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Helping you to pass

BPP Learning Media – ACCA Approved Content Provider

As an ACCA Approved Content Provider, BPP Learning Media gives you the opportunity to use study materials reviewed by the ACCA examining team. By incorporating the examining team's comments and suggestions regarding the depth and breadth of syllabus coverage, the BPP Learning Media Workbook provides excellent, ACCA-approved support for your studies.

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The PER Alert

Before you can qualify as an ACCA member, you not only have to pass all your exams but also fulfil a three-year practical experience requirement (PER). To help you to recognise areas of the syllabus that you might be able to apply in the workplace to achieve different performance objectives, we have introduced the 'PER alert' feature (see the next section). You will find this feature throughout the Workbook to remind you that what you are learning to pass your ACCA exams is equally useful to the fulfilment of the PER requirement. Your achievement of the PER should be recorded in your online My Experience record.

Chapter features

Studying can be a daunting prospect, particularly when you have lots of other commitments. This Workbook is full of useful features, explained in the key below, designed to help you to get the most out of your studies and maximise your chances of exam success.

At the end of each chapter you will find a Knowledge diagnostic, which is a summary of the main learning points from the chapter to allow you to check you have understood the key concepts. You will also find a Further study guidance contains suggestions for ways in which you can continue your learning and enhance your understanding. This can include: recommendations for question practice from the Further question practice and solutions, to test your understanding of the topics in the Chapter; suggestions for further reading which can be done, such as technical articles and ideas for your own research. The Chapter summary provides more detailed revision of the topics covered and is intended to assist you as you prepare for your revision phase.

Introduction to the Essential reading

The digital e-Book version of the Workbook contains additional content, selected to enhance your studies. Consisting of revision materials, activities (including practice questions and solutions) and background reading, it is designed to aid your understanding of key topics which are covered in the main printed chapters of the Workbook. The Essential reading section of the e-Book also includes further illustrations of complex areas.

To access the digital e-Book version of the BPP Workbook, follow the instructions which can be found on the inside cover; you'll be able to access your e-Book, plus download the BPP e-Book mobile app on multiple devices, including smartphones and tablets.

A summary of the content of the Essential reading is given below:

Chapter	Summary of essential reading content
3 Tangible non-current assets	Further reading behind the cost and depreciation criteria for non-current assets Further reading on borrowing costs (IAS 23) and investment property (IAS 40), together with worked examples and activities
4 Intangible assets	Revision of research and development costs
5 Impairment of assets	Further reading on the definitions of fair value, value in use, as well as examples of impairment of an asset and impairment of a cost generating unit
6 Revenue and government grants	Further reading on long term contracts and worked example. Additional activities on government grants (income and capital)
7 Introduction to groups	Exemptions from preparing consolidated financial statements Further reading on the definitions of goodwill, including resulting from business combinations Consistency of accounting policies requirement
8 The consolidated statement of financial position	<ul style="list-style-type: none">Forms of consideration (deferred, share exchange and contingent)IFRS 13 Fair value in the scope of IFRS 3Example of subsidiary acquired mid-year
9 The consolidated statement of profit or loss	<ul style="list-style-type: none">Example of subsidiary acquired mid-yearFair value adjustments
10 Accounting for associates	Further reading on the requirement to use the equity method when accounting for associates and activities with consolidation including an associate
11 Financial instruments	Further activities on financial instruments and additional reading on the following: <ul style="list-style-type: none">Compound instrumentsBusiness model testContractual cash flow test
12 Leasing	Further reading on identifying and accounting

Chapter	Summary of essential reading content
	for a lease, including a detailed worked example. Sale and leaseback not on market terms is also covered.
13	Provisions and events after the reporting period Revision of IAS 37 covered in earlier studies, including practice activities Additional detailed worked example of the discounting of a provision Revision of contingent assets and liabilities, and IAS 10 Events after the Reporting Period
14	Inventories and biological assets Revision of IAS 2 Inventories. Further reading on IAS 41 Biological Assets
15	Taxation Further activities to consolidate your knowledge of deferred tax
16	Presentation of published financial statements Further reading on IAS 1, including proforma financial statements
17	Reporting financial performance Activities on the following: <ul style="list-style-type: none">• IAS 21• IFRS 5• Accounting errors• Changes in accounting policies
18	Earnings per share Activities on the following: <ul style="list-style-type: none">• Basic calculation of EPS• Rights issue• Diluted EPS
19	Interpretation of financial statements Detailed further reading on ratios, including examples and activities
20	Limitations of financial statements and interpretation techniques Further reading on the limitations of financial statements regarding seasonable trading, intragroup transactions and the impact of accounting policy choices
21	Statements of cash flow Revision of the methodology of preparing extracts from the statement of cash flows
22	Specialised, not-for-profit and public sector entities Detail behind the primary aims and regulatory framework for these specialised entities. Additional detail and activities behind their performance measurement KPIs

Introduction to Financial Reporting (FR)

Overall aim of the syllabus

To develop knowledge and skills in understanding and applying accounting standards and the theoretical framework in the preparation of financial statements of entities, including groups and how to analyse and interpret those financial statements.

Brought forward knowledge

Financial Reporting advances your Financial Accounting knowledge and skills. New Financial Reporting topics include the analysis of consolidated financial statements, contracts where performance obligations are satisfied over a period of time, biological assets, financial instruments, leases and foreign currency. There is also coverage of creative accounting and the limitations of financial statements and ratios.

The syllabus

The broad syllabus headings are:

A	The conceptual and regulatory framework for financial reporting
B	Accounting for transactions in financial statements
C	Analysing and interpreting the financial statements of single entities and groups
D	Preparation of financial statements

Main capabilities

On successful completion of this exam, candidates should be able to:

A	Discuss and apply a conceptual and regulatory framework for financial reporting.
B	Account for transactions in accordance with International accounting standards.
C	Analyse and interpret financial statements.
D	Prepare and present financial statements for single entities and business combinations in accordance with International accounting standards.

Links with other exams

The financial reporting syllabus assumes knowledge acquired in Financial Accounting and develops and applies this further and in greater depth. Strategic Business Reporting, assumes knowledge acquired at this level including core technical capabilities to prepare and analyse financial reports for single and combined entities.

Achieving ACCA's Study Guide Learning Outcomes

This BPP Workbook covers all the FR syllabus learning outcomes. The tables below show in which chapter(s) each area of the syllabus is covered:

A The conceptual and regulatory framework for financial reporting		
A1	The need for a conceptual framework and characteristics of useful information	Chapter 1
A2	Recognition and measurement	Chapter 1

A3	Regulatory framework	Chapter 2
A4	The concepts and principles of groups and consolidated financial statements	Chapter 7–10

B Accounting for transactions in financial statements

B1	Tangible non-current assets	Chapter 3
B2	Intangible non-current assets	Chapter 4
B3	Impairment of assets	Chapter 5
B4	Inventory and biological assets	Chapter 14
B5	Financial instruments	Chapter 11
B6	Leasing	Chapter 12
B7	Provisions and events after the reporting period	Chapter 13
B8	Taxation	Chapter 15
B9	Reporting financial performance	Chapters 17 and 18
B10	Revenue	Chapter 6
B11	Government grants	Chapter 6
B12	Foreign currency transactions	Chapter 17

C Analysing and interpreting the financial statements of single entities and groups

C1	Limitations of financial statements	Chapter 20
C2	Calculation and interpretation of accounting ratios and trends to address users' and stakeholders' needs	Chapter 19
C3	Limitations of interpretation techniques	Chapter 20
C4	Specialised, not-for-profit and public sector entities	Chapter 22

D Preparation of financial statements

D1	Preparation of single entity financial statements	Chapters 16 and 21
D2	Preparation of consolidated financial statements including an associate	Chapters 7–10

The complete syllabus and study guide can be found by visiting the exam resource finder on the ACCA website: www.accaglobal.com/gb/en.html

The Exam

Computer-based exams

Applied Skills exams are all computer-based exams (CBE).

Approach to examining the syllabus

The examination lasts three hours and all questions are compulsory.

The exam format will comprise three exam sections.

Section	Style of question type	Description	Proportion of exam %
A	Objective test (OT)	15 questions × 2 marks	30
B	Objective test (OT)	3 questions × 10 marks Each question will contain five sub-parts each worth two marks	30
C	Constructed response (long questions)	2 questions × 20 marks	40
Total			100

Section A and B questions will be selected from the entire syllabus. These sections will contain a variety of objective test questions. The responses to each question or subpart in the case of OT cases are marked automatically as either correct or incorrect by computer.

Section C questions will mainly focus on the following syllabus areas but a minority of marks can be drawn from any other area of the syllabus.

- Analysing and interpreting the financial statements of single entities and groups (syllabus area C)
- Preparation of financial statements (syllabus area D)

The responses to these questions are human marked.

Essential skills areas to be successful in Financial Reporting

We think there are three areas you should develop in order to achieve exam success in Financial Reporting (FR).

These are shown in the diagram below:

- (1) Knowledge application
- (2) Specific FR skills
- (3) Exam success skills

Specific FR skills

These are the skills specific to FR that we think you need to develop in order to pass the exam.

In this Workbook, there are five **Skills Checkpoints** which define each skill and show how it is applied in answering a question. A brief summary of each skill is given below.

Skill 1: Approach to OTQs

As 60% of your marks will be gained by correctly answering objective test questions ('OTQ'), you need to ensure that you are familiar with the different types of OTQs and the best approach to tackling them in the exam.

A step-by-step technique for ensuring that you approach the OTQs in the most efficient and effective way is outlined below:

Skills Checkpoint 1 covers this technique in detail through application to a series of exam-standard question.

Skill 2: Approach to objective test (OT) case style questions

In the exam, you will have three OT Case style questions, each worth 10 marks each. They are OTQ style questions, however, they will be linked along a common theme, such as recognising revenue (including government grants) or accounting for non-current asset acquisitions and resulting deferred tax adjustments. This allows the Examining Team to ask questions on specific areas in greater detail than just one OTQ will permit.

Therefore, it is imperative that you are familiar with the OTQ style of question and recognise the style of a case question.

A case question will be scenario based, so there will be a short description together with some financial information, and five questions will be asked about the information. There will be a combination of narrative and numerical questions.

Key steps in developing and applying this skill are outlined below:

Skills Checkpoint 2 covers this technique in detail through application.

Skill 3: Using spreadsheets effectively

Section C will require the use of the spreadsheet functionality in the exam, so you need to be familiar with the software and what the FR examining team is expecting to see in terms of presentation.

Section C of the FR exam will have two longer questions worth a total of 40 marks. One question will require you to prepare extracts from the financial statements (this may be for a single entity or for a group, and it may be any of the primary financial statements). The second question will ask you to interpret the financial position and performance of either a single entity or a group and may require some calculations or ratios to be prepared.

A step-by-step technique for using spreadsheets in the exam is outlined below:

Skills Checkpoint 3 covers this technique in detail through application to an exam-standard question.

Skill 4: Application of accounting standards

Knowledge of the accounting standards will be required in all sections of the FR exam. You are unlikely to be asked to explain the requirements of an accounting standard in a narrative question, but may be asked questions about the application or impact of accounting standards in an OTQ, or it may be relevant in the interpretation of an entity's performance and position in Section C.

A step-by-step technique for applying your knowledge of accounting standards is outlined below:

Skills Checkpoint 4 covers this technique in detail through application to an exam-standard question.

Skill 5: Interpretation skills

Section C of the Financial Reporting (FR) exam will contain two questions. One of these will require you to interpret a set of financial statements or extracts from a set of financial statements. The interpretation is likely to contain computational elements in the form of ratios, but your focus should be on the interpretation of those ratios to explain the performance and position of the single entity or group you are presented with.

Given that the interpretation of financial statements will feature in Section C of every exam, it is essential that you master the appropriate technique for analysing and interpreting information and drawing relevant conclusions in order to maximise your chance of passing the FR exam.

Skills Checkpoint 5 covers this technique in detail through application to an exam-standard question.

Exam success skills

Passing the FR exam requires more than applying syllabus knowledge and demonstrating the specific FR skills. It also requires the development of excellent exam technique through question practice.

We consider the following six skills to be vital for exam success. The skills checkpoints show how each of these skills can be applied in the exam.

Exam success skill 1

Managing information

Questions in the exam will present you with a lot of information. The skill is how you handle this information to make the best use of your time. The key is determining how you will approach the exam and then actively reading the questions.

Advice on developing Managing information

Approach

The exam is three hours long. There is no designated ‘reading’ time at the start of the exam.

Once you feel familiar with the exam paper consider the order in which you will attempt the questions; always attempt them in your order of preference. For example, you may want to leave to last the question you consider to be the most difficult.

If you do take this approach, remember to adjust the time available for each question appropriately – see Exam success skill 6: Good time management.

If you find that this approach doesn’t work for you, don’t worry – you can develop your own technique.

Active reading

You must take an active approach to reading each question. Focus on the requirement first, underlining key verbs such as ‘evaluate’, ‘analyse’, ‘explain’, ‘discuss’, to ensure you answer the question properly. Then read the rest of the question, underlining and annotating important and relevant information, and making notes of any relevant technical information you think you will need.

Exam success skill 2

Correct interpretation of the requirements

The active verb used often dictates the approach that written answers should take (eg ‘explain’, ‘discuss’, ‘evaluate’). It is important you identify and use the verb to define your approach. The **correct interpretation of the requirements** skill means correctly producing only what is being asked for by a requirement. Anything not required will not earn marks.

Advice on developing the Correct interpretation of the requirements

This skill can be developed by analysing question requirements and applying this process:

Step 1	Read the requirement Firstly, read the requirement a couple of times slowly and carefully and highlight the active verbs. Use the active verbs to define what you plan to do. Make sure you identify any sub-requirements.
Step 2	Read the rest of the question By reading the requirement first, you will have an idea of what you are looking out for as you read through the case overview and exhibits. This is a great time saver and means you don’t end up having to read the whole question in full twice. You should do this in an active way – see Exam success skill 1: Managing Information.
Step 3	Read the requirement again Read the requirement again to remind yourself of the exact wording before starting your written answer. This will capture any misinterpretation of the requirements or any missed requirements entirely. This should become a habit in your approach and, with repeated practice, you will find the focus, relevance and depth of your answer plan will improve.

Exam success skill 3

Answer planning: Priorities, structure and logic

This skill requires the planning of the key aspects of an answer which accurately and completely responds to the requirement.

Advice on developing Answer planning: Priorities, structure and logic

Everyone will have a preferred style for an answer plan. For example, it may be a mind map, bullet-pointed lists or simply annotating the question paper. Choose the approach that you feel most comfortable with, or, if you are not sure, try out different approaches for different questions until you have found your preferred style.

For a discussion question, annotating the question paper is likely to be insufficient. It would be better to draw up a separate answer plan in the format of your choosing (eg a mind map or bullet-pointed lists).

Exam success skill 4

Efficient numerical analysis

This skill aims to maximise the marks awarded by making clear to the marker the process of arriving at your answer. This is achieved by laying out an answer such that, even if you make a few errors, you can still score subsequent marks for follow-on calculations. It is vital that you do not lose marks purely because the marker cannot follow what you have done.

Advice on developing efficient numerical analysis

This skill can be developed by applying the following process:

Step 1	Use a standard proforma working where relevant If answers can be laid out in a standard proforma then always plan to do so. This will help the marker to understand your working and allocate the marks easily. It will also help you to work through the figures in a methodical and time-efficient way.
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Step 2	Show your workings Keep your workings as clear and simple as possible and ensure they are cross-referenced to the main part of your answer. Where it helps, provide brief narrative explanations to help the marker understand the steps in the calculation. This means that if a mistake is made you do not lose any subsequent marks for follow-on calculations.
Step 3	Keep moving! It is important to remember that, in an exam situation, it can sometimes be difficult to get every number 100% correct. The key is therefore ensuring you do not spend too long on any single calculation. If you are struggling with a solution then make a sensible assumption, state it and move on.

Exam success skill 5

Effective writing and presentation

Written answers should be presented so that the marker can clearly see the points you are making, presented in the format specified in the question. The skill is to provide efficient written answers with sufficient breadth of points that answer the question, in the right depth, in the time available.

Advice on developing Effective writing and presentation

Step 1	Use headings Using the headings and sub-headings from your answer plan will give your answer structure, order and logic. This will ensure your answer links back to the requirement and is clearly signposted, making it easier for the marker to understand the different points you are making. Underlining your headings will also help the marker.
Step 2	Write your answer in short, but full, sentences Use short, punchy sentences with the aim that every sentence should say something different and generate marks. Write in full sentences, ensuring your style is professional.
Step 3	Do your calculations first and explanation, second Questions often ask for an explanation with suitable calculations. The best approach is to prepare the calculation first but present it on the bottom half of the page of your answer, or on the next page. Then add the explanation before the calculation. Performing the calculation first should enable you to explain what you have done.

Exam success skill 6

Good time management

This skill means planning your time across all the requirements so that all tasks have been attempted at the end of the three hours available and actively checking on time during your exam. This is so that you can flex your approach and prioritise requirements which, in your judgement, will generate the maximum marks in the available time remaining.

Advice on developing Good time management

The exam is 3 hours long, which translates to 1.8 minutes per mark. Therefore a 10-mark requirement should be allocated a maximum of 18 minutes to complete your answer before you move on to the next task. At the beginning of a question, work out the amount of time you should be spending on each requirement and write the finishing time next to each requirement on your exam paper.

Keep an eye on the clock

Aim to attempt all requirements, but be ruthless and move on if your answer is not going as planned. The challenge for many is sticking to planned timings. Be aware this is difficult to achieve in the early stages of your studies and be ready to let this skill develop over time.

If you find yourself running short on time and know that a full answer is not possible in the time you have, consider recreating your plan in overview form and then add key terms and details as time allows. Remember, some marks may be available, for example, simply stating a conclusion which you don't have time to justify in full.

Question practice

Question practice is a core part of learning new topic areas. When you practice questions, you should focus on improving the Exam success skills – personal to your needs – by obtaining feedback or through a process of self-assessment.



Performance hierarchy

Learning objectives

On completion of this chapter, you should be able to:

	Syllabus reference no.
Discuss how the purpose, structure and content of a mission statement impacts on performance measurement and management.	A3(a)
Discuss how strategic objectives are cascaded down the organisation via the formulation of subsidiary performance objectives.	A3(b)
Apply critical success factor analysis in developing performance metrics from business objectives.	A3(c)
Identify and discuss the characteristics of operational performance.	A3(d)
Discuss the relative significance of planning activities as against controlling activities at different levels in the performance hierarchy.	A3(e)

Exam context

The primary focus of APM is on an organisation's performance rather than its strategy. Although this chapter covers important aspects of strategy – mission, objectives etc – you need to think about the implications of these in the context of performance management, rather than evaluating an organisation's strategies and objectives themselves.

In this chapter we will look at four important elements in performance management: mission statements, objectives, critical success factors (CSFs) and key performance indicators (KPIs).

ACCA's Syllabus and Study Guide for APM states that the 50-mark (Section A) question 'will include the organisation's mission statement and strategic objectives and candidates will be expected to be able to assess the methods by which the organisation is controlling, managing and measuring performance in order to achieve its objectives'.

The link between objectives, CSFs and KPIs which we cover in this chapter could be very important in this respect. For example, are the areas of performance which the organisation is measuring (through its KPIs) the most appropriate ones for helping it to achieve its objectives?

In order for organisations to achieve their corporate objectives, it is important that those objectives are cascaded down the organisation. Later, in Chapter 13, we will look at models that create a structure for doing this (eg Lynch and Cross's performance pyramid). The performance hierarchy we look at in this chapter provides the foundations for such models.

Chapter overview

!! Error resolving referred content !!

1 Mission and mission statements



PER alert

Performance Objective 13 (PO 13) – Plan and control performance – requires you to demonstrate that you plan business activities and control performance, making recommendations for improvement. One of the elements which demonstrate you have fulfilled PO 13 is that you ‘contribute to setting objectives for the planning and control of business activities’.

Objectives, and the performance metrics developed from them, are important parts of this chapter. Identifying performance metrics and key performance indicators is a prerequisite to be able to evaluate performance. If an organisation hasn’t set any performance targets then, by definition, it cannot subsequently measure whether it has achieved its targets or not.

1.1 Mission

An organisation’s mission describes the organisation’s basic **purpose**.

It has been argued (Campbell et al, 1990) that, in order to be effective, corporate mission must contain four elements:

1.2 Mission statements

Organisations often set out their missions in a mission statement.



Mission statement: Aims to provide employees and stakeholders with clarity about what the organisation is fundamentally there to do (Johnson et al, 2017).

Most mission statements will address some of the following aspects:

- The organisation’s **reason for existence**
- The **identity** of the stakeholder groups for whom the organisation exists (such as shareholders, customers and employees) and the commitment made to these groups
- The **nature of the firm’s business** (such as the products it makes or the services it provides, the markets it produces for, or the business areas in which it will operate)
- Ways of **competing** (eg quality, innovation, low prices; geographical spread of its operations) and **principles of business** (eg on non-discrimination or environmental issues)

1.3 Advantages and limitations of mission statements

The underlying aims of performance management are to ensure that an organisation meets its goals, and to identify areas where performance needs to be improved in order for it to do so.

By definition, an organisation must first have established its goals and objectives in order to assess how well it is performing in relation to them. By identifying an organisation’s key purpose, a mission statement can also help to identify – at a high level – the aspects of performance which are important for an organisation, and therefore where its performance needs to be measured.

Advantages	Criticisms
Communicate the nature of the organisation to stakeholders	Are often full of generalisations or meaningless phrases (eg ‘quality’, ‘best’)
Communicate the desired culture and behaviour	May be public relations exercises rather than a true representation of the culture or goals of the organisation

Advantages	Criticisms
Provide an underlying framework for strategic planning ; ensure plans and activities are consistent with mission, developing performance measures	Have little practical value if they lack detailed objectives and programmes for implementation
Provide a focus for developing performance measures ; ensure performance measures are linked to an organisation's purpose	May become obsolete if not updated for changes in the organisation or its environment

2 Objectives

Mission statements can help to identify an organisation's overall purpose, but in order to manage its performance, an organisation needs more **specific and measurable** objectives and targets.

Objectives should be quantifiable statements of what an organisation wants to achieve. It is important for organisations to set objectives because:

- (a) They provide **guidance and direction**: what the organisation is trying to achieve (and how is it going to achieve this?)
- (b) They facilitate **planning**; to determine how the goals will be achieved
- (c) They help organisations **evaluate and control performance**: management can assess how the organisation is actually performing, compared to its objectives, and can then make any necessary adjustments

2.1 Hierarchy of objectives

The system of objectives ranges from high-level general objectives to lower-level goals for particular individuals in a clear structure.

Essential reading

See Chapter 2 Section 1 of the Essential reading for more detail about objectives, including the relationship between corporate objectives and business unit objectives, and the importance of ensuring consistency ('congruence') between objectives.

See Chapter 2 Section 2 of the Essential reading for more detail about the characteristics of operational performance. Also, see Chapter 2 Section 3 of the Essential reading which highlights the differences in the nature of planning and control activities at strategic level compared to operational level.

The Essential reading is available as an Appendix of the digital edition of the Workbook.

Another important implication of the hierarchy of performance is that an organisation's ability to implement its strategies successfully ultimately depends on its **operational performance** and the way day-to-day activities are carried out.

3 Critical success factors (CSFs)

Once an organisation has identified its objectives, it also needs to identify the key factors and processes that will enable it to be successful and to achieve those objectives. These are its critical success factors (CSFs).



Critical success factors (CSFs): Those aspects of a product or service which are particularly valued by customers, and therefore at which a business must excel in order to outperform its competitors.

3.1 Sources of CSFs

CSFs can be identified by considering:

- A company's **mission**/strategy
- The **external environment** (eg from PEST analysis, or analysis of Porter's five forces)

CSFs don't only relate to internal processes or aspects of performance. For example, for a road transport company, the availability and price of fuel is likely to be vital for operational planning and could have a significant impact on financial performance.

Remember (from Chapter 1) SWOT analysis can be a source for identifying CSFs.



Essential reading

See Chapter 2 Section 4 of the Essential reading for more detail on potential sources of CSFs.

The Essential reading is available as an Appendix of the digital edition of the Workbook.

3.2 Types of CSF

We can identify two distinct types of CSF: monitoring and building.

- (a) **Monitoring** – these have a relatively short-term focus, and are generally more **operational** in nature, and involve the scrutiny of **existing situations**, eg inventory availability, defect-free production.
- (b) **Building** – these have a **longer-term focus**, and are typically **future orientated**. They will be important for helping an organisation **build strategic capabilities** so that it can adapt to changes in its external environment, eg innovating, launching new products or services; developing new competences.

4 Key performance indicators (KPIs)

Once an organisation has identified its CSFs, it also needs to know whether it is delivering on them. This is done by using key performance indicators (KPIs), which **measure** how well the organisation is performing against its CSFs.



Key performance indicators (KPIs): The measures which are used to assess whether or not an organisation is achieving its critical success factors (CSFs). Effective KPIs focus on the processes and activities which are most important for achieving strategic objectives and performance targets.

KPIs should be designed to **address the key areas of performance identified by the CSFs**, to ensure that stepping stones to achieving corporate objectives are put in place.

KPI measures should be:

- S – specific
- M – measurable
- A – attainable
- R – relevant (ie addressing the CSFs or objectives)
- T – time-bound



Example

We can illustrate the relationship between objectives, CSFs and KPIs by looking at an example of a supermarket company.

Let us assume the company has defined two of its **objectives** as follows:

- To ensure the loyalty of its customers ('to generate lifetime loyalty')
- To ensure its prices are at least 2% cheaper than the average of rival supermarkets ('to create value for customers')

The supermarket then needs to identify the **CSFs** which will help it achieve those objectives. These CSFs could be:

- (a) Stocking the goods that customers most want to buy
- (b) Making the shopping experience as pleasant as possible
- (c) Refining internal processes to operate the business on a cost-effective basis
- (d) Using economies of scale to source appropriate goods as cheaply as possible

Then in order to **measure how well it is performing against these CSFs**, the supermarket needs to set **KPIs**. Examples of KPIs could be:

- The proportion of goods taking more than a week to sell (relates to CSF 1)
- Results of customer feedback surveys (relates to CSF 2)
- Percentage of customers who are repeat customers (relates to CSF 2)
- Market share (relates to CSF 2)
- Cost measures and progress against savings targets (relates to CSF 3)
- Percentage of products cheaper than competitors (relates to CSF 4)
- Price of a 'basket of goods' compared to the price of the equivalent basket of goods at competitors (relates to CSF 4)



Activity 1:

Solution



Activity 2: Sawton Hotel

The Sawton Hotel is a luxury hotel, situated on the edge of a seaside town in the south east of Britland. Like all of the other hotels in the area, the Sawton is privately owned, and is not part of a chain. The Sawton has a restaurant and a gym, which are for residents' use only.

Although the local area is popular with tourists, there is significant seasonal variation in demand for hotel rooms. As a result, the Sawton changes its room rates throughout the year, based on expected levels of demand, so that rates are higher in the peak summer months, and lower in the less busy winter months.

At the end of their stay, all customers are invited to complete a short survey asking them how satisfied they were with their stay, the reasons for this, and the likelihood that they will recommend the Sawton to their family and friends.

Feedback from these surveys shows that the comfort of the hotel's rooms, and the quality and efficiency of customer service are key factors influencing customer satisfaction. The surveys also indicate that guests' satisfactions have a significant impact on how likely they are to make repeat bookings and recommend the Sawton to their friends.

The Sawton has just appointed a new general manager who has expressed concern about the limited amount of management information available. In particular, he believes the Sawton should be monitoring its performance against key performance indicators (which it currently doesn't do).

Required

Recommend and justify two critical success factors (CSFs) for the Sawton Hotel, and two key performance indicators (KPIs) for each CSF. **(6 marks)**

5.1 CSFs, KPIs and management information systems

CSFs and KPIs should influence the design of an entity's management information system (MIS) (as discussed in Chapter 6).

CSFs identify the key areas of performance, which management will need information about. However, this also has implications for an entity's management information systems:

- Can the current information systems provide the information required to measure performance in key areas (non-financial information, as well as financial)?
- What changes to the information systems might be required to ensure they can provide the information required?

Chapter summary

!! Error resolving referred content !!

Knowledge diagnostic

1. Mission and mission statements

An organisation's mission should identify its overall purpose and scope. The 'elements' included in mission are: purpose, strategy, policies and standards of behaviour; values and culture.

An organisation's mission is expressed through its mission statement. A mission statement should be brief, flexible and distinctive, and should aim to provide employees and other key stakeholders with clarity about the organisation's fundamental purpose.

However, mission statements are not stated in quantifiable terms, and do not typically refer to time frames.

2. Objectives

Objectives should derive from an organisation's mission, but they should be more precise and quantifiable. Strategic objectives help translate mission into specific targets for an organisation to achieve.

High-level, strategic (or corporate) objectives should be supported by more detailed, subordinate objectives for individual divisions or departments within the organisation, and which can be used as a basis for tactical or operational-level decision making.

To be effective, objectives must be consistent throughout an organisation, and over time.

3. Relationship between objectives, CSFs and KPIs

Once an organisation has established its objectives, it needs to identify the key factors and processes that will enable it to achieve those objectives.

This highlights the importance of identifying CSFs and KPIs which are derived from the objectives, and which also – in turn – link back to the organisation's mission and strategy.

4. Critical success factors (CSFs)

CSFs are the aspects of performance which are particularly valued by customers, and therefore in which an organisation needs to excel in order to be successful and achieve its objectives.

5. Key performance indicators (KPIs)

KPIs are the measures which indicate whether or not an organisation is achieving the desired level of performance in relation to its CSFs. KPIs should derive from the CSFs and should be 'SMART'.

Further study guidance

Question practice

Now try the following from the Further question practice bank (available in the digital edition of the Workbook):

Q3 Southside College

Further reading

There is a Technical Article available on ACCA's website, called *Performance Indicators*, which illustrates the concepts of performance, objectives, CSFs, performance indicators and KPIs in more detail. The article also highlights some of the potential problems organisations face when designing performance indicators and measurement systems.

You are strongly advised to read this article in full as part of your preparation for the APM exam.

There is also a Technical Article available on ACCA's website called *Critical success factors*, which explores CSFs further.

We recommend you read this article as part of your preparation for the APM exam.

Activity answers

Activity 1:

Activity 2: Sawton Hotel

Tutorial note. You may have identified different CSFs or KPIs to the ones in the solution. Provided you justify your selections, you will receive credit for relevant answers, even if they differ from the suggested solution.

It will be important for the hotel to measure and monitor financial performance, but equally there are a number of key non-financial factors which will influence financial performance.

Critical success factor	Performance indicators
Maintaining occupancy rates: <ul style="list-style-type: none">Sawton needs to keep occupancy rates as high as possible, but needs to do so without reducing the room rate so far that this damages profitability.	<ul style="list-style-type: none">% room occupancy – this is the most immediate measure of occupancy rates.Revenue per available room (REVPAR) – this measures the average revenue per room booked. If room rates are discounted too much (to try to boost occupancy) this will damage the perception of Sawton as a luxury hotel. Therefore, it will be important to monitor REVPAR, to ensure Sawton's pricing remains consistent with its overall strategy.
Maintaining high levels of customer satisfaction: <ul style="list-style-type: none">Customer satisfaction levels will influence how likely customers are to stay at the hotel again, and how likely they are to recommend it to their friends. Customer retention, and customer recommendations can both be very important in generating revenue.	<ul style="list-style-type: none">Number of repeat bookings – the number of repeat customers are an indicator of customer loyalty. Customers are only likely to make return visits if they have been satisfied with their previous stay.Customer satisfaction ratings – Sawton collects feedback data from customers, so monitoring customer feedback (and, potentially, ratings on social media sites such as TripAdvisor) will help identify whether customer satisfaction levels are being maintained.



Impact of risk and uncertainty

Learning objectives

On completion of this chapter, you should be able to:

	Syllabus reference no.
Assess the impact of the different risk appetites of stakeholders on performance management.	B1(a)
Evaluate how risk and uncertainty play an important role in long-term strategic planning and decision making that relies upon forecasts of exogenous variables.	B1(b)
Apply different risk analysis techniques in assessing business performance such as maximin, maximax, minimax regret and expected values.	B1(c)

Exam context

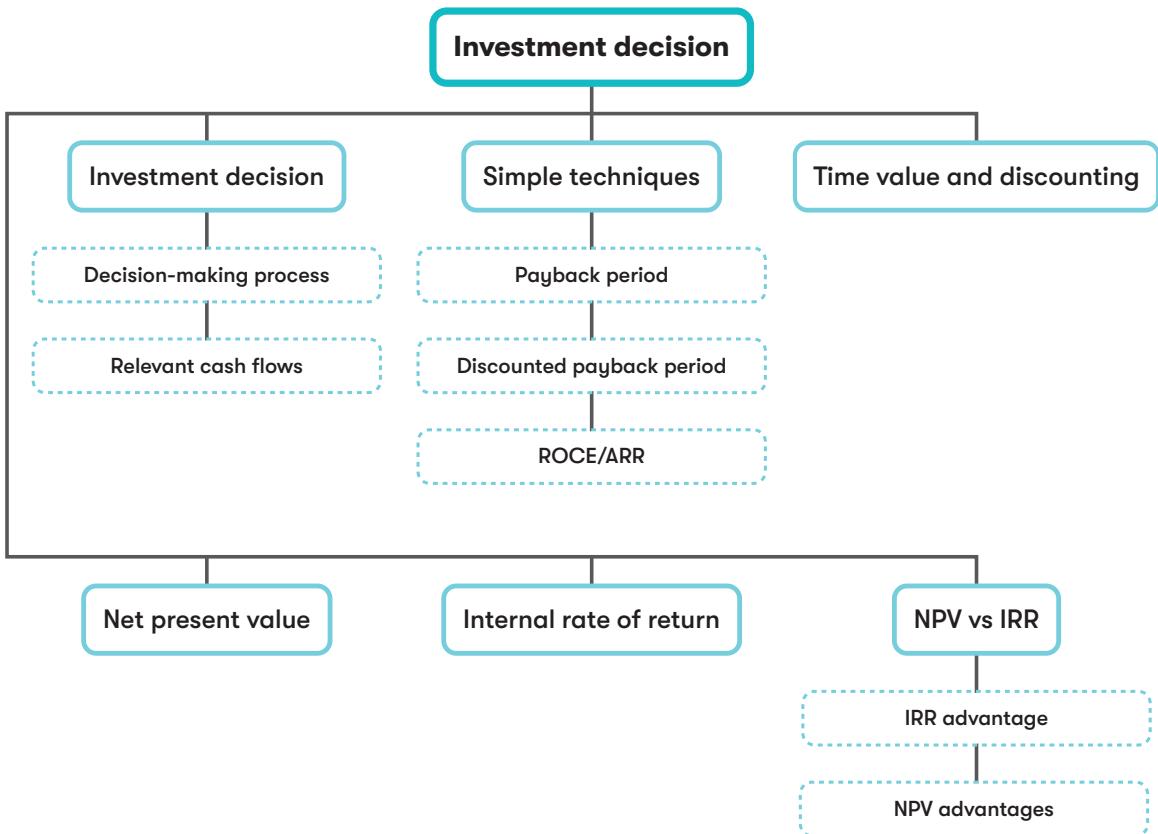
The exam often tests your understanding of how the attitude of stakeholders, especially managers, to risk affects planning and decision making. Linked to this, you may need to use the clues in a question scenario to assess what different stakeholders' attitude to risk seem to be.

Exam questions could also look at the techniques which can be used to assess performance in the context of risk and uncertainty. These techniques, and how they may be used to reflect the attitude of stakeholders to risk, have been tested regularly.

ACCA's Study Guide identifies that the 50-mark Section A question in the exam will focus mainly on syllabus Sections A, C and D. This chapter covers **Section B** of the syllabus (Impact of Risk and Uncertainty on Organisational Performance) so the topics in this chapter are more likely to be tested in a 25-mark Section B question in the APM exam.

You should already be familiar with the techniques covered here from your earlier studies (of the Performance Management syllabus). However, it is important to revise them here and to make sure that you can apply them, as necessary, to the scenario-based questions that you will face in the APM exam.

Chapter overview



1 Environmental change

In Chapter 1 you have covered a variety of models (eg PEST, Porter's five forces) that can be used to analyse the external environment in which an organisation operates, because that environment can have a significant impact on an organisation's performance. This can be particularly noticeable when there are adverse changes in the environment (eg due to new competitors entering a market). The possibility of such changes occurring is a major source of **risk** and **uncertainty**.

Performance management needs to consider the possibility (or probability) of changes in elements of its environment. These are sometimes referred to as **exogenous variables**, which means that they are outside the control of the organisation.



Exogenous variables: Variables that are determined externally, for example the cost of a raw material imposed by the supplier.

2 Uncertainty



Uncertainty: When the future is unknown and the decision maker has no past experience on which to base predictions of change so that **outcomes cannot be predicted, or assigned probabilities**.

Sensitivity analysis is a method used to **describe** uncertainty to decision makers. It quantifies the maximum amount by which any variable would have to change before the objective (of a project) is not attained.

The smaller the percentage change required, the more sensitive the project is to this variable, and the greater the uncertainty surrounding the project; such variables need to be **carefully managed** if a project is implemented.



Activity 1: Sensitivity

A grocery retailer is considering whether to make, in store, a new type of bread loaf that claims to reduce cholesterol levels. The following information is available:

- (1) The number of loaves sold per year in the retailer's country of operation is 425 million. The retailer expects this loaf to have a market share of 1%.
- (2) The average selling price of all loaves sold is \$1.50. The retailer expects 85% of all loaves to be sold, with the rest needing to be thrown away at the end of the day.
- (3) The average cost of ingredients per loaf is \$0.60, of which \$0.17 is caused by the special ingredient that renders the loaf able to reduce cholesterol. There is only one supplier in the market for this ingredient.
- (4) Packaging and labelling costs will be \$0.12 per loaf.
- (5) Distribution costs are expected to be 4% of revenue.
- (6) Fixed overheads have been estimated to amount to \$270,000 per annum to include all wages and salaries costs as all employees are subject to fixed-term employment contracts.

The retailer has a target profit margin of 35%, and the Finance Director has stated that she believes the new type of loaf can achieve this, although she is concerned about the effect that an increase in the cost of the special ingredient will have on the forecast profits.

Required

Using only the above information, show how the finance director has reached her conclusion regarding the expected sales margin and also state whether she is correct to be concerned about

an increase in the price of ingredients (assuming that all other revenue/cost data remains unchanged). (6 marks)



Essential reading

See Chapter 5 Section 1.1 of the Essential reading for more detail about other simple techniques for dealing with uncertainty including a recap on breakeven analysis and margin of safety.

The Essential reading is available as an Appendix of the digital edition of the Workbook.

3 Risk



Risk: Where a decision maker has knowledge that several different future outcomes are possible, the probabilities of which are known, or can be estimated, usually due to past experience.

Where there is **risk**, a range of possible future outcomes can be quantified (best, worst and most likely) and probabilities assigned to them and an expected value or weighted average of these outcomes calculated.

It is important to note the distinction between risk and uncertainty. In a risk situation, the probability of an event occurring can be estimated. However, uncertainty implies that the probability of an event occurring cannot be predicted.

In the absence of any information about a particular risk attitude (see section 3.2) it can be assumed that a decision maker will be concerned with making a decision that is ‘most likely’ to create the best expected outcome (or value). So, when faced with a number of alternative decisions, the one with the best expected value (EV) will be chosen.

3.1 Expected values

An expected value is a weighted average that is calculated using probabilities. It is likely that you have used this technique before, but if not you will need to learn the formula and approach outlined below:



Formula to learn

$$EV = \sum px$$

Where p is the probability of the outcome occurring and x is the value of that outcome.



Activity 2: Expected values

John must decide how best to use a monthly factory **capacity of 1,200 units**. His demand from regular customers is risky and as follows:

Monthly demand (units)	Probability
400	0.2
500	0.3

Monthly demand (units)	Probability
700	0.4
900	0.1

Regular customers generate contribution of \$5 per unit. John has the opportunity to enter a special contract which will generate contribution of only \$3 per unit. For the special contract John must enter a binding agreement now at a level of 800, 700, 500 or 300 units.

John has partially calculated the following contributions (in \$) at various contract and demand levels.

Demand (units)	p	Special contract (units)			
		800	700	500	300
400	0.2	4,400	4,100	To be completed	2,900
500	0.3	4,400	4,600	To be completed	3,400
700	0.4	4,400	4,600	To be completed	4,400
900	0.1	4,400	4,600	To be completed	5,400

Required

Advise John as to the optimal level of special contract to commit to every month, assuming his aim is to maximise profits. **(2 marks)**

3.1.1 Limitations of EV

- (a) Ignores attitudes to risk (see next section)
- (b) Heavily dependent on probability estimates which may not be reliable
- (c) It is a long run average and may not be appropriate if a decision is a one-off

3.2 Risk attitudes

Risk attitude is the amount of risk an organisation is willing to take on, or is prepared to accept, in pursuing its strategic objectives. Organisations may be **risk seekers**, **risk neutral** or **risk averse**.



Risk seeker: A decision maker who is interested in trying to secure the best outcomes, no matter how small the chance that they may occur.

Risk neutral: A decision maker is risk neutral if they are concerned with what will be the most likely outcome.

Risk averse: A risk-averse decision maker acts on the assumption that the worst outcome might occur.

It is also important to recognise that **different stakeholders have different risk appetites** or different perspectives on risk.

For example, equity investors are likely to want to see a return on their investments and may be prepared to support relatively high-risk strategies if these strategies offer the prospect of high

returns. By contrast, managers may prefer to implement a lower risk strategy because they may feel it offers them greater security.

3.3 Risk attitudes and decision making

An understanding of risk appetite can be a useful tool for managing risk and enhancing overall business performance, by making sure that business decisions are aligned with risk appetite of shareholders. This has implications for the reward and remuneration systems in organisations (which we will look at in more detail in Chapter 12). One of the key characteristics of reward systems is that they should help to align the risk preferences of directors and managers with those of the organisation and its owners.

Risk attitude	Decision-making technique
Risk seeker	For this risk appetite maximax may be appropriate. This involves making decisions that are based on making the maximum possible return (regardless of the probability of this).
Risk averse	For this risk appetite maximin may be appropriate. This involves selecting decisions that minimise downside risk by selecting the option that gives the best of the worst outcomes (regardless of the probability of the worst outcomes occurring). Minimax regret may also be appropriate here; this is where a decision is chosen that minimises the impact of it turning out to be the wrong decision.
Risk neutral	Only a risk-neutral decision maker will be concerned with the most likely outcome, using expected values (EVs).



Maximax: Looks at the best possible results from each decision option and selects the option that gives the best possible result.

Maximin: Suggests that a decision maker should select the alternative that offers the least unattractive worst outcome.

Minimax regret: Aims to minimise the regret from making the wrong decision.



Activity 3: Attitudes to risk

- 1 Following on from the previous example, advise John as to the optimal level of special contract to commit to every month:
 - (1) Assuming John is a risk seeker
 - (2) Assuming John is risk-averse
- 2 Consider what factors may affect John's risk appetite. (2 marks)

(Total = 4 marks)

Essential reading

See Chapter 5 Section 1.2 of the Essential reading for more detail about another simple application of the concept of expected value.

The Essential reading is available as an Appendix of the digital edition of the Workbook.

3.4 Joint probabilities

Where probabilities are provided for **two variables**, the range of possible outcomes can be recorded in a **joint probability** table.



Joint probability: The probability of two events occurring at the same time and is calculated by multiplying together the probability of each individual variable occurring.



Example

For example, if you withdraw a single card from a pack of 40 cards containing four different types of colours (black, red, green and blue) with each colour consisting of ten cards numbered 1–10, then the probability of selecting a red number 8 is:

Probability of the occurrence of the first variable (a number 8) × Probability of the second (red card)

Here this gives:

$$4/40 \times 10/40 = 40 / (40 \times 40) = 1/40$$

This makes sense because there is only one red number 8 in the pack of 40.

Joint probability tables **allow the risks to be assessed**.



Activity 4: Joint probability

Brown Ltd makes and sells a single product for which current profits are \$25,000 per annum.

The company is confident that the product can be manufactured for a variable cost of \$19, but is considering a change in marketing and distribution which could have an effect on both sales demand and sales price. Brown Ltd believes that the following circumstances could occur:

Price	Prob	Demand	Prob
\$		'000 units	
28	0.2	30	0.4
29	0.35	35	0.5
30	0.45	40	0.1

Brown Ltd has fixed costs of \$320,000.

Manager A has suggested that the changes should be made only if they will generate an expected profit of at least the current level of \$25,000.

Required

Complete the following analysis (which has been partially completed) and discuss the impact of the possible changes in marketing and distribution on the profits of Brown Ltd.

Contribution generated (\$'000)

	Demand ('000 units)		
	30	35	40
28	270	315	<input type="text"/>
Price (\$)	29	350	<input type="text"/>
30	330	385	<input type="text"/>

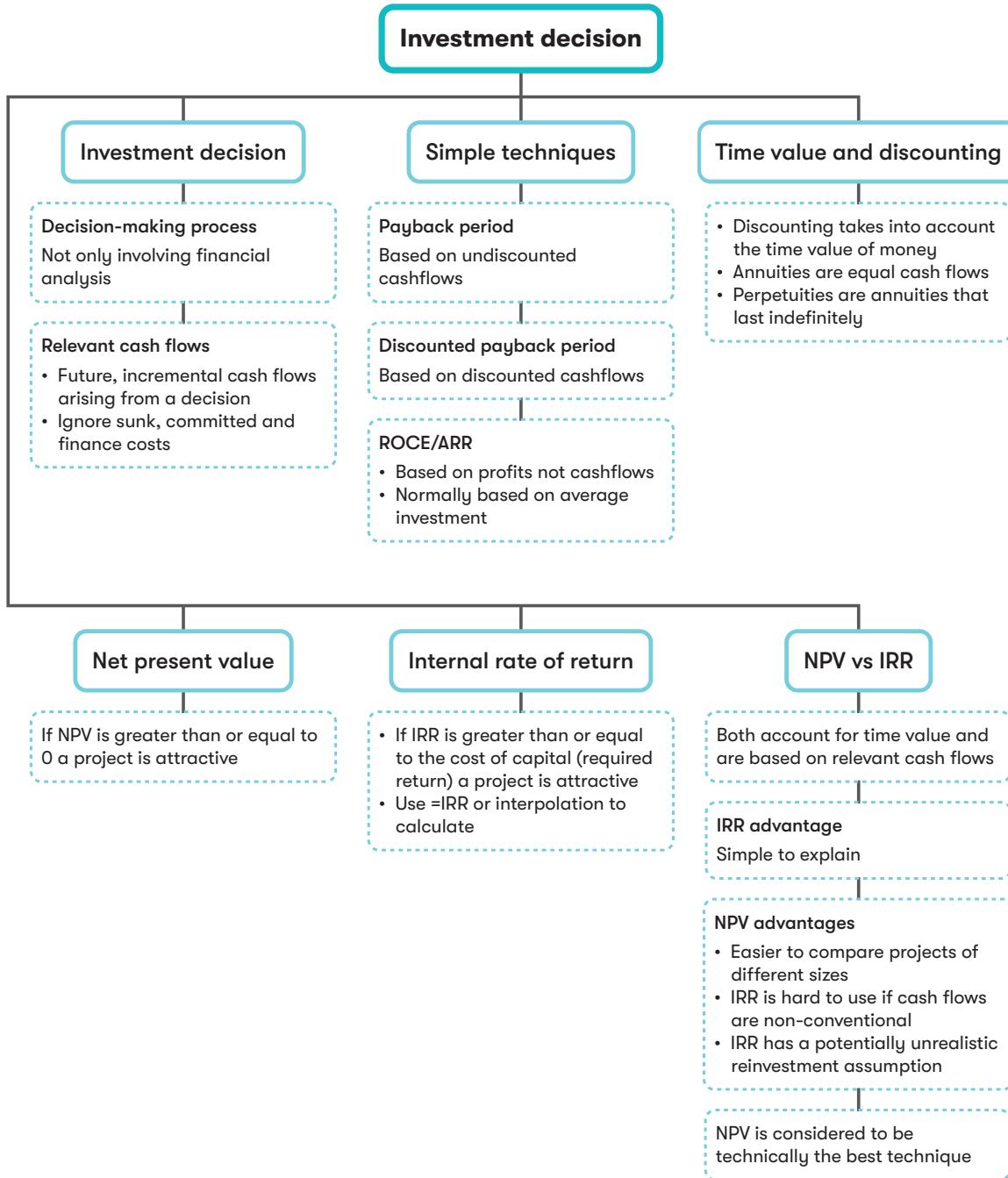
Joint probability

		Demand ('000 units)		
	30	35	40	
28	0.08	0.1		
Price (\$)	29	0.14	0.175	
30	0.18	0.225		

EV of contribution (\$)

		Demand ('000 units)		
	30	35	40	
28	21,600	31,500		
Price (\$)	29	42,000	61,250	
30	59,400	86,625		

Chapter summary



Knowledge diagnostic

1. Uncertainty

Uncertainty occurs when the outcome of a situation (eg environmental change) cannot be predicted, and neither can probabilities be assigned to different outcomes. Where this is the case, sensitivity analysis is a useful way of describing the degree of uncertainty being faced.

2. Risk

Although the outcomes of different situations are not known, their probabilities can be estimated.

3. Expected values

Where probabilities are given, expected values may be calculated by multiplying each outcome by the probability of the outcome.

4. Risk attitude

Decision makers may have a number of different attitudes to risk:

Risk seekers look to choose the decision with the best up-side result.

Risk-averse decision makers look to choose the decision with best ‘worst case’ scenario.

Risk neutral decision makers have balanced attitude to risk and make decision based on the most likely outcome.

5. Risk attitude and decision making

Different decision-making techniques will be more appropriate given the risk attitude of the decision maker:

Risk seeker: maximax decision criterion.

Risk averse: maximin, or minimax regret decision criteria.

Risk neutral: expected values.

Further study guidance

Question practice

Now try the following from the Further question practice bank (available in the digital edition of the Workbook):

Q7 Unique Components

Further reading

There are two Technical Articles available on ACCA's website, called *The risks of uncertainty* (parts 1 and 2).

The first article looks at the use of probability in decision making, and revises expected values, dispersion (standard deviation), decision rules and decision trees.

The second looks at the value of perfect information compared with the value of imperfect information; it also covers the concept of value-at-risk which is not formally mentioned in the APM syllabus but is interesting background information.

We recommend you read these articles as part of your preparation for the APM exam.

Activity answers

Activity 1: Sensitivity

Forecast income statement for the bread loaves

		\$'000
Turnover	$425m \times 1\% \times \$1.50$	6,375
Materials – special	$5m \times \$0.17$	850
Materials – other	$5m \times \$0.43$	2,150
Packaging	$5m \times \$0.12$	600
Distribution	$4\% \times \$6,375$	255
Fixed costs		<u>270</u>
Profit		<u>2,250</u>
Profit/sales (%)	$2,250/6,375$	35.3%
Target rate of return (%)		35%
Target return (\$'000)	$35\% \times 6,375$	2,231

Working

Production volume

Sales level	$425 \text{ million} \times 1\%$
Gross up for wastage	0.85
Production volume	5 million

The special ingredient can increase by the excess profit over target ($2,250,000 - 2,231,000$) = \$19,000; in percentage terms this is:

$$\frac{19,000}{850,000} \times 100 = 2.2\%$$

The finance director is correct to be concerned with an increase in the cost of the special ingredient as the success of the product depends primarily on this ingredient and the percentage return is very sensitive to an increase in the cost of an ingredient with only one supplier.

Any opportunities to manage this risk, such as fixing the price of this ingredient with the supplier, should be investigated if this project proceeds.

Activity 2: Expected values

A pay-off table is a useful way of analysing expected values, which could be profits, costs or project Net Present Values. This table shows the outcome (in each column) of each decision (top row).

Here, the pay-off table has been partly completed, with only the decision on the special contract for 500 units and the expected values for each decision in the final row left to be completed.

		Special contract (units)			
Demand (units)	p	800	700	500	300
400	0.2	4,400	4,100		2,900

		Special contract (units)			
500	0.3	4,400	4,600		3,400
700	0.4	4,400	4,600		4,400
900	0.1	4,400	4,600		5,400
EV					

Outcome of special contract of 500 units:

Demand (units)	Decision 500 units	Workings
400	3,500	$(400 \times 5) + (500 \times 3)$
500	4,000	$(500 \times 5) + (500 \times 3)$
700	5,000	$(700 \times 5) + (500 \times 3)$
900	5,000	$(700 \times 5) + (500 \times 3)$ Note: full capacity means that the extra demand from regular customers cannot be met

Expected values:

	Special contract (units)			
	800	700	500	300
1 × 4,400		0.2 × 4,100	0.2 × 3,500	0.2 × 2,900
		0.8 × 4,600	0.3 × 4,000	0.3 × 3,400
			0.5 × 5,000	0.4 × 4,400
				0.1 × 5,400
EV	<u>4,400</u>	<u>4,500</u>	<u>4,400</u>	<u>3,900</u>

John should commit to a special contract of 700 units, based on expected value.

Activity 3: Attitudes to risk

1

- (1) Using maximax – the possibility of the best of the best options (5,400) is created by choosing 300 units for the special contract.
- (2) Using maximin – the best of the worst outcomes (4,400) is created by choosing 800 units for the special contract.

Alternatively using **minimax regret**:

		Special contract Units			
Demand Units	Regret table	800	700	500	300
400	Best option = 800 unit special contract	0	300 (4,400-4,100)	900	1,500
500	Best option = 700 unit special contract	200 (4,600-4,400)	0	600	1,200
700	Best option = 500 unit special contract	600 (5,000-4,400)	400	0	600
900	Best option = 300 unit special contract	1,000 (5,400-4,400)	800	400	0
	Maximum regret	1,000	800	900	1,500

The decision with lowest maximum regret is 700 units for the special contract.

- 2 A risk-averse attitude may result from a business being under cash flow pressure, so that it cannot afford an unexpected drop in cash flow. One reason for this may be that the business has high financial gearing and has interest payments that need to be made.
- A risk-seeking attitude may reflect the values of the decision maker and may also be affected by any incentives that are based on ambitious performance targets being hit. Venture capitalists often encourage a risk-seeking attitude because they are often highly ambitious in their growth targets.

Activity 4: Joint probability

EV contribution = $\sum px$	\$	343,375
Fixed costs		<u>320,000</u>
EV profit		<u>23,375</u>

An expected profit of only \$23,375 will be achieved so manager A will reject this opportunity.

However, there is a 50% chance of achieving the desired profit (which requires contribution to be \$345,000; so it depends on the manager's attitude to risk).



Divisional performance and transfer pricing issues

Learning objectives

On completion of this chapter, you should be able to:

	Syllabus reference no.
Describe, compute and evaluate performance measures relevant in a divisionalised organisation structure including ROI, RI and economic value added (EVA™).	D2(a)
Discuss the need for separate measures in respect of managerial and divisional performance.	D2(b)
Discuss the circumstances in which a transfer pricing policy may be needed and discuss the necessary criteria for its design.	D2(c)
Demonstrate and evaluate the use of alternative bases for transfer pricing.	D2(d)
Explain and demonstrate issues that require consideration when setting transfer prices in multinational companies.	D2(e)

Exam context

This chapter continues to cover Section D of the syllabus: Strategic Performance Measurement. Following from Chapter 7, which looked at some of the key financial performance measures used to assess **company** performance, this chapter moves on to look at **divisional** performance measurement, and the associated area of transfer pricing. The topics in this chapter provide plenty of material for an exam question, and will often be examined along with the topics covered in the previous chapter.

You may already be familiar with most of these measures from your previous studies, but at the Strategic Professional level you will be expected not only to be able to calculate the measures correctly but also to discuss and apply them in the context of a scenario-based question. For example, the primary focus of a transfer pricing question in an APM exam is unlikely to be detailed transfer pricing calculations in their own right. Instead, you are more likely to be asked to comment on the transfer pricing system being used in an organisation – for example, how useful is it in allowing managers to measure and evaluate divisional performance; or how well does it ensure that decisions taken by individual divisions (with a view to maximising their own divisional profits) also help to maximise group profit as a whole.

Chapter overview

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Note. The Essential reading for Chapter 8 (in Appendix 2 of the digital edition of the Workbook) covers the potential significance of negotiation in transfer pricing, and the issues relating to transfer pricing in the context of multinational organisations.

1 Responsibility centres



Responsibility accounting: A system of accounting that segregates revenues and costs into areas of management responsibility in order to control performance.

Responsibility centre: Any part of an organisation which is headed by a manager who has direct responsibility for its performance and is accountable for it.

1.1 Controllability

The **appropriate type of responsibility centre** will depend on the areas that are under a manager's control.

The design of **managerial performance reports** (in any type of responsibility centre) should also be based on **controllable items**. Managers should only be accountable for aspects of performance which are under their control. This means that there may be a **difference** between the reporting of **divisional performance** and the reporting of **managerial performance**.

1.1.1 Divisional performance

Divisional performance should be evaluated on all the items which are directly **traceable** to the division. Divisional results may need to be **adjusted** for items that are not traceable in order to reflect **divisional performance**.

For example, **allocated** head office costs that **do not directly reflect the activity of the division** should be excluded when calculating traceable profit.

1.1.2 Managerial performance

However, **managerial performance** should only be based on items that are under **managerial control**.

This means that **to assess managerial performance**, divisional results first have to be adjusted to reflect **traceable items** and then may need to be **further adjusted** to reflect areas that are **controllable** by divisional management, by **stripping out** items over which divisional managers have **no control**.

For example, a division's results may need to be adjusted for the purpose of assessing **managerial performance**, by stripping out the effects of environmental changes that impact on divisional performance (these are traceable, but are **not controlled** by divisional managers).

The impact of **controllable costs** and **traceable costs** on divisional profit could be viewed as follows:

Revenue	X
Controllable divisional costs	(X)
Controllable divisional profit	X
Traceable divisional costs	(X)
Traceable divisional profit	X
Apportioned head office costs	(X)
Net profit	X

You may be expected to adjust a division's results to reflect the issues of **traceability and controllability** in the exam, so that they can be used to assess managerial performance.



Activity 1: Controllability

Division X is part of Control Co; both are based in Xland where the currency is the X\$.

Division X is a profit centre and exports all its products to Yland where the currency is the Y£. Division X's costs are all incurred in X\$.

Division X's customers are invoiced in Y£s, at prices fixed at the start of the year.

During 20X8, the head office at Control Co invested in a new e-commerce platform which significantly increased the efficiency of the division.

At the beginning of the final quarter of 20X8 the value of the X\$ fell by 8%, and remained at this level for the rest of the year.

The manager of Division X is currently appraised on the net profit margin of the division, and is awarded a large bonus if this exceeds 7% for the year.

The manager of Division X has complained that the net margin target is not suitable for appraising her performance.

Appendix – Extracts from Division X management accounts for year ended 20X8

	X\$'000
Revenue (Note)	2,000
Cost of sales	<u>(1,200)</u>
Gross profit	800
Depreciation	<u>(100)</u>
Allocated head office costs	<u>(90)</u>
Other overheads	<u>(500)</u>
Net profit	110
Net profit margin on revenue	5.5%

Note. Revenue accrued evenly over the financial year.

Required

Recommend, using appropriate calculations, whether it is appropriate for the manager of Division X to receive a bonus for 20X8. **(8 marks)**

1.2 Information requirements

The type of responsibility centre a division is will also have an impact on its information requirements.

Clearly, the focus of management information in **cost centres** should be on costs, but there may also be a requirement for non-financial information that can indicate the cause of cost overruns (eg defect levels).

The focus of management information in **revenue centres** should be on the revenues generated, but again there may also be a requirement for non-financial information that can indicate the cause of a fall in revenue (eg customer satisfaction; customer loyalty), and also for cost information for any costs that are directly related to selling (for example salesperson salaries).

However, we will now turn our attention to the information requirements of **investment centres** by looking at potential financial performance measures. (Again, non-financial performance measures may also be important, but these are discussed in later chapters). In an investment centre, because managers have a degree of control over both profits and the asset base, performance measures need to cover both of these areas. This can be achieved using ROI, residual income, or economic value added (EVA™).

2 ROI and RI

These techniques were introduced in the previous chapter in the context of assessing the performance of a company. They can also be employed in assessing the performance of an investment centre.

2.1 Return on investment (ROI)

ROI is similar to the return on capital employed (ROCE) figure used in corporate analysis.



Formula to learn

$$\text{ROI} = \frac{\text{Controllable divisional profit}}{\text{Divisional investment}}$$

2.1.1 Comparisons of ROI

Return on investment (ROI) will be normally be compared against an ROI target, or against last year's ROI. (Often the target will be based on historical performance.)

2.1.2 Dysfunctional behaviour

If ROI is used as the principal performance measure then it is likely that a manager will only take decisions that will increase divisional ROI, which may be at the expense of growth in corporate profits. This may occur because:

- New projects have an immediate impact on the division's asset base but may only increase profits over time.
- The current ROI may be artificially high because the division has been under-investing in recent years. (As with ROCE, one of the problems of ROI is that it can encourage short-term decision making.)

2.2 Residual income (RI)

Residual income (RI) gives a hurdle figure for profit based on the minimum return required from a division.

	\$
Controllable divisional profit	X
Less imputed interest (investment \times cost of capital)	(X)
RI	X

2.2.1 Dysfunctional behaviour

RI is less likely than ROI to encourage dysfunctional behaviour, because it encourages any investments earning above the cost of capital. However, dysfunctional behaviour may still occur if new projects have an immediate impact on the division's asset base but may only increase profits over time.



Activity 2: Divisional performance

Chi Ltd has two divisions in different parts of town and wants to monitor their performance.

Results for the last year were:

	Div A	Div B
	\$'000	\$'000
Profits	90	135

	Div A	Div B
	\$'000	\$'000
Net assets	500	750
Turnover	300	540

Division A is considering developing a new product at a cost of \$8,000. This should add \$1,200 to profits from next year onwards. Division B is reliant on several long-term product lines and sees little value in R&D expenditure.

Chi Ltd has a target ROCE of 12%, based on its WACC.

Required

Evaluate the performance of the two divisions and explain how these evaluations may lead to dysfunctional behaviour. **(10 marks)**

2.3 ROI vs RI

In practice, ROI is used more frequently than RI. RI is, however, technically superior.

2.3.1 Advantages of RI

- (a) RI increases in the following circumstances:
 - (i) Investments earning above the cost of capital are undertaken.
 - (ii) Investments earning below the cost of capital are eliminated.
- (b) RI is more **flexible** since a different cost of capital can be applied to evaluate different divisions with different risk characteristics.

2.3.2 Weaknesses of RI

- (a) It **does not facilitate comparisons** between companies or divisions of different sizes because it does not relate the size of a centre's income to the size of the investment.
- (b) It can be **difficult to decide on an appropriate and accurate measure of the capital employed** on which to base the imputed interest charge (especially when applied to divisions).

2.4 Reasons for using ROI

In practice, ROI may be used more frequently than RI because:

- (a) ROI is **consistent with corporate assessment** (ROCE).
- (b) **Ratios** are more easily understood compared with, say, costs of capital and are **more appropriate for comparing divisions of different sizes**.
- (c) Calculation of cost of capital in RI is **subjective and time consuming**.
- (d) A company may feel that the dysfunctional behaviour associated with ROI, such as underinvestment, is unlikely to occur. For example, if a company is using ROI as a part of a balanced scorecard then customer, internal business and innovation measures should all highlight the impact of underinvestment.

2.5 Problems common to ROI and RI

The calculation of '**profit**':

- (a) May need to be adjusted to reflect **controllable and traceable items** only.
- (b) Transfer prices or quantities may be imposed or set at non-commercial rates.
- (c) Both **ignore tax**.

The calculation of '**investment**':

- (a) Historical, net book or replacement value. Using net book value (NBV) **discourages replacement**. Replacement value is complex to obtain and update.

- (b) Cash may be controlled by the company's treasury department (ie not at divisional level).
- (c) Intangible assets may have no accounting value or may be complex to update. **Hard to apply to service divisions** (create more value from intangible assets).

3 Economic value added (EVATTM)



EVATM: Calculated as net operating profit after tax (NOPAT) less a capital charge
 (where the capital charge = weighted average cost of capital × net assets at the start of the period)

The logic behind EVATTM is that if the primary objective of commercial organisations is to **maximise the wealth of their shareholders**, then performance measures should evaluate how well they are doing this. It is argued that profit-based measures, which many organisations use as their primary measure of financial performance, do not do this because:

- (a) Profit ignores the cost of equity capital.
- (b) Profits calculated in accordance with accounting standards do not truly reflect the wealth that has been created.

EVATM is a variation of RI, but differs from RI in the figures it considers as profits and assets.

3.1 NOPAT

There are **differences in the way that NOPAT is calculated**, compared with the profit figure that is used for RI (and ROCE).

- (a) Costs which would normally be treated as expenses in the financial statements, but which are considered within an EVATTM calculation as **investments building for the future**, are added back to derive a figure for '**economic profit**'. These costs are included instead as assets in the figure for net assets employed; in other words, they are deemed to be investments for the future. Costs treated in this way include such items as **research and development expenditure**, and **advertising costs**.
- (b) **Cash accounting versus accruals.** Investors are primarily interested in cash flows, so accounting adjustments for non-cash items, such as provisions, or allowances for doubtful debts, are eliminated.
- (c) The charge for accounting depreciation in the income statement should be added back to profit, and a charge for **economic depreciation** made instead. The value of non-current assets (and therefore capital employed) should also be adjusted to reflect the revised charge.
 Economic depreciation reflects the true change in value of assets during the period. If no detail is given about economic depreciation in a question scenario, then you should assume that accounting depreciation is a reasonable approximation for it, and therefore you should not make any change to the depreciation figure.
- (d) **Tax paid** (in cash terms) is **deducted** from the profit figure. (Remember, 'NOPAT' stands for net operating profit **after** tax.)

Also note that interest is excluded from NOPAT because interest costs are taken into account in the capital charge (this is the same as the calculation of the profit figure for RI).

Two alternative ways of laying out your NOPAT calculations are shown in the following table.

Approach 1	Approach 2
PAT (profit after tax)	PBIT less (cash) taxes paid on operating profit
Add back	Add back
Goodwill amortised	Goodwill amortised
R&D and advertising	R&D and advertising

Approach 1	Approach 2
Non-cash items (eg provisions)	Non-cash items (eg provisions)
Depreciation (charge economic depreciation)	Depreciation (charge economic depreciation)
Interest (net of tax)	

3.2 Assets

There are **differences in the way that the asset base is calculated**, compared with the approach that is used for RI (and ROCE).

- (a) Assets are usually valued at their opening year value and at replacement cost (if given).
- (b) The asset base is also increased by any costs that have been capitalised.

Where accounting adjustments are made to NOPAT (eg to add back R&D expenditure and advertising, or non-cash items) a similar adjustment needs to be made to capital employed in the relevant year.



Activity 3: Economic value added

B Division of Z Ltd has operating profits and assets for the year ended 31 December 20X5 as below:

	\$'000
Operating profit	156.0
Less: Non-cash expenses	8.0
Amortisation of goodwill	5.0
Interest @ 10%	15.0
Profit before tax	128.0
Tax @ 30%	38.4
Profits after tax	89.6
Total equity	350.0
Long-term debt	150.0
	500.0

Z Ltd has a target capital structure of 25% debt/75% equity. The cost of equity is estimated at 15%. The capital employed at the start of the year amounted to \$470,000. Goodwill previously written off against reserves on acquisitions in previous years amounted to \$40,000.

Required

Calculate EVA™ and residual income for B Division for the year ended 31 December 20X5, and comment on your results. **(6 marks)**

3.3 Evaluation of EVA™

Advantages	Disadvantages
Calculates return in line with shareholder expectations, therefore aligns to the objective	Complex due to adjustments required

Advantages	Disadvantages
of maximising shareholder wealth	
Replaces multiple goals with one financial measure that can be used at all levels of decision making	Based on historical data (ie accounts) so may have limited use as a guide to future performance
Encourages expenditure in areas that create benefits for the long term (eg advertising & research and development)	Absolute measure making interdivisional comparisons difficult (where divisions are different sizes)
Removes distortion from accounting policies (eg the impact of provisions is removed)	Inconsistent with published financial information
Consistent with NPV (both show the return on investments in relation to the cost of financing them)	

4 Transfer pricing

The decision to create divisions often creates the need for a transfer price to be agreed between divisions for goods and services that are provided to each other.



Transfer price: The price at which goods or services are transferred from one division to another, or from one member of a group to another.

4.1 The need for transfer pricing

Where there are transfers of goods or services between divisions, these **transfers could be made 'free' or 'as a favour'** to the division receiving the benefit.



Example

A car dealership has two divisions, one for car repairs and servicing, the other for car sales. The servicing division is also required to service cars before they are sold and delivered to customers. In the absence of a transfer pricing system, the servicing division could do its work for the car sales division **without making any record** of the work done.

5.1.1 Control information

It is necessary for **control purposes** that some **record** of the inter-divisional services should be kept, and one way of doing this is **through the accounting system**. Inter-divisional work can be given a cost or charge: a transfer price.

Returning to the illustration of the sales division and a repairs/servicing division in the car dealership, unless the cost or value of service work performed for the sales division is recorded, management cannot keep a proper check on the amount of resources (like labour time) being used on servicing cars for the sales division.

5.1.2 Performance measurement

The illustration also demonstrates the need for transfer pricing to help **evaluate the performance of divisions** fairly. If the service division does not receive any credit for the work it does for the sales division, then its revenue and profitability are effectively understated. Conversely, the performance of the sales division is effectively overstated.

Therefore, transfer prices are required to prevent the performance of the two divisions being distorted.

5.1.3 Motivation of managers

Preventing distortion of performance in this way should also help maintain the **motivation** of the divisional managers. For example, if the selling division (in our example, the service division) doesn't get any credit for the work it does, this could demotivate the manager and staff of that division.

It may also motivate the repair and services division to do a poor job (as they don't get any credit for the work performed). In turn, this could **damage the interests of the company as a whole** (if the cars subsequently sold on to customers have problems which should have been fixed by the service division, but weren't).

5.1 The aims of transfer pricing

Aim	Achieved by
Preserve goal congruence ie aligning divisional behaviour with the best interests of the group as a whole	Decisions that managers take to improve the profit of their division will also improve the profit of the company as a whole (Drury, 2004); achieved by setting a transfer price which reflects the true cost to the company of products or services being transferred between divisions
Allow managers to retain autonomy	Not forcing internal transfers on to a division; instead, allowing divisions to decide where they buy from, or who they supply, and in what quantities
Permit performance evaluation of divisions	Preventing unfair impact on performance measures of either division

The diagram below illustrates the process of an internal transfer by a selling division that is supplying a product to a buying/receiving division.

Transfer prices are most commonly negotiated between divisions based on either cost or market price.

6 Cost-based methods of transfer pricing

The supplying division has its costs of manufacturing refunded and may also be allowed a mark-up to encourage the transfer. Cost-based approaches may be necessary if there is **no external market** for the product that is being transferred.

6.1 Actual cost vs standard cost

Actual costs:

- All inefficiencies passed on to buying division, as there is no encouragement for cost control in the selling division
- Buying division does not know in advance what price it will be paying

Using **standard costs** overcomes all of these problems.

6.2 Standard variable/marginal cost

The selling division (S) should transfer goods to the buying division at the marginal cost of production if:

- S has **spare capacity** as the marginal costs reflects the true cost to the company of the transfer taking place;
- S has no external market so could operate as a cost centre. If S is a profit centre, it will be demotivated as fixed costs will not be covered.

6.3 Full cost

Full cost (variable costs plus fixed overheads) – sometimes this also includes a mark-up.

- (a) May lead to high transfer price, and therefore the receiving division may look to use an external supplier instead.
- (b) This may lead to the wrong decision being made, because fixed costs are not a relevant cost.

Using variable costs overcomes these problems, but does mean that the selling division will not cover its fixed costs.



Activity 4: Cost + transfer pricing

	\$
Division S	
Direct cost	20.00
Fixed overhead absorbed	<u>8.00</u>
	28.00
Standard profit @ 10%	2.80
Transfer price	30.80

Division S has proposed a transfer price of \$30.80 per unit, for goods which it supplies to Division R (based on the calculations in the table above).

Division R, the receiving division, can buy externally at \$26.

Required

Discuss the likely outcome of setting the transfer price at \$30.80.

(5 marks)



Activity 1:

Solution

6.4 Dual pricing and two-part tariff systems

Fixed costs can be considered in a **marginal cost-based transfer pricing system** in the following ways:

(a) Dual pricing

Where an external market exists, credit the selling division with the market price of the transfers made but debit the buying division with the variable cost.

(b) Two-part tariff

Transfer prices are set at variable cost and once a year there is a **transfer of a fixed fee to the supplying division** representing an allowance for its fixed costs. This should allow the supplying division to cover its fixed costs and make a profit.

7 Market-based approaches to transfer pricing

Where a market price exists it can be used as the basis for a transfer.

If the supplying division is at full capacity then the revenue it loses as a result of an internal transfer shows the true cost (revenue foregone) to the division of an internal transfer.

If a division would have to incur marketing costs to sell externally then the market price should be **adjusted** to reflect the fact that an internal transfer would not incur this cost. So the transfer price becomes lower, ie market price less marketing costs.



Activity 6: Creative division

The creative division (CD) of Unique Components Ltd produces wooden components that it sells to external customers and transfers to other divisions within its own group of companies.

Production involves the preparation of timber, cutting the timber into shapes and the assembly of the shapes into components. The total component cost for Component A has been estimated as \$41.21 per unit (variable costs account for 45% of this).

Selling costs incurred in selling to external customers are \$5 per unit.

The selling price is \$55.63.

Required

Discuss the application and acceptability of the following transfer price bases at which Component A may be offered by CD to other divisions within the same group of companies:

- (1) Market price
- (2) Marginal cost

8 Opportunity cost approach to transfer pricing

The optimal transfer price (TP) should be calculated using opportunity costs.



Formula to learn

Minimum TP = marginal cost to selling division + opportunity cost of resources used

- (a) If external market exists for the intermediate product: opportunity cost is contribution lost from the external sale forgone.
- (b) If no external market for the intermediate product exists, the opportunity cost (or shadow price) is:
 - (i) Nil; or
 - (ii) Opportunity lost by not using resources on alternative products.

Note. If this price is above the external market price or the receiving division's net revenue then the internal transfer will not and should not happen.



Activity 7: Synfib

Company C is engaged in synthetic fibre production. It is situated in Country A where it operates two production plants.

Plant 1 manufactures a single product, which is a special grade of polymer.

The polymer is then transferred to Plant 2 which produces a synthetic fibre, 'Synfib'.

The polymer produced by Plant 1 is of a special grade and manufactured specifically for the production of Synfib, so there is no intermediate market for it.

Demand for Synfib

There is strong worldwide demand for Synfib and Company C is the only producer, although substitute products are available.

The following schedule shows the monthly demand for Synfib.

Litres (millions)	\$ per litre
75	200
100	175
125	150

The manager of Plant 2 has autonomy to choose the level of output of Synfib, and always selects the level of output which maximises Plant 2's contribution.

Output of Synfib is produced in batches of 25 million litres. The minimum monthly quantity produced is 75 million litres, and the maximum monthly demand is 125 million litres (which is the maximum quantity that can be produced each month).

Costs

The marginal costs incurred in the production of Synfib are as follows:

Synfib	\$ per litre
Costs incurred within Plant 1	12
Costs incurred within Plant 2	24

Disagreement over transfer prices

The transfer price for the polymer has been set at \$40 per litre.

Recently the divisional manager of Plant 2 has argued that the transfer price of \$40 per litre is too high. She believes that a transfer price set at Plant 1's marginal cost of \$12 per litre would result in increased contribution for C as a whole.

Required

Evaluate whether C's contribution could be increased by changing the transfer price as suggested. **(10 marks)**



Essential reading

Please refer to Chapter 8 Section 1 of the Essential reading for a discussion of other practical transfer pricing issues including issues relating to transfer prices in multinational companies.

The Essential reading is available as an Appendix of the digital edition of the Workbook.

Chapter summary

Knowledge diagnostic

1. Cost centre

Managers are responsible for controllable costs only.

2. Revenue centre

Managers are responsible for controllable revenue only.

3. Profit centre

Managers are responsible for controllable costs and revenue.

4. Investment centre

Managers are responsible for controllable costs, revenue and asset base.

5. Performance measurement

One of the key problems of measuring managerial performance is in distinguishing managerial performance from the overall performance of a division. The issue of control is crucial here; managers should only be assessed on the aspects of performance they can control.

6. EVATM

EVATM = NOPAT – net assets at start of year × WACC

EVA is similar to RI, in that both are calculated by subtracting an imputed interest charge from the profit earned by a division or company. However, there are key differences in the way ‘profit’ figure is calculated in EVATM, with NOPAT being derived by making a series of adjustments to accounting profit. The replacement cost of net assets also needs to be used when calculating the capital charge.

7. Transfer prices

The aims of transfer pricing should be to: preserve goal congruence; to allow divisions to retain autonomy; and to enable performance evaluation of divisions.

8. Bases of transfer pricing

Transfer prices may be based on **market price** (or adjusted market price) where there is an external market for the good or service being transferred. If no external market exists, a **cost-based** approach to transfer prices may need to be used, but this should be based on standard costs, not actual costs. In practice, transfer prices are often **negotiated** between divisions.

Further study guidance

Question practice

Now try the following from the Further question practice bank (available in the digital edition of the Workbook):

Q11 Transfer pricing

Q12 Creative Division

Further reading

There are two articles in the Technical Articles section for APM on ACCA's website, *Economic value added versus profit-based measures of performance* (Part 1 and 2). You are strongly advised to read these as part of your preparation for the exam.

The first of the articles points out that, in practice, there could be a very large number of adjustments required to accounting profits when calculating NOPAT. The examining team will, however, only expect you to be aware of the most common adjustments.

There is also a Technical Article available on ACCA's website, called *Transfer Pricing* which summarises why transfer prices are needed, and discusses different approaches to transfer pricing. We recommend you read this article as part of your preparation for the APM exam.

Activity answers

Activity 1: Controllability

The net profit margin of the division is currently 5.5%, so under the stated basis of calculation, the manager will not receive a bonus. However, the performance measure should focus on ‘controllable profit’.

The controllable net profit is arrived at after items which are not under the manager’s control are added back. Division X is a profit centre (not an investment centre) so depreciation is not a controllable cost for the divisional manager. Similarly, allocated head office costs need to be added back when assessing the manager’s performance (this assumes that none of the Head Office costs can be directly attributed to Division X).

The net profit margin **controllable** by the manager of Division X is 13.4%. On that basis, the manager should be awarded a bonus for the year.

It could be argued that the increase in productivity due to the corporate investment in the new e-commerce platform is not a factor that is controllable by the manager of Division X.

However, the exact increase in Division X’s productivity resulting for the new e-commerce platform is unclear, so it is difficult to accurately adjust the controllable net profit margin to reflect this.

To reduce the controllable net profit margin to 7% (the threshold at which the manager is awarded their bonus) the net profit would have to fall by 6.4% of adjusted sales or approximately by X\$125,632 ($X\$1,963 \times 6.4\%$).

Workings

1 Controllable net profit margin for Division X

Controllable net profit	X\$'000
Reported net profit	110
Non-controllable items	
Add back:	
Depreciation	100
Allocated head office costs	90
Deduct:	
Currency gain (W2)	(37)
Controllable net profit	263
Controllable revenue	
Reported revenue	2,000
Deduct currency gain (W2)	(37)
Controllable revenue	1,963
Controllable net profit margin (263/1,963)	13.4%

2 Currency gain

Three months of revenue was increased by 8% due to currency gain.

Three months revenue after currency gain = 500.0

Before the currency gain this would have been lower, ie $500/1.08 = 463.0$
 So the gain due to currency is $500 - 463 = 37$

Activity 2: Divisional performance

Performance	Div A	Div B
	30%	25%
Profit margin	$(90/300) \times 100$	$(135/540) \times 100$
	0.6	0.72
Asset turnover	$(300/500)$	$(540/750)$
	18%	18%
ROCE (ROI)	$(90/500) \times 100$	$(135/750) \times 100$

Both divisions have 18% ROI. However, if they communicated and shared knowledge on margins and asset turnover, ROI could become $30\% \times 0.72 = 21.6\%$ (assuming the divisions sell similar products). However, there may well be a trade-off between increasing both margins and revenues simultaneously.

As both exceed the target of 12% there is little incentive to do so.

	Div A \$'000	Div B \$'000
RI:		
Profits	90	135
Less imputed interest		
$12\% \times \$500k$	60	
$12\% \times \$750k$		90
Residual income	30	45

Division B appears to be outperforming Division A, but that is only because it is larger.

ROI takes size into account so is more equitable for comparing performance.

Decision making (dysfunctional behaviour)

The NPV of the new product (assuming that profit is equivalent to cash flow over the long term) is:

Time	0	1 onwards
	(\$8,000)	\$1,200
Discount factor	1.0	1/0.12
PV	(\$8,000)	\$10,000
NPV	\$2,000	

The new product is generating a positive NPV and therefore from the group's perspective it is value creating and should be accepted by the division.

New product – divisional analysis:

$$\text{ROI} = \frac{\$1,200}{\$8,000} = 15\%$$

	\$
RI profit	1,200
Less imputed interest ($\$8,000 \times 12\%$)	<u>960</u>
	240

Using ROI, the new product would be unlikely to be developed, as Division A's performance would appear to fall. However, under RI measurement the product would be launched as it exceeds the minimum required return.

RI is better for decision making than ROI.

Division B sees little value in R&D. Given the ways its performance is assessed this is not surprising.

- (1) R&D increases either capital or expenditure and therefore decreases ROI in the short term.
- (2) The short-term nature of the measures discourages long-term or risky investments.
- (3) High levels of depreciation or amortisation will depress returns early in a product's life. This may also be when sales are low.

Activity 3: Economic value added

	\$'000	\$'000
PAT		
Net profit		89.6
Add back:		
Non-cash expenses	8	
Amortisation of goodwill	5	
Interest (net of 30% tax) 15×0.7	<u>10.5</u>	<u>23.5</u>
NOPAT	-	<u>113.1</u>

Alternative approach:

PBIT	143.0
Less tax @ 30%	(42.9)
Add back	
Non-cash expenses	5.0
Amortisation of goodwill	<u>8.0</u>
NOPAT	<u>113.1</u>

Assets	
At start of year	470
Add back amortised goodwill	<u>40</u>
	<u>510</u>

WACC	
Equity $15\% \times 75\%$	0.1125
Debt $(10\% \times 0.7) \times 25\%$	<u>0.0175</u>

PAT	\$'000	\$'000
WACC		<u>0.13</u>
EVA™ NOPAT	113.1	
Capital charge ($13\% \times \$510$)	<u>66.3</u>	
	<u>46.8</u>	
RI		
PBIT	143	
Capital charge ($13\% \times \$500$)	<u>65</u>	
	<u>78</u>	

The business is creating value, as its return (however calculated) is greater than the group's WACC

Activity 4: Cost + transfer pricing

Is this goal congruent?

From the group perspective the decision is to make or to buy.

If these absorbed overheads are general:

Cost to make	\$20
Cost to buy	<u>\$26</u>
Extra cost if bought	<u>\$6</u>

The item should be made in-house and transferred from S to R.

The transfer price needs to be amended $\underline{\$26} > TP > \20

If these absorbed overheads are specific:

Cost to make ($\$20 + \8)	\$28
Cost to buy	<u>\$26</u>
Saving if bought	<u>\$2</u>

The item should be purchased externally.

Activity 5:

Activity 6: Creative division

$$(1) \$55.63 - \$5 \text{ selling costs saved} = \$50.63$$

Reflects the revenue forgone by the supplying division from the transfer as long as there is **no spare capacity**.

Since this is a fair price, reflecting the true cost of an internal transfer, this should not distort performance.

(2) $\$41.21 \times 0.45 = \18.54

Reflects the ‘true cost’ of the supplying division from the transfer **if there is spare capacity**.

However, the supplying division is not guaranteed to cover its overheads and therefore may be loss making. This issue could be addressed by:

Dual pricing – supply division receives market price, receiving division is charged at marginal cost.

Marginal cost + lump sum – the amount of the lump sum depends on capacity (ie opportunity cost) and therefore stimulates discussion of capacity issues.

Activity 7: Synfib

(i) Transfer price of Polymer at \$40 per litre

Output of Synfib

Litres (million)	Total revenue \$m	Marginal costs \$m	Total contribution \$m
75	15,000	4,800	10,200
100	17,500	6,400	<u>11,100</u>
125	18,750	8,000	10,750

(ii) Transfer price of Polymer at \$12 per litre

Output of Synfib

Litres (million)	Total revenue \$m	Marginal costs \$m	Total contribution \$m
75	15,000	2,700	12,300
100	17,500	3,600	13,900
125	18,750	4,500	<u>14,250</u>

The above table shows the best contribution **made by Plant 2** from the production of Synfib (the maximum contribution is underlined). The marginal costs are made up of the transfer price plus the other Plant 2 costs (\$24 per litre).

This suggests that pre-tax contribution will increase by \$3,150 million if the transfer price is set at \$12 and production increased from 100 million litres to 125 million litres.

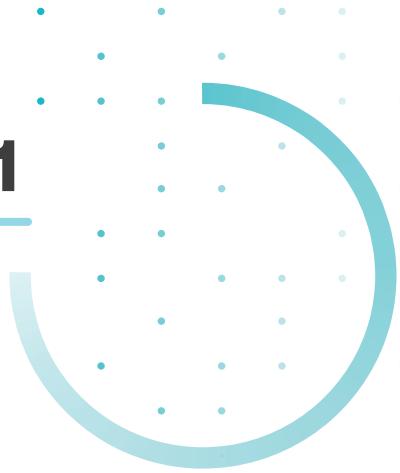
However, Plant 1 will suffer a loss in contribution because the transfer price is lower and contribution will fall from \$2,800 million $((\$40 - \$12) \times 100\text{m litres})$ to zero.

The net impact on Company C is therefore \$3,150m – \$2,800m = \$350m.

C's profits have therefore increased. This is because there is no opportunity cost from the sale of the polymer so the true cost of the transfer is \$12 per litre. The inflated transfer price of \$40 is causing the price of Synfib to be artificially inflated and the output to be reduced as a result. However, this conclusion assumes that this capacity is available and that C is not able to use spare capacity for any other activity which earns more contribution.

Skills checkpoint 1

Approach to objective test (OT) questions



Chapter overview

Introduction

Both Sections A and B of the FM exam consist of OT questions.

Section A – Single OT questions

OT questions are single, short questions that are auto-marked and worth two marks each. You must answer the whole question correctly to earn their two marks. There are no partial marks.

The OT questions in Section A aim for a broad coverage of the syllabus, and so all areas of the syllabus need to be carefully studied. You need to work through as many practice objective test questions as possible, reviewing carefully to see how correct answers are derived.

The following types of OT question commonly appear in the FM exam:

Question type	Explanation
Multiple choice (MCQ)	You need to choose one correct answer from four given response options.
Multiple response (MR)	These are a kind of multiple choice question, except you need to select more than one answer from a number of given options. The question will specify how many answers need to be selected, but the system won't stop you from selecting more answers than this. It is important to read the requirement carefully.
Fill in the blank (FIB)	This question type requires you to type a numerical answer into a box. The unit of measurement (eg \$) will sit outside the box, and if there are specific rounding requirements these will be displayed.
Drag and drop	Drag and drop questions involve you dragging an answer and dropping it into place. Some questions could involve matching more than one answer to a response area and some questions may have more answer choices than response areas, which means not all available answer choices need to be used.
Drop down list	This question type requires you to select one answer from a drop down list. Some of these questions may contain more than one drop down list and an answer has to be selected from each one.

Section B – OT Case questions

Similarly, to Section A, questions can come from any area of the syllabus, reinforcing the need for candidates to study the whole syllabus. Section B will include three OT case questions.

Each OT Case contains a group of five OT questions based around a single scenario. These can be any combination of the single OT question types and they are auto-marked in the same way as the single OT questions.

OT Cases are worth 10 marks (each of the five OTs within it are worth two marks, and as with the OT questions described above, students will receive either two marks or zero marks for those individual questions).

OT cases are written so that there are no dependencies between the individual questions. So, if you did get the first question wrong, this does not affect your ability to get the other four correct. The OT Case scenario remains on screen so you can see it while answering the questions.

Each OT case normally consists of two numerical and three discursive style questions. It is often quicker to tackle the discursive questions first leaving some additional time to tackle calculations.

Skills Checkpoint 1: Approach to OT questions

FM Skill: Approach to OT questions

A step-by-step technique for approaching OT questions is outlined below. Each step will be explained in more detail in the following sections as the OT case question ‘Ring Co’ is answered in stages.

Exam success skills

The following question is a Section B OT case question from a past exam worth 10 marks. The technical knowledge required for this question is covered later in the course (in chapter 13), we are looking at it here from a technique viewpoint not a knowledge viewpoint.

For this question, we will also focus on the following **exam success skills**:

- **Managing information.** It is easy for the amount of information contained in an OT case questions in section B to feel a little overwhelming. **Active reading** is a useful technique to use to avoid this. This involves focusing on each of the five requirements first, on the basis that until you have done this the detail in the question will have little meaning and will seem more intimidating as a result.

Focus on the requirements, highlighting key verbs to ensure you understand the requirement properly and correctly identify what type of OT question you are dealing with. Then read the rest of the scenario, underlining and annotating important and relevant information, and making notes of any relevant technical information you think you will need.

- **Correct interpretation of requirements.** Identify from the requirement the different types of OT question. This is especially important with multiple response questions to ensure you select the correct number of response options.
- **Good time management.** Complete all OT’s in the time available. Each OT is worth 2 marks and should be allocated 3.6 minutes.

Skill activity

The following scenario relates to questions 1 to 5.

Ring Co has in issue ordinary shares with a nominal value of \$0.25 per share. These shares are traded on an efficient capital market. It is now 20X6 and the company has just paid a dividend of \$0.450 per share. Recent dividends of the company are as follows:

Year	20X6	20X5	20X4	20X3	20X2
Dividend per share	\$0.450	\$0.428	\$0.408	\$0.389	\$0.370

Ring Co also has in issue loan notes which are redeemable in 7 years’ time at their nominal value of \$100 per loan note and which pay interest of 6% per year.

The finance director of Ring Co wishes to determine the value of the company.

Ring Co has a cost of equity of 10% per year and a before-tax cost of debt of 4% per year. The company pays corporation tax of 25% per year.

- (a) **Using the dividend growth model, what is the market value of each ordinary share?**

- \$8.59
- \$9.00
- \$9.45
- \$7.77

Note. This is an MCQ requiring one correct answer to be selected. A calculation of the market value of Ring Co's share using the dividend growth model is required. The required formula is given in the exam.

(b) **What is the market value of each \$100 loan note? (give your answer to two decimal places)**

\$

Note. This is a FIB question, it is important you insert your answer to two decimal places. A calculation of the MV of Ring Co's loan notes is required. This is a popular question in the FM exam. You will need to discount the CF's associated with the loan note to calculate the market value.

(c) **The finance director of Ring Co has been advised to calculate the net asset value (NAV) of the company.Which of the following formulae calculates correctly the NAV of Ring Co?**

- Total assets less current liabilities
- Non-current assets plus net current assets
- Non-current assets plus current assets less total liabilities
- Non-current assets less net current assets less non-current liabilities

Note. This is another MCQ, you need to select one correct definition of the net asset value.

(d) **Which of the following statements about valuation methods is true?**

- The earnings yield method multiplies earnings by the earnings yield.
- The equity market value is number of shares multiplied by share price, plus the market value of debt.
- The dividend valuation model makes the unreasonable assumption that average dividend growth is constant.
- The price/earnings ratio method divides earnings by the price/earnings ratio.

Note. This is an MCQ question requiring you to select one valid statement.

(e) **Which of the following statements about capital market is/are correct?**

Insider information cannot be used to make abnormal gains in a strong form efficient capital market.	
In a weak form efficient capital market, Ring Co's share price reacts to new information the day after it is announced.	
Ring Co's share price reacts quickly and accurately to newly released information in a semi-strong form efficient capital market.	

Multi use tokens

Correct

Incorrect

STEP 1 Answer the questions you know first.

If you're having difficulty answering a question, move on and come back to tackle it once you've answered all the questions you know. It is often quicker to answer discursive style OT questions first, leaving more time for calculations.

Questions 3, 4 and 5 are discursive style questions. It would make sense to answer these three questions first as it is likely that you will be able to complete them comfortably within the 10.8 minutes allocated to them. Any time saved could then be spent on the more complex calculations required to answer questions 1 and 2.

STEP 2 Answer all questions.

There is no penalty for an incorrect answer in ACCA exams, there is nothing to be gained by leaving an OT question unanswered. If you are stuck on a question, as a last resort, it is worth selecting the option you consider most likely to be correct, and moving on. Make a note of the question, so if you have time after you have answered the rest of the questions, you can revisit it.

Three of the five questions in the OT case are MCQ's. With an MCQ you have a 25% chance of getting the question correct so don't leave any unanswered. It is obviously more difficult to get a fill in the blank question (like question 2) correct by guessing.

STEP 3 Read the requirement first!

The requirement will be stated in bold text in the exam. Identify what you are being asked to do, any technical knowledge required and **what type of OT question** you are dealing with. Look for key words in the requirement such as 'which TWO of the following,' 'which of the following is NOT'.

Question 2 is a FIB (fill in the blanks) question, you need to follow the instructions carefully and insert your answer to two decimal places. Questions 3 and 4 ask you to identify which statements are **correct**. Read through each statement carefully knowing that you are looking to identify the statement that is **correct**.

STEP 4 Apply your technical knowledge to the data presented in the question.

Work through calculations taking your time and read through each answer option with care. OT questions are designed so that each answer option is plausible. Work through each response option and eliminate those you know are incorrect.

To answer questions 1 and 2 you need to analyse the data given in the question.

Let's look at question 1 in detail. The question asks you to calculate the market value of Ring Co's shares using the dividend growth model. You will therefore need to find D_0 , g and the cost of equity (r_e) from the data in the question.

Ring Co has in issue ordinary shares with a nominal value of \$0.25 per share. These shares are traded on an efficient capital market. It is now 20X6 and the company has just paid a dividend of¹ \$0.450 per share.
Recent dividends of the company are as follows:²

¹ D_0
= \$0.450

²
Historical dividends
= 100 x ((0.450 / 0.370)^0.25 - 1)
= 5%

Year	20X6	20X5	20X4	20X3	20X2
Dividend per share	\$0.450	\$0.428	\$0.408	\$0.389	\$0.370

Ring Co also has in issue loan notes which are redeemable in 7 years' time at their nominal value of \$100 per loan note and which pay interest of 6% per year.

The finance director of Ring Co wishes to determine the value of the company.

Ring Co has a cost of equity of 10% ^{per³} year and a before-tax cost of debt of 4% per year. The company pays corporation tax of 25% per year.

³ r = 0.10

Taking all 3 variables from the question you can now use the dividend growth model to calculate the value of Ring Co's share.

$$P_0 = D_0 (1+g) / (r_e - g)$$

$$\text{Share price} = (0.450 \times 1.05) / (0.1 - 0.05) = \$9.45$$

To answer question 3 you can start by eliminating the response options that do not correctly define the net asset value of a company.

The finance director of Ring Co has been advised to calculate the net asset value (NAV) of the company.

Which of the following formulae calculates correctly⁴ the NAV of Ring Co?

⁴ This definition wrongly excludes non-current liabilities

- Total assets less current liabilities
- Non-current assets plus net current assets⁵
- Non-current assets plus current assets less total liabilities
- Non-current assets less net⁶ current assets less non-current liabilities

The correct definition of net asset value is:

- Non-current assets plus current assets less total liabilities

Exam success skills diagnostic

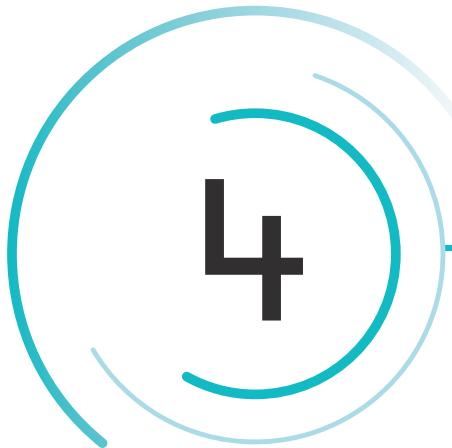
Every time you complete a question, use the diagnostic below to assess how effectively you demonstrated the exam success skills in answering the question. The table has been completed below for the Ring Co activity to give you an idea of how to complete the diagnostic.

Exam success skills	Your reflections/observations
Managing information	Did you read each of the five requirements first? Did you actively read the scenario highlighting relevant data required such as the dividend just paid, cost of equity and dividend growth pattern?
Correct interpretation of requirements	Did you identify the correct technical knowledge needed to answer each requirement? For example, using the dividend growth model formula to answer question 1. Did you identify what type of OT question you were dealing with? For example, knowing that only one correct answer is required for a multiple choice question.
Good time management	Did you manage to answer all five questions within 18 mins? Did you manage your time well by answering questions three, four and five first?
Most important action points to apply to your next question	

Summary

60% of the FM exam consist of OT questions. Key skills to focus on throughout your studies will therefore include:

- Always read the requirements first to identify what you are being asked to do and what type of OT question you are dealing with
- Actively read the scenario highlighting key data needed to answer each requirement.
- Answer OT questions in a sensible order dealing with any easier discursive style questions first.



Performance measurement and strategic HRM issues

Learning objectives

On completion of this chapter, you should be able to:

	Syllabus reference no.
Advise on the relationship of HR management to performance measurement (performance rating) and suitable remuneration methods.	D6(a)
Advise on the link between achievement of the corporate strategy and the management of human resources (eg through the building block model).	D6(b)
Discuss and evaluate different methods of reward practices.	D6(c)
Assess the potential beneficial and adverse consequences of linking reward schemes to performance measurement, for example, how it can affect the risk appetite of employees.	D6(d)
Discuss the accountability issues that might arise from performance measurement systems.	D7(a)
Assess the statement: ‘What gets measured gets done’.	D7(b)
Demonstrate how management style needs to be considered when designing an effective performance measurement system.	D7(c)

Exam context

For most organisations, their performance, and their ability to successfully achieve objectives, will be strongly influenced by the skills and behaviours of their employees.

As such, human resource management (HRM) plays an important role in enabling organisations to implement their strategies successfully. The performance measurement systems used to assess employees, and the reward systems in place, are key components in the relationship between HRM and strategy because they need to motivate employees to help an organisation achieve its objectives.

In the context of an exam question, you need to be prepared to look critically at an organisation's remuneration and reward schemes and the extent to which they help an organisation implement its strategy successfully through the efforts and behaviours of its staff, and by helping the organisation recruit and retain appropriate staff.

Fitzgerald and Moon's Building Block model provides a framework for linking HRM to corporate strategy, and because the model is specifically listed in the Study Guide you should be prepared for it to be directly examined. This model is examinable in the context of HR issues such as

rewards, and is also covered in syllabus section E, in Chapter 13, in the context of multi-dimensional performance appraisal.



Chapter overview

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1 Strategic human resource management (HRM)



Human resource management (HRM): ‘A strategic approach to managing employment relations which emphasises that leveraging people’s capabilities and commitment is critical to achieving sustainable competitive advantage or superior public services. This is accomplished through a distinctive set of integrated employment policies, programmes and practices, embedded in an organisational and societal context.’ (Bratton & Gold, 2012, p. 7)

The definition of HRM highlights that employees’ knowledge and skills are an important strategic resource of organisations. It is important for organisations to have the right quantity and quality of people it needs. So operational success can depend on effective **recruitment** and **retention** and **motivation** of staff.

1.1 HRM and performance measurement

Performance management requires that the strategic objectives of the organisation are broken down into layers of more and more detailed sub-objectives, so that individual performance can be judged against personal goals that support and link directly back to corporate strategy.

This hierarchy of goals and objectives was discussed in Chapter 2 earlier. **Targets** set for individuals need to be **achievable and controllable**.

Performance against targets will be reviewed as part of the **appraisal process**.

In addition to providing a performance rating, a staff appraisal scheme will:

- Set motivating **challenges**;
- Identify **training needs**;
- Provide a forum for exchanging **feedback**; and
- Identify **future aspirations** and expectations (career management).



Essential reading

See Chapter 12 Section 1 of the Essential reading for more detail about appraisals and their use in performance management.

See Chapter 12 Section 2 of the Essential reading for more detail about the selection of suitable performance indicators against which to measure employees’ performance.

The Essential reading is available as an Appendix of the digital edition of the Workbook.

1.2 Performance measurement and corporate strategy

Fitzgerald and Moon (1996) focused on performance measurement in service businesses in their building block model. This framework is also known as the **results** and **determinants** framework, because it is argued that **performance dimensions** need to cover two general areas:

Fitzgerald and Moon (1996) suggest that **results** and **determinants** should be viewed over **six dimensions** (with 1–2 being ‘results’ and 3–6 being ‘determinants’).

- (a) **Financial performance** (eg profitability)
- (b) **Competitive performance** (eg sales growth; market share)
- (c) **Quality** – reliability, courtesy, competence and availability
- (d) **Resource utilisation** – how efficiently resources are being used to create outputs (eg productivity of staff)
- (e) **Flexibility** – the ability to deliver at the right time in response to customer needs (eg speed of delivery, responding to different customer requirements, coping with fluctuating levels of demand)
- (f) **Innovation** – developing new products or services to find new, more effective ways of satisfying customers’ needs

1.2.1 Other ‘building blocks’

Fitzgerald and Moon’s building block model is **not** only about the dimensions over which performance should be measured. It is also about the nature of the **standards** against which performance is measured, and the **rewards** associated with achieving these standards. The full model is shown below:

Building Block model (after Fitzgerald & Moon, 1996)

1.2.2 Standards

- The dimensions of performance should be set according to the following **standards**:

Ownership

- Employees need to participate in the creation of standards to take ownership of them, and to feel more motivated to achieve them.

Achievement

- The standards set must be challenging but achievable. If staff perceive standards to be set so high that they are unachievable, this is likely to demotivate them.

Equity (fairness)

- Each division or department must have appropriate standards set for it in order to ensure fairness in measurement.

1.2.3 Rewards

Achievement of standards should be supported by **rewards**. This should involve:

Clarity

- The objectives of the organisation need to be clearly understood by those whose performance is being assessed; they need to know what targets they are working towards.

Motivation

- Individuals need to be motivated to achieve the objectives. Goal clarity, and participation in target setting can contribute to higher levels of motivation to achieve targets.

Controllability

- Managers should not be held responsible for aspects of performance over which they have no control (eg managers should not be held responsible for costs they do not control).

2 Reward schemes



Reward scheme: A reward scheme (or reward system) encompasses ‘all of the monetary, non-monetary and psychological payments that an organisation provides for its employees in exchange for the work they perform’ (Bratton & Gold (2007), cited in Ryan, 2015(b)).

The rewards provided for employees may be seen as **extrinsic** or **intrinsic**.

- (a) **Extrinsic rewards** derive from **job context** and include pay and other material benefits as well as such matters as working conditions and management style.
- (b) **Intrinsic rewards** derive from **job content** and satisfy higher-level needs, such as those for self-esteem and personal development.

An organisation’s reward scheme is based on these two types of reward, but also includes the policies and processes involved in providing them.

Reward schemes should:

- Support the overall **strategy** of the organisation by aligning the **goals** of individual employees with the goals of the organisation;
- Be **affordable** (remember: reward is a cost to the employer), and **easy to administer** efficiently and correctly;
- Support **recruitment** and retention policies;
- Increase **motivation**;
- Encourage **ethical behaviour**, and promote compliance with workplace rules and expectations; and
- Be **fair** and **conform with law** (eg minimum wage legislation).

When evaluating potential reward schemes, an organisation also needs to consider:

- How do levels of pay and material benefits compare to what employees believe to be the prevailing market rate? (ie **external competitiveness** of rewards).
- Internal comparison: how do rewards earned by employees within the organisation compare to those earned by other employees in similar roles? (ie **internal equity** (fairness) of rewards).
- If employees are dissatisfied with rewards and leave the organisation, this will lead to increased recruitment costs to find replacements.

2.1 Reward methods

Material reward may be divided into three categories:

- (a) **Base pay** (basic salary)
- (b) **Performance-related pay** (eg bonuses); remuneration is linked to an assessment of performance, usually measured against pre-agreed objectives
- (c) **Indirect pay** (eg benefits such as pension plans; health insurance or child care; provided in addition to base pay or performance-related pay)



Essential reading

See Chapter 12 Section 3 of the Essential reading for more detail about performance-related pay, and share options as potential methods of reward.

The Essential reading is available as an Appendix of the digital edition of the Workbook.



Activity 1: Alpha division

The RRR Group (RRR) provides roof repair services to individual customers on a nationwide basis. RRR operates a number of regional divisions, each of which offers similar services. Table A shows actual results for Alpha division for 20X8 and 20X9, together with data representing an average of a number of similar competitor company divisions.

As an incentive to support the strategic goals of RRR, a set of key performance indicators (KPIs) will be introduced in 20Y0 and used on the basis of the data in Table B. Divisional staff will be paid a bonus as a percentage of salary based on the overall weighted percentage score deduced from the analysis as per Table B.

Table A: Summary of financial and other operating information

	Alpha division 20X9 \$m	Alpha division 20X8 \$m	Competitors 20X9 \$m
Sales revenue	<u>90.0</u>	<u>80.0</u>	<u>85.0</u>
Less costs:			
Cost of sales	60.0	50.0	
Marketing	8.5	8.0	
Staff training	4.0	4.0	
Remedial work on orders	0.8	0.5	
Customer enquiry costs	1.5	1.4	
Customer complaint related costs	<u>0.2</u>	<u>0.1</u>	
Total costs	<u>75.0</u>	<u>64.0</u>	<u>69.5</u>
Net profit	<u>15.0</u>	<u>16.0</u>	<u>15.5</u>

Number of

Customer enquiries	15,000	16,000
Customer orders placed	10,000	8,800
Orders placed requiring remedial work	300	440
Customer complaints	100	132

Table B: Staff bonus calculation for 20X9 using KPIs

KPI	Weighting factor (A)	KPI total score % (B)*	Weighted score %
			$(A) \times (B)$
Revenue 20X9 versus previous year	0.15		
Revenue 20X9 versus competitor	0.20		
Profit 20X9 versus previous year	0.15		
Profit 20X9 versus competitor	0.20		
Quality items 20X9 vs 20X8:			
No. of orders requiring remedial work	0.075		
No. of complaints investigated	0.075		
% of enquiries converted into orders	<u>0.15</u>		
Total	<u>1.000</u>	Bonus (%) =	<u>?</u>

(B)* – each KPI score value is positive (+) where the 20X9 value shows an improvement over the previous year **or** negative (–) where the 20X9 value shows poorer performance than in the previous year.

Each KPI score value is the % increase (+) or decrease (–) in 20X9 as appropriate.

Required

- 1 Apply the KPI appraisal process explained in Table B, using data for 20X8 and 20X9 to show the bonus (as a percentage of salary) that would have been achieved by Alpha division for 20X9. **(12 marks)**
- 2 Briefly discuss potential benefits that may be derived from the application of the KPI appraisal and bonus approach, both for Alpha division and throughout the RRR Group. **(3 marks)**

(Total = 15 marks)



PER alert

Element (d) of Performance objective 14 identifies that you should ‘Use review and reward systems to monitor and assess performance’.

Reward systems are not only a key part of human resource management; they can also play an important role in helping an organisation to achieve its strategy objectives (by motivating employees). Equally, however, poorly designed reward systems could have a detrimental impact on employees’ behaviour and, consequently, an organisation’s performance.

Issues relating to HRM more generally are also relevant to element (c) of Performance objective 5 – Leadership and management: ‘Manage human... resources within your control or allocated to your department to deliver your objectives to agreed deadlines, seeking opportunities to motivate or assist in the development of others’.

2.2 Accountability

The principle of accountability requires that an agent (eg a company’s managers and employees) are **motivated** to do what the principal (eg shareholders) want them to, and that their performance is **monitored**.

Reward systems have to incorporate the means of monitoring (performance measurement) and motivating the agent to do what is required of them. The following steps should be considered to help ensure accountability:

- (a) Choose and make public a range of accepted performance measures;
- (b) Ensure that the benefits of the performance measures have been identified;
- (c) Identify and understand possible problems in the use of performance measures; and
- (d) Consider ways in which to counter perceived problems in the use of performance measures.



Essential reading

See Chapter 12 Section 4 of the Essential reading for more detail about accountability and control, and the different types of control mechanisms which organisations can use to manage the performance of their staff.

The Essential reading is available as an Appendix of the digital edition of the Workbook.

3 Problems of performance measurement

3.1 What gets measured, gets done

The notion that 'What gets measured, gets done' (Peters, 1986) is often raised in relation to performance measured, and highlights the fact that people will typically put more effort into trying to perform well in those areas of performance which they know are being measured, compared to those which are not.

This could have **positive implications**: eg if an employee's objectives are aligned to their organisation's objectives and CSFs, then 'what gets measured, gets done' should help improve performance in relation to those key areas. (This reiterates the importance of ensuring there is congruence between employees' individual goals, and the goals of the organisation.)

3.2 Problems of performance measures

Berry, Broadbent and Otley (1995) suggest there could be a number of potential problems involved in performance measurement systems:

Problem	Explanation
Tunnel vision	'What gets measured, gets done' leads to a focus on a few specific aspects of performance or performance measures to the detriment of others . This could be a particular problem where the areas being focused on are not the ones which contribute most to competitive advantage or organisational success. (The issue is known as sub-optimisation : focusing on some objectives with the result that others – which could bring greater success – are not achieved.)
Myopia	Focusing on short-term success or goals at the expense of longer-term objectives and long-term success.
Measure fixation	An organisation focuses on achieving specific measures and targets, even though they may not be effective; ie the focus is on the measures themselves rather than underlying goals and objectives.
Misrepresentation	'Creative' reporting, or deliberate manipulation of data to make a result appear better than it actually is, or deliberate distortion of performance to secure some strategic advantage eg not finalising a

Problem	Explanation
	new sales deal in the current period, because the sales target for the period had already been achieved, but delaying the deal will help to improve performance in the following period.
Misinterpretation	Users misunderstand performance data, eg as a result of failing to recognise the complexity of the environment in which an organisation operates and therefore the external influences on performance.
Ossification	Unwillingness to change the performance measure scheme once it has been set up.



Activity 2: Problems with performance management

Identify possible solutions for the problems that have been identified in the previous section.

- Tunnel vision
- Myopia
- Measure fixation
- Misrepresentation
- Misinterpretation
- Ossification

4 Management styles

Hopwood (1974) identified three distinct management styles.

Style	How are managers assessed	Effect
Budget-constrained	Ability to meet budgets, regardless of the impact on other criteria	High tension High manipulation Poor staff relations
Profit-conscious	General effectiveness of the unit's operations in relation to an organisation's purpose	Medium tension Little manipulation Good staff relations
Non-accounting	Budgets are not important Non-financial factors are more important	Medium tension Little manipulation Good staff relations

Hopwood believed that the **profit-conscious style** was often optimal, but stressed the appropriateness of different styles depended on the organisation and its environment.





Essential reading

See Chapter 12 Section 5 of the Essential reading for more detail about Hopwood's research into management styles, and why different styles could be appropriate in different contexts.

The Essential reading is available as an Appendix of the digital edition of the Workbook.

Chapter summary

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Knowledge diagnostic

1. HRM and strategy

Employees are vital assets to organisations, so human resource management needs to be integrated with, and aligned to, an organisation's strategy.

Fitzgerald and Moon's building block model (dimensions, standards and rewards) provides a structure for designing effective reward systems, which are aligned to organisational strategy.

2. Reward systems

- Supporting the recruitment and retention of staff
- Motivating employees to high levels of performance
- Promoting compliance with workplace rules and expectations (including ethical behaviour)

Reward systems also need to ensure an employee's risk preferences are aligned to that of their organisation.

3. Reward models

Reward systems include all the monetary, non-monetary and psychological payments that an organisation provides its employees in exchange for the work they perform.

Extrinsic rewards derive from job context and include pay and benefits. Intrinsic rewards derive from job content and satisfy higher-level needs.

Monetary payments include base pay and performance-related pay. A mixture of individual and group performance incentives may be used.

Share options and performance shares can be valuable mechanisms for encouraging managers to work in the best interests of shareholders over the long term.

4. Problems of performance measurement

The notion that '**What gets measured, gets done**' suggests people will make a greater effort to perform well in activities which are being measured, compared to those which are not ('tunnel vision').

Placing too much emphasis on measuring performance can cause dysfunctional behaviour, including short-term thinking and a loss of focus on underlying goals and objectives.

5. Management styles

Hopwood defined three management styles: budget-constrained; profit-conscious; and non-accounting. He suggests the profit-conscious style is often the most effective one, but that the appropriateness of a different style depends on the context in which it is used.

Further study guidance

Question practice

Now try the following from the Further question practice bank (available in the digital edition of the Workbook):

Q16 Connie Head

Further reading

There are two Technical Articles available on ACCA's website about HRM and reward systems:

- *Human resource management and the appraisal system*
- *Reward schemes for employees and management*

These articles supplement the material in this chapter, and you are strongly advised to read them in full as part of your preparation for the APM exam.

The benefits of performance measures and the potential problems of performance measurement are discussed in another of the Technical Articles on ACCA's website: *The Pyramids and Pitfalls of Performance Measurement*.

You are encouraged to read this article in full as part of your preparation for the APM exam.

Activity answers

Activity 1: Alpha division

1

Bonus as a percentage of salary for Alpha division for the year ended 30 November 20X9

KPI	Weighting factor	KPI total score	Weighted score
Revenue 20X9 versus previous year \$(90/80)	0.15	12.50	1.875
Revenue 20X9 versus competitor \$(90/85)	0.20	5.88	1.176
Profit 20X9 versus previous year \$(15/16)	0.15	(6.25)	(0.938)
Profit 20X9 versus competitor \$(15/15.50)	0.20	(3.23)	(0.646)
Quality items 20X9 versus previous year			
Number of orders needing remedial work (W1)	0.075	31.82	2.387
Number of complaints investigated (W1)	0.075	24.20	1.815
Percentage of enquiries converted into orders (W2)	<u>0.15</u>	21.30	<u>3.195</u>
Total	<u>1.000</u>	Bonus %	<u>8.864</u>

Workings

- The KPI score is positive if performance has improved. The quality items both show fewer remedial works or complaints in 20X9 which means the score should be positive. The calculations are $140/440 \times 100\%$ and $32/132 \times 100\%$.
- This is calculated as (customer orders placed/enquiries) as a percentage and compared year on year. Therefore 20X9 is $10,000/15,000 = 0.667$ and 20X8 $8,800/16,000 = 0.55$. The percentage increase year on year is $(0.667 - 0.55)/0.55 = 21.27$ or 21.30%.
- Potential benefits from applying the KPI appraisal and bonus approach for Alpha and the Group**
Alpha. The KPI approach is clear to understand as the calculation involves a few key performance measures. The measures are both financial and non-financial, the latter based on customer service and the quality of service provided. The use of a broad range of measures provides a rounder picture of performance than if just financial measures were used.
The calculation is easy to do and the factors making up the bonus calculation are clearly shown. It is also clear where a factor adds to or reduces the bonus percentage, which will encourage staff to focus efforts in these areas. The factors are based on actual results, which can be updated over time, as they relate to comparisons over two years in some cases.
Group. The KPI measures are uniform across the divisions which allow comparisons between divisions to be made easily. The approach also minimises the possibility of bias against certain divisions or complaints being made about unfairness.

Activity 2: Problems with performance management

Problem	Solution
Tunnel vision	Considering the dimensions of performance Considering critical success factors and/or issues which are most important to consumers when determining performance measures

Problem	Solution
	Involving staff from all levels of the organisation, and from different departments/divisions when determining performance measures
Myopia	Fostering a long-term view/perspective amongst staff
Measure fixation	Sensible number of measures Flexible use of performance measures Review (or audit) the data used in performance measurement
Misrepresentation	Do not place too much emphasis on results Involvement of staff at all levels to ensure that standards are fair
Misinterpretation	Include benchmarking Include performance measures which take account of external factors (eg market share, as well as revenue)
Ossification	Keeping the performance measurements system under constant review Encourage all staff to input suggestions for change



Predicting and preventing corporate failure

Learning objectives

On completion of this chapter, you should be able to:

	Syllabus reference no.
Discuss how long-term survival necessitates consideration of life cycle issues.	E3(a)
Assess the potential likelihood of corporate failure, utilising quantitative and qualitative performance measures and models (such as Z scores and Argenti).	E3(b)
Assess and critique quantitative and qualitative corporate failure prediction models.	E3(c)
Identify and discuss performance improvement strategies that may be adopted in order to prevent corporate failure.	E3(d)
Identify and discuss operational changes to performance management systems required to implement the performance improvement strategies.	E3(e)

Exam context

This chapter completes syllabus Section E – Performance Evaluation and Corporate Failure.

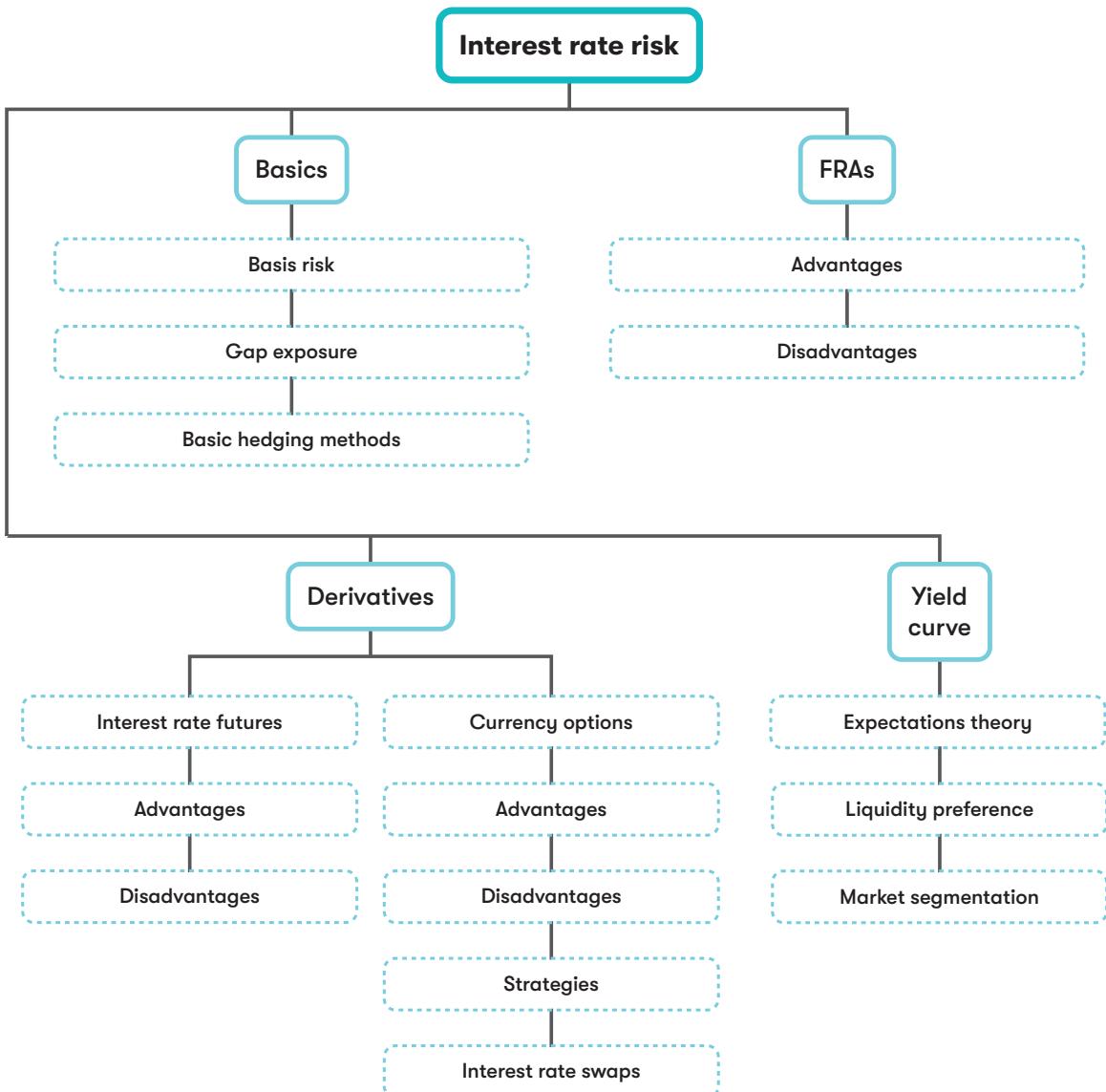
As we have mentioned in the previous chapters, **one of the Section B 25-mark questions will come mainly from syllabus Section E** and therefore could cover corporate failure.

This is an area that is often neglected by students, probably because it is the last chapter(!). However, this is unwise not only because you know a question from syllabus Section E will be examined, but also because all the questions are compulsory, so if corporate failure is tested you will have to attempt the question.

There are a number of ways the topics in this chapter could be tested, but there are two key angles to be aware of. On the one hand, you could be asked to assess the different **models** of corporate failure, their strengths and weaknesses, and their usefulness in predicting corporate failure in a given scenario. On the other hand, you could be asked to use the models to assess the likelihood of an **organisation** suffering a corporate failure.

This is a relatively short chapter, with a fairly limited technical content. However, after assimilating the technical models, you then need to practise the skill of applying them to the scenario-based questions; so question practice on this area is also important.

Chapter overview



1 Assessing the risk of corporate failure

1.1 Financial ratios

A number of financial ratios can be compared against industry averages to analyse potential financial instability or risk.

1.1.1 Current ratio

Formula to learn

$$\text{Current ratio} = \frac{\text{Current assets}}{\text{Current liabilities}}$$

The current ratio can be calculated by dividing the most liquid assets in the business (receivables, inventories and cash) by the business's payables.

1.1.2 Quick ratio

Formula to learn

$$\text{Quick ratio} = \frac{\text{Current assets (excluding inventory)}}{\text{Current liabilities}}$$

The quick ratio excludes inventory as this is often not a liquid asset in a failing business.

It is sometimes suggested that a company with a current ratio well below 2:1 or a quick ratio well below 1:1 might be considered illiquid and in danger of failure. However, when looking at a company's ratios it would also be useful to benchmark them against other companies in the same industry (or an industry average) because some industries are typically more liquid than others.

Essential reading

See Chapter 15 Section 1 of the Essential reading for an overview of other basic working capital ratios.

The Essential reading is available as an Appendix of the digital edition of the Workbook.

1.1.3 Interest cover

Formula to learn

$$\text{Interest cover} = \frac{\text{Profits before interest and tax}}{\text{Interest payable}}$$

As a general guide, an interest coverage ratio of **less than three times** is considered low, indicating that profitability is too low given the company's level of debt.

1.1.4 Financial gearing

Formula to learn

$$\text{Financial gearing ratio} = \frac{\text{Long - term debt (prior charge capital)}}{\text{Long - term debt + equity (shareholders' funds)}}$$

Financial gearing is an attempt to quantify the **degree of risk** involved in holding equity shares in a company, both in terms of the company's ability to remain in business and in terms of expected ordinary dividends from the company.

The more geared the company is, the **greater the risk** that little (if anything) will be available to distribute by way of dividend to the ordinary shareholders. Interest and preference dividends on debt must continue to be paid regardless of the company's profits. A high financial gearing therefore means the company is more vulnerable to poor trading conditions.

Gearing ultimately measures the company's ability to **remain in business**. A high-geared company has a large amount of interest to pay annually. If those borrowings are 'secured' in any way (and bonds in particular are secured), then the holders of the debt are perfectly entitled to force the company to realise assets to pay their interest if funds are not available from other sources. Clearly, the more highly geared a company, the more likely this is to occur if and when profits fall.

1.1.5 Operational gearing

Operational gearing measures the ratio of fixed costs to its variable costs. High operational gearing is risky because if revenue falls, fixed costs will not. Operational gearing can be a very useful indicator of a firm's ability to survive a reduction in sales (and therefore helps to measure business risk).

Formula to learn

$$\text{Operating gearing ratio} = \frac{\text{Fixed costs}}{\text{Variable costs}}$$

Note. Other definitions of operational gearing are possible.

1.2 Problems with ratio analysis

Ratios are based largely on published financial data so they enable comparisons to be made relatively easily. However, analysis of individual financial ratios has been shown to be an **unreliable indicator** of corporate failure.

Problems with financial ratios:

- Financial statements may be up to a year in the past
- Industry averages do not provide an adequate benchmark for analysing the risk of failure
- Ignore non-financial issues (see Argenti's A score model later)

1.3 Prediction models

Moving beyond basic ratio analysis, many models have been developed from research into failed businesses to help predict future corporate failures. Two of the best-known prediction models are:

- (a) Altman's **Z score**
- (b) Argenti's **A score**

These are the key corporate failure models for the APM exam.

2 Altman's Z score

2.1 Quantitative model

Quantitative models for predicting business failure are based on a statistical analysis of financial ratios to understand the danger signals that flag the likelihood of company failure. There are many such models, but the best known is the Altman Z score model (Altman, 1968).

Altman researched **the financial results** of manufacturing businesses in the USA in the 1960s, some of which had failed, and some of which had survived. From this, he used statistical analysis to determine five key indicators of success or failure.

The model emerged as:

$$Z = 1.2X_1 + 1.4X_2 + 3.3X_3 + 0.6X_4 + 1.0X_5$$

Wherein:

Factor	Calculation	Measure of
X_1	Working capital/total assets	Liquidity
X_2	Retained earnings/total assets	Cumulative profitability
X_3	Earnings before interest and tax/total assets	Solvency
X_4	Market value of equity/book value of total debt	Gearing
X_5	Revenue/total assets	Revenue-generating capacity

Note. If required, this formula will be provided in an exam question.

2.2 Key values

Between 1.8 – 3.0 there is a ‘grey area’ where the eventual failure or non-failure of an organisation could not be predicted with certainty.

Altman also adapted this **quantitative model** to allow relative scoring from 0 to 100. A score of 75, for example, would indicate that 25% of companies have higher Z scores than the company under consideration. Relative measurement over time permits trends to be identified more easily.

2.3 Weaknesses of quantitative models

There are a number of weaknesses of this type of approach to analysing corporate failure, including:

- (a) It is based on visible factors so **fails to include internal weaknesses not apparent in financial information**
- (b) **It ignores** the risk of a change in **environmental factors**.

2.3.1 Additional weaknesses of Z score model

In addition to the previous section, the Altman model can also be criticised because:

- (a) It is based on a sample of companies from the **USA**.
- (b) The analysis was performed in the **1960s**.
- (c) The sample it used consisted of **manufacturing companies**, so it may not be appropriate to use on non-manufacturing companies without some modification.
- (d) Requires a market value for equity which **limits its use to quoted companies**.
- (e) In capital-intensive industries, additional investment (eg in new machinery) will, according to Z score analysis, make failure more likely because sales/total assets will worsen. This is **counter-intuitive**.



Activity 1: Zorro

Zorro is a manufacturer of fancy dress costumes. It has expanded rapidly in the last few years under the leadership of its autocratic chair and chief executive officer, Sally Maysmith.

The company has developed a major new product range linked to the relaunch of a major film franchise, which has necessitated a large investment in new equipment. However, the recent share price performance has caused concern at board level and there has been comment in the

financial press about the increased gearing and the strain that this expansion is putting on the company.

A junior analyst in the company has correctly prepared a spreadsheet calculating the Z scores as follows:

	20X8	20X9	20Y0
X ₁ Working capital/Total assets	-0.28	-0.25	-0.20
X ₂ Retained earnings/Total assets	0.12	0.21	0.21
X ₃ Profit before interest and tax/Total assets	0.16	0.09	0.05
X ₄ Market value of equity/Total long-term debt	1.62	0.95	0.60
X ₅ Revenue/Total assets	1.50	0.72	0.84
Z score	2.832	1.581	1.419

Required

Comment on the results in the junior analyst's spreadsheet.

Note. The formula would be provided if you were required to calculate a Z score.

3 Argenti's A score

3.1 Qualitative model

Qualitative models are based on a judgement of the risk of failure that includes both financial and non-financial factors. This approach stems from research which identified that corporate decline was often due to **non-financial factors** such as:

- Frequent changes of management
- Falling market share
- Lack of planning
- Weak culture, eg crisis denial, blame culture - leading to inaction
- Ineffective scrutiny by non-executive directors

The key qualitative model for the APM exam is Argenti's A score model (Argenti, 1976).

Argenti argued that symptoms such as worrying financial ratios were only obvious in the later stages of failure and failure could be better predicted by looking at **root causes**, which he believed lay in the ability of management to lead a business. Thus failure follows a predictable system.

A score is given to each weakness, with a score of **zero** meaning that the weakness is **not present**:

Factor		Illustration	Score if present
Defects	Management	Chief Executive is an autocrat	8
		Chief Executive is also the Chairman	4
		Passive board of directors	2
		Unbalanced skills in board of directors	2
		Weak Finance Director	2
		Lack of management in depth	1
		Poor response to change	15
	Accounting	No budgets or budgetary controls	3
		No cash flow forecasts, or out of date	3
		No costing system; don't know costs and contribution from each product or service	3
Total			43

Factor		Illustration	Score if present
Mistakes	Overtrading	Company expanding faster than funding; capital base too small or unbalanced	15
	High gearing	Inability to service debt levels	15
	Failure of a big project	The failure of which would cause the company to fail	15
Total			45

Factor		Illustration	Score if present
Symptoms	Deteriorating ratios	Financial analysis (eg poor Z score)	4
	Creative accounting	Gaming and misrepresentation	4
	Declining morale and quality	Uncleaned and untidy offices or factory, high staff turnover, rumours	4
Total			<u>12</u>

3.2 Key values

In order for a firm to be considered not at risk, it needs to score **below** a certain level.

Factor	Maximum permitted score
Defects	10
Mistakes	15
Symptoms	<u>0</u>
Total permitted	25

Companies not at risk often score between 0 and 18, while those at risk usually score well above 25 (often 35–70).

3.3 Advantages

The A score model incorporates financial (eg gearing) and non-financial factors, giving a more holistic assessment of the likelihood of corporate failure, rather than just looking at financial factors.

It identifies factors that can often be seen in organisations before they reach a terminal state, providing the opportunity to improve performance and turn the organisation around.

3.4 Weaknesses

The main problem with this approach is the **judgement** involved in assessing the risk of failure, so the scores chosen are **subjective**. It is also important to remember that one or two defects/mistakes on their own do not necessarily constitute terminal decline for a business.

In addition the Argenti model can also be criticised because:

- (a) Lack of formal testing to prove the model's validity.
- (b) Lack of industry considerations.
- (c) Focuses mainly on internal factors and fails to consider the importance of broader environmental factors.

4 Performance improvement strategies

In the exam if you are asked to recommend which actions a company will need to take to increase their chances of survival then the key issue will be to say something practical about the 'underlying causes' of the company's problems.

4.1 Insights from qualitative models

One of the benefits of qualitative models such as the A score model is that they analysis **the root cause** of the risk of failure and therefore allow targeted action to be taken (eg the A score may indicate the need to improve controls around project management to reduce the risk of a big project causing the failure of a company).

4.2 Other issues

4.2.1 Industry/life cycle issues

In order to increase the likelihood of survival, life cycle factors need to be considered.

Industries reach the end of their life cycle when overtaken by new products or suffer temporary difficulties due to economic factors.

As the competitive environment changes, pressure is placed on margins. Unless a company has the lowest cost base, a superior advantage or a loyal niche of customers, it is likely to lose market share.



Essential reading

See Chapter 15 Section 2 of the Essential reading for a more detailed look at life cycle issues.

The Essential reading is available as an Appendix of the digital edition of the Workbook.

4.2.2 Broader environmental factors

Changes in general environmental factors (as considered in Chapter 1) need to be carefully monitored, eg if an economic downturn is expected then the company will have to plan how to adapt to this in order to survive.

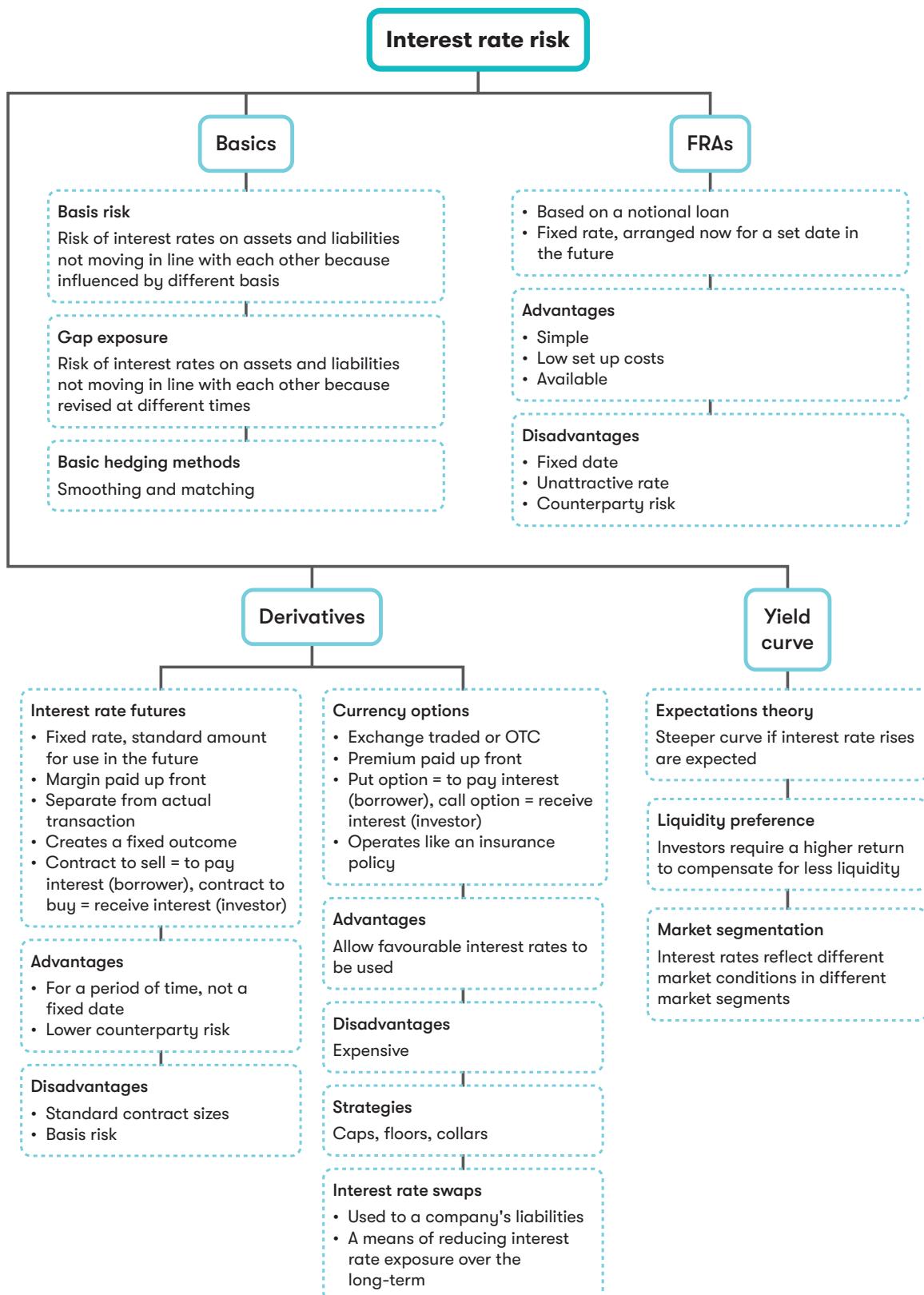


Essential reading

See Chapter 15 Section 3 of the Essential reading for some further discussion of performance management issues in relation to performance improvement strategies.

The Essential reading is available as an Appendix of the digital edition of the Workbook.

Chapter summary



Knowledge diagnostic

1. Quantitative models

Use objective financial ratios to measure the risk of corporate failure. An example is Altman's Z score model.

2. Qualitative models

Use subjective assessment to measure the risk of corporate failure. An example is Argenti's A score model, which looks at defects, mistakes and symptoms.

3. Key values for Z score

For the Z score model, the **lower** the score, the higher the risk. A score of below 1.8 indicates failure (more than 3 is safe).

4. Key values for A score

For the A score model, the **higher** the score, the higher the risk of failure. A score of above 25 indicates failure (less than 18 is safe).

Further study guidance

Question practice

Now try the following from the Further question practice bank (available in the digital edition of the Workbook):

Q20 NewsPrint Co

Further reading

There is a Technical Article on ACCA's website entitled *Business Failure*. This article covers the main models in this chapter and gives other useful background information about corporate failure, so you should read it as part of your preparation for the APM exam.

Activity answers

Activity 1: Zorro

The Z score for Zorro in 20Y0 is 1.419, which is below the danger level of 1.8 and so suggests the company is at risk of failing. Moreover, the Z score has fallen significantly over the past three years from 2.832 to 1.419.

The most dramatic decline in the Z score arises from variable X_4 which has fallen from 1.62 to 0.60, or 63%. This represents the market value of equity to total long-term debt. This is due to the increase in gearing (debt) coupled with falls in the share price. If the adverse comments in the financial press continue, these could lead to further falls in the share price.

The other variables that have seen a significant decline are X_5 (Revenue/TA) and X_3 (PBIT/TA). These will both have been affected by the large investment in new equipment (increasing the value of total assets). However, this investment has not been matched by a similar increase in revenue and operating profit, causing the ratios to decline. However, it is possible that these ratios may improve in future periods as revenue (and associated profit) is earned from the new investment.

It is likely at the early stage of the project that costs will be high and revenues low. So a longer-term view needs to be taken before concluding the company is definitely failing.



Employment income

Learning objectives

On completion of this chapter, you should be able to:

Syllabus reference no.

Remember the material covered in Taxation (TX – UK) under the headings:

‘Income from employment’	A1(a) B2
‘National insurance contributions for employed...persons’	A1(a) B6

Identify personal service companies and advise on the tax consequences of providing services via a personal service company	A1(c)(iii) A4(b)(vi)
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Advise on the tax treatment of lump sum receipts	A1(c)(ii)
--	-----------

Advise on the tax treatment of share option and share incentive schemes	A1(c)(i)
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Exam context

In the exam you may well find yourself advising an employee about their remuneration package. They may be asking you to consider their after-tax income from a package or to be comparing the after-tax income of two alternative packages. As well as considering the marginal tax on the benefit provided or foregone, remember to take into account other costs. For example, an employee who chooses to receive a higher salary and use his own car for business will have to bear the running costs of the car as well as the capital depreciation. Also don’t forget to consider the national insurance costs!

You may find that a client in the exam is suggesting a business structure which will fall foul of the personal service company anti-avoidance legislation. It is vital that you understand the proposed structures which will be caught out by this legislation and that you can explain to your client what the consequences of this will be.

Lump sums are commonly paid on the termination of an employment. You may be required to discuss which elements of a termination package are tax free, and the consequences of the ongoing provision of a benefit.

Share incentives and share options may well feature in a question about employees. You may be required to advise the employer about which incentive scheme would meet their needs. You need to know the different conditions for each scheme – you will not get any marks for recommending

an enterprise management incentive scheme to a company whose gross assets exceed £30 million.



Chapter overview

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1 Employment income

Employment income includes income arising from employment under a contract of service and includes salaries and bonuses, benefits and pensions. An individual is generally assessed on the amounts **received** during the tax year.

The standard employment income pro-forma, which you will have covered in Taxation (TX – UK) is:

Employment income	£
Salary	X
Bonus	X
Benefits	X
	<u>X</u>
Allowable deductions	(X)
Employment income	X
	=

You are expected to remember the detail of this pro-forma including the rules on benefits and allowable deductions from Taxation (TX – UK).



Essential reading

See Chapter 4 of the Essential reading for more detail revising the calculation of employment income.

The Essential reading is available as an Appendix of the digital edition of the Workbook.

2 National insurance contributions



Essential reading

See Chapter 4 of the Essential reading for more detail revising the detail of national insurance calculations for employees.

The Essential reading is available as an Appendix of the digital edition of the Workbook.

3 Personal service companies

Individuals generally pay less tax if they are taxed as self-employed than they would if they were taxed as an employee. This is due to more generous rules regarding the deductibility of expenses for self-employed individuals and lower rates of national insurance. This meant that some individuals who were normally classed as employees started making arrangements to make their relationship with their employer look more like a self-employed relationship to access lower tax bills. Consider the typical employer-employee relationship and the tax due as illustrated in the left side of the diagram below. Employees would resign from their employer, set up an intermediary and then start to immediately contract with their previous employer through the intermediary thus receiving a fee into the intermediary rather than a salary. The individual would then extract

the profits from the intermediary via a dividend rather than a salary thus gaining lower rates of income tax and saving national insurance.

The diagram below shows the typical employer-employee relationship on the left-hand side and then the new arrangement on the right-hand side.

HMRC set up **anti-avoidance legislation** to prevent this perceived abuse of the **self-employed vs employed rules**. This anti-avoidance legislation applies to those who have set up companies to offer their services rather than be employed. It can be referred to as **personal service company** legislation or **IR35**.



Personal service company: The name given to a company caught by anti-avoidance legislation which catches those who have set up companies to offer their services rather than to be employed.

In order to determine whether the anti-avoidance legislation applies or not, HMRC will look through the intermediary and look at the relationship between the Top Co and the individual. Using the **employed vs self-employed factors** HMRC will decide whether, in **substance**, the individual is an **employee** of the Top Co. These factors are covered in further detail in the Essential reading section of this chapter; they include consideration of:

- Contract of/ for services
- Control of work
- Provision of own equipment
- Hire helpers
- Financial risk
- Integral position
- Opportunity to profit
- Number of employers

If HMRC conclude that, in **substance**, the individual is an **employee** of the Top Co then the **personal service company (IR35) legislation applies**. This has the effect of changing the way that the situation is taxed.

A **deemed salary** needs to be calculated and the individual will be taxed on this deemed salary rather than on the dividends they receive from the intermediary. Thus, the individual will pay both income tax and class 1 employee NIC on the deemed salary. For the intermediary the deemed salary is an allowable trading expense. Class 1 employer's NIC is also payable which is also an allowable trading expense.

In calculating the 'deemed salary' we take all payments from the client (Top Co) to the intermediary (known as **relevant engagements**) and we deem them to be salary to the extent they have not already been paid as a salary. The following pro-forma will allow you to compute the deemed salary.

	£
Income from relevant engagements	X
Less statutory 5% deduction	(X)
	X
Less salary/benefits paid to worker	(X)
Less employer's NIC on actual payments	(X)
Less expenses allowable under employment income	(X)

	£
Gross amount of deemed payment	G
Employer's NIC (note) on gross deemed payment (G × 13.8/113.8)	<u>(X)</u>
Actual deemed payment to worker	<u>X</u>

Note. The employment allowance (if available) cannot be used to reduce the employer's NIC on this deemed payment.

In order to avoid a double charge to tax note that if dividends have been drawn from the intermediary they are not taxed on the individual as a dividend as they form part of the deemed salary on which the individual is taxed.

The deemed salary is taxed as if it is paid to the individual on the last day of the tax year.



Exam focus point

The exam will often test a scenario where you are required to spot that the personal service company rules will be likely to apply. You must also be able to calculate and explain the deemed salary on which an individual will be taxed if caught under these rules.



Activity 1: Personal service company

Alan is currently employed by Farringdon Ltd and is paid a salary of £70,000 per year. He has no other income for the tax year.

Alan is planning to resign from Farringdon Ltd and form Alan Ltd (a personal service company). Alan Ltd will provide services to Farringdon Ltd and to other companies. The services will be carried out by Alan personally.

All of Alan Ltd's income will be in respect of relevant engagements and therefore subject to the personal service company (IR35) legislation. Alan will be a director, and the only employee of Alan Ltd.

Alan Ltd estimated income and outgoings for a full tax year

	£
Gross income	85,000
Salary paid to Alan	52,000
Administrative expenses	3,000
Travel expenses reimbursed to Alan	1,500
Dividend paid to Alan	18,000

The travel expenses are those which will be necessarily incurred by Alan in performing the work for Farringdon Ltd and the other customers of Alan Ltd.

Required

Prepare calculations to determine the effect on Alan's annual income, after deduction of all taxes of working for Alan Ltd rather than Farringdon Ltd.

4 Termination payments



Exam focus point

The application of termination payment tax rules to specific scenarios is frequently examined in ATX.



Activity 2: Termination payment

Ban was made redundant from UpTempo Ltd on 1 May. His employment contract entitled him to two months' notice which he worked. His annual salary was £30,000. He was also given £1,300 in statutory redundancy pay and a £34,500 non-contractual (and non-expected) lump sum as a gesture of goodwill.

Required

Explain how Ban's payments received will be taxable.



Activity 3: PENP

Piotr worked for Apple Ltd earning a salary of £72,000. He resigned on 1 February 2021 and Apple Ltd asked him to leave without notice. They made him a payment of £32,000. Piotr's employment contract stated a three-month notice period.

Required

Explain how the payment of £32,000 is treated for tax and NIC.

5 Share schemes

5.1 Introduction

In order to incentivise its staff, an employer may offer its employees the opportunity to **buy shares in their employer at a discount** on current market value or may offer that they can **acquire shares through a share option scheme**.

If the employee is **given shares**, or is sold shares at less than their market value, they are treated as receiving specific employment income of **the difference between the market value and the amount (if any) which the employee pays for the shares**. In this situation, when the base cost of the shares is calculated for capital gains tax purposes any amount charged to income tax is added to the acquisition cost of the shares. In addition, if the shares are '**readily convertible assets**' then an amount equal to that charged to income tax is treated as 'earnings' for NICs **meaning Class 1 NICs will be due**. A share will be a 'readily convertible asset' if it can be sold on a stock exchange.

If the employee is offered shares through a share option scheme there are different tax considerations which are covered below.



Share schemes: Schemes whereby a company gives/sells shares to its employees, often as part of a remuneration package. This will have tax consequences. A typical share option scheme will be set up as follows:

- **Grant** – this is the date that the employee is given **the right to buy shares at a future date at a price set now**.

- **Exercise** – this is the date where the employee decides to **take up the rights and buy the shares**.
- **Disposal** – once the employee owns the shares they can then choose when to go on and **sell the shares**.

The tax at each of these dates will depend on whether the share scheme is **tax advantaged or not**. A share scheme is **tax-advantaged** if it complies with certain conditions. It is therefore **less flexible** than a non-advantaged share scheme as it is restricted by having to comply with conditions. However, a tax-advantaged share scheme will have a **preferential tax treatment**.

This table outlines the normal tax rules which will apply whether a share scheme is tax advantaged or not, although there follows more information about tax-advantaged share schemes.

	Non-advantaged share schemes	Tax-advantaged share schemes
Grant	No tax	No tax
Exercise	Income tax (and NIC if listed shares) MV at exercise X Exercise price <u>(X)</u> Taxable X	No tax
Disposal	CGT Proceeds X MV at exercise <u>(X)</u> Gain X	CGT Proceeds X Cost <u>(X)</u> Gain X

Note that the rules regarding whether NIC will be due on shares involves considering whether the shares are **readily convertible assets** eg if they can be sold on a stock exchange.

There are four types of tax-advantaged share scheme on the Advanced Taxation (ATX – UK) syllabus and each one is now considered below in more detail. Note that costs of setting up a tax-advantaged share scheme are tax deductible for the company.

5.2 Tax-advantaged share schemes

5.2.1 Save as you earn (SAYE) share option schemes

Essential reading

See Chapter 4 of the Essential reading as to what makes a SAYE scheme qualify as tax-advantaged.

The Essential reading is available as an Appendix of the digital edition of the Workbook.

Where the scheme meets the conditions to be tax-advantaged there are the following tax consequences:

- There is **no income tax or national insurance** when the share options are **granted or exercised**.
- On **sale** of the shares any gain is subject to **capital gains tax**. The cost of the shares in the gain calculation is the price the employee paid for the shares.
- There is **no income tax or national insurance** if the employee chooses to take the **cash**.

5.2.2 Company share option plan (CSOP)

Under a CSOP scheme, which can be restricted to selected employees and full-time directors, an employee is granted options to buy shares. Options must be exercised between three and ten years from grant to achieve the beneficial tax treatment (see below). An employee can be granted options over shares up to the value of £30,000 (at the date of grant).



Essential reading

See Chapter 4 of the Essential reading for details as to what makes the CSOP qualify as tax advantaged.

The Essential reading is available as an Appendix of the digital edition of the Workbook.

Provided these conditions are met:

- There is **no income tax or national insurance on grant or exercise** of the option.
- On **sale** of the shares any gain is subject to **capital gains tax**. The cost of the shares in the gain calculation is the option price paid by the employee to acquire the shares.



Essential reading

See Chapter 4 of the Essential reading for further detail about tax if the options are exercised before three years or after 10 years after grant.

The Essential reading is available as an Appendix of the digital edition of the Workbook.

5.2.3 Enterprise management incentives (EMI)

The EMI scheme is intended to help smaller, higher risk companies recruit and retain employees who have the skills to help them grow and succeed. They are also a way of rewarding employees for taking a risk by investing their time and skills to help small companies achieve their potential. Employees must spend a certain amount of time working for the company each week to be eligible to be given EMI options, but the company can choose to which of the eligible employees it grants such options. Therefore the EMI scheme is **particularly useful if a company wishes to reward its key employees**.

EMIs are similar to CSOPs, as an employee is granted options to buy shares. Specific features of the EMI scheme include the following:

- A qualifying company can grant each of its employees options over shares worth up to £250,000 at the time of grant, subject to a maximum of £3m in total.
- The company may set a target to be achieved before an option can be exercised. The target must clearly be defined at the time the option is granted.
- Options can be granted at a discount below the market value at the date of grant, although there are tax consequences of this (see below).

Some of these features make the EMI a more attractive scheme than a CSOP, but there are restrictions, in particular regarding which companies can operate EMI schemes.



Essential reading

See Chapter 4 of the Essential reading for more detail on the conditions regarding what specifically makes a scheme tax-advantaged under EMI.

The Essential reading is available as an Appendix of the digital edition of the Workbook.

Key points are that the company must have **gross assets not exceeding £30 million** and must **have less than 250 full-time equivalent employees** when the options are granted. There is also a limit that at any one time an employee may only hold EMI options over shares with a value of up to £250,000 at the date of grant.

Provided the conditions are met:

- There is **no income tax or national insurance at grant**.
- There is **no income tax or national insurance at exercise unless the shares are issued at a discount** to market value at grant. At exercise there will be an income tax charge (and possibly a national insurance charge) based on the lower of:
 - (i) The discount (ie the difference between market value at grant and the price paid (exercise price)).
 - (ii) The difference between the market value at exercise and the price paid (exercise price).
- On **sale** of the shares any gain is subject to **capital gains tax**. The cost of the shares in the gain calculation is the amount paid for the shares plus any discount taxed as earnings described above. In order to determine whether any gain will be eligible for business asset disposal relief the usual conditions are relaxed as set out in Chapter 8.

5.2.4 Share incentive plans (SIP)

Here a company sets up a trust (SIP) and gives the SIP money. The **SIP then buys shares and holds them on behalf of employees**. Thus, SIPs are different to the other types of share options we have seen in that the individuals aren't granted options but are given the shares. All full or part-time employees must be eligible to participate in the scheme.



Essential reading

See Chapter 4 of the Essential reading for more detail on conditions for a SIP to qualify as tax advantaged.

The Essential reading is available as an Appendix of the digital edition of the Workbook.

There are four ways that shares can be acquired by members of a SIP:

- (a) **Free shares** can be given up to £3,600 per year to each employee.
- (b) The employee can purchase **partnership shares** at any time in the year. The amount to be paid is deducted from the employee's pre-tax salary up to the lower of £1,800 and 10% of salary in any tax year.
- (c) The employer can also award **matching shares** free to employees who purchase partnership shares at a maximum ratio of 2:1.
- (d) Dividends on the shares in the SIP are tax free if the dividends are used to acquire more shares.



Essential reading

See Chapter 4 of the Essential reading for more detail on the ways shares can be acquired and features of a SIP.

The Essential reading is available as an Appendix of the digital edition of the Workbook.

The income tax treatment depends on how long the shares are kept in the SIP and then there will be capital gains tax to consider when the individual eventually sells the shares. For free and matching shares the tax treatment is outlined below:

- There is **no income tax (IT) or national insurance (NIC)** when the shares are **given to the employees** (and put into the SIP).
- If the shares are held in the **SIP >5 years**:
 - There is **no IT or NIC when the shares are taken out of the plan**.
- If the shares are held in the **SIP 3–5 years**:
 - There is an **IT and NIC charge** based on the **lower** of the **market value at award** and **market value at withdrawal**.
- If the shares are held in the **SIP <3 years**:
 - There is an **IT and NIC charge** based on the **market value at withdrawal**.
- There is **no charge to CGT on shares taken out of the plan and sold immediately**. A charge to CGT will arise on sale to the extent the shares increase in value after they are withdrawn from the plan.



Activity 4: Share options

Fred is granted options over 10,000 shares on XYZ plc at a price of £1.50, their current market value. They are exercisable in six years' time when the market value of the shares is expected to be £4. Fred will then dispose of the shares after a further two years, for their new market price of £5.50.

Required

Show the tax implications if the scheme is either advantaged or non-advantaged.



Exam focus point

Share schemes are frequently examined in ATX and you must ensure that you understand, and can apply to particular scenarios, the tax rules for both non tax-advantaged and tax-advantaged share schemes. You must also be able to recommend the most suitable type of tax-advantaged share schemes for a particular company.

Chapter summary

Knowledge diagnostic

1. Employment income

General earnings are taxed in the year of receipt. Money earnings are generally received on the earlier of the time payment is made and the time entitlement to payment arises. Non-money earnings are generally received when provided.

Employment involves a contract of services whereas self-employment involves a contract for services.

Employees are taxed on benefits under the benefits code. The amount of a taxable benefit is reduced by any amount paid by the employee to the employer (except private fuel) by 6 July following the end of the tax year.

The benefit in respect of accommodation is its annual value. There is an additional benefit if the property cost the employer more than £75,000.

Employees who have a company car are taxed on a % of the car's list price which depends on the car's CO₂ emissions. The same % multiplied by £24,500 determines the benefit where private fuel is also provided. Statutory approved mileage allowances can be paid tax free to employees who use their own vehicle for business journeys.

Taxable cheap loans are charged to tax on the difference between the official rate of interest and any interest paid by the employee.

20% of the value of assets made available for private use is taxable.

Workplace childcare is an exempt benefit.

There is a residual charge for other benefits, usually equal to the cost of the benefits.

Some benefits are exempt from tax such as removal expenses and the provision of sporting facilities (subject to certain limits).

To be deductible, expenses must be for qualifying travel or wholly, exclusively and necessarily incurred.

2. National Insurance contribution

National Insurance contributions are divided into four classes.

Employees pay employee's class 1 NICs. Employees pay the main employee's rate between the employee's threshold and upper earnings limit and the additional rate on earnings above the upper earnings limit. Employers pay employer's Class 1 NICs above the employer's threshold. For employers there is no upper earnings limit.

NICs are based on earnings periods.

The employment allowance enables employers to reduce its total Class 1 employer's contributions by up to £4,000 per tax year.

Employers pay Class 1A NIC on most taxable benefits.

3. IR35/Personal service companies

The IR35 provisions prevent avoidance of tax by providing services through a company.

IR35 treats any payments from relevant engagements to be taxed as a deemed salary to the extent they've not actually been paid as a salary and IR35 applies if, in substance, the individual is an employee.

4. Termination payments

Payments made on the termination of employment may be fully taxable, partially exempt or exempt.

5. Share options

Where shares or share options are provided to an employee, income tax and/or national insurance contributions may be payable.

There are a range of tax-advantaged share schemes under which an employer may be able to give employees a stake in the business.

A Save As You Earn (SAYE) share option scheme allows employees to save regular monthly amounts for a fixed period and use the funds to take up options to buy shares free of income tax and NIC. Alternatively they can simply take the cash saved.

There is no income tax or NIC on the grant of a company share option plan (CSOP) option. There is also no income tax or NIC on an exercise taking place between three and ten years after the grant. Only CGT will apply to the profit on disposal of the shares.

No income tax or NIC is chargeable on either the grant or exercise of options under the enterprise management incentive (EMI) scheme provided the exercise takes place within 10 years of the grant and the exercise price is at least equal to the market value of the shares at the date of grant.

Employees may be given £3,600 of free shares a year under a share incentive plan (SIP). In addition, they can purchase up to £1,800 worth of partnership shares a year and employers can provide up to £3,600 worth of matching shares. Once the shares have been held for five years there is no income tax or NIC when shares are taken out of the plan.

Further study guidance

Question practice

Now try the following from the Further question practice bank (available in the digital edition of the Workbook):

- Taker
- Poster plc
- Envirotech plc

Activity answers

Activity 1: Personal service company

The answer can either be calculated by comparing Alan's annual income as an employee of Farringdon Ltd and as an employee of Alan Ltd and then comparing the two figures or by producing a marginal calculation looking at how Alan's income and tax changes. Both options are shown below.

Two computations:

	Employee of Farringdon Ltd	IR35 (Employee of Alan Ltd)
Salary	70,000	52,000
Dividend		18,000
Less income tax (W1), (W3)	(15,500)	(15,782)
Less employee's NIC (W2), (W5)	<u>(5,260)</u>	(5,274)
Net income	<u><u>49,240</u></u>	<u><u>48,944</u></u>

Alan's net income is £296 lower if he becomes an employee of Alan Ltd (IR35 applies) (£49,240 – 48,944).

Workings

1 Alan's income tax if he remains an employee of Farringdon Ltd

	£
Salary	70,000
Less personal allowance	<u>(12,500)</u>
Taxable income	57,500
NSI: £37,500 × 20%	7,500
£20,000 × 40%	<u>8,000</u>
Income tax due	<u><u>15,500</u></u>

2 Alan's employee's NIC if he remains an employee of Farringdon Ltd

	£
(£50,000 – £9,500) × 12%	4,860
(£70,000 – £50,000) × 2%	<u>400</u>
Employee's NIC	<u><u>5,260</u></u>

3 Alan's income tax if employed by Alan Ltd and IR35 applies

	£
Salary (£52,000 + £18,706) (W4)	70,706
Less personal allowance	<u>(12,500)</u>
Taxable income	58,206
NSI: £37,500 × 20%	7,500

	£
$\text{£20,706} \times 40\%$	<u>8,282</u>
Income tax due	15,782

4 Calculation of deemed salary if IR35 applies

	£
Income from relevant engagements	85,000
Less 5% statutory deduction	(4,250)
Less travel expenses	(1,500)
Less salary	(52,000)
Less employer's NIC on actual salary ($\text{£52,000} - \text{£8,788} \times 13.8\%$) (no employment allowance as Alan is sole employee of company)	<u>(5,963)</u>
	-
	21,287
Less employers' NIC on deemed payment $13.8\% / 113.8\% \times \text{£21,287}$	<u>(2,581)</u>
Deemed employment income	<u>18,706</u>

5 Alan's employee's NIC if IR35 applies

	£
$(\text{£50,000} - \text{£9,500}) \times 12\%$	4,860
$(\text{£70,706} - \text{£50,000}) \times 2\%$	<u>414</u>
Employee's NIC	5,274

A marginal calculation:

Effect on Alan's income if he works for Alan Ltd instead of Farringdon Ltd

	£
Reduction in salary ($\text{£70,000} - \text{£52,000}$)	(18,000)
Add:	
IT on salary not payable ($40\% \times \text{£18,000}$)	7,200
NIC on salary not payable ($2\% \times \text{£18,000}$)	360
Additional dividend receivable	18,000
Less:	
Tax on dividend (Note)	0
Tax on deemed employment income (W)	(7,482)
NIC on deemed employment income (W)	<u>(374)</u>
Net decrease in Alan's annual income	<u>(296)</u>

	£
Income from relevant engagements	85,000
Less 5% statutory deduction	(4,250)
Less travel expenses	(1,500)

	£
Less salary	(52,000)
Less employer's NIC on actual salary $(£52,000 - £8,788) \times 13.8\%$	<u>(5,963)</u>
(no employment allowance as Alan is sole employee of company)	-
	21,287
Less employers' NIC on deemed payment $13.8\% / 113.8\% \times £21,287$	<u>(2,581)</u>
Deemed employment income	<u>18,706</u>
	7,482
Income tax on deemed employment income $40\% \times £18,706$	<u>7,482</u>
NIC on deemed employment income $2\% \times £18,706$	<u>374</u>

Notes.

Because Alan is treated as receiving deemed employment income from the company the dividend received from the company is not also subject to income tax.

You would not need to prepare both types of calculation in your examination. The two alternative methods have been shown here to show you different ways you could approach this type of question. The two calculation approach is certainly easier to follow however it is more time consuming. The marginal approach is more time efficient however you would need to be careful not to make numerical mistakes.

Activity 2: Termination payment

	First £30,000 Taxable in full	tax free
Payment for working notice $2/12 \times 30,000$	<u>5,000</u>	
Lump sum $(34,500 + (30,000 - 1,300))$	<u>5,800</u>	
	5,000	5,800

The £5,000 for working Ban's notice will be taxable as normal employment income. It will be subject to income tax and Class 1 employer and employee NICs.

The first £28,700 of the £34,500 non-contractual non-expected goodwill payment will be received free of income tax and NIC (the statutory redundancy pay uses up £1,300 of the £30,000 exemption). The excess of £5,800 will be chargeable to income tax as Ban's top slice of income (non-savings rates) and will be liable to Class 1A NICs only.

Activity 3: PENP

The PENP of £18,000 ($3/12 \times £72,000$) will be subject to income tax and class 1 employee NIC on Piotr and Class 1 employer NIC on Apple Ltd.

The remaining £14,000 (£32,000 - £18,000) is an ex-gratia termination payment qualifying for the £30,000 exemption and so is not subject to income tax or NIC.

Activity 4: Share options

Non-advantaged	Tax-advantaged
----------------	----------------

Benefit on exercise:

	Non-advantaged	Tax-advantaged	
MV	4.00		
Cost	<u>(1.50)</u>		
Benefit for one share	<u>2.50</u>		
× 10,000	<u>£25,000</u>	<u>0</u>	
Capital gain on disposal:			
Proceeds	5.50	Proceeds	5.50
MV (exercise)	<u>(4.00)</u>	Cost	<u>(1.50)</u>
Gain for one share	<u>1.50</u>	Gain for one share	<u>4.00</u>
Total gain (× 10,000)	<u>£15,000</u>	Total gain (× 10,000)	<u>£40,000</u>

Skills checkpoint 2

Sources of finance and WACC – handling complex calculations



Chapter overview

Introduction

The financing decision (section E of the syllabus) is a key part of Financial Management. In section C of the exam you may be asked to advise on the appropriateness and cost of different sources of finance.

Calculating the weighted average cost of capital (WACC) is a popular question in section C of the FM exam. It can be challenging at first, but most of the formulae you'll need will be given in the exam.

You could also be asked to calculate a marginal cost of capital which should be used to evaluate investments where risk is changing and so the use of the WACC is not appropriate. This could involve ungearing and re-gearing beta factors which is a technical area of the syllabus and involves some complex calculations.

Given the complex nature of these calculation it is important that you approach the question in a practical and time-efficient way. Using a standard layout and making good use of the spreadsheet formulae available in the exam is critical to successfully tackling these calculations.

Skills checkpoint 3: Handling complex calculations

FM Skill: Sources of finance and WACC – handling complex calculations

The key steps in applying this skill are outlined below and will be explained in more detail in the following sections as the past exam question 'NN Co' is answered.

Exam success skills

The following question is an extract from a past exam question; this extract was worth 10 marks.

For this question, we will also focus on the following **exam success skills**:

- **Managing information.** It is easy for the amount of information contained in a section C question to feel over-whelming. **Active reading** is a useful technique to use to avoid this. This involves focusing on the requirement first, on the basis that until you have done this the detail in the question will have little meaning. This is especially important in cost of capital questions where there is likely to be a high level of numerical content.
- **Correct interpretation of requirements.** The requirements clearly ask for two separate calculations. The after-tax cost of debt and the after tax WACC. The cost of debt will be needed to complete the WACC calculation.

- **Efficient numerical analysis.** The key to success here is applying a sensible proforma for typical WACC calculations, backed up by clear, referenced, workings wherever needed. Working through the numerical data in a logical manner will ensure that you stay focused.
- **Good time management.** Complete all tasks in the time available.

Skill activity

STEP 1 Where a question includes a significant amount of data, read the requirements carefully to make sure that you understand clearly what the question is asking you to do. In this question the requirement is to calculate a cost of debt and a weighted average cost of capital, so you know that you will need to calculate the cost of, and market value of, various types of finance; this will help you to understand why certain information has been provided. You can use the highlighting function to pull out important data from the question.

	\$m	\$m	\$m
Assets			
Non-current assets			101
Current assets			
Inventory		11	
Trade receivables		21	
Cash		10	
		<u>42</u>	
Total assets			<u>143</u>
Equity and liabilities			
Ordinary share capital		50	
Preference share capital		25	
Retained earnings		<u>19</u>	
		94	
Total equity			
Non-current liabilities			
Long-term borrowings		20	
Current liabilities			
Trade payables		22	
Other payables		<u>7</u>	
		<u>29</u>	
Total current liabilities			
Total liabilities			49
Total equity and liabilities			<u>143</u>

NN Co has a cost of equity of 12%.⁷ The ordinary shares of the company have a nominal value of 50 cents per share⁸ and an ex div market value of \$8.30 per share.⁹

⁷
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8

There are 100 million ordinary shares (\$50m/\$0.50)

The market value of equity (V_e) = $100 \text{ m} \times \$8.30 = \830 m

Interest on one bond is \$7

Use the IRR function to calculate the cost of debt (k_d)

The long-term borrowings of NN Co consist of 7%¹⁰ bonds that are redeemable¹¹ in 6 years' time at their nominal value of \$100 per bond. The current ex interest market price of the bonds is \$103.50.¹²

The preference¹³ shares of NN Co have a nominal value of¹⁴ 50 cents per share and pay an annual dividend of 8%.¹⁵ The ex div market value of the preference shares is 67¹⁶ cents per share.

NN Co pays profit tax at an annual rate of 25% per year.

Required

- (a) Calculate the after-tax cost of debt of NN Co.
(4 marks)

Required

- (b) Calculate the weighted average after-tax cost of capital of NN Co.
(6 marks)

STEP 2 Use a standard proforma working. For example, if you are asked to calculate the WACC use your standard proforma for calculating WACC and separately work through the individual parts of the calculation (K_e , K_d , V_e , V_d).

There are three sources of finance in this question so the basic WACC formula provided in the exam cannot be used (although it could be adapted). Instead it would make sense to use the following proforma/approach to calculate WACC.

STEP 3 Use spreadsheet formulae to perform basic calculations. Do not write out your workings, this wastes time and you may make a mistake. Use the spreadsheet the spreadsheet formulae instead!

Simple spreadsheet formulae are used to calculate the MV of each source of finance and to weight those values against the cost of each type of finance.

The IRR spreadsheet function can be used to calculate the cost of debt.

Exam success skills diagnostic

Every time you complete a question, use the diagnostic below to assess how effectively you demonstrated the exam success skills in answering the question. The table has been completed below for the 'NN' activity to give you an idea of how to complete the diagnostic.

Exam success skills	Your reflections/observations
Managing information	<p>There is a significant amount of numerical data provided in this question.</p> <p>Did you note that there are 3 sources of finance and therefore the basic WACC formula provided in the exam cannot be</p>

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Exam success skills	Your reflections/observations
	used? Did you identify the correct number of shares? Did you note the market value of each instrument?
Correct interpretation of requirements	You need to calculate the post-tax cost of debt and the post-tax WACC. Did you remember to account for tax?
Efficient numerical analysis	Did your answer present a neat WACC calculation in a format that would have been easy for a marker to follow?
Good time management	Did you manage your time to ensure you tackled all workings and completed both requirements in the time available?
Most important action points to apply to your next question	

Summary

Section C of the FM exam could contain a question that focuses on business finance and asks you to perform an WACC calculation.

This is an important area to revise and to ensure that you understand data presented in the question and use it to prepare a WACC calculation.

It is also important to be aware that in the exam you are dealing with detailed calculations under timed exam conditions and time management is absolutely crucial. You therefore need to ensure that you:

- Interpret the date given in the question correctly
- Use a clear, standard WACC layout.
- Use spreadsheet formula to perform basic calculations.
- Show clear workings

Remember that there are no optional questions in the FM exam and that this syllabus section (section E: Business Finance) will definitely be tested!



Personal tax administration

Learning objectives

On completion of this chapter, you should be able to:

Syllabus reference no.

Remember the material covered in Taxation (TX – UK) under the headings:

- | | |
|--|----------|
| ‘The systems for self-assessment and the making of returns’ | A6(b) A3 |
| ‘The time limits for submission of information, claims and payment of tax including payments on account’ | A6(b) A4 |
| ‘The procedures relating to compliance checks, appeals and disputes’ | A6(b) A5 |
| ‘Penalties for non-compliance’ | A6(b) A6 |
-

Advise on the increased penalties which apply in relation to offshore matters A6(b)(i)

Exam context

In any tax advice question, you must consider the administrative requirements and time limits. You must know the taxpayer’s responsibilities for making returns and paying tax, and the rules that HMRC can use to enforce compliance.

This chapter is mainly a revision of material studied in TX – UK. The new topic is the increased penalties which apply in relation to offshore matters.

Chapter overview

!! Error resolving referred content !!

1 Notification of liability to income tax and capital gains tax (CGT)

1.1 Duty to notify

The taxpayer has a **duty to notify** liability to income tax and/or CGT to HM Revenue & Customs (HMRC) by **5 October following end of tax year**, unless they have received a notice from HMRC to file a return.

A **taxpayer** who has **no chargeable gains** and who is **not liable to higher rate tax** does not have to give notice of chargeability if all their income:

- Is taken into account under **PAYE**;
- Is from a source of income **not subject to tax under a self-assessment**;
- Has had (or is treated as having had) **income tax deducted at source**; or
- Is **savings income and/or dividend income falling within the savings income nil rate band and the dividend nil rate band**.

1.2 Penalties for failure to notify liability

A **common penalty regime** applies for failure to notify chargeability to, or liability to register for income tax, national insurance contributions (NICs), CGT, corporation tax and VAT. Penalties are **behaviour related**, increasing for more serious failures, and are based on the '**potential lost revenue**' (PLR):

- Up to **30% of PLR** if non-deliberate failure to notify
- Up to **70% of PLR** if deliberate failure to notify, increased to **100% if also concealment**

Penalties can be reduced if **taxpayer makes disclosure** and are **more generous if disclosure is unprompted** (can be **reduced to 0%** for a **non-deliberate failure if unprompted disclosure within 12 months**).



Essential reading

See Chapter 10 of the Essential reading for more details on penalties for failure to notify.

The Essential reading is available as an Appendix of the digital edition of the Workbook.

2 Tax returns

2.1 Filing dates

HMRC usually issues a notice to the taxpayer requiring them to file a tax return.

Paper returns must usually be filed by **31 October following the end of the tax year**.

Electronically delivered returns must usually be filed by **31 January following the end of the tax year**.



PER alert

One of the competencies you require to fulfil Performance Objective 16 Tax compliance and verification of the PER is to explain tax filing and payment requirements and the consequences of non-compliance to clients. You can apply the knowledge you obtain from this section of the Workbook to help demonstrate this competence.



Essential reading

See Chapter 10 for more details on the filing dates for tax returns.

The Essential reading is available as an Appendix of the digital edition of the Workbook.

2.2 Penalties for late filing

The **penalty date for filing a late return** is the **day after the filing date**.

Penalties for filing on or after penalty date are as follows:

0–3 months	£100
3–6 months	Further penalty: £10 per day (maximum 90 days)
6–12 months	Further penalty: greater of 5% of tax liability and £300
12 months +	Further penalty: greater of % of tax liability (conduct based) and £300



Essential reading

See Chapter 10 of the Essential reading for more details on penalties for late filing where the failure continues after the end of the 12-month period.

The Essential reading is available as an Appendix of the digital edition of the Workbook.

2.3 Penalties for errors

A **common penalty regime** applies to **incorrect self-assessment tax returns**, **self-assessment corporation tax returns** and **misdeclarations on a value added tax (VAT) return**.

Penalties are **behaviour related** and are **based on the PLR** as a **result of the error**. For example, if there is an **understatement of tax**, this **understatement** will be the **PLR**. Penalties can be **reduced** if taxpayer makes **disclosure** and are **more generous** if disclosure is **unprompted**.

The **maximum and minimum amount of penalties** are as follows:

Taxpayer behaviour	Maximum penalty	Minimum penalty – unprompted disclosure	Minimum penalty – prompted disclosure
Deliberate and concealed	100%	30%	50%
Deliberate but not concealed	70%	20%	35%
Careless	30%	0%	15%

3 Formula provided

The penalty percentages will be given to you in the Tax Rates and Allowances available in the exam.



Activity 1: Penalty for error

Alexander is a sole trader. He files his tax return for the tax year 2020/21 on 10 January 2022. The return shows his trading income to be £60,000. In fact, due to carelessness, his trading income should have been stated to be £68,000. Alexander has no other income.

Required

Compute the maximum penalty that could be charged by HMRC on Alexander for his error.

4 Self-assessment

A **self-assessment** is a **calculation of the amount of taxable income and gains after deducting reliefs and allowances**, and a **calculation of income tax and CGT payable** after taking into account tax deducted at source.

If the taxpayer is filing a **paper return**, they may make the tax calculation on their return or ask HMRC to do so on their behalf. In either case, this is treated as a 'self-assessment' by the taxpayer.

If the taxpayer wishes HMRC to make the calculation for Year 1, a paper return must be filed:

- On or before 31 October in Year 2, or
- If the notice to file the tax return is issued after 31 August in Year 2, within two months of the notice

If the taxpayer is filing an **electronic return**, the calculation of tax liability is made automatically when the return is made online.



Essential reading

See Chapter 10 of the Essential reading for more details on amending self-assessments.

The Essential reading is available as an Appendix of the digital edition of the Workbook.

5 Records

All taxpayers must retain all records required to enable them to make and deliver a correct tax return.

Records must usually be retained until the later of:

- Five years after the 31 January following the tax year where the taxpayer is in business (as a sole trader or partner or letting property). Note that this applies to all of the records, not only the business records;
- One year after the 31 January following the tax year otherwise.

The maximum penalty for each failure to keep and retain records is £3,000 per tax year.

6 Payment dates

6.1 Payments on account

Income tax and Class 4 NICs are payable by **two equal payments on account** by 31 January (during the tax year) and 31 July (following the end of the tax year). Each payment on account is equal to 50% of the previous tax year's income tax and Class 4 NIC liability (the 'relevant amount').



Exam focus point

Due to the Coronavirus outbreak and its impact on individuals and businesses, the government permitted taxpayers to defer certain tax payments, including the payment on account of income tax and NIC for the tax year 2019/20 that was due on 31 July 2020, and any VAT payments that fell due between 30 March and 30 June 2020. The ACCA examining team have advised that, where relevant, you should assume the taxpayer has NOT chosen to defer these payments.



Activity 2: Payments on account

Sue is a self-employed writer who paid tax for 2019/20 as follows:

	£
Total amount of income tax charged	9,200
This included tax deducted on company loan stock	1,200
She also paid Class 4 NIC	1,900

Required

Compute the payments on account for income tax and Class 4 NIC for 2020/21 and state by what dates are they due.



Essential reading

See Chapter 10 of the Essential reading for more details on the circumstances where payments on account are not required and on claims to reduce payments on account.

The Essential reading is available as an Appendix of the digital edition of the Workbook.

6.2 Balancing payment

Any balancing payment is payable by **31 January following the end of the tax year** (which will also include all the Class 2 NICs).

6.3 CGT

CGT is payable by **31 January following the end of the tax year**. However, for disposals of residential property a payment on account must be made **within 30 days of completion of the disposal** (as covered in Chapter 7).

6.4 Interest on late paid tax

Interest is chargeable on late payment of payments on account and balancing payments from due date until day before actual payment date.

6.5 Penalties for late paid tax

Where the balancing payment and/or CGT is paid late, the **penalty date** is 30 days after the due date.

The **following penalties** apply:

On or before penalty date	0%
Not more than 5 months after penalty date	5% of unpaid tax
Between 5 months and 11 months after penalty date	10% of unpaid tax
More than 11 months after penalty date	15% of unpaid tax

6.6 Interest on overpaid tax

Interest on overpaid tax (repayment supplement) is **payable** from the **original date of payment** until the **day before the repayment of tax** is made.

Repayment supplement paid to individuals is **tax free**.

7 HMRC powers

7.1 Compliance checks

HMRC must give **notice of a compliance check** into a return **by the first anniversary of the actual filing date** if the return is filed **on or before the filing date**.

If the **return is filed after the filing date**, HMRC must **give notice** by the **quarter day following the first anniversary of the actual filing date**. The quarter days are 31 January, 30 April, 31 July and 31 October.



Essential reading

See Chapter 10 of the Essential reading for more details of HMRC powers in relation to determinations, discovery assessments and dishonest conduct of tax agents.

The Essential reading is available as an Appendix of the digital edition of the Workbook.

8 Penalties for offshore non-compliance



Offshore matter: Relates to income arising from a source in a territory outside the UK, assets situated or held in a territory outside the UK; and activities carried on wholly or mainly in a territory outside the UK.

There may be **increased penalties** for offshore non-compliance. The **rates** are linked to **how much information** the particular offshore territory shares with HMRC so that the more difficult it is for HMRC to obtain information, the higher the penalty.

There is an **additional penalty** where there is a relevant offshore asset move intended to **prevent or delay HMRC from discovering a potential loss of revenue**.

Penalties may also be imposed on **those who enable offshore non-compliance**.

9 Appeals

Appeals must first be made to HMRC.

The taxpayer may be offered, or may ask for, an ‘internal review’, which will be made by an objective HMRC review officer not previously connected with the case.

If there is no internal review, or the taxpayer is unhappy with the result of an internal review, the case may be heard by the Tax tribunal.



Essential reading

See Chapter 10 of the Essential reading for more details of appeals.

The Essential reading is available as an Appendix of the digital edition of the Workbook.

Chapter summary

Knowledge diagnostic

1. Taxpayer obligations

Individuals must notify their chargeability to income tax or CGT by 5 October following the end of the tax year. A common penalty regime applies to late notification of chargeability.

Tax returns must usually be filed by 31 October (paper) or 31 January (electronic) following the end of the tax year.

Two payments on account and a final balancing payment of income tax and Class 4 NICs are due. Class 2 NICs and CGT are payable at the same time as the balancing payment. Interest is payable on late paid tax.

2. Penalties

A penalty can be charged for late filing of a tax return based on how late the return is and how much tax is payable.

There is a common penalty regime for errors in tax returns, including income tax, NICs, corporation tax and VAT. Penalties range from 30% to 100% of the Potential Lost Revenue. Penalties may be reduced.

A penalty is chargeable where a balancing payment and/or CGT is paid after the due date and is based on the amount of the unpaid tax.

There may be increased penalties for off-shore non-compliance and an additional penalty where there is a relevant offshore asset move intended to prevent or delay HMRC from discovering a potential loss of revenue. Penalties may also be imposed on those who enable offshore non-compliance.

3. Compliance checks and disputes

A compliance check into a return can be started by HMRC within a limited period.

Disputes between taxpayers and HMRC can be dealt with by an HMRC internal review or by a Tribunal hearing.

Further study guidance

Question practice

Now try the following from the Further question practice bank (available in the digital edition of the Workbook):

Mark, Sarah and Meredith

Activity answers

Activity 1: Penalty for error

Potential lost revenue (PLR) as a result of Alexander's error is: £(68,000 – 60,000) = £8,000 × [40% (income tax) + 2% (Class 4 NICs)] = £3,360.

Alexander's error is careless, so the maximum penalty for the error is: £3,360 × 30% = £1,008.

Activity 2: Payments on account

	£
Income tax:	
Total income tax charged for 2019/20	9,200
Less tax deducted at source on loan stock for 2019/20	<u>(1,200)</u>
	8,000
Class 4 NIC	<u>1,900</u>
'Relevant amount'	<u>9,900</u>
Payments on account for 2020/21:	
31 January 2021 £9,900 × 50%	<u>4,950</u>
31 July 2021 £9,900 × 50%	<u>4,950</u>



Owner-managed business tax planning

Learning objectives

On completion of this chapter, you should be able to:

	Syllabus reference no.
Identify and advise on the taxes applicable to a given course of action and their impact	B1
Identify and understand that the alternative ways of achieving personal or business outcomes may lead to different tax consequences	B2
Advise how taxation can affect the financial decisions made by businesses (corporate and unincorporated) and by individuals	B3
Assess the tax advantages and disadvantages of alternative courses of action	B4
Understand the statutory obligations imposed in a given situation, including any time limits for action and advise on the implications of non-compliance	B5
Identify and advise on the types of investment and other expenditure that will result in a reduction in tax liabilities for an individual and/or a business	C1
Advise on legitimate tax planning measures by which the tax liabilities arising from a particular situation or course of action can be mitigated	C2
Advise on the appropriateness of such investment, expenditure or measures given a particular taxpayer's circumstances or stated objectives	C3
Advise on the mitigation of tax in the manner recommended by reference to numerical analysis and/or reasoned argument	C4
Be aware of and give advice on current issues in taxation	C6
Communicate advice, recommendations and information in the required format. For example, the use of: Reports, Memoranda, Letters and Meeting notes	D1
Present written information, in language appropriate to the purpose of the communication and the intended recipient	D2

	Syllabus reference no.
Communicate conclusions reached, together, where necessary with relevant supporting computations	D3
State and explain assumptions made or limitations in the analysis provided; together with any inadequacies in the information available and/or additional information required to provide a fuller analysis	D4
Identify and explain other, non-tax, factors that should be considered	D5

Exam context

A very common scenario that you will see in your exam is advising an owner-managed business. In this type of question, it is vital that from the start you recognise whether the business is a sole trader or partnership or a company. Many students see the word ‘business’ and simply assume it’s a company. Sole traders and partners are liable for income tax on their profits whereas companies pay corporation tax – a mistake on interpreting the scenario early in the question can have disastrous consequences. The sections below take us through the journey of starting a business to eventual sale of the business and considers the tax issues we could see in the exam.



Chapter overview

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1 Starting a business

We start our planning chapter looking at some of the ideas which we might need to consider if we are advising a client who is about to start up their own business.

1.1 Employed vs self-employed



Exam focus point

A question could have us looking at an individual working with an already existing business asking us to consider whether the individual is an **employee** of the business thus paying **income tax** on employment income and **Class 1 NICs** or whether the individual is **self-employed** and thus paying **income tax** on trade profits and **Class 2 and 4 NICs**.

To determine whether an individual is **employed** or **self-employed** we saw earlier in the Workbook that we must consider the following factors:

- **Control** over how work is done
- Whether **provides own equipment**
- Whether **hires own helpers**
- What degree of **financial risk** is taken?
- What **degree of responsibility** for investment and management worker has?
- Whether and how far there is an **opportunity for profiting from sound management**
- **How many people** does worker work for?

If a contract is mentioned in the scenario then it has been held that a contract **of service** indicates **employment** but a contract **for services** indicates **self-employment**.



Exam focus point

In an exam question you will need to try to consider and **apply the factors** above to the scenario and then come to a **conclusion** based on the **big picture** of the factors.

The table below sets out the main differences in tax which you may need to explain to the individual in the question. You will see that there are **tax advantages** to being treated as **self-employed** but, of course, self-employed individuals do **not** have the **protection offered to employees such as holiday pay, sick pay and requirement to give notice**.

	Employed	Self-employed
Pensions:	Personal/workplace	Personal only
NICs	Class 1	Classes 2, 4 (generally lower)
Expenses	Wholly, exclusively and necessarily	Wholly and exclusively (thus more expenses deductible)
Basis of assessment	Taxed under employment income on amounts received in the tax year	Taxed as trading income on CYB
Payment dates	Tax is collected under PAYE at the time of receipt of remuneration	Payments on account will be due on 31 January in the tax year and 31 July following the tax year, with a final payment on 31 January after the year of assessment (thus later)



Activity 1: Employment vs self-employment – Lucy

Assume that it is 1 March 2020.

Lucy is considering two work arrangements. She will start her chosen arrangement on 6 April 2020 and will continue with that arrangement for the whole of the tax year 2020/21.

Employment with Red plc

Lucy has been offered employment with Red plc. She would be paid a salary of £36,000 and would be required to work at Red plc's offices.

Lucy would travel from home to Red plc's offices by train and would buy an annual season ticket costing £1,500.

Self-employment

Lucy would work for a number of clients at their offices. She would receive fees of £36,000 from her clients in the year to 5 April 2021.

Lucy would travel from home to client offices in her own car. Her business mileage would be 4,600 miles during the year and she estimates this would actually cost 40p per mile.

Lucy would prepare accounts to 5 April 2021 and elect to use the cash basis and approved mileage allowances.

Required

Determine which of the work arrangements would result in Lucy having a higher amount of disposable income after deducting income tax, national insurance contributions and travel costs.

1.2 Are they trading?

We could see a scenario where an individual buys and sells assets (or provides a service for cash) and we're asked to determine whether they are **trading or not**. If they are **trading**, they will be liable to **income tax** on their trade profits and **Class 2 and 4 NICs**. If they **aren't trading**, we will need to consider whether there is any **capital gains tax** due on the sale of a capital asset.

To make this decision we use the badges of trade as we saw in Chapter 14 of the Workbook. The badges to consider are:

- **Subject matter**
- **Frequency of transactions**
- **Existence of similar trading transactions or interests**
- **Length of ownership**
- **The organisation of the activity as a trade**
- **Supplementary work and marketing**
- **Profit motive**
- **The way in which the asset sold was acquired**
- **Method of finance**
- **The taxpayer's intentions**



Exam focus point

In an exam question, these badges will not necessarily all point us in one direction, and we will need to conclude based on the **big picture** having **applied these badges to the scenario** we have in the question. The question could go on to ask us to calculate the tax due assuming the individual either is/isn't trading.

Question 3 Tomas in the March 2020 exam asked students to explain the difference in a taxpayer's total tax payable due to their profits being taxed as trading income rather than as chargeable gains. The examining team stated: 'When specific taxes are not mentioned in the question, students need to think broadly. Although the majority of students correctly identified the income tax implications, very few considered that there would also be NIC implications as well. In relation to the CGT implications, only a minority recognised that the items being sold constituted chattels under £6,000, and so were exempt. So the majority of students were only able to score two out of possible five marks. The question did ask for supporting calculations, but many students produced detailed, comprehensive income tax and CGT computations, in addition to explaining the implications. Calculations were only needed to support the explanation, and so need to only be brief. In particular, many students doing the computer based exam explained the position in the word processing document, referring the relevant numbers, and also produced comprehensive calculations in the spreadsheet, which did not gain them any additional marks.'



Activity 2: Carrying on a trade

Martha has recently inherited a Rolls Royce Silver Phantom and, following installation of new leather seat coverings, has decided to start allowing friends to use it as their wedding car. She has initially been asking for a £100 contribution for use of the car and has started advertising the car's availability in local shops and on local Facebook groups. She believes she can start charging about £500 per use of the car. The car has currently been used only on six occasions over the last six months. Martha works full time as an estate agent.

Required

Discuss whether Martha's profits from her wedding car service will be liable to income tax.

1.3 Choice of business structure (sole trade/partnership/company)

A crucial decision to be made when starting a business will be the **choice of business structure** for our individual.

Do they use a more **flexible unincorporated entity such as a sole trader or partnership?** These are **more flexible** as there are fewer rules and regulations to follow and they offer **more confidentiality** as there's no requirement to file accounts at Companies House. In contrast, legally

there is **no separate legal entity** and the individual has **unlimited liability** for the liabilities of the business.

Or, should the more **formal structure**, such as a company, be used? This will mean that the individual must follow **more rules and regulations and file accounts annually**. However, it can give a sense of **gravitas** to the business and provides the owner with the **separate legal entity** and benefit of **limited liability**.

Of course, these are not tax factors but syllabus area D5 states we should be able to identify and explain other, non-tax, factors that should be considered.

The differing tax position of unincorporated versus incorporated businesses is also vitally important. The following factors should be considered:

	Sole trader	Company
Profits	Pay income tax <ul style="list-style-type: none">• Rates?• Limits? Opening year rules <ul style="list-style-type: none">• Overlap profit	Pay corporation tax at 19%
Payment of tax	Payments on account	9 months and 1 day
Losses	Relief vs general income Carry forward relief Early year loss relief	Current and carry back relief Carry forward relief
Extract cash	Drawings	Salary Dividends <ul style="list-style-type: none">• Consider implications to both company and individual
NIC	Classes 2 and 4	Class 1 – Employee – Employer



Activity 3: Choice of business structure

Hamish has a business idea, which he thinks will give rise to trading profits of £60,000 per annum. All of his expenses are tax deductible. He intends to start trading on 6 April 2021.

Hamish enjoys a lavish lifestyle and has significant expenses, so he wants to maximise his income from the business.

Required

Advise Hamish on how he should structure his business to best meet his needs. If he sets up as a company he will pay himself a salary of £8,788 and take the balance as a dividend.

(Assume FA 2020 rates continue to apply, and that Hamish will have no other taxable income in 2021/22.)

Assessment focus point

In Question 1 Nelson in the December 2019 exam students were asked to compare the tax payable if an individual traded through a limited company compared to trading as an unincorporated trader. The tax payable if trading as an unincorporated trader was given in the question and did not need to be recalculated but despite this a number of students wasted time recalculating this figure and gained no marks for their efforts. This reminds us of the importance of correctly interpreting the requirement and planning before we start to write.

1.4 Choice of year end date

A new trader should consider which accounting date would be best. There are **several factors to consider** from the point of view of taxation.

- **If profits are expected to rise, a date early in the tax year** (such as 30 April) will delay the time when rising accounts profits feed through into rising taxable profits, whereas a date late in the tax year (such as 31 March) will accelerate the taxation of rising profits. This is because with an accounting date of 30 April, the taxable profits for each tax year are mainly the profits earned in the previous tax year. With an accounting date of 31 March, the taxable profits are almost entirely profits earned in the current year.
- If the accounting date in the second tax year is less than 12 months after the start of trading, the taxable profits for that year will be the profits earned in the first 12 months. If the accounting date is at least 12 months from the start of trading, they will be the profits earned in the 12 months to that date. **Different profits may thus be taxed twice**, and if profits are fluctuating this can make a considerable difference to the taxable profits in the first few years.
- **The choice of an accounting date affects the profits shown in each set of accounts**, and this may affect the taxable profits.
- **An accounting date of 30 April gives the maximum interval between earning profits and paying the related tax liability.** For example, if a trader prepares accounts to 30 April 2021, this falls into the tax year 2021/22 with payments on account being due on 31 January 2022 and 31 July 2022, and a balancing payment due on 31 January 2023. If the trader prepares accounts to 31 March 2021, this falls in the tax year 2020/21 and the payments will be due one year earlier (ie on 31 January 2021, 31 July 2021 and 31 January 2022).
- **Knowing profits well in advance of the end of the tax year makes tax planning much easier.** For example, if a trader wants to make personal pension contributions and prepares accounts to 30 April 2021 (2021/22), they can make contributions up to 5 April 2022 based on those relevant earnings. If they prepare accounts to 31 March 2021, they will probably not know the amount of their relevant earnings until after the end of the tax year 2020/21, too late to adjust their pension contributions for 2020/21.
- **However, a 31 March or 5 April accounting date means that the application of the basis period rules is more straightforward and there will be no overlap profits.** This may be appropriate for small traders.
- **With an accounting date of 30 April, the assessment for the year of cessation could be based on up to 23 months of profits.** For example, if a trader who has prepared accounts to 30 April ceases trading on 31 March 2021 (2020/21), the basis period for 2020/21 will run from 1 May 2019 to 31 March 2021. This could lead to larger than normal trading profits being assessable in the year of cessation.
- However, this could be avoided by carrying on the trade for another month so that a cessation arises on 30 April 2021 so that the profits from 1 May 2019 to 30 April 2020 are taxable in 2020/21 and those from 1 May 2020 to 30 April 2021 are taxable in 2021/22. Each case must be looked at in relation to all relevant factors, such as other income which the taxpayer may have and loss relief – there is no one rule which applies in all cases.

A question considering choice of year end date is covered in the Skills section after this chapter.



Exam focus point

December 2014 Question 2(a) part (iii) Piquet required candidates to identify two advantages of using a 30 April year end as opposed to a year end of 28 February. The examining team commented that ‘many candidates were able to identify one advantage, but few were able to come up with two. This was disappointing as the choice of year end is a basic aspect of tax planning for the unincorporated trader and one that candidates should be confident of.’

This was also tested in March 2020 Question 3 Tomas where a taxpayer was considering adopting a 31 March or 30 April year end. This question also asked students to identify the taxpayer’s basis periods and the examining team said that it was very surprising that very few candidates were able to do this. The examining team said ‘a thorough knowledge of the opening and closing year basis period rules is essentially brought forward knowledge from TX. Both of these are frequently tested in ATX and students should ensure they have a sound knowledge of these rules.

1.5 Use of trade losses

1.5.1 Choice of loss reliefs

When a business starts up often it incurs **losses** rather than profits in its first few years. If this is to be the case, then an important consideration will be the choice of business structure. Running the business as a **sole trade or partnership will allow more flexible use of any business losses**.

The table below compares the loss reliefs available to the different types of business:

Sole trader/Partners	Company
Optional: Current year – against general income (before PA) Prior year – against general income (before PA) All or nothing Can do in any order May be restricted	Optional: Current year – against total profits (before QCD) Prior 12 months – against total profits (before QCD) All or nothing HAVE TO DO CY FIRST
Automatic: Carry forward – against future trading income of the same trade	Automatic: Carry forward – a claim must then be made to offset some/all of loss against future total profits
Early trading loss relief Losses which occur within the first 4 tax years against general income (before PA) of the previous 3 tax years on a FIFO basis	N/A
Terminal loss relief Loss in the last 12 months (+ overlap profits) Against trading income Previous three tax years LIFO basis	Terminal loss relief Loss in the last 12 months Against total profits (before QCD) Previous three years LIFO basis

Note that running the business as a **sole trader** allows the owner to **offset the trade loss of the business against the owners own personal income** (such as property income, interest or dividend income.) In contrast, if the business is structured as a company then the trade loss can only be offset against the company’s other income and gains and not against the owner’s personal income.

Questions may require you to consider the best use of a loss and the tax savings this will generate. How you do this depends on the type of business you are advising and is considered in following sections.

1.5.2 Planning to use the loss as a sole trade/partnership

Many individuals will want the **cash flow advantage** of using their loss **as early as possible**. If this is the case, a prior year claim should be made, followed by a current year claim and finally a carry forward offset.

Other questions may want us to consider how to use the loss to save the **most tax** rather than get relief as quickly as possible. Here we will want to think about using the loss in the year that the individual is paying the **highest marginal rate of tax**. We can also consider **avoiding wasting the PA, savings starting and nil rate bands and dividend nil rate band**. In a year where the PA has been abated due to the individual having total income exceeding £100,000, the use of the loss can mean that the PA is no longer abated, and this can also generate tax savings.

Working at the margin to calculate the tax saved will be much more **time efficient** in your exam.

1.5.3 Planning to use the loss as a single company

If the company wants a **cash flow advantage**, then it should make a current year claim followed by a 12-month carry back and then finally carry forward the loss.

If the question wants us to consider **maximising the corporation tax saved**, then due to the flat 19% corporation tax rate this is normally simply 19% of the loss offset. However, we could consider whether any **QCDs were wasted** by a loss claim. Planning to use a loss in a corporate group can be more complex and this is covered in the Corporate tax planning chapter.

A question considering use of trade losses and the rate of tax saved is covered in the Skills section following this chapter.



Exam focus point

Question 1 Nelson in the December 2019 exam required an explanation of why a business owner had been advised to trade as an unincorporated business rather than through a company when trading losses were anticipated in the first couple of years of the business. The examining team said that 'many students wasted time and earned no marks by simply describing all the losses rules of companies and unincorporated businesses whereas what was needed was for students to apply their knowledge to the specific facts of the question.'

1.6 Extraction of profit

As a **sole trade/partnership** the individual and the business are one. The individual can therefore choose how much profit to extract from the business by way of **drawings** and these have **no tax consequence** as the profits of the business are taxed before drawings are deducted.

In contrast, if the business is set up as a **company**, the individual will be a separate entity to the company, and they will need to consider **how to extract their profits** from the company. The most common methods of profit extraction are for the individual to take a **salary (or benefits, or a bonus), dividend, loan interest, rental income or pension scheme contributions**. These different forms of extraction will have very different tax consequences for both the individual and the company which are summarised below:

Method	Company	Individual
Remuneration	Deductible/Class 1 NICs Deductible/Class 1A NICs	Taxable/Class 1 NIC Taxable
Dividends	Not deductible	No tax if within dividend nil rate band. If in excess, tax at 7.5%/32.5%

Method	Company	Individual
		or 38.1% dependent on other taxable income No NICs
Loan interest	Deductible on accruals basis	Taxable as savings income if exceeds savings income nil rate band
Rental income	Deductible	Taxable as non-savings income
Pension contributions	Deductible	Tax free provided below AA



Activity 4: Extraction of profits

Sylvie is resident and domiciled in the UK and is 53 years old. She is a director and shareholder of Backwell Ltd and receives an annual gross salary of £50,000. She would like to extract an additional cash sum of £30,000, net of all taxes, from Backwell Ltd, to be paid on 31 March 2021. The additional sum will be extracted as either a bonus or dividend. She will not receive any other taxable income in the tax year 2020/21.

Required

Explain, with supporting calculations, the amount of any payments to be made by Backwell Ltd to HMRC in respect of each of the two ways for Sylvie to extract the additional £30,000 cash from the company.



Exam focus point

In Question 1 Nelson in the December 2019 exam students were asked to calculate the total tax payable if an individual incorporated their business and extracted profits as a mix of salary and dividends. The examining team stated ‘Most students were able to calculate the corporation tax payable and recognised that employer’s NIC would be both payable and tax deductible for corporation tax purposes if the owner took a salary from the company. Many students then successfully went on to calculate the income tax payable by the owner of the company, given the mix of dividends and salary. However most students failed to recognise that the owner would also have to pay employee’s NIC on the salary from the company.’

1.7 Close company issues

It is very **likely** that a new start up company will **meet the definition of a close company** and so these questions could bring in close company knowledge, covered in Chapter 21 Close companies and investment companies later in this workbook.

Use your planning time to identify whether the company is close and then watch out for:

- **Loans from the close company to a shareholder;** or
- **Benefits provided to a shareholder who is not an employee.**

2 The developing business

2.1 Calculating the after-tax cost of a proposal

We may need to be able to advise an individual of the **after-tax cost of a proposal** in our exam. It will be important that the individual fully understands the cost of potential proposal in order that they can make an informed business decision.

The principle of an **after-tax cost** is simply to add up the costs associated with a proposal and then, if they are all tax deductible, the tax saving associated with those costs is deducted to come down to an after-tax cost.

For a sole trader we might consider:

	£
Costs of proposal	X
Any additional employer's NIC on costs of proposal	<u>X</u>
Total costs (reduction in trade profits)	<u>X</u>
Less income tax saving on costs (reduced profits) @ 20%/40%/45%	(X)
Less Class 4 NIC saved on costs (reduced profits) @ 9%/2%	(X)
After-tax cost	X

For a company we would instead consider the corporation tax saved on the total costs and there would be no Class 4 NIC consideration.



Activity 5: After-tax cost of employing a part-time employee

Ernest runs a successful unincorporated business, Gardening 4 You which makes taxable profits of £95,000 per annum. The business already has seven full-time staff and requires an additional part-time employee. Ernest also receives dividends of £32,000 per year.

The proposed remuneration package for the part-time employee includes:

- A salary of £14,000 per annum
- A mileage allowance of 50p per mile for the 50 miles of business driving the employee will be expected to drive each week while visiting clients. This will be for 46 weeks of the year.

This employment income will be the employee's only source of taxable income.

Required

Calculate the annual cost for Ernest, after income tax and NIC, of employing the part-time employee.

2.2 Employee vs partner

As our individual's business grows, it may well want to take on more staff. Some past exam questions have considered the individual wanting to bring their spouse in to the business and trying to decide whether to take them on as an **employee or to become a partnership and make them a partner**.

The question may give you specifics of how these arrangements will work and could ask you to calculate the tax consequences of this. Some key ideas to consider are given below:

	Employee	Partnership
Form of remuneration	Salary Possible benefits	Share of profit (which could include an entitlement to a salary as an appropriation of profit)
Tax consequences for the original sole trader	The salary and cost of providing any benefits will be	The original sole trader will have a lower share of profits

	Employee	Partnership
	<p>extra costs for the sole trader thus reducing their taxable trading profits.</p> <p>In addition, employers NIC (and Class 1A on any benefits) will also need to be paid by the business.</p> <p>All these costs will reduce the taxable trade profits of the sole trader and thus reduce the amount on which income tax and Class 4 NICs are calculated.</p>	<p>to be taxed.</p> <p>This will therefore save income tax and Class 4 NIC.</p>
Tax consequences for the new employee/ partner	The new employee will pay income tax on any salary and/ or bonus and employee NIC on any cash benefits that they receive. Any non-cash benefits will have no NIC consequence for the new employee.	The new partner will receive a share of the partnership profits and the opening year basis period rules will apply that profit to tax years.
What if the business makes losses?	<p>The employee's salary and employer's NIC thereon will increase the size of the loss on which the original sole trader can claim loss relief.</p> <p>The new employee will still pay income tax and employee's NIC on the cash salary they receive and will not benefit from any loss relief as they are not entitled to a share of the loss.</p>	<p>The loss will be appropriated between the two partners using the profit-sharing agreement.</p> <p>Each partner will be able to use their share of the loss in whatever way they choose.</p> <p>There will be no Class 2 nor Class 4 NIC due.</p>

A question considering taking on a new employee or partner is covered in the Skills section following this chapter.



Exam focus point

Calculations on whether to take on a new person as an employee or partner were tested in Question 4 Rosa in the December 2019 exam. The examining team said that there were some excellent answers to this part of the question and that 'students who did not do so well would have benefited from taking time to plan their answer before they began, thinking about which taxes affect which individual.'

2.3 Raising finance

As the business grows, the individual will need to **raise more finance**.

As an unincorporated business the following options are available:

- **Owner's own capital**
- **Bank overdrafts**
- **Bank loans**

- Loans secured by mortgages of land
- Leasing and hire purchase arrangements
- Sale and leaseback arrangements
- Loans from private individuals
- Use of venture capital institutions such as business angels

If the business is **incorporated**, in addition to the finance options stated above, the following options also become available:

- Share issues (including using EIS, SEIS schemes if the company qualifies)
- Loan stock issues

One of the main decisions for a company to make is whether to raise finance through debt or equity. As you will see in your financial management paper, equity finance is a more expensive source of finance for the business due to the risk taken by the investors. In contrast, debt is a cheaper source of finance as it is less risky for the investor.

In addition, the different sources of finance have different tax consequences for the business and the investor:

	Business	Investor
Debt	<ul style="list-style-type: none"> • Pays interest • Interest is tax deductible and thus saves IT (sole trader/ partnership) or CT (company) <p>Cost to the business: Interest X Less tax relief on interest (X) Net cost X</p> <p>A company can also get a tax deduction for any capital costs to do with the loan.</p>	<p>If the investor is an individual:</p> <ul style="list-style-type: none"> • Pays income tax on any interest in excess of the savings nil rate band <p>If the investor is a company:</p> <ul style="list-style-type: none"> • Pays corporation tax on the interest income accrued in the year
Equity	<ul style="list-style-type: none"> • Pays dividends • No tax relief <p>Cost to the business: Dividend X</p>	<p>If the investor is an individual:</p> <ul style="list-style-type: none"> • Pays income tax on any dividends in excess of the dividend nil rate band <p>If the investor is a company:</p> <ul style="list-style-type: none"> • No corporation tax on dividends received

An alternate financing decision, perhaps for a large piece of equipment, might be whether the equipment should be bought outright with the help of a loan or whether it should be leased. This is another decision that you will see in your financial management exam.

- If the asset is bought with a bank loan, then:
 - Capital allowances will be available on the cost of the equipment.
 - Interest on the loan will be tax deductible.
- If the asset is instead leased:
 - If the lease term is <5 years, then the lease payments will be tax deductible.
 - If the equipment is bought on hire purchase or leased under a long-term lease then the cash price of the equipment will qualify for capital allowances and the finance costs are tax deductible.

2.4 Timing capital expenditure to maximise tax relief

Once the business is established and is using the current year basis to calculate which accounting periods profits are taxed in which tax year, a question could ask you to consider the **impact of the timing of capital expenditure in terms of when tax relief is obtained**. This could involve consideration of the following factors:

- **Spend at the end of the accounting year**
 - This will allow tax relief for capital expenditure as quickly as possible after the capital spend.
- **Spread capital spending over accounting year ends if total qualifying spend will exceed the annual investment allowance (AIA)**
 - If a business plans to spend more than the AIA for its accounting period then in addition to trying to time that expenditure towards the end of the accounting year, the spend could be split across two accounting periods such that the AIA of each year could be used to increase the spend receiving 100% relief.
- **Consider claiming less than the maximum capital allowances**
 - A sole trade/partnership could have profit levels which fluctuate causing the taxpayer to sometimes pay higher-rate/additional-rate tax and sometimes not. In order to avoid profits being taxed at the higher rates, capital allowance claims could be restricted to less than the maximum in years where profits are low in order that larger allowances can be claimed in years when profits are taxed at higher rates.
 - Any business could consider reducing capital allowance claims in a year where the business makes a trade loss. This would reduce the size of the trade loss which could be useful if the only relief available is a carry forward relief. A larger capital allowance claim could then be made in future years. (Note that for companies, with the flexibility available for their carried forward losses, this point is less relevant).

3 Sale of the business

3.1 Incorporation

As a business grows and becomes profitable, the owner may consider moving from an unincorporated to an incorporated business.

Why incorporate?

Advantages	Disadvantages
Limited liability to shareholders	Potential double capital gains charge on assets
Company has a more respectable image than a sole trader or partnership?	Trading losses restricted to set off against corporate profits
Retained profit subject to only CT not IT or NIC	No carry back of trading losses in opening years
Easier to dispose of shares than interest in a business	Statutory requirement for audits, keeping books, filing accounts. Increased disclosure due to published accounts
More generous pension provisions	Tax payment dates for a company and its employees are generally in advance of those for self-employed
Easier to obtain loan finance	

To achieve this the sole trader will incorporate their business by **selling all their assets to a company** (either newly incorporated or bought ‘off the shelf’). In return for their business the individual will **receive consideration equal to the market value of the assets they have transferred, and this will include at least some shares in the company**.

We see all the different tax aspects of incorporation throughout this workbook but what we do here is bring all the different tax aspects together as you could see incorporation as a complete scenario in one of your exam questions. You will cover the VAT and stamp duty points in more detail later in this Workbook. They are included here for completeness.



Activity 6: Incorporation

Harry requires advice on the CGT and VAT implications of transferring his unincorporated sole trader business to a newly incorporated company, Sausages Ltd, and how he can obtain relief for his trade losses.

Harry:

- Has been in business as an unincorporated sole trader for many years
- Receives dividends of £3,000 each year
- Has no other source of income
- Is a higher-rate taxpayer for all relevant tax years
- Will transfer all the assets and liabilities of his business to Sausages Ltd on 1 October 2020
- Will make no other disposals for CGT purposes in the tax year 2020/21
- Will be the only director and shareholder of Sausages Ltd

Harry’s unincorporated business:

- At 1 October 2019 Harry has trading losses brought forward of £70,000
- In the year ending 30 September 2020, Harry’s business will have a taxable trading profit of £62,000, prior to the transfer to Sausages Ltd
- Is registered for VAT

The assets and liabilities to be transferred to Sausages Ltd:

	Cost	Value at 1 October 2020
	£	£
Goodwill	0	80,000
Workshop	50,000	110,000
Machinery	10,000	8,000
Inventory	2,000	2,000
Liabilities	n/a	(10,000)

Consideration to be paid by Sausages Ltd:

- 1,000 £1 ordinary shares in respect of 85% of the total value of the consideration for the business.
- The remainder of the consideration will be left on the loan account payable by Sausages Ltd to Harry.
- Harry will withdraw cash from the loan account to pay any CGT liability arising on the transfer of the business.

Sausages Ltd:

- Will pay Harry a salary of £70,000 per year, and dividends of £10,000 on 31 March each year

- Will not be regarded as a personal service company under the provisions of the IR35 legislation

Required

- 1 Explain how Harry can obtain relief for the trading losses of £70,000 brought forward in his unincorporated business at 1 October 2019.
- 2 Explain why the transfer of Harry's business to Sausages Ltd qualifies for incorporation relief, and, on the assumption that Harry does not elect to disapply this relief, calculate the balance on his loan account with Sausages Ltd after deducting the cash to be withdrawn to pay any CGT due.
- 3 Advise Harry of his administrative obligations under the VAT legislation, arising from the transfer of his business to Sausages Ltd, and whether or not he is able to transfer the VAT registration from his unincorporated business to Sausages Ltd.

Note: This part of the question is included for completeness however, you may choose to leave it until after you have studied the VAT chapter. You can assume the transfer of a going concern rules will apply for VAT purposes, but are not required to discuss these rules.



Exam focus point

Question 1 Nelson in the December 2019 exam students were asked to explain the CGT implications of retaining personal ownership of a building when a sole trader incorporated his business. This meant that incorporation relief would not be available and there would be gains on the assets transferred to the company.

3.2 Sale of business

Once a business has run its course, our individual will want to **sell it on (or perhaps retire)**. A question could focus on the tax considerations of selling the business. The tax will be different dependent on whether we have an individual selling a sole trader business or whether we have the individual selling shares in the company they set up.

The tax situation is summarised in the diagrams following. Again, VAT and stamp duty are included for completeness but will be covered in detail later in this Workbook.

3.2.1 Sale of a sole trader business

3.2.2 Sale of shares in a company



Activity 7: Sale of a business

Amelia has carried on a business as a sole trader for many years, preparing accounts to 30 June annually. She anticipates no other taxable income in either 2021/22 or 2022/23. She has decided that she would like to cease trading and retire. She has two possible options for ceasing to trade:

Option 1: Cease to trade 31 January 2022, in which case the business will be sold to an unconnected person; or

Option 2: Continue to trade until 31 May 2022, when Amelia's daughter, Anna, will be able to take over the business.

Amelia's business:

- Has taxable trading profits of £50,000 for the year ended 30 June 2021
- Has budgeted tax-adjusted profits of £50,000 (before capital allowances) in the period ending 31 January 2022

- Has budgeted further taxable profits of £5,000 per month if Amelia continues to trade after 31 January 2022
- Has overlap profits from commencement of £15,000
- The TWDV on the main pool was £nil at 1 July 2021
- The market value of the assets in the main pool will be £4,000 at the date of cessation

Required

Advise Amelia, by reference to the increase in her trading income after tax and NIC, whether it would be beneficial for her to continue to trade until 31 May 2022, rather than ceasing to trade on 31 January 2022. You should assume any elections which are beneficial to Anna are made and support your advice with a brief explanation of the capital allowances in each case.

Note. Where necessary, you should assume that there are four weeks in each month of the years 2021 and 2022.



Assessment focus point

The sale of shares in a newly incorporated company, in respect of which incorporation relief had been claimed, was tested in March 2020 Question 2 Mita. The examining team stated that ‘despite the requirement only being to calculate the liability, a significant number of students also included explanations, which did not score marks. This was particularly noticeable among those who sat the computer based exam. Many included calculations in the spreadsheet, then explained the calculations in the word processing document, which was totally unnecessary, and just wasted time. The majority of students omitted to deal with the previously claimed incorporation relief, despite it being clearly flagged up in the question. It was also disappointing that many did not include gift relief, or business asset disposal relief, both of which were relevant. The different reliefs available to reduce, eliminate or defer capital gains are very frequently examined at ATX, and are regarded by the examining team as an extremely important part of the syllabus. It is therefore recommended that students take time within their revision to ensure they are familiar with the conditions required for the different relief, and then, precisely how they operate.’

Chapter summary

Additional revision content

Employee vs partner

	Employee	Partnership
Form of remuneration	Salary Possible benefits	Share of profit (which could include an entitlement to a salary as an appropriation of profit)
Tax consequences for the original sole trader	Salary and cost of providing any benefits are extra reducing taxable trading profits. Employers NIC (and Class 1A on any benefits) will also need to be paid by the business. All these costs reduce the taxable trade profits of the sole trader and thus reduce the amount on which income tax and Class 4 NICs are calculated.	The original sole trader will have a lower share of profits to be taxed. This will therefore save income tax and Class 4 NIC.
Tax consequences for the new employee/partner	New employee pays IT on any salary and/ or bonus and employee NIC on any cash benefits received. Any non-cash benefits have no NIC consequence for the new employee.	The new partner receives a share of the partnership profits and the opening year basis period rules will apply that profit to tax years.
What if the business makes losses?	The employee's salary and employer's NIC thereon increase the size of the loss on which the original sole trader can claim loss relief. The new employee pays IT and employee's NIC on the cash salary they receive and will not benefit from any loss relief as they are not entitled to a share of the loss.	The loss will be appropriated between the two partners using the profit-sharing agreement. Each partner will be able to use their share of the loss in whatever way they choose. There will be no Class 2 nor Class 4 NIC due.

Raising finance

	Business	Investor
Debt	<p>Pays interest Interest is tax deductible and thus saves IT (sole trader/partnership) or CT (company)</p> <p>Cost to the business: Interest X Less tax relief on interest <u>(X)</u> Net cost X</p> <p>A company can also get a tax deduction for any capital costs to do with the loan.</p>	<p>If the investor is an individual:</p> <ul style="list-style-type: none"> • Pays income tax on any interest in excess of the savings nil rate band <p>If the investor is a company:</p> <ul style="list-style-type: none"> • Pays corporation tax on the interest income accrued in the year
Equity	<p>Pays dividends No tax relief</p> <p>Cost to the business: Dividend X</p>	<p>If the investor is an individual:</p> <ul style="list-style-type: none"> • Pays income tax on any dividends in excess of the dividend nil rate band <p>If the investor is a company:</p> <ul style="list-style-type: none"> • No corporation tax on dividends received

Incorporation

Sale of a business – sale of a sole trader business

Sale of a business – sale of shares in a company

Knowledge diagnostic

1. Employed vs self-employed

To determine whether an individual is employed/self-employed we consider: control, provision of own equipment, hire of helpers, financial risk, responsibilities, opportunity to profit and number of employers. A contract of service implies employment whereas self-employment uses a contract for services.

As an employee, an individual pays income tax on employment income and Class 1 employee's NIC. Whereas a self-employed individual pays income tax on trade profits and Class 2 and 4 NIC.

2. Badges of trade

To determine whether an individual is trading or not we use the badges of trade. If they are trading they pay income tax and Class 2 and 4 NIC. If they are not, we consider whether capital gains tax is due.

3. Sole traders

Sole trader and companies are taxed in different ways. Make sure you understand how their profits are taxed (including NICs), when they pay their tax, how they extract their profit from the business and what happens if they incur losses.

For a sole trader, choice of year end date creates tax considerations such as time between when the profits are made and when they are taxed and overlap profits.

4. Trade losses

Make sure you understand how trade losses can be offset for a sole trader and for a company. Be careful not to confuse the two. If losses are forecast, then a sole trader has more flexible loss relief available. They can offset their business trade loss against their own personal income and they also have the special opening year loss relief available.

When planning how to use a trade loss consider whether cash flow advantage is the key focus or whether it is tax saved. If cash flow advantage is important the loss should be used as quickly as possible. If it is tax savings which are important then consideration need be given to offsetting to save the highest marginal rate of tax while avoiding wasting the PA and savings and dividend nil rate bands. Offsetting the loss could also reinstate previously abated PA which would create further tax savings.

5. Extraction of profit

If the business is set up as a company, the choice of how profits are to be extracted has differing tax consequences. Make sure you can explain the consequences for both the individual and the company of extracting profit by way of remuneration, dividends, interest, rent or pension contributions.

A new small owner-managed company is likely to be a close company so make sure you look out for loans and/or benefits provided to shareholders.

6. Business development

It is important to be able to calculate the after-tax cost of a proposal. To do this we list all the costs associated with the proposal and then also the tax consequences of those costs need to be included.

You must be able to explain to a business owner the tax implications of taking on a new employee or bringing in a new partner.

You must be able to explain to a business owner the tax implications of how they can raise finance. Both consequences for the business and for the investor need to be known. Equity creates dividend payments for the company (which aren't tax deductible). The investor will be taxed on the dividends (if they are an individual). Debt creates interest payments for the business which will save tax. The investor will pay income tax on their interest income (if they are an individual).

Consider the timing of capital expenditure to maximise tax relief.

A question could focus on a business incorporating. Make sure you fully understand all the tax consequences of incorporation. Consider income tax, capital gains tax, corporation tax, VAT and stamp duty.

7. Sale of a business

Ensure you understand the ways in which a business can be sold – either by sale of a sole trade business or a share sale if the business is a company and the tax consequences of each of these.

Further study guidance

Question practice

Now try the following from the Further question practice bank (available in the digital edition of the Workbook):

- Gemma
- Ernie
- Norma
- Tax planning (although you will need to leave the VAT part until later)
- Financial planning

Further reading

There are two technical articles on the ACCA website written by members of the ATX – UK examining team which are relevant to some of the topics covered in this chapter that you should read:

- Taxation of the unincorporated business – the existing business
- Taxation of the unincorporated business – the new business

Activity answers

Activity 1: Employment vs self-employment – Lucy

Approach

You are expected to calculate the income tax and NIC liability for Lucy for each arrangement and then calculate her disposable income in each case, taking into account her travel costs.

Disposable income if Lucy is employee

Income tax	£
Employment income/net income	36,000
Less personal allowance	(12,500)
Taxable income	<u>23,500</u>
Income tax @ 20%	<u>4,700</u>
Class 1 NIC	£
Salary	36,000
Less employee's threshold	(9,500)
	<u>26,500</u>
Class 1 NIC @ 12%	<u>3,180</u>
Disposable income	£
Salary	36,000
Less: Income tax	(4,700)
Class 1 NIC	(3,180)
Travel costs	(1,500)
	<u>26,620</u>

Disposable income if Lucy is self-employed

Income tax	£
Fees received	36,000
Less fixed rate mileage 4,600 @ 45p per mile	(2,070)
Trading income/net income	33,930
Less personal allowance	(12,500)
Taxable income	<u>21,430</u>
Income tax @ 20%	<u>4,286</u>
Classes 2 and 4 NIC	£
Class 2 NIC £3.05 × 52	159

Classes 2 and 4 NIC	£	£
Class 4 NIC		
Trading income	33,930	
Less lower limit	<u>(9,500)</u>	
	<u>24,430</u>	
Class 4 NIC @ 9%		<u>2,199</u>
Total NICs		<u>2,358</u>
Disposable income		
Fees received	36,000	
Less: income tax	(4,286)	
Classes 2 and 4 NICs	(2,358)	
travel costs 4,600 @ 40p	<u>(1,840)</u>	
		<u>27,516</u>

Lucy will therefore have a higher disposable income by £(27,516 – 26,620) = £896 if she undertakes the self-employed work arrangement.

Activity 2: Carrying on a trade

The tax treatment on the profit on the provision of the wedding car service will depend on whether it can be argued that Martha is carrying on a trade. If she is, then her profits will be subject to income tax.

In order to ascertain whether or not a trade is being carried on, a number of factors known as 'the badges of trade' must be considered. The most relevant factors in this case are:

- **Frequency of transactions:** Transactions will be interpreted as trading transactions where their frequency indicates the carrying on of a trade. As Martha intends to continue providing services of the wedding car and has already loaned it out on six occasions in the last six months this could indicate we have a trade.
- **Existence of similar transactions or interests:** if there is an existing trade, then a similarity to the transaction which is being considered may point to that transaction having a trading character. Martha's existing job as an estate agent is not similar to provision of a wedding car service and so this suggests it is not a trading transaction.
- **Way in which the assets were acquired:** As the car was received as an inheritance, rather than bought and financed with a loan, then the use of the car in a service is less likely to be considered a trade.
- **Supplementary work and marketing:** When work is done to make an asset more marketable, or steps are taken to find purchasers, the courts will be more ready to ascribe a trading motive. Martha has carried out supplementary work by having the seats recovered and by advertising the service it is more likely this will be considered a trade.
- **Taxpayer's intentions:** It does appear that Martha is intending to use the car to provide a service and her intention to increase the amount that she charges implies that she is trying to organise the business as a trade.

It would appear most likely that HMRC would consider that Martha is carrying on a trade with the provision of her wedding car. She will therefore be liable to pay income tax, Class 2 and Class 4 NICs based on the trade profits which she makes.

Tutorial note. Marks would be available for discussion of any relevant factors and for reaching a sensible conclusion based on the students' discussion points.

Activity 3: Choice of business structure

Option 1 – Hamish as sole trader

	£
Trading profit	60,000
Less: Income tax on trade profits (W1)	(11,500)
Class 2 NIC (W2)	(159)
Class 4 NIC (W2)	<u>(3,845)</u>
Net income from business	<u>44,496</u>
(W1) Income tax calculation	-
NSI	
Trade profits	60,000
PA	<u>(12,500)</u>
Taxable income	<u>47,500</u>
Tax: 37,500 @ 20%	7,500
<u>10,000</u> @ 40%	<u>4,000</u>
<u>47,500</u>	<u>11,500</u>
(W2) NIC liabilities	
Class 2 NIC = $52 \times £3.05$	<u>159</u>
Class 4 NIC ($50,000 - 9,500$) @ 9%	3,645
$(60,000 - 50,000) @ 2\%$	<u>200</u>
	<u>3,845</u>

Option 2 – Hamish forms a company ('Hamish Ltd') and pays himself a salary of £8,788 and the residue as a dividend

	£
Hamish Ltd	
Hamish Ltd profits	60,000
Salary to Hamish	(8,788)
Employer NIC on salary (below threshold)	<u>Nil</u>
Trading income (TTP)	51,212
CT liability in Hamish Ltd $£51,212 \times 19\%$	<u>(9,730)</u>
Maximum dividend payable to Hamish	<u>41,482</u>
Hamish	
Salary received	8,788
Dividend received	<u>41,482</u>
Less: Income tax (W3)	(2,751)
NIC on salary (below threshold)	Nil
NIC on dividend (N/A)	Nil
Net income from business	<u>47,519</u>

		NSI	Divs
		£	£
(W3) Income tax calculation			
Salary		8,788	
Dividend received			41,482
PA		<u>(8,788)</u>	<u>(3,712)</u>
Taxable income		<u>Nil</u>	<u>37,770</u>
Tax:			
2,000 @ 0% (dividend nil rate band)		0	
35,500 @ 7.5%		2,663	
<u>270</u> @ 32.5%		<u>88</u>	
<u>37,770</u>			
Income tax payable		<u>2,751</u>	

Summary:	£
Option 1	44,496
Option 2	47,519

Option 2 – Hamish should set up a company as this leaves him with £3,023 more money after tax than if he was a sole trader (£47,519 – £44,496).

Activity 4: Extraction of profits

Payment of bonus

Backwell Ltd will have to account for income tax and class 1 employee's and employer's national insurance under the PAYE regulations.

Sylvie will suffer deduction of income tax at the rate of 40%, and employee's NIC at the rate of 2% on the gross amount of the bonus. The gross amount payable will therefore need to be £51,724 (£30,000 × 100/ 58).

The total amount payable to HMRC by Backwell Ltd will be:

	£
Income tax on £51,524 at 40%	20,690
Employee's NIC on £51,724 at 2%	1,034
Employee's NIC on £51,724 at 13.8%	<u>7,138</u>
	<u>28,862</u>

Payment of dividend

No payments to HMRC will be required from Backwell Ltd.

Activity 5: After-tax cost of employing a part-time employee

	£
Salary	14,000
Mileage allowance	
£0.50 × 50 × 46	1,150
Class 1 employers NIC (W1)	<u>735</u>

	£
Total additional expenditure	15,885
Less:	
Income tax higher rate saving ($\text{£}15,885 \times 40\%$)	(6,354)
Class 4 NIC saving ($\text{£}15,885 \times 2\%$)	(318)
Income tax personal allowance saving (W2) $\text{£}6,942 \times 40\%$	<u>(2,777)</u>
After-tax cost	<u><u>6,436</u></u>

Workings

1 Class 1 NI employer's contributions

	£
Salary $\text{£}(14,000 - 8,788) \times 13.8\%$	719
Mileage allowance $\text{£}(0.50 - 0.45) \times 50 \times 46 \times 13.8\%$	<u>16</u>
	735

2 Personal allowance

	Before	After
Basic personal allowance	12,500	12,500
Less: $\text{£}(95,000 + 32,000 - 100,000) \times 1/2$	<u>(12,500)</u>	
Less: $\text{£}(95,000 + 32,000 - 15,885 - 100,000) \times 1/2$		<u>(5,558)</u>
Personal allowance available	0	6,942

- (1) The employment allowance would have already been used against the employer's NI contributions in respect of the existing employees.
- (2) Only the excess mileage over 45p per mile is liable to Class 1 NIC.
- (3) Ernest's (adjusted) net income before taking on the part-time employee was £127,000 so his personal allowance was reduced to £nil. After taking on the part-time employee his net income would have been reduced by the total additional expenditure of £15,885 thus entitling him to a personal allowance of £6,942. He would offset this against his non-savings (trading) income, saving income tax at a marginal rate of 40%.

Activity 6: Incorporation

1 Reliefs available for the trading losses brought forward at 1 October 2019

Trading losses brought forward are automatically offset against the first available future profits from the same trade. Harry will therefore offset £62,000 of the trading loss brought forward against the profit of his unincorporated business prior to its transfer to Sausages Ltd. £8,000 (£70,000 – £62,000) remains unrelieved.

However, as his business has been transferred to a company, Harry can relieve the remainder of the loss against his income from the company. The loss will be relieved against the first available income from the company, earned before unearned, which will be his salary of £35,000 (£70,000 × 6/12) in the tax year 2020/21. Harry qualifies for this relief as at least 80% of the consideration for the transfer of his business is in the form of shares. He must retain these shares until the end of 2020/21 in order to make this claim.

2 Availability of incorporation relief and the balance on Harry's loan account

Availability of incorporation relief

Incorporation relief will be available because:

- The business will be transferred as a going concern
- All the assets will be transferred; and
- The consideration includes shares.

Amount to be withdrawn from loan account

	£
Gain on goodwill	80,000
Gain on workshop (£110,000 – £50,000)	<u>60,000</u>
Total gains before relief	140,000
Less incorporation relief	
85% × £140,000	<u>(119,000)</u>
Chargeable gains	21,000

Gain eligible for BADR	Gains not eligible for BADR
£	£
Gain attributable to the workshop (60/140 × 21,000)	9,000
Gain attributable to the goodwill (80/140 × 21,000)	12,000
Less AEA (best use)	<u>(300)</u>
Taxable gains	8,700
	0

Harry's CGT liability is £870 (£8,700 × 10%).

The funds left on loan account will initially be £28,500 (being 15% of the value of the net assets transferred, calculated as follows):

(15% × £190,000 (£80,000 + £110,000 + £8,000 + £2,000 – £10,000)).

The balance on Harry's loan account after deducting cash to be withdrawn to pay the CGT liability will be £27,630 (£28,500 – £870).

Tutorial note. Goodwill is not a relevant asset for business asset disposal relief where it is transferred by an individual to a close company, and that individual is a related party to the close company, as is the case in this scenario.

There is no capital loss on the sale of the machinery as capital allowances will have been claimed.

- 3 The change in the legal status of the business from an unincorporated business to a company means that Harry is required to cancel the business's VAT registration. Sausages Ltd is required to register for VAT. The VAT registration number may be transferred from the business to Sausages Ltd, in which case Sausages Ltd will take over the rights and liabilities of the business in respect of VAT at the date of transfer.

Activity 7: Sale of a business

Cessation of trade 31 January 2022

The profits of the y/e 30 June 2021 of £50,000 will be taxed in the tax year 2021/22.

If Amelia ceases to trade on 31 January 2022, the profits of her final accounting period will also be taxed in this tax year. The tax liability in respect of the profits of the final accounting period will therefore be as follows:

	£
Tax-adjusted profit for the seven months ending 31 January 2022	50,000
Add: Balancing charge (£nil – £4,000)	4,000
Less: overlap profits	<u>(15,000)</u>
Taxable trading profit	39,000
Income tax (£39,000 × 40%)	15,600
Class 4 NIC (£39,000 × 2%)	780
Class 2 NIC (£3.05 × 7 × 4)	<u>85</u>
Total deductions	16,465

Income after tax and NIC is £33,535 (£50,000 – £16,465).

Cessation of trade on 31 May 2022

If Amelia continues to trade until 31 May 2022, the profits of her final accounting period will be taxed in 2022/23. The liability for this final period will therefore be:

	£
Tax-adjusted profit for the eleven months ending 31 May 2022 (£50,000 + 4 × £5,000)	70,000
Add: Balancing charge	Nil
Less: Overlap profits	<u>(15,000)</u>
Taxable trading profit	55,000
Income tax (Taxable income £42,500) (37,500 × 20% + 5,000 × 40%)	9,500
Class 4 NIC (£50,000 – £9,500) × 9% + (£55,000 – £50,000) × 2%	3,745
Class 2 NIC (£3.05 × 11 × 4)	<u>134</u>
Total deductions	13,379

Income after tax and NIC is £56,621 (70,000 – £13,379).

The increase in income after tax and NIC by continuing to trade until 31 May 2022 is £23,086 (£56,621 – £33,535). It is therefore beneficial for Amelia to continue to trade until that date.

Availability of capital allowances

No WDA is available in the final accounting period of a business. A balancing adjustment will, however, arise on the disposal of the assets. The sale proceeds will exceed the tax written down value of the assets at the start of the final period, so a balancing charge will arise.

If the sale is delayed until 31 May 2022, and the business is transferred to Anna, then as Amelia and Anna are connected persons, a succession election can be made to transfer the plant and machinery to Anna at its written down value at 31 May 2022 thereby avoiding the balancing charge.

Skills checkpoint 3

Application of accounting standards



Chapter overview

Introduction

FR introduces more accounting standards and tests a further understanding of the ones already covered in your earlier studies (for example, IAS 2 Inventories and IAS 16 Property, Plant and Equipment).

It is important that you understand how the standards that are covered in the FR exam apply to financial statements, not just gaining the knowledge of what they are and how they work, but also developing your application skills. These application skills will be further developed in SBR, so it is vitally important that you gain a confident knowledge of the main accounting standards in your FR studies.

Knowledge of the accounting standards will be required in all sections of the FR exam. You are unlikely to be asked to explain the requirements of an accounting standard in a narrative question, but may be asked questions about the application or impact of accounting standards in an OTQ, or it may be relevant in the interpretation of an entity's performance and position in Section C.

The key to success in the FR exam is:

- Understanding the key elements of the accounting standards; and
- Applying your knowledge of these accounting standards.

Skills Checkpoint 4: Application of accounting standards

FR Skill: Application of accounting standards

We would suggest the following approach for tackling your FR exam in respect of demonstrating your application of accounting standards.

Exam success skills

The following question is an example of the way in which you may be asked to demonstrate your knowledge and application of an accounting standard. Here, the question is asking about IAS 8 *Accounting Policies, Changes in Accounting Estimates and Errors*.

For these questions, we will also focus on the following **exam success skills**:

- **Managing information.** It is easy for the amount of information contained in a question, particularly the cases in Section B and the Section C question to feel overwhelming. **Active reading** is a useful technique to help you avoid this. This involves focusing on the requirement first, on the basis that until you have done this the detail in the question will have little meaning.
- **Correct interpretation of requirements.** Make sure you understand why you are being asked about a particular standard. Is it so can you apply the rules in a calculation question, or is it so you understand for example a difference in accounting treatment that is relevant to interpretation?
- **Efficient numerical analysis.** Ensure you understand what the standard requires you to do with the financial information you are provided with in the question. This is testing your application of the standards.
- **Effective writing and presentation.** Section C questions require application of an accounting standard both in the accounts preparation question as knowledge of the accounting standard is essential in preparing calculations and adjustments and also in the interpretation question where the standard applied may be relevant to your understanding of the entity. Set out your points clearly and methodically, to enable the Examining team to read your answer easily.

Skill activity

STEP 1 Ensure you have a high-level overview of the key standards covered in the FR exam. Use the summary diagrams at the end of the chapters in the Workbook to act as your summaries. These are a useful way of remembering the key points.

It is important that you have the knowledge of the mechanics of the standard. One way of doing this is by using the chapter summaries in the Workbook which summarise the key points about the standards discussed. IAS 8 is discussed in Chapter 17 of the Workbook, and here is an extract of the summary diagram.

Ensure that you are familiar with the standard, and understand the key points made in the summary. This will act, initially, as your main reference for applying the accounting treatment. Once you have gained additional question practice, you will be familiar with different question styles and different scenarios.

STEP 2 Practice the numerical questions in the workbook and in the BPP Practice and Revision Kit. These will test your knowledge of the mechanics of the accounting standards. Often there can be a difference between understanding what the standard does and how it applies to a specific scenario. Practice OTQs as well as longer, Section C questions to consolidate your knowledge.

Question practice is key to success in your FR exam. Practising the OTQ style questions are a relatively quick way of testing your knowledge, both of narrative and numerical questions.

However, having knowledge of the theory of the standard and applying that knowledge can often cause problems for students, especially in the more complex standards such as IFRS 16 Leases.

- STEP 3** Practice the narrative questions which test your understanding of how the standard can affect the financial statements. This will help you to revise your understanding of why the accounting standard is important in a scenario, for example, what are the key tests for impairment of assets and why would this be important for the financial statements?

Success in answering narrative OTQs requires you to explain what the accounting treatment in a given scenario is. These questions require you to read the answer options very carefully. Although there is only one correct answer, all will be viable alternatives so it can be difficult to discount any options immediately or arrive at the correct answer easily without giving the question due attention.

Here is an example of the type of narrative style question you may get asked in a Section A OTQ:

Which of the following would be treated under IAS 8¹⁷ Accounting Policies, Changes in Accounting Estimates and Errors as a change of accounting policy¹⁸?

- (a) A change in valuation of inventory¹⁹ from a weighted average to a FIFO basis
- (b) A change of depreciation²⁰ method from straight line to reducing balance
- (c) The correction of the opening balance for accruals as a result of a recording inaccuracy in the prior year²¹
- (d) Capitalisation of borrowing costs which have arisen for the first time²²

(2 marks)

17 This is the key accounting standard in the question, but the answer options require knowledge of other standards.

The correct answer is:

A change in valuation of inventory from a weighted average to a FIFO basis.

Answering this question required you to understand IAS 8, but also the underlying accounting standards relating to IAS 2, IAS 16 and to a lesser extent IAS 23.

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IAS 2 Inventories permits an entity to value its inventory using either the weighted average or FIFO basis and therefore permits an accounting policy choice. As such, the change in valuation is an example of a change in accounting policy.

The change of depreciation method is treated as a change of accounting estimate. The difference between these is subtle and is a good example of you needing to understand not just IAS 8 – you need to know the difference between a change in accounting policy and a change in accounting estimate, but also IAS 16 as you need to know that the policy is to depreciate, which has not changed.

The correction of opening balances is clearly accounting for an error and therefore not related to an accounting policy.

Application of a new accounting policy (such as capitalisation of borrowing costs) for transactions that did not previously occur is not a change in accounting policy according to IAS 8.

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Exam success skills diagnostic

Every time you complete a question, use the diagnostic below to assess how effectively you demonstrated the exam success skills in answering the question. The table has been completed below for the above question to give you an idea of how to complete the diagnostic.

Exam success skills	Your reflections/observations
Managing information	Ensure that you read the question carefully, highlighting any areas which you may need to refer back to. In a short OTQ such as this one, the key was the standard which was IAS 8 and the fact that we were focusing on accounting policies.
Correct interpretation of requirements	Make sure you have answered the question by referring to the given information. As mentioned above, this question hinged on you understanding that you should focus on accounting

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Exam success skills	Your reflections/observations
	policies and not the whole of IAS 8.
Efficient numerical analysis	There was not any numerical analysis in this narrative question. Remember that FR is not all about getting the numbers right. Expect a range of numerical and narrative questions in the exam.
Effective writing and presentation	In an OTQ, you don't need to worry about writing and presentation. However, consider how you might discuss the impact of the change in accounting policy in an interpretation

The fact that this policy is being applied for the first time tells us that it can not be a change in policy.

Exam success skills	Your reflections/observations
	<p>question in Section C.</p> <p>Most important action points to apply to your next question – work through each of the alternative answers carefully as the differences between the options are often subtle.</p>



Working capital investment

Learning objectives

On completion of this chapter, you should be able to:

	Syllabus reference
The nature, elements and importance of working capital	
• Describe the nature of working capital and identify its elements.	C1(a)
• Identify the objectives of working capital management in terms of liquidity and profitability, and discuss the conflict between them.	C1(b)
• Discuss the central role of working capital management in financial management.	C1(c)
Management of inventories, accounts receivable, accounts payable and cash (cash is covered in the next chapter)	
• Explain the cash operating cycle and the role of accounts payable & receivable.	C2(a)
• Explain and apply relevant accounting ratios, including: current ratio and quick ratio, inventory turnover ratio, average collection period and average payable period, sales revenue/net working capital ratio.	C2(b)
• Discuss, apply and evaluate the use of relevant techniques in managing inventory, including the EOQ model and just-in-time techniques.	C2(c)
• Discuss, apply and evaluate the use of relevant techniques in managing accounts receivable, including: assessing creditworthiness, managing accounts receivable, collecting amounts owing, offering early settlement discounts, using factoring and invoice discounting, and managing foreign accounts receivable.	C2(d)
• Discuss and apply the use of relevant techniques in managing accounts payable, including: using trade credit effectively, evaluating the benefits of early settlement and bulk purchase discounts, managing foreign accounts payable.	C2(e)
Determining working capital needs and funding strategies	C3(a)
• Calculate the level of working capital investment in current assets and discuss the key factors determining this level,	

including: the length of the working capital cycle and terms of trade, an organisation's policy on the level of investment in current assets and the industry in which the organisation operates.

Exam context

This chapter covers issues relating to the investment in working capital which is part of Section C of the syllabus (Working capital management). This is an important chapter that is examinable in all sections of the exam, including Section A (2-mark questions), B (10-mark question) and Section C (20-mark question). Questions won't just involve **calculations**; exam questions (especially in Section C) may ask you to **discuss** the management of working capital (as a part of a question) or to explain the meaning of a numerical analysis that you have performed.



Chapter overview

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1 Working capital



Net working capital: The net working capital of a business is its current assets less its current liabilities.

Current assets – examples	Current liabilities – examples
Cash	Overdraft
Inventory	Short-term loans
Amounts receivable from customers	Amounts payable to suppliers

1.1 Objectives of working capital management

Working capital management has two main objectives:

- To increase the **profits** of a business
- To ensure sufficient **liquidity** to meet short-term obligations as they fall due.

1.1.1 Profitability

If a business operates with **excessively low levels of working capital** then this may lead to trading problems, and **lower profits**.

Examples of problems of operating with excessively low working capital	
Low inventory	This may mean that delivery lead times to customers are excessively high, or that a business does not have enough inventory to meet peaks in demand. This is likely to lead to lost sales .
Low receivables	If this means that a business's credit terms are overly strict and that long credit periods are not being made available to its customer, this may lead to lost sales .

One of the central concerns of working capital management is how much money to **invest** in short-term assets **to address the problems of operating with excessively low levels of working capital**; this can be thought of as a **working capital investment decision and** is the main focus of this chapter.

1.1.2 Liquidity

Every business needs adequate **liquid resources** to maintain day to day cash flow such as wages and payments to suppliers.

If money is tied up in short-term assets such as inventory and receivables, this may cause liquidity problems. Liquidity can be maintained by ensuring that the amounts of cash tied up in inventory and receivables is **not excessive**.

This is **the main focus of the next chapter** which looks at cash flow forecasting and how **working capital finance** should be approached.



Working capital finance: The approach taken to financing the level, and fluctuations in the level, of net working capital.

1.1.3 Conflict between objectives of liquidity and profitability

The objectives of liquidity and profitability **may conflict**.

For example, if a decision is made to **invest** in higher inventory (eg to reduce delivery lead times) or receivables (to allow longer credit terms) in order **to boost sales and profits**, then this will tie up funds in higher net working capital and this will **reduce liquidity**.

However, there will **not always be a conflict** between the objectives of liquidity and profitability. For example, if the levels of inventory and receivables are high because working capital is not being managed well, then improved management of the warehouse (to keep inventory lower) and credit control (to keep receivables lower) may allow **both higher liquidity and higher profitability**.

1.1.4 Role of working capital in financial management

Working capital management involves an **investment decision** and a **financing decision**. We have already seen in Chapter 1 that **these two decisions** are fundamental to financial management in general.



Essential reading

See Chapter 3 Section 1 of the Essential reading for more background information on this area. The Essential reading is available as an Appendix of the digital edition of the Workbook.

2 Working capital planning

2.1 Influences on the level of investment in working capital

Different businesses will have different approaches to **working capital investment**, ie to the **level** of net working capital held, due to:

- **general factors** (eg the industry); and
- **company-specific factors** (eg different working capital strategies).

2.1.1 General factors affecting working capital levels

(a) The nature of the industry

The level of working capital required will be influenced by the nature of the industry.

Eg a supermarket will receive much of their sales in cash (or credit or debit card), so it will be able to operate with minimal receivables. However, this would not be possible for a food wholesaler (supplying supermarkets) which is likely to be selling mainly on **credit**.

(b) Policies of competitors

A company will be unwilling to lose business to a rival offering its customers more favourable credit terms.

(c) Seasonal factors

There may be a need to allow inventory to be higher as a season of peak sales approaches.

2.1.2 Company specific factors

The level of net working capital will also depend on **a company's sales and its working capital strategy**.

If sales are higher, then net working capital will normally rise too (as receivables and inventory will rise). However, different companies will plan to allow net working capital to rise at **different rates** depending on their **working capital investment strategy**.

Aggressive strategy – minimises net working capital	Conservative strategy – maximises net working capital
Aims to keep inventories and receivables as low as possible. Payables are maximised (suppliers paid as late as possible).	Allows high levels of inventories and receivables and plans to pay suppliers on time (which keeps payables low).

Aggressive strategy – minimises net working capital	Conservative strategy – maximises net working capital
This prioritises liquidity but may create trading problems.	This aims to reduce the risk of trading problems (eg stock-outs) but may compromise liquidity .

2.2 Planning overall working capital needs

2.2.1 Working capital ratios

A company's working capital policies can be quantified by analysing:

- inventory days (the amount of days of sales or production held as inventory)
- payables days (the length of time taken to pay suppliers)
- receivables days (the length of time taken by customers to pay)

These ratios can be used to quantify the level of working capital required to support future sales.



Formula to learn

- (a) Inventory days (or inventory turnover period): $(\text{Finished goods}/\text{Cost of sales}) \times 365$
- (b) Inventory turnover: $\text{Cost of sales}/\text{Average inventory}$
- (c) Receivables days: $(\text{Receivables}/(\text{credit} \text{ sales})) \times 365$
- (d) Payables days: $(\text{Payables}/(\text{credit} \text{ purchases})) \times 365$



Exam focus point

Normally, in the exam, inventory can be assumed to be of finished goods. If this is not the case, ie inventory is raw material or WIP, then the calculation will need to be adjusted to reflect the costs incurred in bringing the inventory to its present location and condition as follows:

WIP: $(\text{WIP}/\text{Cost of Production}) \times 365 = \text{days of WIP}$

Raw material: $(\text{Raw material}/\text{Raw material purchases}) \times 365 = \text{days of raw material inventory}$



Exam focus point

Number of days. An exam question may specify that 360 days, not 365, should be assumed. It is even possible that you are given working capital balances for a six-month period in which case 180 days may be appropriate to use in calculating working capital days. So, read the question carefully!



Activity 1: Operating cycle

Management Co's customers pay after 73 days, on average.

Next year, sales are forecast to be \$864,000.

Required

What is the amount of receivables Management Co should forecast for next year? (assuming 365 days in the year).

Basic liquidity ratios (covered in Chapter 1) can also be examined along with these working capital ratios.



Activity 2: Combination of ratios

A business has a current ratio of 2. Current assets consist of inventory of \$10 million and current liabilities of \$15 million. The company gives on average 36.5 days' credit to its customers.

Required

Assuming that the business has a zero cash balance and that there are 365 days in a year, what is the annual credit sales revenue?

- A \$150m
- B \$2
- C \$20m
- D \$200m

2.2.2 The cash operating cycle

The ratio analysis from the previous section can also be used to analyse the impact of higher sales on liquidity using the cash operating cycle (also known as the working capital cycle).

The cash operating cycle measures the length of time (in days, weeks or months), following the receipt of a customer order for:

- (a) **Cash to be received:** measured as **inventory days plus receivables days**
- (b) **Cash to be paid out to suppliers:** measured as **payables days**

The cash operating cycle is then calculated as:

Cash to be received (in days) minus Cash to be paid out (in days)



Cash operating cycle: The period of time that elapses between the point at which cash begins to be expended on the production of a product or service and the collection of cash from a customer.



Illustration 1: Cash operating cycle

WNS Co is a manufacturer. It buys from suppliers that allow WNS 2.5 months' credit. The raw materials remain in inventory for one month, and it takes WNS two months to produce the goods. The goods are sold immediately after production is completed and customers take on average 1.5 months to pay.

Required

Calculate WNS's cash operating cycle.

Solution

	Months
The average time that raw materials remain in inventory	1.0
The time taken by customers to pay for the goods	1.5
The time taken to produce the goods	2.0
The time taken to pay suppliers	<u>(2.5)</u>
Cash operating cycle	<u><u>2.0</u></u>



Activity 3: Operating cycle

The table below gives information extracted from the annual accounts of Management Co for the past year.

	\$
Inventory: Finished goods	86,400
Receivables	172,800
Payables	96,400
Purchases	518,400
Cost of goods sold	756,000
Sales	864,000

Required

Calculate the length of the cash operating cycle (assuming 365 days in the year).

2.2.3 The cash operating cycle: use and meaning

There is no optimal length of the operating cycle for every company (as discussed, working capital investment levels depend on general and company-specific factors). However, by comparing the cash operating cycle from one period to the next or one company to another, it should be possible to identify unwelcome trends. The cash operating cycle can also be used to identify the possibility of a cash shortfall if sales rise too rapidly (this is sometimes called **overtrading** and is covered later in this chapter).



Essential reading

See Chapter 9 Section 1 of the Essential reading for further discussion of basic liquidity ratios.

The Essential reading is available as an Appendix of the digital edition of the Workbook.

2.2.4 Sales to net working capital ratio

A more direct way of identifying the possibility of a cash shortfall if sales rise too rapidly is to use the **sales/net working capital ratio**.



Formula to learn

The ratio of:

Sales revenue/(Receivables + Inventory - Payables)

This shows the level of working capital (excluding cash) required to support sales.

For example, if this ratio was 5, then for every \$5 increase in sales an extra \$1 of cash is required to finance the required increase in net working capital.

Exam focus point

The ACCA examining team has confirmed that if cash is included in the calculation of net working capital (which would follow the normal interpretation of the term 'net' working capital) then students will not be penalised.



Activity 4: Sales/net working capital

Management Co – Extracts from annual accounts

	Year 1
	\$
Sales	864,000
Inventory: Finished goods	86,400
Receivables	172,800
Payables	(96,400)
Net working capital	162,800

Sales/net working capital ratio = 864,000/162,800 = 5.31

Required

What increase in the level of net working capital (ie cash) is needed to support higher sales, if sales are forecast to rise by \$200,000 over the next year?

2.3 Risk of overtrading

If a business fails to plan how to supply its forecast level of cash flow needs, it will be in danger of **overtrading**.



Overtrading: A situation where a business has inadequate cash to support its level of sales (also known as **undercapitalisation**).

2.3.1 Symptoms of overtrading

Symptoms of overtrading are as follows:

- (a) A rapid increase in sales revenue, and often a fall in profit margins as discounts are used to chase higher sales.
- (b) A rapid increase in receivables and inventory, eg high receivables as better credit terms are used to chase new sales, higher inventory to support higher sales.
- (c) Rapid increase in trade payables and a rising bank overdraft indicating liquidity problems.
- (d) Worsening liquidity ratios causing a significant increase in the operating cycle.

2.3.2 Managing the risk of overtrading/undercapitalisation

To deal with this risk a business must either:

- (a) Plan the introduction of new long-term capital
- (b) Improve working capital management
- (c) Reduce business activity

Note that it is also possible for a business to hold excessive levels of cash, this is called overcapitalisation.



Essential reading

See Chapter 3 Section 3 of the Essential reading for a numerical illustration of overtrading.

The Essential reading is available as an Appendix of the digital edition of the Workbook.

3 Managing inventory

This chapter now moves on to consider each specific component of working capital and the issues surrounding the level of investment that will be required in each type, starting with inventory.

The **inventory days** ratio (see earlier) gives an overview of a company's overall inventory position, but companies may have thousands of items in inventory, and will want to calculate how much to hold of **each individual item**.

This can be established by the **economic order quantity (EOQ)** model which links the level of inventory to the quantity of an order placed with suppliers and aims to minimise the **total inventory related costs** of a company by choosing the optimal order size.

3.1 EOQ model



The economic order quantity (EOQ): The optimal ordering quantity for an item of inventory which will minimise inventory related costs.

The EOQ model links the order quantity placed with a supplier to **inventory related costs**.

Inventory related costs		
Holding costs	Ordering costs	Purchasing costs
Eg warehousing, insurance, obsolescence, and opportunity cost of capital.	Eg costs of administering orders, and delivery costs.	Eg the amount paid for purchases from suppliers.
Holding costs increase if the order size increases.	Ordering costs decrease if the order size increases.	Purchasing costs may decrease if the order size increases if bulk discounts are offered (although discounts are ignored by the simple EOQ model).

3.1.1 Quantifying inventory holding costs

If a firm orders an amount (Q) from a supplier, holds zero opening inventory and receives the order immediately then the **level of inventory at the start of the period is Q .**

By **the end of the period** we can assume that the **inventory level** has been run down to **zero**.

This can be illustrated as follows:

The **average** inventory level is (starting inventory + closing inventory)/2 **which can be expressed as $Q/2$.**



Formula to learn

Total holding costs can therefore be calculated as:

$$C_h \times \frac{Q}{2}$$

Where Q is the initial order and C_h = Annual cost of holding one unit in inventory

3.1.2 Quantifying inventory ordering costs

If a firm holds zero inventory at the start of the period, the number of orders that it will need to place will be determined by the annual demand in units (D) and the order size (Q).

For example, if 120 units are required (ie demanded) and the order size is 20 units then there will be $120 \div 20 = 6$. This can be expressed as D/Q .



Formula to learn

If C_o = Cost of placing an order, then total ordering costs can be calculated as:

$$C_o \times \frac{D}{Q}$$

3.1.3 Quantifying purchasing costs

If order size affects the purchase price, purchasing costs will need to be considered.

Purchasing costs are calculated as annual demand × purchase price of one unit.

3.1.4 EOQ formula

To minimise **total inventory related costs** of a company, there is an ideal (economic) order size which can be identified using the EOQ formula (which is given in the exam).



Formula to learn

Economic order quantity (EOQ) =

$$Q = \sqrt{\frac{2C_oD}{C_h}}$$

This formula gives the ideal order quantity **to minimise total inventory related costs.**



Exam focus point

The variables in the EOQ formula need to be based on a consistent time period; normally this is annual. Be alert for questions that present some information, for example D, in non-annual terms. Where this occurs you will need to adjust the variable so that it is in annual terms.



Illustration 2: Inventory costs

The demand for a commodity is 3,000 units a month, at a steady rate. It costs \$20 to place an order, and \$0.40 to hold a unit for a year.

Required

Find the order size to minimise inventory costs.

Solution

Annual demand is $3,000 \times 12$ months = 36,000Q

$$Q = \sqrt{\frac{2C_oD}{C_h}}$$

$$Q = \sqrt{\frac{2 \times 20 \times 36,000}{0.4}} = 1,897 \text{ units}$$



Activity 5: EOQ

Firm X faces regular demand of 150 units per month. It orders from its supplier at a purchase cost per unit of \$25. Each order costs \$32, and annual holding cost is \$4.50 per unit.

Required

- (1) Calculate the economic order quantity, and the average inventory level.
- (2) Calculate total inventory-related cost at this economic order quantity.

3.2 Drawbacks of EOQ model

The **drawbacks of the EOQ model** are that it:

- (a) Assumes **zero lead times**, and **no bulk purchase discounts** – although these can be adjusted for (see next section)
- (b) **Ignores the need to increase order sizes** if there is a possibility of supplier shortages or price rises
- (c) Ignores the possibility of **fluctuations in demand** (the order quantity is constant)
- (d) Ignores the **benefit** of holding inventory to customers (eg shorter lead times)
- (e) Ignores the **hidden costs** of holding inventory (see just-in-time, section 3.5).

3.3 Bulk purchase discounts

If bulk purchase discounts are available, the simple EOQ formula cannot be used and we need to adjust our approach as follows:

- (a) Calculate EOQ in normal way and inventory related costs at the EOQ
- (b) Calculate inventory related costs at the **lower boundary** of each discount **above** the EOQ
- (c) Select the order quantity that minimises inventory related costs



Activity 6: Bulk purchase discounts

Using the same information given in the previous activity, calculate whether either of the following bulk purchase discounts should be accepted:

- (1) Discount of 2% given on orders of 300 and over
- (2) Discount of 4% given on orders of 800 and over



Essential reading

See Chapter 3 Section 4 of the Essential reading for further illustration relating to this area.

The Essential reading is available as an Appendix of the digital edition of the Workbook.

3.4 Buffer inventory

In reality, an organisation would not wait for inventory to fall to zero before placing a new order with its suppliers. One reason for this is the risk of demand being higher than expected while waiting for a new delivery, which creates the risk of stock-outs.

To deal with this an organisation may hold buffer inventory (shown as B in the following diagrams). This has an impact on the average inventory level.

If buffer inventory (**B**) is required, the **average inventory level becomes $B + Q/2$** .

3.5 Just-in-time (JIT)

Just-in-time (JIT) is a philosophy which involves the **elimination of inventory**.

3.5.1 JIT procurement

This is a policy of obtaining goods from suppliers at the latest possible time (ie when they are needed) and so avoiding the need to carry any materials or components as inventory.

3.5.2 JIT production

This describes manufacturing ‘to order’. As orders are received, manufacturing is triggered to fulfil those orders. This enables better product customisation, no risk of obsolescence and few holding costs.

It does, however, require a highly flexible and reliable manufacturing process (in terms of what and how much is made).

3.5.3 Benefits of JIT

Proponents of JIT suggest that a key problem with **holding inventory** is that it **allows a firm to compensate for inefficient processes by holding buffer inventory**; this failure to deal with inefficient processes is seen as **hidden costs of holding inventory**.

Examples of hidden costs include: failing to deal with unreliable suppliers, defective production processes and poor labour relations.

In addition, JIT will reduce inventory holding costs.

3.5.4 Drawbacks of JIT

JIT will not be appropriate if **production processes and suppliers are unreliable**, and especially where the consequences of a stock-out are serious. For example, in a hospital, a stock-out could quite literally be fatal and so JIT would be quite unsuitable.



Essential reading

See Chapter 3 Section 5 of the Essential reading for further discussion of re-order levels and a real-life example of JIT.

The Essential Reading is available as an Appendix of the digital edition of the Workbook.

4 Managing receivables

4.1 Policy formulation

A company will have to decide **whether to offer credit** to its customers and **if so on what terms**. These are important decisions and need to be carefully considered by **senior management**.

The decision to **offer credit** can be viewed as an **investment decision**, intended to result in higher profits. For many businesses, offering generous payment terms (or credit period) to customers is essential in order to be competitive.

However, **offering credit comes at a cost**, eg the value of the interest charged on an overdraft to fund the period of credit, and the possibility of bad debts. So, the decision to offer credit will need to be carefully assessed to see **if the benefit from the policy is greater than its cost**.

In some businesses it is possible that the risk of bad debts, or the cost of managing receivables, will mean that it is not commercially viable to offer credit to customers.

4.1.1 Extending the credit period

The decision to **offer extended credit** can also be viewed as an **investment decision**, intended to boost sales and profits.

The **cost** of extended credit is the value of the interest charged on an overdraft to fund the period of extra credit.

The **benefit** is likely to be higher sales and therefore higher profit.

The policy will be assessed by comparing whether the **benefit from higher sales is greater than the finance costs associated with higher receivables**.



Illustration 3: Extending the credit period

Enticement Co currently expects sales of \$50,000 a month. Variable costs of sales are \$40,000 a month (all payable in the month of sale). It is estimated that if the credit period allowed to customers was to be increased from 30 days to 60 days, sales volume would increase by 20%.

All customers would be expected to take advantage of the extended credit. The cost of capital is 12.5% a year.

Required

Evaluate whether the extension of the credit period is justifiable in financial terms.

Solution

Workings	\$
Current accounts receivable (1 month)	50,000
Accounts receivable after implementing the proposal (2 months) ($50,000 \times 1.2 \times 2$)	120,000
Increase in accounts receivable	<u>70,000</u>
Cost	
Financing cost (12.5%)	8,750
Benefit	
Annual contribution from additional sales ($\$10,000 \times 12 \text{ months} \times 20\%$)	24,000
Annual net benefit from extending credit period	<u>15,250</u>



Activity 7: Extended credit terms

Greedy Co is considering a proposal to change its credit policy from allowing debtors credit of two months to credit of three months. Sales are currently \$600,000 p.a. and as a result of the proposed change will increase by 15%. The contribution/sales ratio is 20% and the cost of capital is 10%.

Required

Should the proposed change be made?

4.1.2 Early settlement discount

Another aspect of credit policy is whether to offer customers a discount for early settlement of amounts due.

Early settlement discounts will result in a **cost** (the discount) but will result in **lower receivables** which can **benefit** a company by **reducing the cost of the interest** charged on an overdraft, since money is being received from customers earlier.

This policy can be assessed by comparing the **cost of the discount to the benefit of lower finance costs associated with lower receivables**.



Illustration 4: Early settlement discount

Lowe and Price Co has annual credit sales of \$12,000,000, and three months are allowed for payment. The company decides to offer a 2% discount for payments made within ten days of the invoice being sent, and to reduce the maximum time allowed for payment to two months. It is estimated that 50% of customers will take the discount.

Assume that the volume of sales will be unaffected by the discount, and the company has an overdraft costing 10% per year.

Required

Evaluate the effect of the discount.

Solution

The amount of accounts receivable, if the company policy remains unchanged, would be:

$$3/12 \times \$12,000,000 = \$3,000,000.$$

If the policy is changed the amount of accounts receivable would be:

$$(10/365 \times 50\% \times \$12,000,000) + (2/12 \times 50\% \times \$12,000,000) = \$164,384 + \$1,000,000$$

= \$1,164,384



Exam focus point

The effect of the settlement discount is not included in the calculation of new receivables. This assumes that sales are recorded before the effect of the settlement discount (which is normally recorded separately). This is the approach that has been adopted in past ACCA Financial Management exam questions.

	\$
Current accounts receivable	3,000,000
Accounts receivable after implementing the proposal	<u>1,164,384</u>
Reduction in accounts receivable	<u>1,835,616</u>

Benefit of policy

Since the company has an overdraft costing 10% per year, the value of a reduction in accounts receivable (a source of funds) is 10% of \$1,835,616 each year in perpetuity, that is, \$183,562 a year.

Cost of policy

Discounts allowed each year ($2\% \times 50\% \times \$12,000,000$) = \$120,000

Summary

	\$
Benefit of policy	183,562
Less cost of policy	<u>120,000</u>
Net benefit of new discount policy each year	<u>63,562</u>

The proposed policy brings a net financial benefit and therefore should be accepted.



Activity 8: Early settlement in discounts

Pips Co is considering offering a cash settlement discount to its customers. Currently its annual sales are \$10 million and its normal payment terms are 90 days. Customers will be able to take a 2% discount for payments within 10 days. Pips anticipates that 20% of customers will take the discount.

Currently Pips has an overdraft on which it is paying 10% interest.

Required

Assess whether Pips should offer the discount (assume a 365-day year).

4.2 Framework for managing receivables

After a credit policy has been agreed, a framework is needed to ensure that it is implemented effectively. This will involve **three stages**:

- (a) **Planning stage**
- (b) **Monitoring stage**
- (c) **Collection stage**

4.2.1 Planning stage: credit analysis

Before offering credit to a **particular customer**, it is important to **analyse the risk** of trading with that customer by asking for **bank references** and **trade references**.

A **credit rating agency** will also provide details on a customer's trading history, debt levels and payment performance.

A decision will then need to be taken on the **credit limit** to be offered. A **new customer's credit limit** should be **fixed at a low level** and only increased if their payment record subsequently warrants it.

For large value customers, a **file** should be **maintained** of any available financial information about the customer. This file should be reviewed regularly. Information is available from the company's annual report and accounts and **press comments** may give information about what a company is currently doing (as opposed to the historical results in published accounts which only show what the company has done in the past).

4.2.2 Monitoring stage: credit control

Credit customers should be **monitored** to ensure that they are complying with the agreed credit period. It is important that this is not exceeded without senior management approval.

Credit analysis should also be periodically re-applied, especially if dealing with a large customer.

4.2.3 Collection stage

A clear process needs to be in place for chasing late payment. For example, on a regular basis a company could:

- (a) Prepare an **aged listing** of receivables
- (b) Issue **regular statements** and reminders
- (c) Impose **sanctions** after a certain time limit (eg legal action or charging interest)
- (d) Consider the use of a **debt factor**.



Factoring: An arrangement to have debts collected by a factor company, which advances a proportion of the money it is due to collect.

A **debt factor** can be used simply to chase late payment or to have a wider role in managing receivables. A debt factor offers a range of potential services:

- (a) **Administration** of the client's invoicing, sales accounting and debt collection service.
- (b) **Credit insurance** whereby the factor takes over the risk of loss from bad debts and so 'insures' the client against such losses. This is known as a **non-recourse** service.
Not all factoring agreements are non-recourse. If this service is not being offered, then this is a with-recourse service.
- (c) Making **payments** to the client **in advance** of collecting the debts. A factor will purchase selected invoices and advance a percentage of their value (charging interest on the amount advanced). When the customer pays, the factor will pay over the balance, less charges. This is sometimes referred to as **invoice discounting**.



Non-recourse factoring: The debt factor has no recourse to the client in the event of non-payment, ie bad debts insurance is being provided by the debt factor.

Advantages of debt factor	Disadvantages of debt factor
Saving in internal administration costs .	The fees charged by a debt factor for its services.
Expertise in credit analysis will reduce the potential for bad debts.	Possible loss of customer goodwill if the factor is too aggressive in chasing for payment.

Advantages of debt factor	Disadvantages of debt factor
A flexible source of finance , especially if cash flows are under pressure due to rising sales (ie overtrading).	In the past, was viewed as an indication that the company using the factor is in financial difficulty. As the popularity of factoring has increased, this has become less of an issue.



Activity 9: Debt factor

A company with sales of \$240 million p.a. has an average collection period of three months; bad debts are 2%. A factoring company will provide **non-recourse** factoring for a fee of 5% of revenue. As a result of this, administration savings will be made of \$8 million p.a. and the credit period will fall to two months. The factor will also advance 75% of the value of invoices in cash for the duration of the credit period. The interest rate on these advances is 13%.

The company has a cost of borrowing of 10%.

Required

Assess whether the factor should be used.

4.3 Managing foreign accounts receivable

Foreign debts raise the following special problems.

- (a) It may be harder to build an accurate credit analysis of a company in a distant country.
- (b) It may be harder to chase foreign customers for payments (different time zones and languages).
- (c) If a foreign debtor refuses to pay a debt, the exporter must pursue the debt in the debtor's own country and may lack an understanding of the procedures and laws of that country. Some businesses may decide to **trust** the foreign receivable and not take any special measures to reduce the non-payment risk. This method is known as **open account** and may be suitable for small transactions.

However, there are several measures available to exporters to help overcome the risks of non-payment or late payment on larger transactions.

Methods of reducing risks	
Bill of exchange	An IOU signed by the customer. Until it is paid, shipping documents that transfer ownership to the customer are withheld. As noted in Chapter 2, a Bill of Exchange can also be sold to raise finance.
Letter of credit	The customer's bank guarantees it will pay the invoice after delivery of the goods.
Invoice discounting	Sale of selected invoices to a debt factor, at a discount to their face value.
Debt factoring	A local debt factor based in the export market can be especially useful in performing credit analysis and chasing for payment.



Essential reading

See Chapter 3 Section 6 of the Essential reading for further discussion of this area.

The Essential Reading is available as an Appendix of the digital edition of the Workbook.

5 Managing trade payables

Effective management of **trade accounts payable** involves seeking satisfactory credit terms from supplier and maintaining good relations with suppliers.

Timely payment of invoices, in line with agreed payment terms, will prevent the possibility that late payment of invoices endangers the firm's long-term relationship with the supplier.

5.1 Evaluating discounts

If a supplier offers a discount for the early payment of debts, the evaluation of the decision whether to **accept the discount** is the mirror image of the **evaluation of the decision** whether to **offer a discount to customers**.

Accepting early settlement discounts from a supplier will result in a benefit (the discount) but will result in **lower payables** which will incur a cost to the company by **increasing the cost of the interest** charged on an overdraft, since money is being paid to suppliers earlier.

This can be assessed by comparing the **benefit of the discount to the cost of higher finance costs associated with lower payables**.



Activity 10: Discounts

Pips Co has been offered a discount of 2.5% for an early settlement by a major supplier from which it purchases goods worth \$1,000,000 each year. Pip's normal payment terms are 30 days; early settlement requires the payment to be made within 10 days.

Currently Pips has an overdraft on which it is paying 10% interest.

Required

What is the net benefit of accepting the early settlement discount (assuming a 365-day year)?

- A \$54,795
 - B \$25,000
 - C \$19,520
 - D \$5,480
-

5.1.1 Evaluating a supplier discount using percentages

The benefit of an early payment discount can be expressed in **percentage terms**.



Illustration 5: Supplier discounts

A company which has an overdraft costing 10% per year, is evaluating whether to accept a 1% discount for paying its invoices 30 days earlier. Assume a 360-day year.

Required

Evaluate whether to accept the discount.

Solution

No \$ amounts are given here, so we must look at this in percentage terms.

If the company **accepted the offer** and did pay 30 days early, it receives a benefit that can be expressed as a **percentage** as follows:

$$\frac{\text{Discount received}}{\text{Amount paid if discount taken}} \times 100$$

Here this is $1\% / 99\% = 0.0101$ or 1.01%, where 1% is the discount and 99% is the percentage of the amount due that is paid (after the 1% discount).

This is the benefit of accepting the offer expressed over a 30-day period (since the company is paying 30 days early). This can be converted into an annual equivalent rate using the following formula. (This formula is **not** given in the exam).

$$(1+R) = (1+r)^n$$

R = annual rate

r = period rate (here 30 days)

n = no. of periods in a year (here $360/30 = 12$)

In annual terms this is $1.0101^12 = 1.1282$ so R = 12.82%.

Since the benefit of the discount of 12.82% is above the cost of the overdraft (10% per year) the discount should be accepted.

The same formula can be used for accounts receivable.



Activity 11: Discount as a percentage

Hansel Co is to make a payment of \$10,000 to a supplier. A 2% discount is available for paying after one month instead of the standard term of three months.

Required

What is the annual percentage cost of the discount?

- A 27.4%
- B 12.9%
- C 26.8%
- D 12.6%

5.2 Managing foreign accounts payable

To avoid the risk of an adverse exchange rate movement by the time a foreign currency invoice is due to be paid, companies sometimes pay the invoice early. This is sometimes called **leading**.

The management of exchange rate risk is covered in Chapter 14.



PER alert

Performance objective 10 requires you to 'prepare and monitor an organisation's cash flow, credit facilities and advise on appropriate actions'. This section covers the management of accounts payable and credit terms.

6 Final exam standard example

This final example shows how this chapter could be tested as a part of a Section C exam question.



Activity 12: Homework example

Velm Co sells stationery and office supplies on a wholesale basis and has annual revenue of \$4,000,000. The company employs four people in its sales ledger and credit control department at an annual salary of \$12,000 each. All sales are on 40 days' credit with no discount for early payment. Bad debts represent 3% of revenue and Velm Co pays annual interest of 9% on its overdraft.

The most recent accounts of the company offer the following financial information:

VELM CO: STATEMENT OF FINANCIAL POSITION AS AT 31 DECEMBER 20X2

	\$'000	\$'000
Tangible non-current assets		
Tangible non-current assets		17,500
Current assets		
Inventory of goods for resale	900	
Receivables	550	
Cash	<u>120</u>	
		<u>1,570</u>
Total assets		<u>19,070</u>
Equity and liabilities		
Ordinary shares	3,500	
Reserves	<u>11,640</u>	
		15,140
Non-current liabilities		
12% bonds due 20Y0	2,400	
Current liabilities		
Trade payables	330	
Overdraft	<u>1,200</u>	
		<u>1,530</u>
Total equity and liabilities		<u>19,070</u>

Velm Co is considering offering a discount of 1% to customers paying within 14 days, which it believes will reduce bad debts to 2.4% of revenue. The company also expects that offering a discount for early payment will reduce the average credit period taken by its customers to 26 days. The consequent reduction in the time spent chasing customers where payments are overdue will allow one member of the credit control team to take early retirement. Two-thirds of customers are expected to take advantage of the discount.

Assume a 365-day year.

Required

Using the information provided, determine whether a discount for early payment of 1% will lead to an increase in profitability for Velm Co.

Chapter summary

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Knowledge diagnostic

1. Objectives of working capital management

The two main objectives of working capital management are to increase the **profits** of a business and to provide sufficient **liquidity** to meet short-term obligations as they fall due. These two objectives may sometimes **conflict**.

2. Cash operating cycle

The cash operating cycle can be used to determine the amount of working capital investment needed at any sales level, and to identify the possibility of a cash shortfall if sales rise too rapidly.

3. Inventory

The economic order quantity model attempts to identify the optimal level of investment in inventory that is required. The EOQ model ignores the hidden costs of inventory. JIT suggests that inventory should be driven down to as close to zero as possible.

4. Receivables

Requires a four-step approach:

- (a) A receivables policy
- (b) A planning (credit analysis) system
- (c) A monitoring (credit control) system
- (d) A debt collection system

5. Payables

Involves controlling the timing of the payment of invoices to exploit attractive early payment discounts, and the credit period offered by suppliers; but ensuring that invoices are not paid so late as to endanger long-term supplier relationships.

Further study guidance

Question practice

Now try the following from the Further question practice bank (available in the digital edition of the Workbook):

Section A questions

Q10, Q11, Q12, Q13

Section C questions

Q34 Gustaffson

Q35 H finance

Q36 Victory

Q37 ZX

Further reading

There is a useful Technical Article written by a member of the FM examining team that is available on ACCA's website; it is called 'Management of foreign accounts receivable'. We recommend that you read this article as part of your preparation for the FM exam.

Activity answers

Activity 1: Operating cycle

$$\$864,000 \times 73/365 = \$172,800$$

Activity 2: Combination of ratios

The correct answer is:

$$\text{Current assets/Current liabilities} = 2$$

$$(10 + \text{Receivables})/15 = 2$$

$$\text{Receivables} = (2 \times 15) - 10$$

$$= 20$$

$$(\text{Receivables}/\text{Credit sales}) \times 365 = 36.5$$

$$(20 \times 365)/\text{Credit sales} = 36.5$$

$$\text{Credit sales} = (20 \times 365)/36.5$$

$$= \$200m$$

Activity 3: Operating cycle

46.8 days

	Inventory days			
	Finished goods	86,400/756,000	$\times 365$	= 41.7 days
2	Receivables days	172,800/864,000	$\times 365$	= 73.0 days
3	Payables days	96,400/518,400	$\times 365$	= (67.9) days
Cash operating cycle =				46.8

Activity 4: Sales/net working capital

\$37,577

$$\$864,000 + \$200,000 = \$1,064,000$$

$$\$1,064,000/5.31 = \$200,377$$

$$\text{This is an increase of } \$200,377 - \$162,800 = \$37,577$$

This represents the increase in cash due to movements in working capital.

Activity 5: EOQ

$$(1) \text{ Annual demand} = 12 \times 150 = 1,800$$

EOQ =

$$Q = \sqrt{\frac{2C_oD}{C_h}} = \sqrt{\frac{2 \times 32 \times 1,800}{4.5}} = 160$$

Average inventory = $Q/2 = 80$ units.

$$(2) \text{ Total inventory related cost} = C_h \times Q/2 + C_o \times D/Q + \text{purchasing cost}$$

$$\begin{aligned}
 &= \$4.50 \times 160/2 + \$32 \times 1,800/160 + \$25 \times 1,800 \\
 &= \$45,720
 \end{aligned}$$

Activity 6: Bulk purchase discounts

If no discount is taken, inventory related costs are \$45,720 (previous activity).

Q	Order cost	Holding cost	Purchase cost	Total
	(D/Q × C)	(Q/2 × H)	(D × P)	\$
300	192	675	44,100	44,967
800	72	1,800	43,200	45,072

∴ Order 300 units at a time and accept the 2% discount.

Activity 7: Extended credit terms

\$10,750 benefit

Cost

Finance cost was $600,000 \times 2/12 \times 10\% = \$10,000$

Finance cost will be $600,000 \times 1.15 \times 3/12 \times 10\% = \$17,250$

Additional cost = \$7,250

Benefit

Additional contribution = $600,000 \times 15\% \times 20\% = \$18,000$

Net benefit = \$10,750

Activity 8: Early settlement in discounts

\$3,836 benefit

Cost

$\$10m \times 0.2 \times 0.02 = \$40,000$

Benefit

Current receivables = $90/365 \times \$10m = \$2,465,753$

New receivables = $(0.2 \times 10/365 \times \$10m) + (0.8 \times 90/365 \times \$10m) = \$54,795 + \$1,972,603 = \$2,027,398$

Note. The effect of the settlement discount is not included in analysing the new receivables. This assumes that sales are recorded before the effect of the settlement discount (this is normally recorded separately). This is the approach that has been adopted in past ACCA Financial Management exam questions.

Reduction in receivables = \$438,355

Saving in overdraft interest = **\$43,836**

Net benefit = \$3,836

Sales may also rise as a result of the policy.

The policy should be introduced.

Activity 9: Debt factor

Cost of debt factor

\$m

Factors charge

Cost of debt factor

	\$m
\$240m × 5%	12.0
Interest on advances (13% – 10%) × 75% × 240 × 2/12	<u>0.9</u>
	<u>12.9</u>

Alternative solution for interest on advances:

Amount advanced = $0.75 \times \text{annual sales} = \180m . This is advanced for 2 months at an annual cost of 3% (13% net of 10%) ie $180 \times 2/12 \times 0.03 = \0.9m .

Benefit of the debt factor

Impact of lower receivables

Current receivables	$\$240 \times 3/12 = \60m	
New receivables	$\$240 \times 2/12 = \40m	
Reduction in receivables	$\$20\text{m}$ leads to interest saved of $\$20\text{m} \times 0.1 = \2m	2.0
<i>Bad debts</i>		
$\$240 \times 2\%$		4.8
<i>Administration savings</i>		<u>8.0</u>
		<u>14.8</u>

∴ Use the factor as it is estimated to save \$1.9m p.a.

Activity 10: Discounts

The correct answer is:

Cost

Current payables = $30/365 \times 1,000,000 = \$82,192$

New payables = $10/365 \times 1,000,000 = \$27,397$

(as with receivables the discount is ignored in this calculation)

Reduction of $\$54,795 \times 0.1 = \$5,480$

Benefit

$0.025 \times \$1,000,000 = \$25,000$

Net Saving = **\$19,520**

Activity 11: Discount as a percentage

The correct answer is:

Paying \$9,800 one month early instead of \$10,000 is a benefit of \$200.

This is a benefit of $200/9,800 = 0.0204$ or 2.04% over a two-month period.

Or as a % = $2\%/98\% = 0.204$

There are six two-month periods in a year so this is an annual benefit of $1.0204^6 = 1.129$ ie 12.9%

Incorrect answers:

12.6% is calculated as $200/10,000 = 1.02$ and then $1.02^6 = 1.126$ ie 12.6%

26.8% is calculated as $200/10,000 = 1.02$ and then $1.02^{12} = 1.268$ ie 26.8%

27.4% is calculated as $200/9,800 = 1.0204$ and then $1.0204^{12} = 1.274$ ie 27.4%

Activity 12: Homework example

Workings

Receivables are currently taking on average $(\$550,000/\$4,000,000) \times 365 = 50$ days to pay. This is in excess of Velm's stated terms. The discount, to be taken up by 2/3 of customers, will cost the company $\$4,000,000 \times 1\% \times 2/3 = \$26,667$. It is stated that this will bring the receivables payment period down to 26 days, which is represented by a new receivables level of $\$4,000,000 \times 26/365 = \$284,932$.

This is a reduction in receivables of \$265,068.

At current overdraft costs of 9%, this would be a saving of $\$265,068 \times 0.09 = \$23,856$.

Bad debts would decrease from 3% to 2.4% of revenue, which saves a total of $\$4,000,000 \times 0.006 = \$24,000$. There would also be a salary saving from early retirement of \$12,000.

So the net effect on Velm's profitability is as follows:

	\$
Saving on overdraft costs	23,856
Decreased bad debts	24,000
Salary saving	12,000
Less cost of discount	<u>(26,667)</u>
Net saving	<u><u>33,189</u></u>



10

Allowing for tax, working capital and inflation

Learning objectives

On completion of this chapter, you should be able to:

Syllabus reference no.

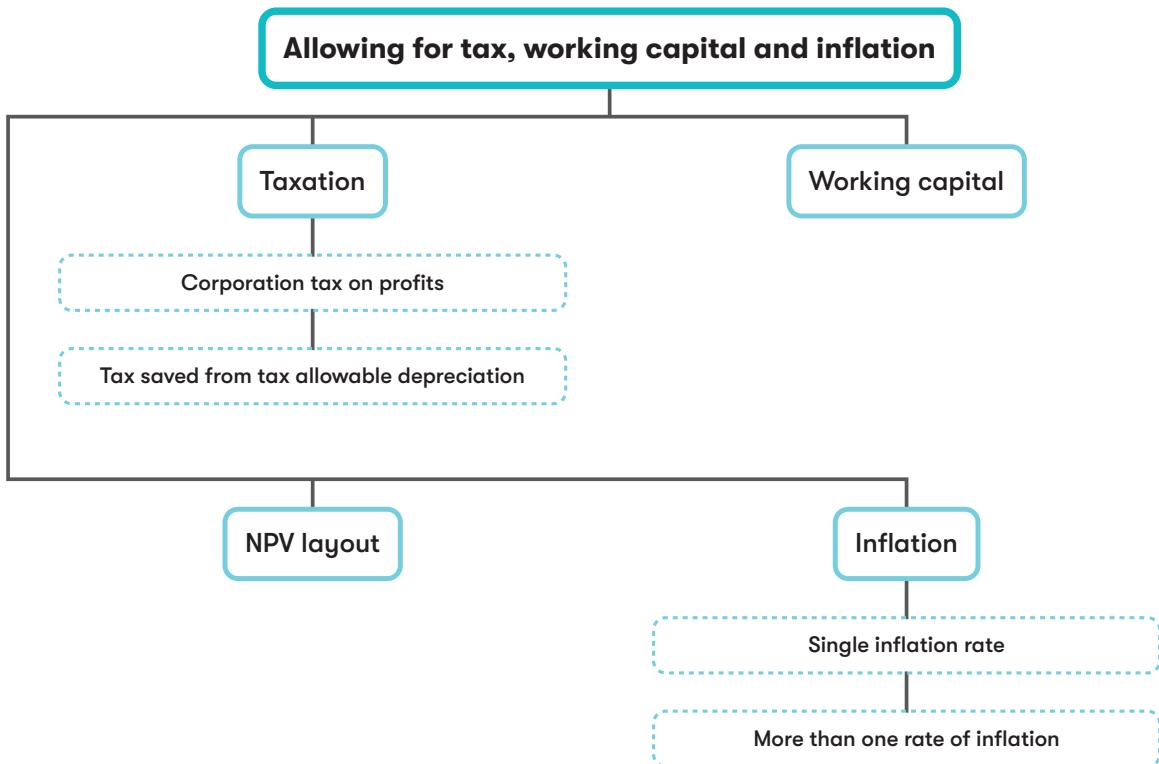
- Apply and discuss the real-terms and nominal-terms approaches to investment appraisal D2(a)
 - Calculate the taxation effects of relevant cash flows, including the tax benefits of tax-allowable depreciation and the tax liabilities of taxable profit D2(b)
 - Calculate and apply before- and after-tax discount rates D2(c)
-

Exam context

This chapter covers how to allow for tax and inflation in discounted cash flow calculations (introduced in the previous chapter) and is part of Section D of the syllabus (Investment Appraisal).

This is an important chapter that is examinable in all sections of the exam and is commonly examined as a core feature of one of the section C exam questions.

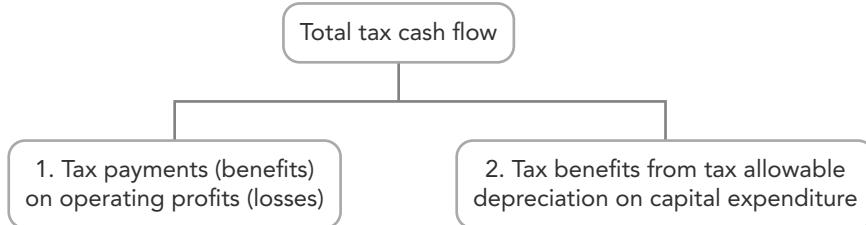
Chapter overview



1 Taxation

So far, in looking at project appraisal, we have ignored taxation. However, payments of tax, or reductions in tax payments, are relevant cash flows and ought to be considered in DCF analysis.

The existence of tax on corporate profits gives rise to **two cash flows** that need to be taken into account in project appraisal.



1.1 Corporation tax on profits

The tax rate to be applied will be given in an exam question.

Tax on profits will either be payable in the **same year as the taxable profits are earned or in the following year**; the appropriate timing to apply will be specified in an exam question.



Exam focus point

Check any question involving tax carefully to see what assumptions about the timing of tax payments should be made.

1.2 Tax allowable depreciation

Where tax-allowable depreciation (also called capital allowance or writing down allowance) can be claimed, this will reduce taxable profits, and the consequent reduction in a tax payment should be treated as a **cash saving**.

Tax-allowable depreciation (TAD) is not the same as the accounting depreciation charge for the purpose of reporting profit in the financial statements.

TAD may be applied as **straight-line** depreciation (the same amount each year) **or on a reducing balance basis** based on the written down value (WDV) of the asset **at the start of year**.

Assuming a zero disposal value, in the **final year** of an asset's life TAD **will reduce the WDV of the asset to zero**. This final TAD claim is called a **balancing allowance** and means that the full capital cost of the asset is claimed over the asset's useful life.



Exam focus point

The appropriate basis for tax allowable depreciation, including the rate to claim and the timing of tax cash flows will be specified in an exam question.



Example: Tax allowable depreciation

If tax allowable depreciation is available on the cost of **plant and machinery** at a rate of 25% on the written down value (WDV) (ie on a **reducing balance** basis) and a company purchases machinery costing \$80,000, with a 4 year useful life and zero residual value the subsequent TAD would be:

Time	1	2	3	4
WDV b/f	\$80,000	\$60,000	\$45,000	\$33,750

Time	1	2	3	4
TAD	\$20,000 (25% of \$80,000)	\$15,000 (25% of \$60,000)	\$11,250 (25% of \$45,000)	\$33,750 (balancing allowance)
WDV c/f	\$60,000	\$45,000	\$33,750	\$0

2.1.1 Impact of disposal value

When the asset is eventually sold, the balancing allowance is based on the written down value at the start of the year **less the disposal value obtained from the sale of the asset.**



Context example: Impact of disposal value

Continuing the previous example, if the asset is sold at the end of year 4 for \$25,000 the tax allowable depreciation in time 4 would change (the other time periods are unaffected) to:

Time	4
WDV b/f	\$33,750
Disposal value	<u>(\$25,000)</u>
TAD (balancing allowance)	\$8,750
WDV c/f	\$0

If the scrap value is **greater than the WDV at the start of the year**, there would be no TAD and the excess would be taxed (this is called a balancing charge).

3.1.1 Tax saved on tax allowable depreciation

In itself, tax allowable depreciation is not a cash flow. However, the **tax saved** due to TAD is a cash flow and this need to be recognised.

The **cash saving on tax-allowable depreciation** is calculated by **multiplying the amount of the tax-allowable depreciation by the tax rate.**

If tax cash flows occur in the year following the year in which the item giving rise to the tax occurs, the cash flow for the tax saving from tax-allowable depreciation will occur in the year following the year in which the allowance is claimed.



Context example: Tax allowable depreciation (continued)

Using the information from the previous illustration, if the rate of tax on profits is 20%, the **tax saved** from TAD is as follows:

Time	1	2	3	4
TAD	\$20,000	\$15,000	\$11,250	\$8,750
Tax saved	\$4,000 (20% of \$20,000)	\$3,000 (20% of \$15,000)	\$2,250 (20% of \$11,250)	\$1,750 (20% of \$8,750)

Tax savings **may occur a year after the TAD is claimed** depending on whether tax on profits is payable in the **same year as the taxable profits are earned or in the following year**. The appropriate timing to apply will be specified in an exam question.

4.1.1 Approach to apply to TAD in the exam

In the exam, you should identify the cash flows relating to TAD by:

- Calculate the amount of TAD claimed in each year.
- Make sure that you remember the balancing allowance in the year the asset is sold.
- Calculate the tax saved, noting the timing of tax payments given in the question.



Exam focus point

A common mistake in exams is to include the tax-allowable depreciation itself in the NPV calculation; it is the **cash effect** (ie the tax saved) of the allowance that should be included.



Activity 1: Tax cash flows

Quitongo Co is considering a major investment programme which will involve the creation of a chain of retail outlets throughout the UK.

The following schedule of expected cash flows has been prepared for analysis:

Time	1	2	3	4
	\$'000	\$'000	\$'000	\$'000
Revenue	1,000	1,750	2,500	3,200
Direct costs	970	1,350	1,700	1,800
Office overheads	100	100	100	100

Additional information:

- 40% of office overhead is an allocation of head office operating costs.
- The post-tax cost of capital is 7%.

Quitongo Co is paying tax at 30% and is expected to do so for the foreseeable future. Tax is payable one year after profits are earned.

The costs of investment include \$750,000 on fittings and equipment. Tax allowable depreciation is available on fittings and equipment (only) at 25% on a reducing balance basis.

It is estimated that the resale proceeds for fittings and equipment will be \$200,000.

Quitongo Co has an accounting year end of 31 December; expenditure on the investment programme will take place in January.

Required

Calculate the tax cash flows to be included in the NPV for this project (ie the tax paid on operating cash flows and tax saved on tax allowable depreciation).

4.1.2 Cost of capital

When **taxation is ignored** in DCF calculations, the discount rate will reflect the **pre-tax rate of return** required on capital investments.

When **taxation is included** in the cash flows, a **post-tax required rate of return** should be used.

Cost of capital is covered in Chapter 11.



Essential reading

See Chapter 6 Section 1 of the Essential Reading, available in the digital edition of the Workbook, for a further illustration of this area.

The Essential reading is available as an Appendix of the digital edition of the Workbook.

5 Working capital

Investment projects will require an injection of funds to finance the level of working capital required (eg inventory). The effect on cash flows is due to the change in working capital required during the life of the project.

The relevant cash flow associated with working capital is **the change in working capital**.

- An **increase in working capital** required will cause a **cash outflow**
- A **decrease in working capital** required will cause a **cash inflow**.

5.1 Impact of working capital movements on project appraisal

5.1.1 Start of project

In investment appraisal, an investment in working capital at the beginning of the investment period is treated as an outflow of cash.

5.1.2 Each year of operation

In each year of operation of a project the following adjustment is made:

	\$
Post tax cash flow from profits in the period	X
Minus working capital increase	(X)
or Plus working capital reduction	X
Equals adjusted cash flow for the period	X

5.1.3 End of project

Working capital will be released at the end of a project's life, and so there will be a **cash inflow** arising out of the eventual realisation into cash of the project's inventory and receivables in the final year of the project.



Exam focus point

Exam questions will show the total amount of working capital required in each year of the project. **The DCF working should only show the incremental cash flows from one year's requirement to the next.**



Activity 2: Working capital cash flows

Continuation of activity 1.

Quitongo Co plc expects the following working capital requirements during each of the four years of the investment programme (all figures in \$'000):

Year 1	Year 2	Year 3	Year 4
250	300	375	400

Quitongo plc has an accounting year end of 31 December; expenditure on the investment programme will take place in January.

Required

Calculate the relevant cash flows relating to working capital.

6 Net present value (NPV) layout

A neat layout will gain credibility in the exam and will help you make sense of the many different cash flows that you will have to deal with. The points in bold in the table below are the areas already covered in the previous sections of this chapter; the timings of some of the cash flows may alter (eg taxation) depending on the wording of the question.

	Time					
	0	1	2	3	4	5
Sales		X	X	X	X	
Costs		(X)	(X)	(X)	(X)	
Operating cash flow		X	X	X	X	
Taxation			(X)	(X)	(X)	(X)
Capital expenditure		(X)				
Scrap value					X	
Tax benefit of TAD			X	X	X	X
Working capital changes	(X)	(X)	(X)	(X)	X	—
Net cash flows	(X)	X	X	X	X	X
Discount factors @	X	X	X	X	X	X
Post-tax cost of capital	(X)	X	X	X	X	X
Present value	(X)	X	X	X	X	X
Net present value						

	Time					
	0	1	2	3	4	5
X	—	—	—	—	—	—



Activity 3: NPV layout

Continuation of activities 1 and 2.

Extra information:

Quitongo Co's investment programme will also involve the following investment costs and disposal values.

Time	0	1	2	3	4
	\$'000	\$'000	\$'000	\$'000	\$'000
Land and buildings	3,250				
Fittings and equipment		750			

The cost of land and buildings includes \$120,000 which has already been spent on surveyors' and other advisers' fees.

Quitongo Co expects to sell the chain at the end of Year 4 for \$4,500,000 after tax (this includes resale proceeds of \$200,000 for fittings and equipment).

The post-tax cost of capital is 7%.

Required

Complete the NPV pro-forma below (which includes the results of activities 1 and 2) to calculate the NPV of this project.

7 Inflation



Real: The term '**real**' when applied to cash flows or to the cost of capital, means **based on current price levels**.



Nominal: The term '**nominal**', when applied to cash flows or to the cost of capital, means **after adjusting for the impact of expected inflation**.

7.1 Impact of inflation on project appraisal

So far, we have not considered the effect of **inflation** on the appraisal of capital investment proposals.

Inflation has two impacts on NPV:

7.2 One rate of inflation

If there is one rate of inflation, inflation has **no net impact on a project's NPV** because the impact of an increase in prices on project cash inflows is exactly offset by the impact of inflation on increasing the cost of capital.

In this case it is normally **quicker to ignore inflation** in the cash flows (ie to use real cash flows, sometimes these are referred to as being at 'current prices') and to use a 'real' cost of capital (ie ignoring the impact of inflation on investors' required return).



Illustration 1: One rate of inflation

Bistro Co is a brewing company trying to decide whether to buy a new bottling machine for \$10m to save on rental costs which are currently \$6.6m p.a.

Running costs for the new machine would be \$1.2m p.a.

The bottling machine has no resale value and has an expected life of three years.

All cash flows are quoted in **current prices** (ie in **real terms**) and are expected to rise in line with the consumer price index (or CPI, a measure of **inflation**) at 5.26% p.a.

Bistro's **real** cost of capital is 14%, and its **nominal** cost of capital is 20%. Ignore tax.

Required

Evaluate whether the new bottling machine should be purchased.

Solution

Because there is **only one rate of inflation**, inflation can be **ignored in the cash flows and the cost of capital**.

Time	0	1–3
	\$m	\$m
Running costs		(1.20)
Savings		6.60
Purchase costs	<u>(10.00)</u>	
Net	(10.00)	5.40
DF @ 14%	1.0	2.322
PV	(10.00)	12.54
NPV	+2.54	

Note that if we had decided to include inflation, we would get the same answer, but it would take **longer to calculate** and therefore is **unnecessary** where there is only one rate of inflation. This approach is shown below.

Time	0	1	2	3
Running costs ($\times 1.0526$ p.a.)		(1.26)	(1.33)	(1.40)
Savings ($\times 1.0526$ p.a.)		6.95	7.31	7.70
Purchase costs	<u>(10.00)</u>			
Net	(10.00)	5.69	5.98	6.30
DF @ 20%		0.833	0.694	0.579
PV	(10.00)	4.74	4.15	3.65
NPV	+2.54			

7.3 More than one rate of inflation

If there is more than one rate of inflation, inflation will have an impact on profit margins (as revenue and costs are changing at different rates) and therefore **inflation needs to be included in project appraisal**.

In this case **the cash flows must be inflated, and inflation must also be incorporated into the cost of capital**.

7.3.1 Inflating project cash flows

This will involve adjusting the cash flows by multiplying them by $(1 + \text{inflation rate})$ for each year that inflation is being applied. For example, inflating a cash flow at time 2 will involve multiplying it by $(1 + \text{inflation})^2$.

7.3.2 Inflating the cost of capital

As the inflation rate increases, so will the return required by an investor. For example, you might be happy with a return of 5% in an inflation-free world, but if inflation were running at 15% you would expect a considerably greater yield.

The **nominal (or money) interest rate** incorporates inflation.

The relationship between real and nominal rates of interest is given by the **Fisher formula**.

Formula provided

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

Where h = general rate of inflation

r = real rate of interest

i = nominal (money) rate of interest

The general inflation rate is often given in an exam question as the retail price index (RPI) or consumer price index (CPI).

8.1.1 Using a real cash flows and a real cost of capital if there is more than one rate of inflation

If there is more than one rate of inflation, **it is still possible to calculate an NPV in real terms, but this has to start by an adjustment to nominal cash flows** because where there are multiple rates of inflation then there will be an impact on profit margins due to inflation (as revenue and costs are changing at different rates).

The approach to required is:

- Deflate nominal (ie inflated) cash flows using the general rate of inflation so that they become **real cash flows**

Real cash flow = Nominal cash flow $\div (1 + \text{inflation rate})^n$

- Discount the **real cash flows** at the real cost of capital.



Exam focus point

This approach is more complicated than using nominal cash flows and therefore is rarely used.



Illustration 2: More than one rate of inflation

We will use the details from the previous illustration for Bistro Co with the following amendments:

- (1) Running costs rise at the general rate of inflation of 5.26%, but rental costs being saved are expected to increase at 2% p.a.
- (2) We are only told that Bistro's **real** cost of capital is 14%.

Required

Evaluate whether the new bottling machine should be purchased.

Solution

Here there is **more than one rate of inflation**, so inflation needs to be incorporated into the cash flows because profit margins are affected by the savings on rental costs inflating at a lower rate than costs are increasing by.

Time	0	1	2	3
Running costs ($\times 1.0526$ p.a.)		(1.26)	(1.33)	(1.40)
Savings ($\times 1.02$ p.a.)		6.73	6.87	7.00
Purchase costs	<u>(10.00)</u>			
Net	(10.00)	5.47	5.54	5.60
DF @ 20% (See working)		0.833	0.694	0.579
PV	(10.00)	4.56	3.84	3.24
NPV	+1.64			

Working

$$1 + \text{Inflated (nominal) cost of capital} = (1 + 0.14) \times (1.0526) = 1.20 \text{ ie } 20\%$$

The same answer can also be obtained if the nominal cash flows are **deflated** and a **real cost of capital** is used. This is a slower method and should only be used if requested in a question.

This is demonstrated below:

Time	0	1	2	3
Nominal cash flows (as before)		5.47	5.54	5.60
Deflated $\div (1.0526)^n$	0.9500	0.9026	0.8575	
Real cash flows				
Net	(10.00)	5.20	5.00	4.80
DF @ 14% (real cost of capital)		0.877	0.769	0.675
PV	(10.00)	4.56	3.84	3.24
NPV	+1.64			

8.1.2 Working capital and inflation

The working capital requirement each year is a function of sales and costs. It follows that if the sales and purchases figures are to be inflated, then any figure resulting from them (receivables, payables, inventory) should also be inflated.

Only once the total (inflated) working capital required has been calculated should you calculate the incremental cash flows for DCF calculations based on the change in working capital.



Activity 4: Supplementary activity with tax, working capital and inflation

SC Co is evaluating the purchase of a new machine to produce product P, which has a short product life cycle due to rapidly changing technology. The machine is expected to cost \$1m. Production and sales of product P are forecast to be as follows:

Year	1	2	3	4
Production and sales (units/year)	35,000	53,000	75,000	36,000

The selling price of product P (in current price terms) will be \$20 per unit, while the variable cost of the product (in current price terms) will be \$12 per unit.

Selling price inflation is expected to be 4% per year and variable cost inflation is expected to be 5% per year.

No increase in existing fixed costs is expected since SC Co has spare capacity in both space and labour terms.

Producing and selling product P will call for increased investment in working capital. Analysis of historical levels of working capital within SC Co indicates that at the start of each year, investment in working capital for product P will need to be 7% of sales revenue for that year.

SC Co pays tax of 30% per year in the year in which the taxable profit occurs. Liability to tax is reduced by capital allowances (tax allowable depreciation) on machinery, which SC Co can claim on a straight-line basis over the four-year life of the proposed investment. The new machine is expected to have no scrap value at the end of the four-year period.

SC Co has a real cost of capital of 9.8%, and the general rate of inflation is 2%.

Required

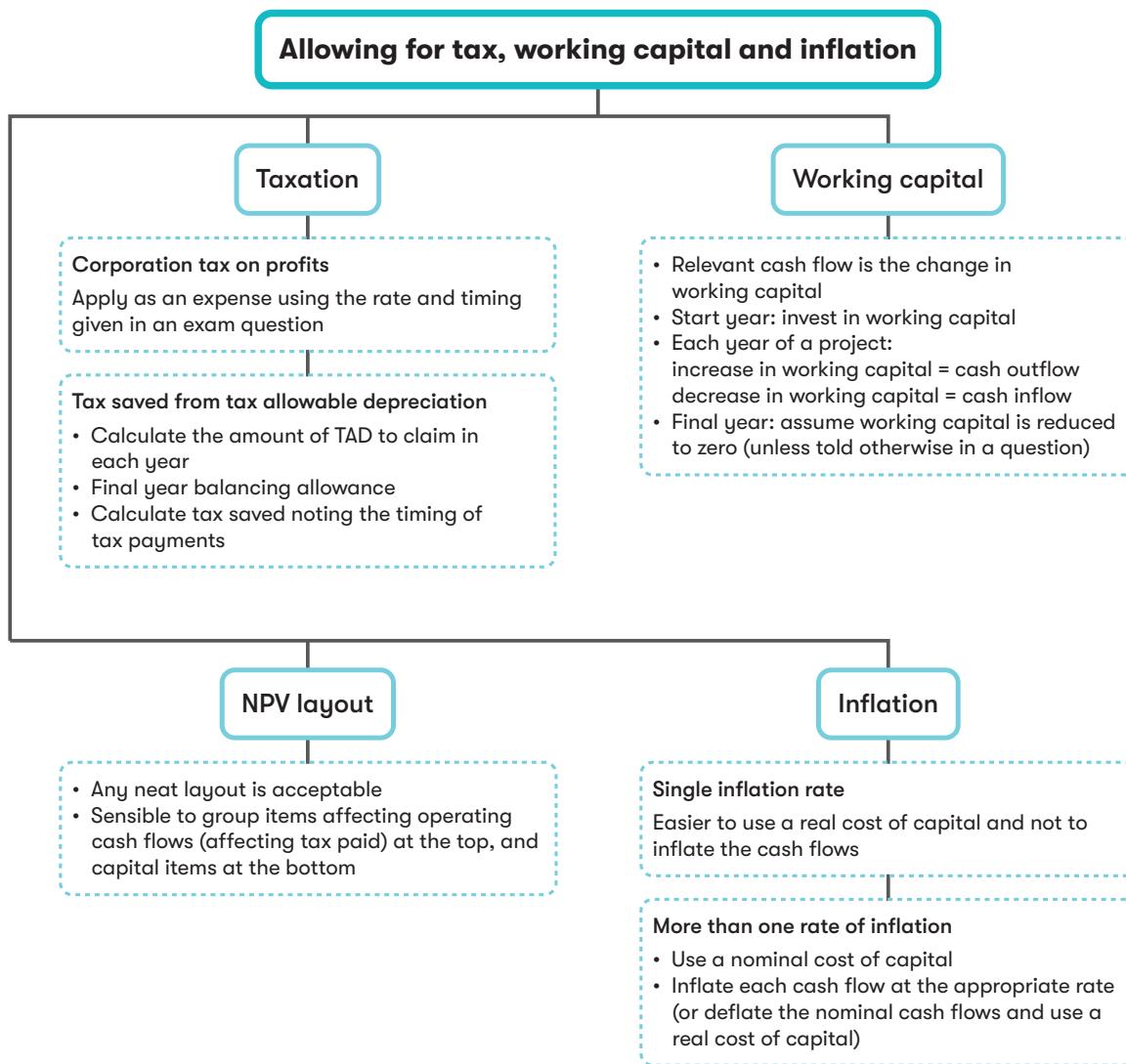
- Calculate the net present value of the proposed investment in product P.
- Advise on the acceptability of the proposed investment in product P.

Essential reading

See Chapter 6 Section 2 of the Essential reading, available in the digital edition of the Workbook, for further discussion of this area.

The Essential reading is available as an Appendix of the digital edition of the Workbook.

Chapter summary



Knowledge diagnostic

1. Taxation

Tax rates and timings will be given in the exam.

Don't forget tax is saved on tax allowable depreciation.

2. Working capital

The relevant cash flow is the change in working capital.

3. Single inflation rate

Use real cash flows and a real cost of capital.

4. More than one rate of inflation

Use nominal cash flows and a nominal cost of capital.

5. NPV layout

Any neat layout will be fine, sensible to start with operating cash flows (which affect tax paid) and then to deal with capital items.

Further study guidance

Question practice

Now try the following from the Further question practice bank (available in the digital edition of the Workbook):

Section A questions

Q19

Section C questions

Q42 Bridgeford

Q43 Dinard

Activity answers

Activity 1: Tax cash flows

(1) Tax paid on operating cash flows

Only 60% of overheads are a relevant cash flow, the other 40% is not a cash flow because it is an apportionment of an existing overhead.

Time	1	2	3	4	5
	\$'000	\$'000	\$'000	\$'000	\$'000
Revenue	1,000	1,750	2,500	3,200	
Direct costs	(970)	(1,350)	(1,700)	(1,800)	
Overheads (60%)	<u>(60)</u>	<u>(60)</u>	<u>(60)</u>	<u>(60)</u>	
Operating cash flow	(30)	340	740	1,340	
Taxation @ 30%		9	(102)	(222)	(402)

(2) Calculation of tax allowable depreciation

Time	1	2	3	4
WDV b/f (\$'000)	750	562	421	316
Scrap (\$'000)				<u>200</u>
TAD (\$'000)	188	141	105	116*
WDV c/f (\$'000)	562	421	316	0
Time	2	3	4	5
Tax saved (WDV x tax rate)	56	42	32	35

* Final year TAD = WDV at time 3 – scrap proceeds = 316 – 200 = 116

Activity 2: Working capital cash flows

Calculation of working capital flows

Time	0	1	2	3	4
Working Capital	250	300	375	400	0*
Change in working capital	250	50	75	25	(400)
Change in cash flow	(250)	(50)	(75)	(25)	400

*Normal assumption

Activity 3: NPV layout

Time	0	1	2	3	4	5
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Turnover		1,000	1,750	2,500	3,200	
Direct costs		(970)	(1,350)	(1,700)	(1,800)	
Overheads (60%)		<u>(60)</u>	<u>(60)</u>	<u>(60)</u>	<u>(60)</u>	
Operating cash flow		(30)	340	740	1,340	
Taxation @ 30%			9	(102)	(222)	(402)
Fittings & equipment						
Sale of business						
Land and buildings						
Tax saved from TAD			56	42	32	35
Working capital changes	<u>(250)</u>	<u>(50)</u>	<u>(75)</u>	<u>(25)</u>	<u>400</u>	
Net cash flow						
7% discount factors	1	0.935	0.873	0.816	0.763	0.713

Present value

NPV = +\$971,000

Working

Sunk cost

Land and buildings has been adjusted by stripping out the sunk cost

Activity 4: Supplementary activity with tax, working capital and inflation

1

	Marks
(a) Inflated sales revenue	2
Inflated variable costs	2
Taxation	1
Working capital	3
Discount factors	2
Net present value calculation	<u>1</u>
	13
(b) Net present value comment	1
Discussion of limitations	<u>3</u>

	Marks
Maximum	<u>4</u>
	<u>17</u>

Calculation of NPV (note that in the exam it is easier to work to the nearest \$000, this is acceptable and reduces the risk of error)

Year	0	1	2	3	4
	\$	\$	\$	\$	\$
Sales revenue (W1)	728,000	1,146,390	1,687,500	842,400	
Variable costs (W2)	441,000	701,190	1,041,750	524,880	
Contribution	287,000	445,200	645,750	317,520	
Taxation @ 30%	(86,100)	(133,560)	(193,725)	(95,256)	
Capital expenditure	(1,000,000)				
Working capital (W3)	(50,960)	(29,287)	(37,878)	59,157	58,968
Tax benefit of tax depreciation (W4)		75,000	75,000	75,000	75,000
Net cash flow	(1,050,960)	246,613	348,762	586,182	356,232
Discount factor (W5)	1.000	0.893	0.797	0.712	0.636
Present value	(1,050,960)	220,225	277,963	417,362	226,564
NPV	91,154				

Workings

1 Sales Revenue

Year	1	2	3	4
	\$	\$	\$	\$
Selling price ($\times 1.04$)	\$20.80	\$21.63	\$22.50	\$23.40
Sales volume in units	35,000	53,000	75,000	36,000
Sales revenue	\$728,000	\$1,146,390	\$1,687,500	\$842,400

2 Variable costs

Year	1	2	3	4
	\$	\$	\$	\$
Variable cost ($\times 1.05$)	\$12.60	\$13.23	\$13.89	\$14.58
Sales volume in units	35,000	53,000	75,000	36,000
Variable costs	\$441,000	\$701,190	\$1,041,750	\$524,880

3 Working capital

Year	0	1	2	3	4
	\$	\$	\$	\$	\$
Sales revenue	728,000	1,146,390	1,687,500	842,400	
Working capital					

Year	0	1	2	3	4
	\$	\$	\$	\$	\$
requirement @ 7%		50,960	80,247	118,125	58,968
Incremental working capital cash flow	(50,960)	(29,287)	(37,878)	59,157	58,968

4 Tax benefit of tax depreciation

Depreciation = \$1,000,000/4 = \$250,000 per year

Tax benefit = 30% × \$250,000 = \$75,000

(W5) Cost of capital

$1 + \text{Inflated (nominal) cost of capital} = (1 + 0.098) \times (1.02) = 1.12$ ie 12%

A nominal cost of capital needs to be used, as inflation has been included in the cash flows (because there is more than one rate of inflation)

- 2 The NPV is positive so the proposed investment can be recommended on financial grounds as the project gives a return that is above the cost of capital of 12% used by SC Co for investment appraisal purposes.

Limitations of the evaluations

- 3 Forecast sales volumes have been used for both investment appraisal methods and the accuracy of the results is therefore heavily dependent on the accuracy of these forecasts. Product P has a short product life cycle which makes forecast sales volumes particularly unpredictable.

The analysis has used predicted inflation rates for sales price and variable costs which do not change over the four-year period. This is unlikely in reality as price increases will vary according to prevailing economic conditions and unexpected events.

Fixed costs have not been included in the investment appraisal. This is because SC has spare capacity in both space and labour terms so it is assumed that fixed costs will not change as a result of the investment.

This assumption may be questionable in the longer term, especially as production of product P in Year 3 will be double that in Year 1.



11

Sources of finance

Learning objectives

On completion of this chapter, you should be able to:

Syllabus reference no.

- | | |
|--|-------|
| • Identify and discuss the range of short-term sources of finance available to businesses, including overdraft, short-term loan, trade credit, lease finance | E1(a) |
| • Identify and discuss the range of long-term sources of finance available to businesses, including: equity finance, debt finance, lease finance, venture capital | E1(b) |
| • Identify and discuss methods of raising equity finance, including: rights issue, placing, public offer, stock exchange listing | E1(c) |
| • Identify and discuss methods of raising short- and long-term Islamic finance, including:
(i) major differences between Islamic finance and other forms of business finance.
(ii) the concept of riba and how returns are made by Islamic financial securities.
(iii) Islamic financial instruments available to businesses including: murabaha, ijara, mudaraba, sukuk, musharaka.
(note: calculations are not required) | E1(d) |

Exam context

The financing decision is a key part of financial management and is covered in Section E of the syllabus. This syllabus section is covered in Chapters 9–12 and can be tested in any part of the exam, including Section C where one of the questions normally focuses on this syllabus area.

From this chapter, you may be asked to describe appropriate sources of finance for a company, or to discuss in general terms the characteristics of different types of short-term, long-term and Islamic finance. The mechanics of a rights issue are especially important. This chapter is examinable in all sections of the exam.

Chapter overview

!! Error resolving referred content !!

1 Short-term finance

Chapter 4 considered the use of short-term finance as part of a **matching policy** to finance **fluctuating current assets**.

As noted in Chapter 4, **short-term finance is usually cheaper** than long-term finance, so some companies adopt an '**aggressive**' approach and rely mainly on short-term finance as part of an **aggressive working capital finance strategy**. Here we briefly review types of short-term finance.



PER alert

Performance objective 10 requires you to 'source short-term finance to improve an organisation's liquidity'. You can apply the knowledge from this chapter to help to demonstrate this competence.

1.1 Types of short-term finance

Overdraft	The bank grants an overdraft facility (usually for a fee). This facility can be used by the borrower (up to an agreed limit) but does not have to be. Overdrafts are the most important source of short-term finance available to businesses. They can be arranged relatively quickly and offer a level of flexibility with regard to the amount borrowed at any time, while interest is only paid when the account is overdrawn. Overdrafts are repayable on demand.
Short-term loan	This is drawn in full at the beginning of the loan period and repaid at a specified time or in defined instalments. Once the loan is agreed, the term of the loan must be adhered to , provided that the customer does not fall behind with their repayments. It is not repayable on demand by the bank.
Trade credit	A major source of short-term finance for a business. Current assets such as raw materials may be purchased on credit, and this therefore represents an interest-free short-term loan. However, it is important to take into account the loss of discounts suppliers may offer for early payment. Unacceptable delays in payment will worsen a company's credit rating and additional credit may become difficult to obtain.
Short-term lease	Rather than buying an asset outright, using either available cash resources or borrowed funds, a business may lease an asset. Leasing is a popular source of finance. Leasing was covered in the previous chapter.



Essential reading

See Chapter 9 Section 1 of the Essential reading, available in the digital edition of the Workbook, for more background information on this area.

The Essential reading is available as an Appendix of the digital edition of the Workbook.

2 Long-term finance

Where finance is required over a longer time period, it is possible to rely on short-term finance and to renew it so that it provides finance over a longer time period. However, this exposes the borrower to the risk that this short-term finance may not be available (or may be expensive) at the point that it is being renewed. For this reason, it is more likely that a source of long-term finance will be appropriate where finance is required over a longer time period.

Where a long-term investment is being considered by a firm, there is a strong argument for **matching** the term of the investment to the term of the finance by using long-term finance because:

- (a) The **returns being generated by the investment may be required to repay the debt.**

If returns are being gradually generated by a project over, for example, ten years, then it may be difficult to repay a loan that matures in four years (so a ten-year loan may be more appropriate).

- (b) A loan whose maturity date was longer than the term of the investment would **expose the company to a potentially unnecessarily long period over which interest repayments must be made.**

Here, we briefly review the types of long-term finance that are available, some of which have already been introduced in Chapter 2. Chapter 12 will then consider the advisability of using different mixtures of these sources of long-term finance, most notably the mix of long-term debt and equity finance, ie the capital structure.

2.1 Long-term debt finance

2.1.1 Bank loans

To obtain a bank loan a firm may need to:

- Present a convincing **business plan** (including information on cash flow forecasts, the management team and investment proposals)
- Provide security by either a **fixed or floating charge** against a firm's assets or provide **personal collateral**, eg director's home.

Because the bank will be committing its funds to a customer for several years, it may insist on building certain written safeguards, **known as loan covenants**, into the loan agreement, to prevent the customer from becoming overextended with their borrowing during the course of the loan.



Loan covenant: A condition that the borrower must comply with. If the borrower does not act in accordance with the covenants, the loan can be considered in **default** and the bank can demand payment.

Examples of loan covenants include:

- **Positive covenants**
 - (i) **Maintaining certain levels of particular financial ratios**, eg the debt/equity ratio, interest cover ratio – note that **interest cover** is calculated as:

Profit before interest and tax (or operating profit)

Interest paid

- **Negative covenants**
 - (i) Limit a borrower's behaviour, eg prevent borrowing from another lender, disposal of key assets, paying dividends above a certain level, acquiring another company.



Activity 1: Debt covenants

A company is funded by 5 million \$1 equity shares and a \$10 million bank borrowing carrying a fixed rate of interest of 10%.

The bank borrowing carries a covenant specifying the following two conditions:

- (1) Interest cover limit of 2.5
- (2) Debt/cash flow from operations limit of 3

The company currently has no other debt finance and the rate of corporate income tax is 20%.

The company is about to borrow \$5 million at an interest rate of 12% in order to fund a new project. The project is expected to increase annual operating profit by 20% from its current level of \$4 million and annual cash flow from operations by 15% from its current level of \$5 million.

The directors wish to assess the impact of the new financing and investment decisions on the bank covenants before commencing with the project.

Required

What will be the impact on the bank covenants?

- A Covenant (1) breached, Covenant (2) not breached
 - B Covenant (1) not breached, Covenant (2) breached
 - C Covenant (1) breached, Covenant (2) breached
 - D Covenant (1) not breached, Covenant (2) not breached
-

2.1.2 Loan notes

Following the banking crisis of 2008–9, **banks have generally been more cautious about lending to companies**. This has led to an increase in the use of loan notes as a source of finance. In Chapter 2 we saw that bypassing bank finance is sometimes referred to as **disintermediation**.

Conventional loan notes are **fixed rate IOUs that are sold on the Stock Market**; they are also referred to as **bonds or debentures**.





Context example

Here is an example of a loan note that was issued in 2013 by Royal Dutch Shell.

	Features of loan notes
Coupon rate	The coupon rate is fixed at the time of issue and will be set according to prevailing market conditions given the credit rating of the company issuing the debt.
Marketable	The ability to sell the debt can mean that investors accept a lower return compared to the cost of a bank loan .
Redeemable	Loan notes are normally redeemable. Some loan notes are ' irredeemable ' or ' undated '. These are often called perpetual bonds and are normally issued by banks.
Secured	Loan notes are normally secured – if unsecured, they are likely to carry debt covenants (see earlier). Investors are likely to expect a higher yield with unsecured bonds to compensate for the extra risk.



Convertible loan notes: Give the loan note holders the right (but not an obligation) to convert their loan notes at a specified future date **into new equity shares** of the company, at a conversion rate that is also specified when the loan notes are issued.

The possibility of the loan note holders being able to sell these shares at a favourable price means that **the coupon rate of interest is often considerably lower than on similar conventional loan notes**.

If the loan note **holders** choose not to convert their loan notes into shares, the loan notes will be redeemed at maturity, as for a conventional loan note.

The current **market value** of ordinary shares into which a loan note may be converted is known as the **conversion value**. The **conversion value** will be below the value of the loan note 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 ratio = number of shares a single convertible loan note can be converted to

Conversion value = Conversion ratio × market price per share



Conversion premium: Conversion premium = Current market value of loan note – current conversion value of shares

A company will aim to issue loan notes with the **greatest possible conversion premium**, as this will mean 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.



Activity 2: Convertible loan notes

Cleethorpe Co has a 3% convertible bond in issue, with a nominal value of \$100. Each bond can be converted into 25 ordinary shares at any time over the next 3 years. The bond is currently trading at \$120 (ex-interest), and the share price is currently \$3.80.

Required

Answer the following questions.

-
- (1) Calculate the conversion value.
 - (2) Calculate the conversion premium, and comment on its meaning.
 - (3) Discuss why Cleethorpe may have issued a convertible bond.
-

3.1.1 Long-term lease

Long-term leases have been covered in the previous chapter.

3.1 Equity finance

Equity capital refers to finance provided by the owners of the business, and as such normally refers to the capital invested by **ordinary shareholders**.

Ordinary shareowners have the right to vote on directors' appointments, and to receive a share of any dividend that is agreed by the board. The mechanics of raising equity finance are **discussed later in this chapter**.

3.2 Preference shares

Preference shareholders **receive dividends, normally at a fixed rate**; some preference shares will also pay an extra dividend as a fixed percentage of the ordinary dividend (in this case they are called participating preference shares).

Here is an example of a preference share that Barclays Bank has issued.

Advantages of preference shares	
Compared to debt	Compared to ordinary shares
More flexible than debt finance (if losses are made, the dividend is not paid).	No dilution of control (preference shares carry no voting rights except in exceptional circumstances, eg a proposed liquidation).

Disadvantages of preference shares	
Compared to debt	Compared to ordinary shares
No tax relief is received on dividend payments, whereas debt interest reduces taxable profit and therefore attracts tax relief.	Creates extra risk for ordinary shareholders because the preference dividend has to be paid before the ordinary dividend.

3.3 Venture capital



Venture capital: Risk capital, normally provided by a venture capital firm or individual venture capitalist, in return for an equity stake.

Venture capitalists seek to invest cash in return for shares in private companies with high growth potential. They seek a **high return**, which is often realised through a stock market listing, and accept that this will mean that the investments are often **high risk**.

Venture capital may be invested in young start-up companies but is more commonly invested in small companies that already have a track record of business development and which need additional finance to grow. These companies may have borrowed as much money as their banks are prepared to lend, and do not have enough equity capital (from the existing owners or retained profits) to expand at the rate or scale required.

Failure to hit targets set by the venture capitalist can lead to extra shares being transferred to their ownership at no additional cost. This is called an **equity ratchet**.



Essential reading

See Chapter 9 Section 2 of the Essential reading, available in the digital edition of the Workbook, for more background information on this area.

The Essential reading is available as an Appendix of the digital edition of the Workbook.

4 Methods of raising equity finance

Companies often decide to **retain cash** within the business to finance their investment needs (instead of paying this cash to shareholders as a dividend). This cash represents equity finance because it could have been paid out to shareholders and is a significant source of equity finance.

For larger projects it may be necessary to raise **new equity** by **issuing new ordinary shares**.

There are three main ways of issuing new shares:

(1) A rights issue

A legal right for **existing shareholders**

(2) A placing	Shares are issued at a fixed price to institutional investors
(3) A public offer	An offer for sale to the public , either at a fixed price or by tender

4.1 Rights issues



Rights issue: In a rights issue, ordinary shareholders are invited to apply for shares **in proportion to their existing shareholdings**.

In a rights issue, shareholders have a number of choices; they can:

- Buy the new shares
- Sell their 'right' to buy shares
- Do a mix of the above

A rights issue will normally be at a significant discount (eg 20%) to the existing share price, so the share price after the rights issue will be below the pre-rights share price. However, this does not in itself damage shareholder wealth because shareholders also benefit from buying the shares at a discount (or by selling the rights).



Context example



Cum rights price: A 'cum rights' price means that the purchaser of existing shares has the **right to participate** in the rights issue (ie the price prior to the rights issue).

Issue price: The price at which the new shares are being offered for sale.

Theoretical ex-rights price (TERP): The theoretical price **after** the rights issue.

Value of a right: The price at which a right can be sold (calculate as TERP – issue price).

Value of a right per existing share: The value of a right divided by the number of shares that need to be possessed in order to own a right.



Illustration 1: TERP

Fundraiser has 1,000,000 ordinary shares of \$1 in issue, which have a market price on 1 September of \$2.10 per share. The company decides to make a rights issue and offers its shareholders the right to subscribe for one new share at \$1.50 each for every four shares already held. After the announcement of the issue, the share price fell to \$1.95, but by the time just prior to the issue being made, it had recovered to \$2 per share.

Required

What is the theoretical ex-rights price?

Solution

Value of the portfolio for a shareholder with four shares before the rights issue:

	\$
4 shares @ \$2.00	8.00
1 share @ \$1.50	1.50
<u>5 shares</u>	<u>9.50</u>

So, the value per share after the rights issue (or TERP) is $9.50/5 = \$1.90$.

The value of rights is the theoretical gain a shareholder would make by exercising their rights.

Here, the **value attaching to a right** is $\$1.90 - \1.50 (issue price) = $\$0.40$. A shareholder would therefore be expected to gain 40 cents for each new share they buy.

If they do not have enough money to buy the share themselves, they could sell the right to subscribe for a new share to another investor and receive 40 cents from the sale. This other investor would then buy the new share for \$1.50, so that their total outlay to acquire the share would be $\$0.40 + \$1.50 = \$1.90$, the theoretical ex-rights price.

The following formula can be used **but is not essential**

$$\text{TERP} = [(N \times \text{cum-rights price}) + \text{Issue price}] / (N+1)$$

Where N is the number of shares required to have the right to buy 1 new share

$$\text{Using the formula: TERP} = [(4 \times \$2) + \$1.50] / (4 + 1) = \$1.90$$

The **value of rights attaching to existing shares** is calculated in a similar way.

If the value of rights on a new share is 40 cents, and there is a one for four rights issue, the value of the rights attaching to each existing share is $40/4 = 10$ cents.



Activity 3: Fantasia

Fantasia plc is an all equity financed company specialising in animated films. It needs to raise \$164m and has decided on a rights issue at a discount of 18% to its current market price.

Currently Fantasia has 500 million shares in issue and a market price of \$2.00/share.

Required

Answer the following questions.

- (1) Calculate the terms of the rights issue.
- (2) Calculate the theoretical ex-rights price (the price after the rights issue).
- (3) Calculate the value of a right and the value of a right per existing share.
- (4) Assess the impact on the wealth of a shareholder who owns 10,000 shares and can only afford to take up half of their rights.



Exam focus point

A question could ask for discussion of the effect of a rights issue, as well as calculations.

5.1 Placing

The cheapest and quickest way of raising equity from new investors is to sell large blocks of shares at a fixed price to a narrow **group of external institutional investors**.

5.2 Offer for sale – fixed price

Here, a prospectus is produced outlining the company's future plans and past performance. The issue is advertised in the national press and is normally underwritten. This is normally used for larger share issues. A **placing** does not incur such significant underwriting and advertising costs.

5.3 Offer for sale – tender

Here, no prior issue price is announced; instead shareholders are invited to bid for shares at a variety of different prices. The share issue is underwritten at a guaranteed minimum price. This is designed to minimise the risk of under-pricing the share issue.



Essential reading

See Chapter 9 Section 3 of the Essential reading, available in the digital edition of the Workbook, for more discussion of the motives for, and mechanics of, stock exchange listings.

The Essential reading is available as an Appendix of the digital edition of the Workbook.

6 Islamic finance

Islamic finance is finance that is compliant with Sharia law. Islamic finance has gone through a period of rapid growth in recent years.

6.1 Principles of Islamic finance

Islamic finance transactions are based on the concept of **sharing risk and reward** between the investor and the user of funds.

'Conventional' finance providers make a profit from the difference between interest paid on money deposits and interest received from money lent to customers. However, making profits by lending alone and the charging of interest (**riba**) is forbidden under **Sharia law**. Making money with money is considered to be immoral, and wealth should be generated via trade or investments.

Islamic finance is arranged 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 they are financing and as such must be more involved in the investment decision-making.

6.2 Islamic financial instruments

Financial instrument	Explanation
Murabaha (trade credit)	This is a deferred payment sale or an instalment credit sale. It is used mainly for the purchase of goods (eg materials) for immediate delivery on deferred payment. The seller of the asset delivers the goods immediately and the buyer pays for the goods later. To be Sharia compliant a sales contract must satisfy the object in question and its exchange may not be prohibited by Sharia.
Musharaka (venture capital)	This is a partnership agreement whereby all partners provide capital and know-how. Profits are shared according to a pre-agreed contract. There are no dividends paid. Losses are shared according to capital contribution.
Mudaraba (equity)	A contract in which one of the partners (investor) contributes capital and the other (manager) contributes skills and expertise. The partner who contributes capital has no or little involvement in operational decisions and is liable up to the level of capital they provided. Profits are shared in a pre-agreed ratio and losses are solely attributable to the investor.
Ijara (leasing)	The lessor is still the owner of the asset and incurs the risk of ownership. This means that the lessor will be responsible for major maintenance and insurance. The lessee must take responsibility for day-to-day maintenance, wear and tear and damage, however.
Sukuk (bonds)	Similar to a bond but in Islamic finance, there is an underlying tangible asset. The Sukuk holder shares in the risk and rewards of ownership, which gives a Sukuk properties of equity as well as debt.



Activity 4: Islamic finance

Dana and Ali have signed a partnership contract that is Sharia compliant. Dana has contributed all the capital and Ali will contribute the expertise and management know-how. Profits will be shared in a ratio of 3:1 between Dana and Ali respectively. In the first year the partnership venture makes a loss of \$10,000.

Ali also holds a sukuk which is linked to the future profits of a property which is co-managed with Farid. Under the contract Ali has the right to 20% of the net income from the property. In the first year the property generated a loss of \$12,500.

Required

- 1 What kind of Sharia'a compliant contract do Dana and Ali have between them?
 - A Mudaraba
 - B Musharaka
 - C Ijara
 - D Sukuk
 - 2 How much of the business loss will be attributed to Dana and Ali respectively?
 - E \$7,500 to Dana, \$2,500 to Ali
 - F \$2,500 to Dana, \$7,500 to Ali
 - G \$10,000 to Dana, none to Ali
 - H \$5,000 to Dana, \$5,000 to Ali
 - 3 How much of the loss on the property will be attributed to Ali?
 - I Nil
 - J \$2,500
 - K \$6,250
 - L \$12,500
-



Essential reading

See Chapter 9 Section 4 of the Essential reading, available in the digital edition of the Workbook, for more background information on this area.

The Essential reading is available as an Appendix of the digital edition of the Workbook.

Chapter summary

!! Error resolving referred content !!

Knowledge diagnostic

1. Short-term finance and working capital

Short-term finance is most appropriate for financing short-term cash flow needs such as working capital fluctuations. A variety of forms of short-term finance exist, each with different advantages and disadvantages.

2. Long-term finance

Long-term finance is most appropriate for financing long-term cash flow commitments such as capital investments. A variety of forms of long-term finance exist, each with different advantages and disadvantages.

3. Loan notes

Loan notes are a key type of long-term debt finance. Convertible loan notes are a type of loan note that allows firms to issue debt that pays a low coupon rate. Convertible loan notes are issued at a conversion premium.

4. Accessing equity finance

This will often require the issue of new shares via a rights issue, a placing or a public offer. A rights issue will normally be at a significant discount to the existing share price, so the theoretical ex-rights price will be below the pre-rights share price. However, this does not in itself damage shareholder wealth because shareholders also benefit from buying the shares at a discount (or by selling the rights).

5. Islamic finance

This requires investors to share risk and return with the company that they are investing in – simply charging interest is not allowed.

Further study guidance

Question practice

Now try the following from the Further question practice bank (available in the digital edition of the Workbook):

Section A questions

Q23–24

Section C questions

Q47 Sagitta

Further reading

There is a useful Technical Article available on ACCA's website, called 'Introduction to Islamic finance'. We recommend that you read this article as part of your preparation for the FM exam.

Activity answers

Activity 1: Debt covenants

The correct answer is:

Interest cover:

$$\text{Operating profit} = \$4m \times 1.2 = \$4.8m$$

$$\text{Interest} = (\$10m \times 10\%) + (\$5m \times 12\%) = \$1.6m$$

$$\text{Interest cover} = \$4.8m / \$1.6m = 3$$

Covenant is an interest cover limit of 2.5, therefore the interest cover needs to exceed 2.5, which it does. **Covenant not breached.**

Debt/Cash flow from operations:

$$\text{Debt} = \$10m + \$5m = \$15m$$

$$\text{Cash flow from operations} = \$5m \times 1.15 = \$5.75m$$

$$\text{Debt/Cash flow from operations} = \$15m / \$5.75m = 2.6$$

Covenant is a limit of 3, therefore Debt/(Cash flow from operations) needs to be **below** 3 which it is. **Covenant not breached.**

Activity 2: Convertible loan notes

(1) $25 \times \$3.80 = \95 .

(2) Conversion premium = market value of bond – conversion value:

$$\$120 - \$95 = \$25 \text{ or } \$25 / \$95 = 26.3\%$$

The share price would have to rise by 26.3% before the conversion rights became attractive; if this premium is set too high then the convertible bond may not be popular with investors.

(3) It may be cheaper than a straight loan. It may be preferred to an issue of equity if equity is currently undervalued.

Activity 3: Fantasia

(1) $\$2.00 \times 0.82 = \1.64

So $\$164m / 1.64 = 100m$ shares

A 1 for 5 rights issue is needed at \$1.64

(2) Using the formula: $1/6 [(5 \times \$2) + \$1.64] = \$1.94$

Alternatively, not using formula:

Value before rights issue

$$500m \text{ shares} \times \$2 = \$1,000m$$

Rights issue

$$100m \text{ shares} \times \$1.64 = \underline{\$164m}$$

Value after rights issue

$$600m \text{ shares worth } \$1,164m$$

$$\text{So TERP} = \$1,164m / 600m \text{ shares} = \$1.94$$

(3) Value of a right = TERP – issue price = $\$1.94 - \$1.60 = \$0.30$

$$\text{Value of a right per existing share} = \$0.30 / 5 = \$0.06 \text{ per existing share}$$

(4) Pre-rights issue, wealth = $10,000 \times \$2 = \$20,000$

After the issue

After the rights issue	\$
Existing shares = $10,000 \times \$1.94$	19,400
New shares (half of 2,000 entitlement) = $1,000 \times \$1.94$	1,940
Less payment for these shares = $1,000 \times \$1.64$ =	(1,640)
Sale of rights (half of 2,000 entitlement) = $1,000 \times \$0.30$ value of a right = \$300	300
Total	<u>20,000</u>

There is no impact on shareholder wealth (ie shareholders are not harmed because they can sell their rights).

Alternatively, the sale of the rights can be calculated as number of shares to which the 'rights' are being sold \times value of a right per existing share, ie $5,000 \times 0.06 = \$300$.

Activity 4: Islamic finance

1 The correct answer is:

A partnership where one partner contributes capital and the other contributes management expertise.

2 The correct answer is:

Losses in a mudaraba contract are attributed to the investor partner and none to the manager partner.

3 The correct answer is:

Losses are attributed to the sukuk holders in the same way as profits.



12

Interest rate risk

Learning objectives

On completion of this chapter, you should be able to:

Syllabus reference no.

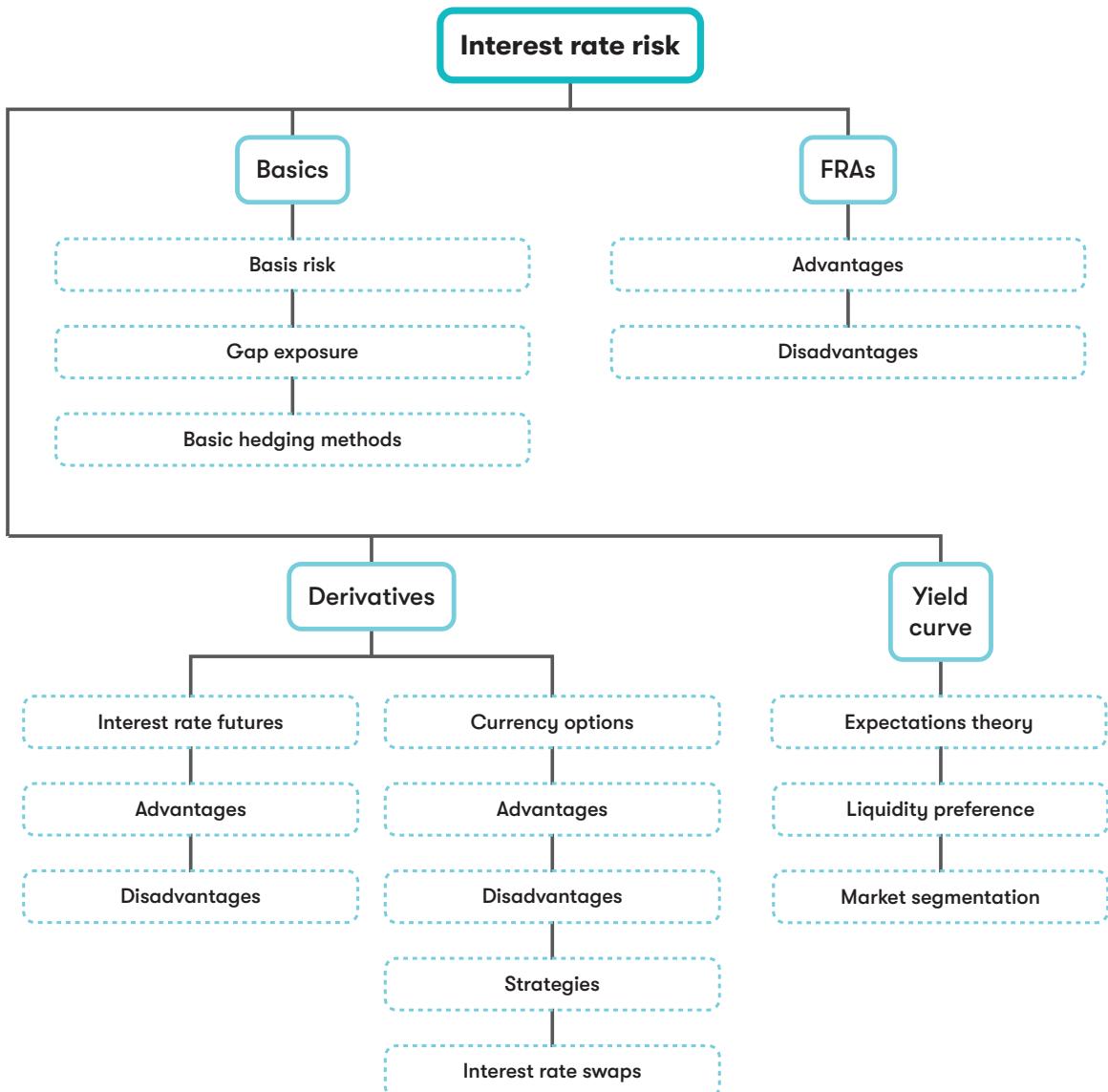
- The nature and types of risk and approaches to risk management
 - (a) Describe & discuss types of interest rate risk: gap exposure, basis risk G1(b)
 - Causes of interest rate fluctuations
 - (a) Describe the causes of interest rate fluctuations, including:
 - (i) Structure of interest rates and yield curves
 - (ii) Expectations theory
 - (iii) Liquidity preference theory
 - (iv) Market segmentation G2(c)
 - Hedging techniques for interest rate risk
 - (a) Discuss and apply traditional and basic methods of interest rate risk management, including: matching and smoothing, asset and liability management, forward rate agreements G4(a)
 - (b) Identify the main types of interest rate derivatives used to hedge interest rate risk and explain how they are used in hedging (no numerical questions will be set on this topic) G4(b)
-

Exam context

This chapter, and the previous chapter, cover Section G of the syllabus (Risk Management). Syllabus section G, risk management, is examinable in the OT sections of the exam (sections A and B) and commonly forms a theme of one of the (10 mark) Section B questions.

It is also possible for an aspect of this chapter to be tested as a part of a Section C question, mainly because interest rate risk can impact on investment appraisal and the financing decision; but this is rare.

Chapter overview



1 Introduction to interest rate risk



PER alert

Performance objective 11 requires you to 'advise on using instruments or techniques to manage financial risk'. This chapter covers the management of interest rate risk.

1.1 Types of interest rate risk

A company may face interest rate risk on:

Even if a company has both cash assets and liabilities of similar sizes, there may still be a risk if:

- (a) The assets and liabilities are both at a variable rate but are **not determined by the same basis**

Eg one might be linked to the central bank base rate, and the other to LIBOR (the London inter-bank offer rate).

This is an example of basis risk.

- (b) The interest rate on the assets and liabilities are both variable and determined by the same basis but the variable rate is revised **at different points in time**

Eg assets might be at a variable rate based on LIBOR that is revised every three months and liabilities might be variable rate based on LIBOR but revised every six months.

There is a time **gap** that gives rise to risk, this is called gap exposure.

1.2 Basic methods of managing risk

From the perspective of a company **borrowing** money, interest rate risk can be managed by:

- Smoothing

This involves using a prudent mix of fixed and floating rate finance to mitigate the impact of interest rate changes.

- Matching

This involves creating assets that are based on the same interest rates (eg LIBOR) as their liabilities (mainly used by banks).

1.3 Protecting against future interest rate exposure

If the company is risk averse or expects interest rates to rise, then the emphasis will be on using fixed rate finance.

If, however, a loan (or investment) is being **planned in the future**, then the risk is **harder to manage**.

This risk can be managed by the **techniques covered in the following sections**, which either aim to **fix** the interest rate (FRAs, futures, swaps) or **cap** the interest rate (options).

2 Forward rate agreements (FRAs)



FRA: A contract with a bank covering a **specific amount** of money to be borrowed over a specific time period in the future **at an interest rate agreed now**.

A forward rate agreement (FRA) for interest rates is similar in many respects to a forward exchange contract for currencies.

- FRAs are arranged with a bank as an **over the counter transaction**.
- An FRA is a binding contract that **fixes an interest rate** for short-term lending/investing or short-term borrowing, for an interest rate period that begins at a future date.

However, an FRA is **not identical** to a currency forward because it is **not** an agreement that is directly linked to a transaction (eg to lend or borrow). Instead, it is a **derivative agreement** that fixes an interest rate on a **notional amount** of money (the principal).

A company can enter into an FRA with a bank that **fixes the rate of interest** for short-term borrowing from a certain time in the future.

- If the actual interest rate at that date proves to be higher than the rate in the FRA, **the bank supplying the FRA pays the company the difference**.
- If the actual interest rate is lower than the FRA rate, **the company pays the bank** supplying the FRA the difference.

The FRA does not need to be with the same bank as the loan, as the FRA is a hedging method independent of any loan agreement.

This allows a company to take out the loan in future at the best rate available.

2.1 Quotation of FRAs



Activity 1: FRA

Frantic plc is planning to take out a 6-month loan of £5m in 3 months' time. It is concerned about the base rate (LIBOR) rising above its current level of 4.75%.

Frantic has been offered a three to nine FRA at 5%.

Frantic can borrow at approximately 1% above the base rate.

Answer the following questions.

Required

- 1 Advise Frantic of the likely outcome if in 3 months' time the base rate is 5.5%.
- 2 Advise Frantic of the likely outcome if in 3 months' time the base rate is 4.5%.

2.2 Advantages of FRAs

FRAs have similar advantages to currency forwards.

Advantages	Discussion
<ul style="list-style-type: none"> Simple 	Easy to organise for the exact amount of money required and the exact timing of the transaction
<ul style="list-style-type: none"> Low or zero up-front costs 	Unlike interest rate options (see later)
<ul style="list-style-type: none"> Fix the interest rate 	This protects the borrower from higher interest rates in future

2.3 Disadvantages of FRAs

Disadvantages	Discussion
<ul style="list-style-type: none"> Fixed date 	The forward contract must be exercised on a specific date, and the bank that has provided the forward contract can enforce this
<ul style="list-style-type: none"> Unattractive rate 	The fixed rate that is offered may not be attractive
<ul style="list-style-type: none"> Counter-party risk 	The agreement is between two parties, there is therefore a risk of default on either side

FRAs are usually only available on large loans and are likely to be **difficult to obtain for periods of over one year**.



Activity 2: FRA discussion

Today is 1 January 20X6. Deverosity Ltd will borrow \$6 million on 31 March 20X6 and will repay this debt on 31 December 20X6.

LIBOR is currently at 1.0% and Deverosity Ltd can borrow short-term debt at 8% above LIBOR.

A forward rate agreement is available for Deverosity Ltd at 1.25%.

On 31 March 20X6, LIBOR is 0.75%.

Required

State whether the following statements are true or false.

The appropriate type of forward rate agreement in this case would be a 3–9 FRA	<input type="checkbox"/>
The FRA rate would be 9.25%	<input type="checkbox"/>
If LIBOR was actually 0.75% on 31 March 20X6 this would result in an obligation on Deverosity Ltd to make an FRA payment	<input type="checkbox"/>
If LIBOR was actually 0.75% on 31 March 20X6 this would result in an FRA payment or receipt of \$22,500	<input type="checkbox"/>



Essential reading

See Chapter 15 Section 1 of the Essential reading, available in the digital edition of the Workbook, for more background information on this area.

3 Interest rate derivatives



Exam focus point

This section will not be tested numerically in the exam.



Interest rate futures: An interest rate **futures contract** is a **contract** to receive or pay interest on a notional **standard quantity** of money at an **agreed future date** at a **specified interest rate**.

Like an FRA, a futures contract is intended to **fix the outcome of a hedge**. However, a futures contract is for a **standard amount of money** and is traded on an exchange.

Like an FRA, an interest rate futures hedge is designed so that:

- If a company makes a loss on a transaction (borrowing or investing) due to interest rate movements, then it will make a profit in the futures market to compensate for this.
- If a company makes a profit on a transaction (borrowing or investing) due to interest rate movements, then it will make a loss in the futures market.

So, the outcome is **fixed** whatever happens to the exchange rate.

Types of interest rate futures contract	
Contract to buy	Contract to sell
With interest rate futures what is being bought is the entitlement to interest receipts .	With interest rate futures what is being sold is the promise to make interest payments .
A contract to receive interest at a fixed rate would be appropriate for an investor; this is called a contract to buy .	A contract to pay interest at a fixed rate would be appropriate for a borrower investor; this is called a contract to sell .

3.1.1 Setting up a futures transaction

There are three steps to a futures transaction. For a **borrower**, these are as follows:

Step 1 Step 1: Today: Enter into a futures contract to sell (pay interest) at a fixed rate

Contracts should be due to be fulfilled on a standardised date **after** the transaction date.

Step 2 Step 2: Complete the **actual** transaction on the **spot market**.

Step 3 Step 3: **Close out the futures contract** by doing the opposite of what you did in Step 1 ie by entering into contracts to buy (receive interest).

A profit or loss will arise as futures are settled.

- If interest rates rise then there will be a gain on the future as the interest received in step 3 will be higher than the interest paid in step 1.

However, there will also be an interest rate loss because the repayments on the actual loan will be higher.

- If interest rates fall then there will be a loss on the future as the interest received in step 3 will be lower than the interest paid in step 1.

However, there will also be an interest rate gain because the repayments on the actual loan will be lower.

3.1.2 Advantages of interest rate futures

As for currency futures.

- Futures are valid for a period of time eg a September future can be used on any day between the day it was entered into up to the end of September. This is more flexible than a forward, which is only valid on a specific day.
- **Counterparty risk is lower** since the futures exchange guarantees the transaction.

3.1.3 Disadvantages of interest rate futures

As for currency futures.

- Interest rate futures are **only available in large, standard, contract sizes** (compared to forward contracts). This makes interest rate futures less suitable for small transactions.
- To cover potential losses a company using futures will be required to place a **deposit** (called a margin) with the futures exchange, which may need to be topped up on a daily basis if the contract is incurring losses.
- There is a risk that futures exchange rates do not move exactly in line with spot exchange rates so that the hedge is not effective (this is an example of **basis risk**).



Essential reading

See Chapter 15 Section 2 of the Essential reading, available in the digital edition of the Workbook, for more background information on this area.

The Essential reading is available as an Appendix of the digital edition of the Workbook.

3.2 Interest rate options



Interest rate options: Gives an option holder the right to pay or receive interest on an agreed quantity of money, at a specific interest rate on or before a future expiry date.

As for currency options, companies can choose whether to buy:

- (a) A tailor-made interest rate option from a bank, suited to the company's specific needs. These are **over the counter** (OTC) or **negotiated** options; or
- (b) A standard interest rate option, from an options exchange. Such options are **traded** or **exchange-traded** options.

Options offer the flexibility to the holder of **enjoying the upside without a risk of suffering the downside of adverse interest rate movements**.

However, buying an option involves **paying a premium to the option seller**. The option premium is a cost of using an option.

The option acts as an **insurance policy** and is used by the purchaser to compensate for adverse exchange rate movements. If the exchange rate moves favourably then the option will not be exercised.

3.2.1 Advantages of options

- Exchange -traded options (not OTC options) are, like futures, valid for a period of time. This is more flexible than a forward, which is only valid on a specific day.
- Exchange traded options can be sold on if not needed.
- Any type of option allows the company to benefit from favourable interest rate movements.

3.2.2 Disadvantages of options

- Exchange-traded options are only available in large, standard, contract sizes
- Any type of option will need to be purchased and the **premium** can be expensive.



Put option: An option to **pay interest** at a pre-determined rate on a standard notional amount over a fixed period in the future.

Call option: An option to **receive interest** at a pre-determined rate on a standard notional amount over a fixed period in the future.

3.2.3 Option strategies

An interest rate cap protects against interest rate rises for a borrower.

An interest rate floor protects against interest rate falls for an investor.

An interest rate collar is **cheaper** than a cap or a floor. For a borrower, a collar would be as follows:

The cost of a collar is lower than for buying an option alone. However, the borrowing company forgoes the benefit of movements in interest rates **below the floor limit** in exchange for this cost reduction.

For an **investor** a collar involves buying a call option (a floor) and selling a put option (at a higher interest rate than the floor). The investor therefore forgoes the benefit of movements in interest rates above the put option rate.



Activity 3: Interest rate collar

A company wishes to arrange a collar to fix a future interest rate on a variable rate five-year loan it has obtained from its bank.

Required

Which of the following transactions will enable the company to arrange an **appropriate collar**?

- A Buying a cap and buying a floor
- B Buying a cap and selling a floor
- C Selling a cap and selling a floor
- D Selling a cap and buying a floor

3.3 Interest rate swaps



Interest rate swap: An agreement whereby the parties to the agreement exchange interest rate commitments.

Finally, a company may be able to swap variable rate debt for fixed rate debt if it is worried about interest rate rises. This type of swap is sometimes known as a '**plain vanilla**' swap.

A swap allows a company to organise a new loan without incurring redemption penalties for early repayment of an existing loan.

3.3.1 Why bother to swap?

Obvious questions to ask are:

- Why do the companies bother swapping interest payments with each other?
- Why don't they just terminate their original loan and take out a new one?

The answer is that **transaction costs** may be too high. Terminating an original loan early may involve a significant termination fee and taking out a new loan will involve issue costs. Arranging a swap can be significantly cheaper, even if a banker is used as an intermediary. Because the banker is simply acting as an agent on the swap arrangement and does not have to bear any default risk, the arrangement fee can be kept low.

4 Yield curve

The term structure of interest rates refers to how the yield on bonds of a certain type eg government bonds varies according to the term of the borrowing.

Normally, the longer the term of an asset to maturity, the higher the rate of interest paid on the asset. This can be shown as a **yield curve**.

4.1 Explanations of the yield curve

There are a number of explanations of the yield curve; these are not competing explanations, and at any one time all may be influencing the shape of the yield curve.

- (a) Expectations theory – the curve may reflect expectations that interest rates will rise in the future, so the Government has to offer higher returns on long-term debt.
- (b) Liquidity preference theory – the curve reflects the compensation that investors require higher returns for sacrificing liquidity on long-dated bonds.
- (c) Market segmentation theory – short-dated bonds tend to be more popular with banks, and long-dated bonds are more popular with pension funds, ie there are different markets. This theory suggests that the slope of the yield curve will reflect conditions in different segments of the market.

4.1.1 The significance of yield curves to financial managers

Financial managers can inspect the shape of the yield curve when deciding the term of borrowing or deposits. The curve is influenced by the market's expectations of future interest rate movements.

For instance, a yield curve that is sloping steeply upwards suggests a rise in interest rates in the future; in this case a company will be more concerned about **managing interest rate risk**.



Essential reading

See Chapter 15 Section 3 of the Essential reading, available in the digital edition of the Workbook, for more background information on this area.

The Essential reading is available as an Appendix of the digital edition of the Workbook.

4.2 Comprehensive example on risk management

Section B of the exam will often have a 10-mark question focusing on risk management. This type of question can combine elements of both currency risk and interest rate risk as illustrated in the following comprehensive activity.



Activity 4: Risk management: Section B style OTQ

Robin Co expects to receive €800,000 from a credit customer in the European Union in six months' time. The spot exchange rate is €2.413 per \$1 and the six month forward rate is €2.476 per \$1. The following commercial interest rates are available to Robin Co:

	Deposit rate	Borrow rate
Euros	3.0% per year	7.0% per year
Dollars	1.0% per year	2.5% per year

Robin Co does not have any surplus cash to use in hedging the future euro receipt.

Required

- 1 What could Robin Co do to reduce the risk of the euro value dropping relative to the dollar before the €800,000 is received?
 - (1) Deposit €800,000 immediately as part of a money market hedge
 - (2) Enter into a forward contract to sell €800,000 in six months
 - (3) Enter into an interest rate swap for six months

(1) or (2) only
 (2) only
 (3) only
 (1), (2) or (3)
- 2 What is the dollar value of a forward market hedge?

\$323,102
 \$331,538
 \$1,930,400
 \$1,980,800
- 3 If Robin Co used a money market hedge, what would be the percentage borrowing rate for the period?

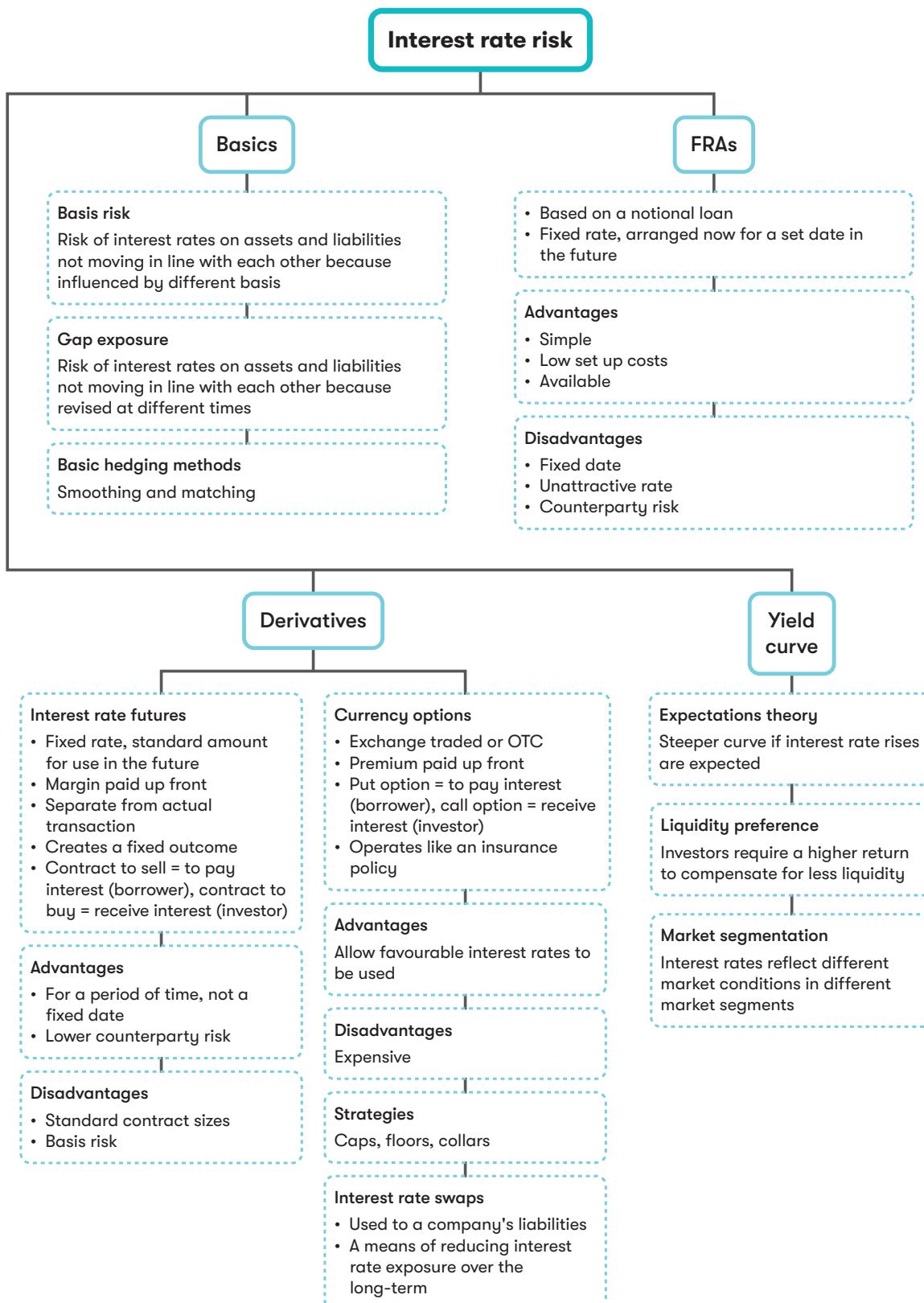
1.25%
 2.5%
 3.5%
 7%
- 4 Which of the following statements about forward rate agreements (FRAs) are true?
 - (1) They fix the borrowing rate on a sum of money for an agreed period
 - (2) They are arranged with a bank as an over-the-counter transaction
 - (3) They allow companies to benefit from favourable interest rate movements
 - (4) They can be used to hedge against foreign exchange risk

(1), (2), (3) and (4)
 (1) and (2) only
 (3) and (4) only
 (2), (3) and (4) only
- 5 Which of the following statements about interest rate theories are true?
 - (1) Expectations theory provides a reason why the interest yield curve is normally upward sloping
 - (2) Market segmentation theory states that interest rates reflect expectations of future changes in interest rates

Statement (1) is true and statement (2) is false
 Statement (2) is true and statement (1) is false
 Both statements are true

- Both statements are false
-

Chapter summary



Knowledge diagnostic

1. Basic hedging methods

Internal methods such as smoothing and matching are simple techniques that can be considered independently by a company.

2. FRAs

FRAs fix the interest rate on borrowing that is planned for the future but unlike currency forwards are based on a notional loan (separate from the actual loan).

3. Interest rate futures

Like FRAs but based on a standard amount of money. A contract to sell is required by a borrower, and a contract to buy is required by an investor.

4. Interest rate options

A put option is required by a borrower, and a call option is required by an investor.

5. Yield curve

The shape of the yield curve gives an indication of the likely trend in interest rates (expectations theory) but is also influenced by liquidity preference and market segmentation.

Further study guidance

Question practice

Now try the following from the Further question practice bank (available in the digital edition of the Workbook):

Section B questions

Q33 sub-questions Q24, Q25

Further reading

There is a useful Technical Article that is available on ACCA's website; it is called 'Hedging techniques for interest rate risk'. We recommend that you read this article as part of your preparation for the FM exam.

Activity answers

Activity 1: FRA

1 Net cost = 6%

Bank pays compensation of 0.5% to Frantic

Frantic borrows at the best rate available eg $5.5 + 1 = 6.5\%$

Net costs = 6% in £s this is $0.06 \times £5m \times 6/12 = £0.15m$

2 Net cost = 6%

Frantic pays bank compensation of 0.5%

Frantic borrows at the best rate available eg $4.5 + 1 = 5.5\%$

Net costs = 6%

Activity 2: FRA discussion

The appropriate type of forward rate agreement in this case would be a 3–9 FRA	TRUE
The FRA rate would be 9.25%	FALSE
If LIBOR was actually 0.75% on 31 March 20X6 this would result in an obligation on Deverosity Ltd to make an FRA payment	TRUE
If LIBOR was actually 0.75% on 31 March 20X6 this would result in an FRA payment or receipt of \$22,500	TRUE

- True
- False – the FRA rate is 1.25%
- True – Libor has fallen so the company must pay extra as they have entered an FRA at a higher rate.
- True

Activity 3: Interest rate collar

The correct answer is:

Buying a cap (ie a put option) sets the maximum rate for borrowing. Selling a floor (ie a call option) reduces the cost of the hedge, but also sets a minimum effective rate.

Activity 4: Risk management: Section B style OTQ

1 The correct answer is: (2) only

Statement 1 is incorrect. Robin Co could use a money market hedge but €800,000 would have to be borrowed, then converted into dollars and then placed on deposit. Statement 3 is also incorrect. An interest rate swap swaps one type of interest payment (such as fixed interest) for another (such as floating rate interest). Therefore, it would not be suitable.

2 The correct answer is: \$323,102

Future value = $\$800,000 / 2.476 = \$323,102$.

3 The correct answer is: 3.5%

Robin Co is expecting a euro receipt in six months' time and it can hedge this receipt in the money markets by borrowing euros to create a euro liability.

Euro borrowing rate for six months = $7.0\%/2 = 3.5\%$.

- 4 The correct answer is: (1) and (2) only

Statement 3 is false. A company is locked into the FRA borrowing rate and so it cannot benefit from favourable rate movements. Statement 4 is false. FRAs hedge against interest rate risk (although they are similar to a forward exchange contract for currencies).

- 5 The correct answer is: Both statements are false

Statement 1 is false. It is liquidity theory which provides a reason why the interest yield curve is normally upward sloping. Expectations theory states that interest rates reflect expectations of future changes in interest rates. Therefore statement 2 is also false.

Skills checkpoint 4

Addressing the scenario



Overview

Introduction

All of the questions in the APM exam will be scenario-based. In Section A of the exam (50 marks) you can expect the scenario to be approximately three pages in length, and in the shorter (25 mark) Section B question scenarios will each normally be about one page long, although the exact length of the scenarios varies from exam to exam, depending on the type of information included in it (text, figures, diagrams etc).

The scenarios are there for a reason! It is vital to spend time reading and assimilating the scenario as part of your answer planning. It is important for you to use the information in the scenario to validate that the discussion points that you are making in your answer are ‘relevant’. The discussion parts of the question – applying your knowledge to the scenario – will normally account for the majority of the marks available.

As you get into the habit of addressing the scenario, you will be less likely to make the mistake of including **too much repetition of theory** in your answers. There are a large number of APM theories, and it is **important that you have a good broad knowledge** of these, because they often examined. However, you are primarily being tested on your **ability to apply** your theoretical knowledge to the scenario in question, not your ability to simply recite it. The APM ACCA Examining Team often comment that candidates **repeating** memorised material ‘will probably score only between 20% and 30%...’ A good, professional-level answer will go beyond the mere repetition of how a technique works and will focus on relating it to the entity’s specific environment, as identified in the question scenario.

It goes without saying that, if you don’t have the underlying theoretical knowledge, you won’t be able to apply it! So, there is a need to develop a sound knowledge of APM theories. However, the key point is that to be successful in the exam you need to do more than simply recite ‘rote learned’ theories in your answers.

The skill of **‘addressing the scenario’** is the most important of the APM specific skills, as it is relevant to all syllabus areas and **every question** in the APM exam.

APM Skill: Addressing the scenario

A step-by-step technique for ensuring that your discussion points are relevant to the scenario is outlined below. Each step will be explained in more detail in the following sections, and illustrated by answering a requirement from a past exam question.

Exam success skills

The following illustration is based on an extract from a past exam question, about a developer and manufacturer of medical drugs, called ‘PT’. This extract was worth 18 marks.

For this question, we will also focus on the following **exam success skills**:

- **Managing information.** It is easy for the amount of information contained in scenario-based questions to feel overwhelming. To manage this, focus on the requirement first – underline the key exam verbs to ensure you answer the question properly. Then read the rest of the question, underlining and annotating important and relevant information from the scenario.
- **Correct interpretation of requirements.** At first glance, it looks like part (b) of the following question just contains one requirement. However, on closer examination you will discover that it contains two; this is very common in the APM exam.
- **Answer planning.** Everyone will have a preferred style for an answer plan. For example, it may be a mind map, bullet-pointed lists, or simply annotating the question scenario. Choose the approach that you feel most comfortable with or, if you are not sure, try out different approaches for different questions until you have found your preferred style.
- **Effective writing and presentation.** It is often helpful to use key words from the requirement as headings in your answer. You may also wish to use sub-headings in your answer – you could use a separate sub-heading for each paragraph from the scenario in the question which contains an issue for discussion. Underline your headings and sub-headings, and write in full sentences, ensuring your style is professional.

Skills activity

STEP 1 Allow at least 20% of your allotted time for analysing the scenario and requirements; don't rush into starting to write your answer.

Start by analysing the requirements so that you know what you are looking for when you read the scenario.

Required

Evaluate²³ the performance measure proposed for PT's²⁴ balanced scorecard.

(10 marks)

23
Verb
–
refer to
ACCA
definition.

Briefly describe²⁵ a method of analysing stakeholder influence and²⁶ analyse the influence of four different external²⁷ stakeholders on the regulator (BDR)²⁸.

(8 marks)

(Total = 18 marks)

24
So,
no
need
to
invest
new
ones.

The first key action verb is 'evaluate'. This is defined by the ACCA as: 'Determine the situation in the light of the arguments for and against'. As discussed in Skills Checkpoint 4, an evaluation should include a balanced debate.

The other key action verb is 'analyse'. This is defined by the ACCA as 'Break into separate parts and discuss, examine, or interpret each part'. This is clearly more important than the brief description required in the first part of part (b). So your analysis of the stakeholders' influence needs to include more detail than your 'brief description' of the method.

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This is an 18-mark question and at 1.95 minutes a mark, it should take 35 minutes.

On the basis of spending approximately 20% of your time reading and planning, this time should be split approximately as follows:

- Reading and planning time – 7 minutes (longer if needed)
- Writing up your answer – 28 minutes (approximately 16 minutes for part (a) and 12 for part (b))

In the real exam, these requirements would have been part of a larger question (eg this was part of a 25-mark Section B question) and the planning time would take place at the start of the question and would involve planning for all of the question's requirements (so 10 minutes of planning for the whole question).

Some flexibility may be required, and if a question contains a substantial number of discussion issues (as here) then more reading and planning time may be needed.

However, it's still too early to start drawing up an answer plan at this stage. In some questions, particularly in Section A of the exam, the scenario will contain extra information about what is meant by the requirements.

So, now move on to reading the scenario, and identifying the key pieces of information provided in it. From reading the requirements, you should know the key issues or clues you are looking for in the scenario.

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PT!

Question – PT (18 marks)

Company background:²⁹

Pharmaceutical Technologies Co (PT) is a developer and manufacturer of medical drugs in Beeland. It is one of the 100 largest listed companies on the national stock exchange. The company focuses on buying prospective drugs (which have shown initial promise in testing) from small bio-engineering companies. PT then leads these drugs through three regulatory stages to launch in the general medical market.

The three stages are:

- (1) To confirm the safety of the drug (does it harm humans?), in small-scale trials;
- (2) To test the efficacy of the product (does it help cure diseases?), again in small-scale trials; and
- (3) Finally, large-scale trials to definitively decide on the safety and efficacy of the product.

The drugs are then marketed through the company's large sales force, to healthcare providers and end users (patients). The healthcare providers are paid by either health insurance companies or the national government dependent on the financial status of the patient.

Industry regulator:³⁰

The Beeland Drug Regulator (BDR) oversees this testing process and makes the final judgement about whether a product can be sold in the country. Its objectives are to protect, promote and improve public health by ensuring that:

- Medicines have an acceptable balance of benefit and risk;
- The users of these medicines understand this risk-benefit profile; and
- New beneficial product development is encouraged.

The regulator is governed by a board of trustees appointed by the government. It is funded directly by the government³¹ and also through fees charged to drug companies when granting licences to sell their products in Beeland.

Balanced scorecard:

PT has used share price and earnings per share as its principal measures of performance to date. However, the share price has underperformed the market, and the health sector, in the last two years. The Chief Executive Officer (CEO) has identified that these measures are too narrow, and is considering implementing a balanced scorecard approach to address this problem.

A working group has drawn up a suggested balanced scorecard. It began by identifying the objectives³² from the board's medium-term strategy:

- Create shareholder value by bringing commercially viable drugs to market.
- Improve the efficiency of drug development.
- Increase shareholder value by innovation in the drug approval process.

The working group then considered the stakeholder perspectives³³:

- Shareholders want a competitive return on their investment.
- Payers/purchasers (governments, insurers and patients) want to pay a reasonable price for the drugs.
- Regulators want an efficient process for the validation of drugs.
- Doctors want safe and effective drug products.
- Patients want to be cured.

Finally, this leads to the proposed scorecard of performance measures³⁴:

- Financial – share price and earnings per share.
- Customer – number of patients using PT products.
- Internal business process – exceed industry standard on design and testing; time to regulatory approval of a product.
- Learning and growth – training days undertaken by staff; time to market of new product; percentage of drugs bought by PT that gain final approval.

The balanced scorecard now needs to be reviewed to ensure that it will address the company's objectives and the issues that it faces in its business environment³⁵.

STEP 2 Now you should be ready to prepare an answer plan using key words from the requirements as headings. This could take the form of a mind map or a brief bullet-pointed list.

Complete your answer plan by working through each paragraph of the question identifying specific points that are relevant to the scenario and requirement to make sure you generate enough points to score a pass mark (ACCA marking guides typically allocate 1–2 marks per relevant well-explained point).

Completed answer plan

Having worked through each paragraph, an answer plan can now be completed. A possible answer plan is shown here. This uses the wording of the requirement and the initial ideas that have been noted in the margins as shown earlier.

Part (a)	Ideas
Evaluate: pros and cons*	<p>As proposed:</p> <p>Financial: 1. share price 2. eps Good balance, but ignores dividends/cash flow?</p> <p>Customer: 3. number Only considers end-user?</p> <p>Internal: 4. standards and 5. time to approval Supports objectives but ignores quality</p> <p>Learning: 6. training days, 7. time to market, 8. % approval No consideration of innovation (key objective)?</p>

* There are eight measures to evaluate. A few preliminary thoughts are noted here. Main point of the plan is to establish the **structure** of the answer.

Part (b)	Ideas
Briefly describe	Mendelow's matrix
Analyse influence of FOUR different EXTERNAL stakeholders affecting BDR	<p>Drug companies** Doctors and healthcare providers** Patients** Government** Use power/influence as per Mendelow</p>

** There are four external stakeholders mentioned – again the plan mainly sets up the **structure** as opposed to the content of the answer.

STEP 3 As you write your answer, explain **what you mean** – in one (or two) sentence(s) – and then in the next sentence explain **why it matters here** (in the given scenario). This should result in a series of short, punchy paragraphs that **address the specific context of the scenario**.

Note, however, that addressing the specific context of the scenario does not simply mean repeating the wording in the question. You should **avoid doing this; and instead try to explain why your point matters**.

Be concise (don't waffle, given that any one point is normally unlikely to be worth more than 2 marks) and especially **avoid reciting theory at length** (although briefly defining your terms is often an easy way of scoring a mark).

Finally, write your answer in a time-efficient manner. If 20% of your time has been used for planning/analysis this means that when you are writing the 1.95 minutes per mark becomes $1.95 \times 0.8 = 1.56$ minutes per mark of writing time.

Suggested solution

(a) Financial measures³⁶

The financial perspective has not been altered from the existing measures of strategic performance. These are appropriate to address the objectives of enhancing shareholder wealth³⁷, although it has been argued that measures such as economic value added or shareholder value added are better long-term measures of this topic. Also, it is more common to use share price and dividend per share to reflect total shareholder return.

Although it is important to look at earnings and profits, PT's financial measures overlook the importance of cash flow and liquidity³⁸, which will be essential to its survival especially given the long lead-times for introducing new products.

Customer perspective

PT has two different types of customer: users (healthcare providers and patients) and the people who fund the drug use (insurance companies or government). The measure currently proposed seems to focus mainly on the end users. However, their concerns may not always be same as those who are paying for a course of treatment. For example, the healthcare providers and patients are likely to focus primarily on how effective the product is as a cure. However, the funding bodies will also be interested in the cost of the treatment in comparison to PT's competitors.

Internal business processes

One of the objectives from the medium-term strategy is to improve the efficiency of drug development³⁹.

Performance measures designed to improve the standard of design and testing, and to reduce the time to gain regulatory approval, should help achieve this objective.

These measures also help support the financial objectives. If PT can reduce the time it takes to get new drugs approved by the regulator, it will also be able to start selling those drugs more quickly, thereby increasing sales and earnings.

Learning and growth

The third of the objectives from the medium-term strategy highlights the importance of innovation in the drug approval process⁴⁰. The measures in the learning and growth perspective of the scorecard should therefore directly help PT to achieve this objective.

We are not told anything about the relative importance or ranking of any of the measures in the scorecard, but it is debatable whether the number of training days attended is the main measure of learning and growth⁴¹.

Reducing the time to market of new products, and increasing the percentage of drugs that gain final approval, are likely to be more directly strategically important.

Measurement issues

Although the measures suggested seem largely appropriate in relation to PT's objectives, the management will also need to consider how practical it will be to collect data for some of the non-financial measures⁴². For example, an assessment of whether PT has exceeded industry standard on design and testing is likely to be subjective, unless there are industry-wide quality audits which formally assess companies against a common set of criteria.

Conversely, measures should not be chosen because they are easy to measure. The number of training days undertaken by staff will be easy to measure by staff. However, there may be a danger that staff will simply end up going on training days simply to achieve a target number of days. Training will only be valuable to PT and its staff if it is relevant and appropriate for the people attending.

(b) Stakeholder influence⁴³

A stakeholder's influence over an organisation can be analysed in relation to the stakeholder's power and interest, using Mendelow's matrix.

Power identifies the extent to which a stakeholder (or group of stakeholders) has the power to influence a decision or situation. The level of interest reflects the likelihood that a stakeholder will exercise their power in relation to any given decision or situation.

This approach can be used to analyse the four key external stakeholders affecting the regulator (BDR)⁴⁴.

Drug companies:⁴⁵

- **Interest** – likely to have a **high interest** in BDR, because it makes the final judgement about whether a product can be sold in the country.
- **Power** – **little power** to influence BDR. BDR's responsibility is to the public and to public health, therefore BDR needs to be (and be seen to be) independent of the drug companies.

Government:

- **Power** – **high power** because it appoints the board of trustees and also directly funds BDR.
- **Interest** – will have a keen interest in public health overall, but their direct interest in BDR is likely to be **relatively low**. The government has appointed the trustees to manage BDR on its behalf so it is unlikely to intervene in decision making at BDR.⁴⁶

Healthcare providers:

- **Interest** – will have a **high level of interest** in the approval process, because they will want to be confident that any new drugs approved are safe for use. They will also have an interest in BDR's role in encouraging the development of beneficial new drugs.
- **Power** – likely to have **low power** over the approval process because BDR is an independent regulator (but may be able to exert some power by lobbying government).

Patients:

- **Interest** – will have a **high level of interest** in the drug approval process because they will want to be reassured that any drugs approved are safe; also will have an interest in potential new cures being available on the market quickly.
- **Power** – as with healthcare providers, **patients also only have low power** over any decisions made at BDR.

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Other points to note:

- **Very occasionally** the requirement will allow for a general answer that is **not** linked to the scenario. This will be the case if the name of the company/any specific reference to the scenario **is not** made in the requirement. This was not the case here.

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Now the easy bit (hopefully) – short paraphs, using the theory, and addressing the question requirements.

Having stated the level of power or interest, you then need to explain (briefly) why you think this is the case.

Exam success skills diagnostic

Every time you complete a question, use the diagnostic below to assess how effectively you demonstrated the exam success skills in answering the question. The table has been completed below for the PT activity to give you an idea of how to complete the diagnostic.

Exam success skills	Your reflections/observations
Managing information	Did you identify the strategic objectives of PT and think how they could influence the choice of measures in the balanced scorecard?
Correct interpretation of requirements	Did you identify that part (b) was about external stakeholders only? Did you identify that part (b) concerned the stakeholders of BDR, not PT?

Exam success skills	Your reflections/observations
Answer planning	<p>Did you draw up an answer plan using your preferred approach (eg mind map, bullet-pointed list)?</p> <p>Did your plan help to create a structure for your answer?</p>
Effective writing and presentation	<p>Did you use headings (key words from requirements)?</p> <p>Did you use full sentences?</p> <p>And most importantly – did you explain why your points related to the scenario?</p>
Most important action points to apply to your next question	

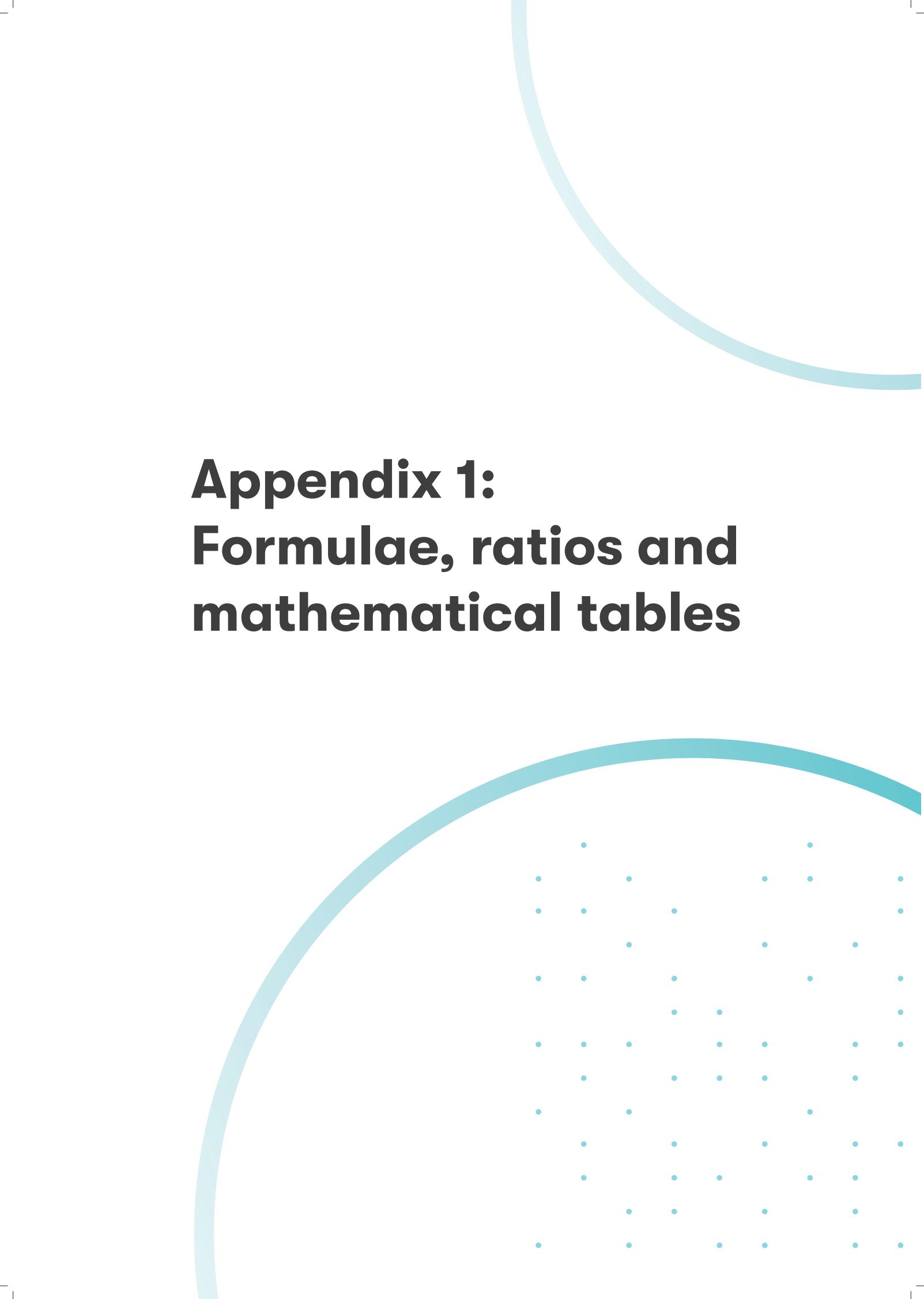
Summary

All the questions in the APM exam are scenario-based. It is therefore essential that you try to create a practical answer that is relevant to the scenario, and/or addresses the issues identified in the scenario, instead of simply repeating rote-learned, technical knowledge.

APM is positioned as a Masters level qualification. It is not easy to address your points to the scenario, but it is important to realise that this is a fundamental skill that is being tested at this stage in your qualification.

As you move into practising questions as part of your final revision, you will need to practise assimilating information from a scenario quickly (using active reading), accurately understanding the requirements, and creating an answer plan and a final answer that concisely and accurately addresses the requirements in the context of the scenario.

This is not to suggest that theoretical knowledge is unimportant, because often scenario-based questions will involve applying theories to the scenario. In order to pass the exam, you need to develop a sound knowledge of APM theories, **but equally you need to apply this knowledge to the question scenarios** (for example to address problems or issues raised in the scenario). Simply reciting your knowledge will not be sufficient to pass the exam.



Appendix 1: Formulae, ratios and mathematical tables

Appendices

Appendix A: Formulae and ratios that you need to learn

Profitability ratios:

$$\text{ROCE} = \frac{\text{Profit from operations (before interest and tax)}}{\text{Capital employed}}$$

Debt ratios include:

$$\text{Gearing} = \frac{\text{Value of debt}}{\text{Value of equity (or debt + equity)}}$$

$$\text{Interest cover} = \frac{\text{Profit from operations}}{\text{Interest}}$$

Liquidity ratios:

$$\text{Current ratio} = \frac{\text{Current assets}}{\text{Current liabilities}}$$

Shareholder investor ratios include:

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

$$\text{Earnings per share (EPS)} = \frac{\text{Profits after tax - preference dividend}}{\text{Number of ordinary shares}}$$

$$\text{Price to earnings ratio (P/E)} = \frac{\text{Share price}}{\text{EPS}}$$

Working capital ratios

Operating cycle = inventory days + receivable days - payables days

Inventory days = inventory/cost of sales × 365

Receivables days = trade receivables/(credit) sales × 365

Payables days = trade payables/(credit) purchases × 365

Sales to net working capital ratio = sales/net working capital (excl cash)

Cost of capital formulae:

$$K_d = \frac{I(1 - t)}{P_0}$$

$$K_p = \frac{d}{p}$$

Other useful formulae to learn:

$$IRR = a\% + \left[\frac{NPV_a}{NPV_a - NPV_b} \times (b\% - a\%) \right]$$

$$\text{Total shareholder return} = \frac{\text{dividend gain} + \text{capital}}{\text{share price at start year}}$$

$$EAC = \frac{\text{NPV of costs}}{\text{Annuity factor for life of the project}}$$

$$\text{Profitability index} = \frac{\text{Present value of cash inflows (or NPV of the project)}}{\text{Present value of cash outflows}}$$

Appendix B: Mathematical tables

Figure 13.1: Present Value Table

Figure 13.1: Annuity Table

Formula Sheet

Economic Order Quantity

$$= \sqrt{\frac{2C_o D}{C_H}}$$

Miller-Orr Model

Return point = Lower limit + ($\frac{1}{3} \times$ spread)

$$\text{Spread} = 3 \left[\frac{\frac{3}{4} \times \text{transaction cost} \times \text{variance of cash flows}}{\text{Interest rate}} \right]^{\frac{1}{3}}$$

The Capital Asset Pricing Model

$$E(n) = R_f + \beta_i(E(r_m) - R_f)$$

The asset beta formula

$$\beta_a = \left[\frac{V_e}{(V_e + V_d(1-T))} \beta_e \right] + \left[\frac{V_d(1-T)}{(V_e + V_d(1-T))} \beta_d \right]$$

The Growth Model

$$P_0 = \frac{D_0(1+g)}{(r_e - g)} \quad r_e = \frac{D_0(1+g)}{P_0} + g$$

Gordon's Growth Approximation

$$g = br$$

The weighted average cost of capital

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

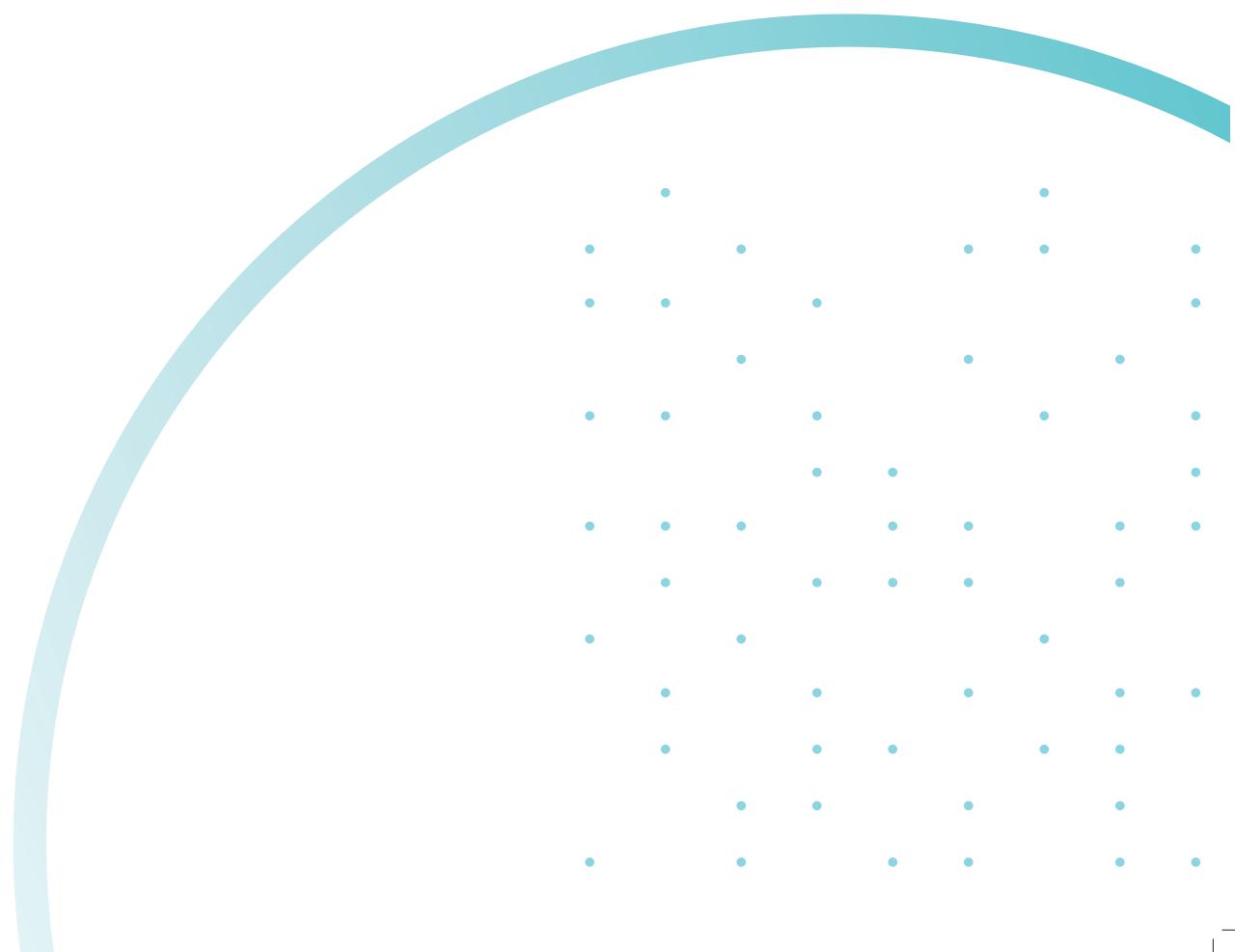
The Fisher formula

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

Purchasing Power Parity and Interest Rate Parity

$$S_1 = S_0 \times \frac{(1 + h_c)}{(1 + h_b)} \quad F_0 = S_0 \times \frac{(1 + i_c)}{(1 + i_b)}$$

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*****THE DOCUMENT HAS ERRORS*****

1. Error Code: -43 - File not found. : Error Context : Layout=BPP, Box=CoverPage_Common-TextBox
2. Error Code: -43 - File not found. : Error Context : Layout=BPP, Box=Content_Left_Logo*
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15. Error Code: -43 - File not found. : Error Context : Layout=BPP, Box=Thumb_Box_10*
16. Error Code: -43 - File not found. : Error Context : Layout=BPP, Box=Thumb_Box_10*
17. Error Code: -43 - File not found. : Error Context : Layout=BPP, Box=Thumb_Box_10*
18. Error Code: -43 - File not found. : Error Context : Layout=BPP, Box=Content_Left_Logo*
19. Error Code: -43 - File not found. : Error Context : Layout=BPP, Box=Content_Left_Logo*
20. Paragraph style sheet with name: 2PT_Table_Steps not found. Applied default style.Error Code: 10267 - This Style Sheet with name * Steps_SCC * is not available in the template or in application level resources. : Error Context : Layout=BPP, Box=Content_Left_Logo*
21. Error Code: -43 - File not found. : Error Context : Layout=BPP, Box=Content_Left_Logo*
22. Error Code: -43 - File not found. : Error Context : Layout=BPP, Box=Content_Left_Logo*
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45. Error Code: -43 - File not found. : Error Context : Layout=BPP, Box=Thumb_Box_10*
46. Error Code: -43 - File not found. : Error Context : Layout=BPP, Box=Thumb_Box_10*

**Review form - ACCA Applied Skills ACCA E-Version
Workbook**

Review form (continued)

Tell us what you think – please note any further comments and suggestions/errors below.

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1. Error Code: -43 - File not found. : Error Context : Layout=BPP, Box=Content_Left_Logo*