1	Q1				Q1		Q2
Black-Scholes calculation				Q3	Q1				Q1		
Discussion of option pricing				Q3	Q4						
Delta or other Greeks	Q4			Q3				Q2			Q1

The principles of option pricing theory

Definition

An **option** is the right but not an obligation, to buy or sell a particular good at an exercise price, at or before a specified date.

A **call option** gives its holder the right, but not the obligation, to **buy** the underlying item at the specified price.

Example

A call option on shares in ABC might give its holder the right to buy 2,000 shares in ABC, at a fixed price on or before a specified expiry date for the option.

A **put option** gives its holder the right, but not the obligation, to sell the underlying item at the specified price.

Example

A **put option** on shares in XYZ might give its holder the right to sell 1,000 shares in XYZ, at a fixed price on or before a specified expiry date for the option.

A **premium** is the cost of the option.

European-style options can be exercised on their expiry date only, and not before.

American-style options can be exercised at any time up to and including their expiry date.

The **exercise/strike price** is the fixed price at which the good may be bought or sold.

An option is purchased by the buyer from the option seller or writer.

Example

An investor might hold a European-style call option on 2,000 PQ shares at a strike price of $5.40 and with an expiry date of

30 September. The holder would therefore have the right to buy 2,000 PQ shares from the option writer on 30 September at a price of $5.40.

Option value

The major factors in determining the price of a call option are as follows:

- The price of the underlying instrument and the exercise price.
- The time to go to expiry.
- The volatility of the underlying instrument.
- Interest rates.
- Risk-free rate.
- Whether a European option or an American option. American options are more expensive since you are buying more rights.

The intrinsic value looks at the exercise price compared to the price of the underlying asset.

If the exercise price for an option is more favourable for the option holder than the current market price of the underlying item, the option is said to be **in-the-money**.

If the exercise price for an option is less favourable for the option holder than the current market price of the underlying item, the option is said to be **out-of-the-money**. The intrinsic value is zero. And it will not be exercised.

If the exercise price for an option is exactly the same as the current market price of the underlying item, the option is said to be **at-the-money**.

On the expiry date the value of an option is equal to its intrinsic value.

The Black-Scholes option pricing model

Exam focus

This is a popular exam question

Let P_a = the price of the underlying instrument, e.g. the current share price if pricing an equity call option

$N(d_i)$ = the probability that a normal distribution is less than di standard deviations above the mean

P_e = the exercise price

r = the risk free interest rate. (NB Quote this as an annual rate as a decimal number)

t = the time to expiry (again quoted in years), so that for a six-month option T = 0.5 and for a three month option T = 0.25

s = the standard deviation of the underlying instrument's returns (a measure of volatility)

Then the basic form of the Black-Scholes model gives the value of a European call option as:

Option Price $= C = P_aN(d_1) - P_eN(d_2)e^{-rt}$

Where $d_1 = \dfrac{\ln(P_a/P_e) + (r + 0.5s^2)t}{s\sqrt{t}}$

and $d_2 = d_1 - s\sqrt{t}$

Using the Black-Scholes model

The Black-Scholes model is used to price call options. The price of a put option can be derived from the price of a call using the **put-call parity formula**.

Value of a put + Current value of underlying security = Value of a call + Present value of the exercise price

Limitations of the Black-Scholes model

- It assumes that no dividends are paid in the period of the option.
- It applies to European call options only. (If the above assumption holds true then it can be used to value US call options).
- It assumes that the risk free interest rate is known and is constant throughout the options life.
- The standard deviation of returns from the underlying security must be accurately estimated and has to be constant throughout the option's life. In practice s will vary depending on the period over which it is calculated; unfortunately the model is very sensitive to the value of s.
- It assumes that there are no transaction costs or tax effects involved in buying or selling the option or its underlying security.

If dividends are paid before expiry you need to calculate a "dividend adjusted share price":

- Simply deduct the present value of dividends to be paid (before the expiry of the option) from the current share price.
- Pa, becomes **Pa – PV (dividends)** in the Black Scholes formula.

The delta hedge

A delta hedge is an options position which, when added to a portfolio, causes the portfolio to be delta neutral (the portfolio consisting of a quantity of the underlying instrument and a quantity of options).

$$\text{Delta} = N(d_1) = \frac{\text{Change in the price of the option}}{\text{Change in the price of the underlying security}}$$

The number of call options to sell = Number of shares held/ $N(d_1)$ or the number of shares to hold = Number of call options sold x $N(d_1)$.

Real options in investment appraisal

Real options theory attempts to classify and value flexibility.

They are options on real physical assets, to distinguish them from financial options. Such options have a value that should be added to the conventional NPV:

$$\text{“Strategic NPV”} = \text{conventional NPV} + \text{value of real options}$$

Key Exam Point

The Black-Scholes model should be used in an exam to value these options.

For a real option, Pe is generally the capital investment required and Pa is the present value of future cashflows from the project.

Further reading

Two recent articles on the ACCA website contained some more details and a worked example on real options.

chapter

9

An introduction to risk management

In this chapter

- Past exam history.
- Risk framework.
- Specific types of risk.
- Political risk.
- Economic risk.
- Regulatory risk.
- Fiscal risk.
- Credit risk.
- Value at Risk (VaR).

Past Exam History

Topic	J17	S17	D17	M18	J18	S18	D18	M19	J19	S19	D19
VaR			Q2								Q2
Sensitivity											Q2
Risk management discussion		Q1	Q2							Q1	Q1, Q2
Simulation discussion			Q2								
Derivative market terminology (e.g. margins)							Q2				

Risk framework

Key Point

All projects are risky. Risks may be strategic, tactical or operational.

A risk framework needs to cover:

Risk awareness – a formal risk assessment is needed for all estimates that are material, looking at the potential risks that could affect the project and the probability they may occur.

Risk monitoring – a monitoring process is needed to alert management should the above risks occur.

Strategies for dealing with risk – these include:

- accepting the risk
- mitigating the risk
- hedging the risk
- diversification.

Mitigation

Controls play an essential part of good corporate governance. A comprehensive set of controls help mitigate risks by working to prevent, or identify and deal with risks before they become problematic.

Management should implement controls for the more material risks provided that the costs of doing so are less than the potential loss.

For non-routine events it is more common to have a strategy for dealing with risks which actually arise.

Hedging

Taking measures to eliminate or reduce a risk is called **hedging the risk** or **hedging the exposure**.

Hedging is often in the form of the purchase or sale of a derivative security.

A perfect hedge will eliminate all risk (but also all future gains).

The strategy is generally chosen where the costs of hedging (including the potential lost gains) are outweighed by the benefits of certainty.

Used where the downside risk would cause large negative consequences for the firm.

Diversification

This is chosen where reliance on a single customer, or supplier, or location has been identified as a potential risk, and involves having a portfolio of clients, suppliers , operating in different locations, etc. The impact of one outcome is reduced by the impact of the others.

Specific types of risk

Exam focus

As well as being aware of the business risk and financial (gearing) risk issues covered elsewhere, you must make sure that you understand the possible impact of:

- political risk
- economic risk
- regulatory risk
- fiscal risk
- credit risk.

Political risk

Definition

This is the risk, faced by an overseas investor, that the host country government may take adverse action against the project, after the company has invested.

Examples include:

- government imposed regulations e.g. exchange controls, company structure
- discriminatory actions against foreign firms
- severe political unrest or war.

Measurement of political risk

- 'Old hands'.
- 'Grand tours'.
- Surveys.
- Quantitative measures.

Managing Political Risk

- Measure it.
- Avoid it.
- Prior negotiation (concession agreements and planned divestment).
- Structuring investment
  - local sourcing
  - location of facilities
  - control of distribution
  - control of technology
  - financial measures
  - organisational measure.

Economic risk

Definition

Economic risk is the variation in the value of the business due to unexpected changes in exchange rates.

- It impacts on competitiveness and profitability.
- Firms attempt to mitigate it by diversification of production, supply and finance.
- Long-term transaction risk.
- It can also be defined as the risks arising from changes in economic conditions.

Regulatory risk

Definition

Regulatory risk is the potential for laws related to a given industry, country, or type of security to change and affect how the business operates and the viability of planned and actual investments.

Compliance risk is the risk of losses resulting from non-compliance with laws or regulations.

- Can be general regulations or specific to an industry.
- Firms need to manage regulatory risk – often not done leaving firms exposed.
- Regulatory risk and compliance risk are associated.

Fiscal risk

Definition

Fiscal risk is the risk changes in government fiscal policy will affect the present value of investment projects and thus the value of the company.

- Changes in the tax rules need to be monitored and incorporated into financial models.

Credit risk

Definition

Credit risk is the risk borne by a lender of default by a borrower on interest payments and/or repayments of principal at the due date.

- Credit agencies (e.g. Standard and Poors) can help in assessing such a risk.

The calculation of credit spread involves using option pricing models and can be used to find the current market value of debt, credit spread and probability of default.

Value at Risk (VaR)

Definition

VaR is a measure of how the market value of an asset or of a portfolio of assets is likely to decrease over a certain time, the holding period (usually one to ten days), under 'normal' market conditions.

VaR is measured by using normal distribution theory.

It is typically used by security houses or investment banks to measure the market risk of their asset portfolios.

Further reading

An ACCA website article "Risk management" addresses some of the key topics in this chapter.

chapter

10

Hedging foreign exchange risk

In this chapter

- Past exam history.
- Hedging.
- Forward contracts.
- Money market hedges.
- Futures contracts.
- Currency options.
- FOREX swaps.
- Currency swaps.
- Bilateral and multilateral netting and matching agreements.

Past Exam History

Topic	J17	S17	D17	M18	J18	S18	D18	M19	J19	S19	D19
Discussion on forex hedging			Q4	Q4		Q1	Q2			Q1	Q1
Netting and matching				Q4							Q1
Forward contract			Q4			Q1	Q2			Q1	
Money market hedge				Q4						Q1	Q1
OTC options			Q4			Q1	Q2				
Futures			Q4	Q4		Q1	Q2				Q1
Traded options						Q1	Q2				
Currency swap											

Hedging

Key Point

The foreign exchange risk exposure of companies can be broken down into:

(a) transaction exposure

(b) translation (or accounting) exposure

(c) economic exposure.

Taking measures to eliminate or reduce a risk is called **hedging the risk** or **hedging the exposure**. There are two broad types internal and external.

Internal methods

- Invoicing in home currency.
- Leading and lagging.
- Matching.

External methods

- Forward contracts.
- Money market hedges.
- Currency futures.
- Currency options.
- Currency swaps.

Forward contracts

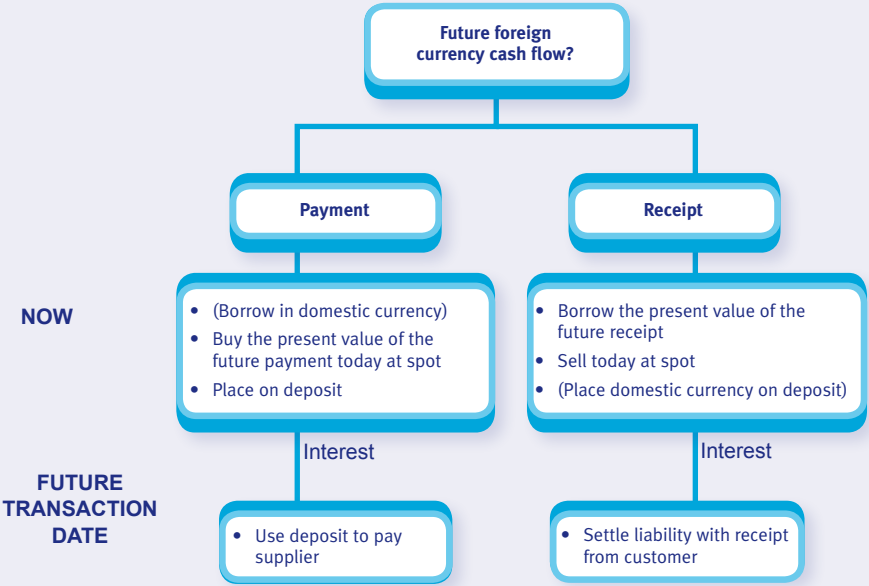
The Forward Market is where you can buy and sell a currency, at a fixed future date for a predetermined rate i.e. the forward rate of exchange.

Exam focus

Although forward cover is the most common form of hedging, you need to consider if the market exists at all, and if it exists far enough into the future.

Advantages
• OTC, so can be matched exactly to the future sums involved. • Simple and easy to understand.
Disadvantages
• Availability – see above. • Binding contract for delivery, even if commercial circumstances change – e.g. a customer is late paying. • Eliminates exposure to upside as well as down-side movements.

Money market hedges



Interest rate parity implies that a money market hedge should give the same result as a forward contract. Can be used for some currencies where forward contracts are not available.

May be difficult to use if the firm has cash flow problems.

Futures contracts

Definition

Futures contracts are forward contracts traded on a futures and options exchange.

- It is assumed that the contracts mature or expire at the end of March, June, September and December.
- The range of available futures is limited.
- Exam questions give the contract size.

Hedging calculations – futures

Step 1: Set up the hedge by addressing 3 key questions:

- Do we initially buy or sell futures?
- How many contracts?
- Which expiry date should be chosen?

Step 2: Contact the exchange. Pay the initial margin. Then wait until the transaction / settlement date.

Step 3: Calculate profit or loss in the futures market by closing out the futures contracts, and calculate the value of the transaction using the spot rate on the transaction date.

The lock in rate

The aim of a currency futures hedge is to fix the exchange rate. The rate should be fixed at:

Opening futures price + unexpired basis on the transaction date

This is known as the lock in rate.

Currency options

Definition

A currency option is a right, but not an obligation, to buy or sell a currency at an exercise price on a future date.

- More expensive than the forward contracts and futures (increased flexibility).
- Currency options can be bought OTC (tailor made) or on major exchanges (e.g. LIFFE).
- Currency options can be cash options contracting for delivery of the underlying currency or options on currency futures.

Hedging calculations – options

Step 1: Set up the hedge by addressing 4 key questions:

- Do we need call or put options?
- How many contracts?
- Which expiry date should be chosen?
- Which strike price / exercise price should be used?

Step 2: Contact the exchange. Pay the upfront premium. Then wait until the transaction / settlement date.

Step 3: On the transaction date, compare the option price with the prevailing spot rate to determine whether the option should be exercised or allowed to lapse.

Step 4: Calculate the net cash flows – beware that if the number of contracts needed rounding, there will be some exchange at the prevailing spot rate even if the option is exercised.

Forex swaps

Definition

A swap is an agreement between two parties to exchange cash flows related to specific underlying obligations for an agreed period of time.

- A forex swap involves the swapping and reswapping of agreed equivalent amounts of currency at an agreed rate for an agreed period.
- Called a “fixed rate / fixed rate” swap.
- Allows hedging for potentially longer periods than the forward markets.
- Useful for where there are exchange controls and/or volatile exchange rates.

Currency swaps

- Swapping of interest rate commitments on borrowing in different currencies – includes both the swap and re-swap of principal and an exchange of interest rates.

Key Point

The swap of interest rates could be "fixed for fixed" or "fixed for variable".

Further reading:

A recent article on the ACCA website covered "Currency swaps" in detail.

Bilateral and multilateral netting and matching agreements

Tabular method

Step 1: Set up a table with the name of each company down the side and across the top.

Step 2: Input all the amounts owing from one company to another into the table and convert them into a common (base) currency (at spot rate).

Step 3: By adding across and down the table, identify the total amount payable and the total amount receivable by each company.

Step 4: Compute the net payable or receivable, and convert back into the original currency.

Further reading:

A recent article on the ACCA website covered "Exchange traded foreign exchange derivatives" in detail.

chapter

11

Hedging interest rate risk

In this chapter

- Past exam history.
- Interest rate risk.
- Forward rate agreements (FRAs).
- Interest rate futures.
- Interest rate options.
- Interest rate swaps.

Past Exam History

Topic	J17	S17	D17	M18	J18	S18	D18	M19	J19	S19	D19
FRA		Q4						Q2			Q1
Interest rate futures	Q4	Q4			Q4			Q2			
Interest rate options	Q4	Q4			Q4				Q2		Q1
Discussion on IR hedging methods	Q4	Q4			Q4			Q2	Q2		Q1
Interest rate swaps									Q2		
Swaption					Q4						
Collars	Q4							Q2			

Interest rate risk

Definition

Interest rate risk is the risk of incurring losses due to adverse movements in interest rates.

Exposures to interest rate risk can be hedged. There are several methods of hedging the risk. These include the use of:

- forward rate agreements (FRAs)
- interest rate futures
- interest rate options
- interest rate swaps
- swaptions.

Forward rate agreements (FRAS)

Definition

A forward rate agreement (FRA) for interest rates is a financial instrument that can be used to fix the interest rate on a loan or deposit starting at a date in the future.

The **buyer** of an FRA agrees to pay a fixed rate of interest (the FRA rate) on the notional loan or deposit. In return the buyer of the FRA will receive interest on the notional loan or deposit at a benchmark rate of interest (LIBOR) as at the start of the notional loan/deposit period.

The **seller** agrees to pay interest on the notional loan or deposit at a benchmark rate of interest (LIBOR) on the notional loan or deposit. In return the seller of the FRA will receive a fixed rate of interest (the FRA rate).

- The **benchmark rate of interest** is also called the **variable rate** or the **reference rate**.
- When an FRA reaches its **settlement date**, the buyer and seller must settle the contract.
- If the fixed rate in the agreement (the FRA rate) is higher than the reference rate (LIBOR), the buyer of the FRA makes a cash payment to the seller.
- If the fixed rate in the agreement (the FRA rate) is lower than the reference rate (LIBOR), the seller of the FRA makes a cash payment to the buyer.

Further reading

A recent article on the ACCA website – "FRAs and Interest Rate Swaps" – covered FRAs in more detail.

Interest rate futures

Interest rate futures are standardised exchange-traded contracts agreed now between buyers and sellers, for settlement at a future date.

There are two broad types of interest rate futures.

- Short-term interest rate futures (STIRs).
- Bond futures.

Exam focus

- Companies buy futures to hedge deposits and sell futures to hedge borrowings
- For STIRS the minimum price movement is usually one basis point (0.01%)
- Tick value = unit of trading x one basis point x fraction of year
- IRF prices are stated as 100 minus the expected market reference rate
- Number of contracts needed $= \frac{\text{loan deposit}}{\text{Contract size}} \times \frac{\text{loan or deposit period in months}}{\text{3 months – contract duration}}$
- Future hedges are imperfect due to basis risk and the need sometimes to round to a whole number of contracts.

Example

Hedging for a fall in interest rates

It is now March. In the UK XYZ plc has recognised from its short-term cash budgets that it is likely to have a surplus of £10m arising in 2 months' time (May) for a period of 3 months, which it plans to invest in short-term money market instruments. It is concerned that interest rates in the next 2 months may fall and wishes to hedge this risk using futures contracts.

June three-month sterling interest rate futures contracts are available with a contract size of £500,000. They are currently priced at 96.00. Interest rates currently stand at 4%.

Required:

Illustrate how XYZ plc can hedge its interest rate exposure using the above futures contracts if, in 2 months' time, market interest rates have fallen to 3% and the futures price has moved to 97.00.

Solution

Note the actual interest on £10m for 3 months at 3% is £75,000. At 4% this would have been £100,000, representing a 'loss' on the 'spot rate' of £25,000.

Step 1

The company wants to hedge the risk of a fall in interest rates on deposits/investments.

March: Buy $\frac{£10m}{£500,000}$ = 20 contracts at 96.00

Step 2

In May	'Close out' (i.e. sell)	20 contracts at 97.00

Step 3

Calculate profit on futures position.

Buy futures at	96.00
Sell futures at	97.00
Gain per contract	1.00

Therefore, total profit from futures trading is:

20 contracts × £12.50 × 100 ticks = £25,000.

The fall in interest rates means that the lower-than-expected interest income from short-term investments will be supplemented by the profits from futures trading.

Exam focus

In an exam you may not be told what the closing futures price is. In this case, you should estimate it by assuming that basis reduces to zero in a linear manner by the contract's official expiry date.

The lock in rate

The aim of an interest rate futures hedge is to fix the interest rate. The rate should be fixed at:

100 – (current futures price + unexpired basis on the transaction date)

This is known as the lock in rate.

Interest rate options

Definition

An **Interest Rate Guarantee (IRG)** is an option on an FRA and protects the company from adverse movements whilst allowing it to take advantage of favourable movements.

- Their flexibility means they are more expensive than FRAs – used when unsure as to which way interest rates will move.
- An **interest rate cap** is a series of borrowers' options that sets a maximum interest rate (the strike rate) for a medium-term loan. The cap holder has the right to exercise the option at each interest fixing date or rollover date for the loan.

- An **interest rate floor** is a series of lenders' options that sets a minimum interest rate (the strike rate) for a medium-term deposit. The floor holder has the right to exercise the option at each interest fixing date or rollover date for the deposit.

Definition

An option on an interest rate future is an option to buy or sell futures. They are exercised when there is an adverse movement.

- An interest rate **collar** is a lower-cost alternative to an interest rate cap or floor. Like a cap, a collar can be used to fix a maximum rate of interest on a long-term variable rate loan. However, unlike a cap, the collar holder is unable to benefit from reductions in the rate of interest below a certain level, because the collar also sets a floor (minimum rate) for the interest rate on the loan.

  Similarly, a collar can be used like a floor to set a minimum interest yield on a long-term deposit, but unlike a floor it also sets a maximum yield.

Example

A collar might consist of a cap at 8% and a floor at 6.5%. The collar holder will therefore fix a maximum LIBOR rate for borrowing at 8% but also a minimum rate of 6.5%. The cost of a collar is the difference between the premium payable on the cap and the premium receivable from selling the floor.

A recent article on the ACCA website "How to answer an interest rate risk management question" covers FRAs, futures and options in more detail.

Interest rate swaps

Definition

An interest rate swap is an agreement between parties to swap a floating rate stream of interest payments for a fixed steam of interest payments and vice versa. They can be used to:

- hedge against adverse movements in interest rates
- to obtain cheaper finance.

Key Point

Banks normally arrange swaps and quote the 'ask rate' (the rate at which the bank is willing to receive a fixed interest cash flow stream in exchange for e.g.LIBOR) and a 'bid rate' (rate willing to pay for receiving e.g LIBOR). The difference (the bank's profit margin) is generally at least 2 basis points.

Further reading

A recent article on the ACCA website – "FRAs and Interest Rate Swaps" – covered swaps in more detail.

chapter

12

Strategic aspects of acquisitions

In this chapter

- Past exam history.
- Types of merger.
- Organic growth v growth by acquisition.
- Acquiring companies.
- Corporate and competitive aspects of mergers.
- Synergy.
- Causes of failure.
- Regulation of takeovers.
- Defence against takeovers.
- Financing of mergers.
- Evaluating a share for share exchange.

Past Exam History

Topic	J17	S17	D17	M18	J18	S18	D18	M19	J19	S19	D19
Considerations on an acquisition	Q1			Q1	Q2	Q3	Q1	Q3		Q3	
Considerations on a divestment											
Discussion of a price				Q1				Q3		Q3	
Discussion of defences				Q1				Q3			
Discussion of cash offer v share for share etc	Q1						Q1			Q3	
Discussion of regulation		Q2									
Reverse takeovers							Q1				
Synergies				Q1		Q3	Q1			Q3	

Types of merger

Types of merger:

- horizontal merger
- vertical integration
- conglomerate integration.

Example

The acquisition of Sheraton Hotels by Marriott.

Organic growth v growth by acquisition

- Remember that maximisation of shareholder wealth should be primary motive of any growth strategy.
- External growth should only be considered after the organic alternative has been rejected.

Advantages of organic growth

- Allows planning of strategic growth in line with objectives.
- Less risky than growth by acquisition.
- Often cheaper than acquiring.
- Avoids the problems of integrating two different cultures.
- Acquisitions mean that management need to learn how to manage the new business very quickly.

Advantages of growth by acquisition

- Speed.
- Reduces risk of over-supply.
- Elimination of competition.
- Increase in market power.
- Acquiring highly trained staff may give a competitive edge.
- Allows quick advantage to be taken of a market opportunity.

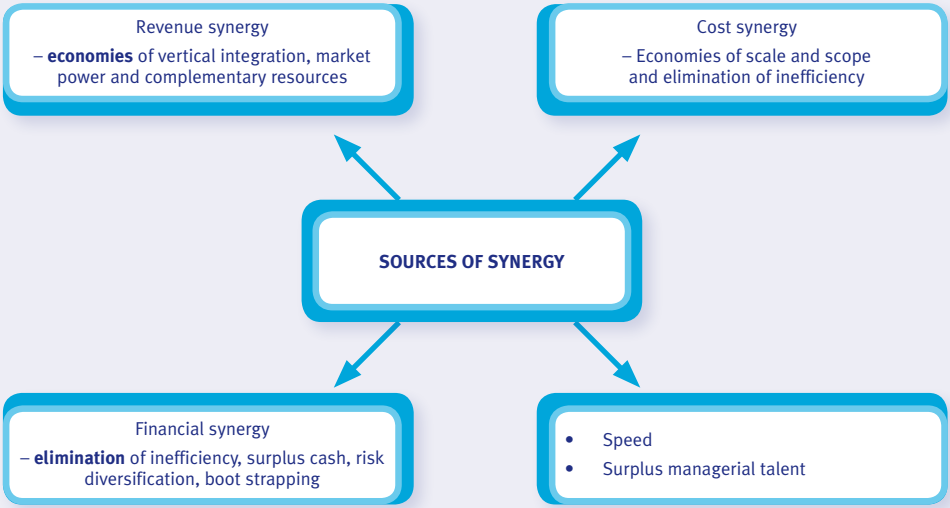
Acquiring companies

Corporate and competitive aspects of mergers

Companies need to consider various corporate and competitive aspects on acquisition.

- Impact on board structure and likely Board hostility.
- Impact on corporate governance.
- Culture differences and integration difficulties, – e.g. systems, operations.
- Loss of key personnel from target company.
- Capital structure of the combined entity.
- The role of regulation, and the role of government and other official bodies in regulating acquisitions and mergers.

Synergy


Revenue synergy
– **economies** of vertical integration, market power and complementary resources
Cost synergy
– Economies of scale and scope and elimination of inefficiency
SOURCES OF SYNERGY
Financial synergy
– **elimination** of inefficiency, surplus cash, risk diversification, boot strapping
• Speed
• Surplus managerial talent

Key Point

These gains may not occur and there may be diseconomies of scale – in an efficient market it would be difficult for synergies to arise. In practice the value of synergy is low and firms generally pay a premium to acquire others.

Causes of failure

- Over-optimistic assessment of economies of scale.
- Inadequate preliminary investigation combined with an inability to implement the amalgamation efficiently.
- Insufficient appreciation of the personnel problems which will arise.
- Dominance of subjective factors such as the status of the respective boards of directors.
- Difficulty of valuation.

Regulation of takeovers

- These vary from country to country but are mainly concerned with controlling directors.
- In the UK and the US the regulation model used is a 'market-based' – shareholder model aimed at protecting the rights of shareholders.
- The European model uses a stakeholder perspective to protect all stakeholders in a company. This model is considered better at dealing with the agency problem.
- The US/UK model is considered more economically efficiency and is becoming more dominant.

Defence against takeovers

Summary of defences against takeover bids

	Pre offer	Post offer
Maximise share price	✓	✓
Clear strategy	✓	✓
Communication	✓	✓
Strategic shareholdings	✓	✓
Defence document	–	✓
Press contact	–	✓
White knight defence	–	✓
Pac man	–	✓
Crown jewels	–	✓

Exam focus

All topics in this area are highly examinable.

Financing of mergers

The purchase price of an acquired company could be paid in the form of cash, shares, a mixture of, or choice of the two.

Key Point

In principle the issue of shares is no more expensive to the purchaser than cash or debt consideration, and sometimes investors are given a choice, however this may be problematic in that the cash needed, the number of shares to be issued and the capital structure resulting are not known.

Financing available for cash based acquisitions can come from:

- cash from retained earnings
- debt
- sales of existing assets
- share issues
- rights issues
- a mixture of the above
- mezzanine finance.

Exam focus

Don't forget in an exam to consider the position of shareholders in both the predator and target company (unless stated otherwise). Things to consider include share price, EPS, P/E ratio and dividend cover before and after the proposed merger.

Evaluating a share for share exchange

- Value the predator company as an independent entity and hence calculate the value of a share in that company.
- Repeat the procedure for the victim company.
- Calculate the value of the combined company post integration

Value of predator company as independent company	X
Value of victim company as independent company	X
Value of any synergy	X
Total value of combined company	X

- Calculate the number of shares post integration:

Number of shares originally in the predator company	X
Number of shares issued to victim company	X
Total shares post integration	X

- Calculate the value of a share in the combined company, and use this to assess the change in wealth of the shareholders.

chapter

13

Business valuation

In this chapter

- Past exam history.
- Overview of valuation methods.
- Market based valuation methods.
- Cash based valuation methods.
- Asset based valuation methods.

Past Exam History

Topic	J17	S17	D17	M18	J18	S18	D18	M19	J19	S19	D19
FCF/FCFE valuation	Q1	Q3		Q1	Q2	Q3	Q1	Q3	Q3		
P/E valuation	Q1				Q2					Q3	
DVM valuation											
Net asset valuation					Q2						

Overview of valuation methods

There are three basic ways of valuing a business

- market based
- cash based
- asset based.

Exam focus

In the exam you may have to derive a value by using several valuation methods and discussing the advantages and disadvantages of each. The methods will not give a precise valuation figure, but a starting point for negotiation.

Further reading

A recent article on the ACCA website covered Business Valuations in detail.

Market based valuation methods

Stock market value (market capitalisation) of a listed company

For a listed company, the stock market value of the shares (or "market capitalisation") is the starting point for the valuation process. However, a premium usually has to be paid above the current market price in order to acquire a controlling interest.

P/E method

Value of equity = PAT × Suitable industry PE ratio.

or, Value of a share = EPS × Suitable industry PE ratio.

Key Point

The PE ratio applied should be that of a similar company or industry. In practice this may be difficult to find, and the parties involved in the acquisition will then negotiate the applied PE ratio up or down depending on the specific company circumstances.

Tobin's Q (market to book ratio)

Market value of target company = Market to book ratio × book value of target company's assets.

Where market to book ratio = (Market capitalisation/Book value of assets) for a comparator company (or take industry average).

Cash based valuation methods

DVM

$$\text{Share price} = \frac{D_o(1+g)}{k_e - g}$$

Key Point

The growth rate can be derived using Gordon's growth model g=br, where r=accounting rate of return in the short term, or ke in the longer term, and b= the earnings retention rate.

Discounted free cash flow (FCF)

The value of equity can also be found by discounting FCF using the WACC, and then deducting the value of debt.

Free cash flow to equity (FCFE)

If the company does not pay dividends, or if you are not told the level of dividends, FCFE can be used as an approximation. Then, if FCFE is expected to grow at a constant rate:

$$\text{Value of Equity} = \frac{FCFE_o(1+g)}{k_e - g}$$

Accounting information

When appraising an individual project, the free cash flows can usually be estimated quite easily.

However, identifying free cash flows for an entire company or business unit is much more complex, since there are potentially far more of them.

Key Point

In these situations, the level of free cash flows is more usually determined from the already prepared accounting information and therefore is found by working back from profits:

To calculate free cash flows from profits:

Net operating profit (before interest and tax)	X
Less taxation	(X)
Plus deprecation	X
Operating cash flow	X
Less investment:	
Replacement non-current asset investment	(X)
(RAI) Incremental non-current asset investment	(X)
(IAI) Incremental working capital investment	(X)

(IWCI)	
Free cash flow for the firm as a whole	X
Deduct – debt interest and repayments	(X)
Add cash raised from debt issues	X
Free cash flow to equity	X

The trend over a period of years can be taken as an indication of the future.

Exam focus

Note that ke can be used to discount FCFE to get value of equity directly, or WACC can be used to discount FCF to give total business value, from which debt value should be deducted to give equity value.

Asset based valuation methods

Basic asset valuation

Book values, replacement cost or net realisable value can be used to derive a value.

However, in all cases, the value of any intangible assets is ignored.

Intangible valuation

Total value = Asset based value + Estimate of intangible asset value

The main way of deriving the intangible asset value is CIV (Calculated Intangible Value).

Calculated Intangible Value (CIV)

Calculate a suitable competitor's (similar in size, structure etc.) return on assets:

$$\frac{\text{Operating profit}}{\text{Assets employed}}$$

(or use the industry average return)

Calculate the company's value spread

	$
Company operating profit	x
Less: Appropriate ROA x Company asset base	(x)
Value spread	x

- Find the post-tax value spread.
- Using the likely short-term growth rate find the expected post-tax value spread at T1.
- Find the CIV by capitalising the post tax value spread – the PV of the T1 value spread.

Assuming that the value spread would be earned in perpetuity.

The CIV is added to the net asset value to give an overall value of the firm.

chapter

14

Corporate failure and reconstruction

In this chapter

- Past exam history.
- Financial distress.
- Assessing the risk of corporate failure.
- Other predictors of corporate failure.
- Financial reconstruction.
- Business reorganisation.

Past Exam History

Topic	J17	S17	D17	M18	J18	S18	D18	M19	J19	S19	D19
Ratios and performance appraisal			Q3			Q2					
Corporate reconstruction		Q3	Q1				Q1		Q3		Q3
Unbundling strategies							Q1		Q3		
Impact on SOFP		Q3	Q1								Q3
Impact on earnings		Q3	Q1								Q3
Impact on cost of capital		Q3							Q3		

Financial distress

If a company is in financial distress, corporate failure will follow unless the company's problems can be identified and corrected.

Key Point

The five core causes of financial distress are:

- revenue failure
- cost failure
- failure in asset management
- failure in liability management
- failure of capital management.

In practice, these problems will rarely arise in isolation.

Assessing the risk of corporate failure

Definition

Corporate failure occurs when a company cannot achieve a satisfactory return on capital over the longer term.

- Leads to insolvency.
- Reasons are generally non-financial and include an inability to adapt to changes in the environment.

The risk of corporate failure can be identified by analysing accounting ratios, and trends.

Exam focus

If you have to analyse performance using ratio analysis, remember to look at the 4 key areas of profitability, liquidity, gearing and stock market ratios.

Other predictors of corporate failure

Other predictors of corporate failure include:

- free cash flow analysis
- information in the Company Report and published accounts
- information in the press
- information regarding an external or environmental issue
- a going concern evaluation.

Exam focus

Such information may be provided in the form of notes in a case study.

Remember such models only show a snapshot, are best as short-term predictors and further analysis is required. Also some models tend to rate companies low.

Financial reconstruction

Key Point

Remember that reconstruction schemes may be undertaken by healthy companies and those in financial distress (more likely).

Objectives of reconstruction of a **solvent company** include:

- improve capital mix
- improve timing of availability of funds.

Options available:

- conversion of debt to equity
- conversion of equity to debt
- conversion of equity from one form to another
- conversion of debt from one form to another.

Objectives of reconstruction of **failing companies** include:

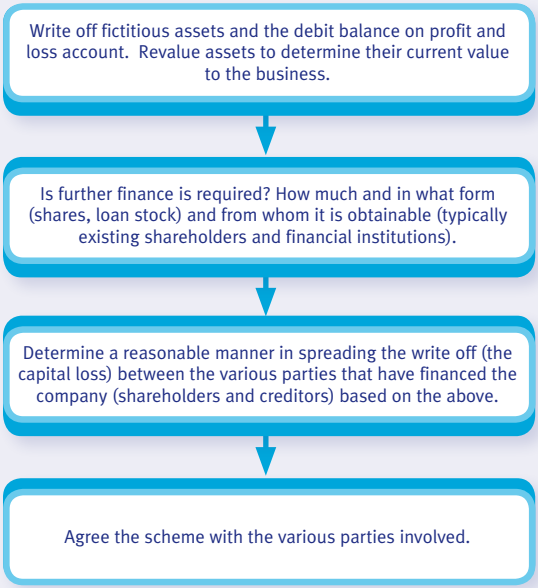
- attracting fresh capital
- persuading its creditors to accept some security in the company as settlement of its debts.

to prevent the company going into liquidation.

Options available:

- a Company Voluntary Arrangement
- an administration order.

General procedure in devising a reconstruction scheme



Exam focus

The design of a reconstruction scheme needs to take into account the interests of, and the impact upon:

- ordinary shareholders
- preference shareholders
- creditors (including banks and debenture holders).

Business reorganisation

Definition

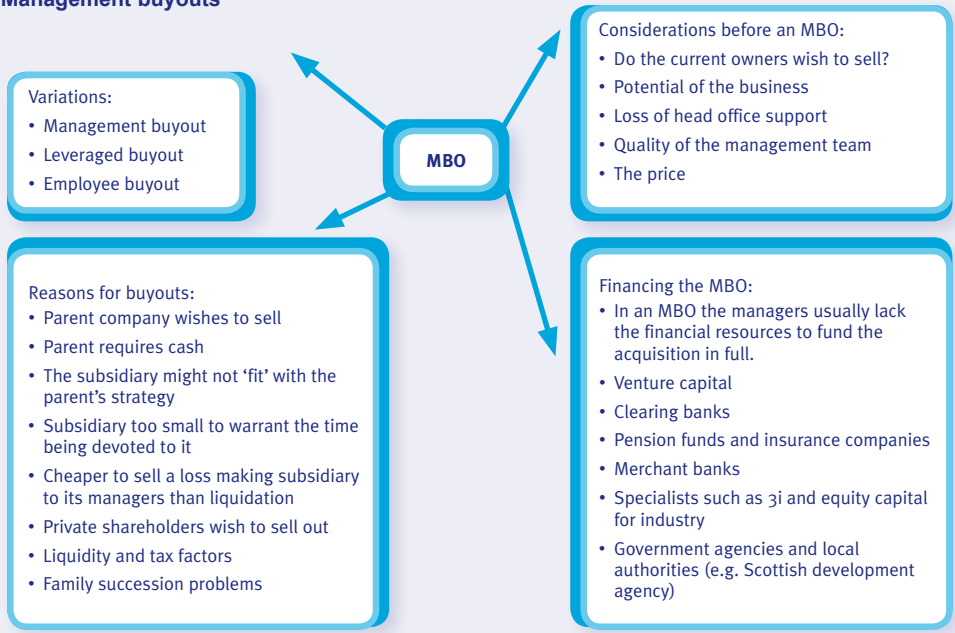
Unbundling is the process of selling off incidental non-core businesses to release funds, reduce gearing and allow management to concentrate on their chosen core businesses. The key objective is to increase shareholder wealth.

Forms of unbundling:

- spin-offs or demergers
- management buy-outs
- sell-offs
- liquidation.

For example, Australian airline Qantas split its international and domestic operations via demerger.

Management buyouts



Index

T

U

W