Subject SA4

CMP Upgrade 2023/24

CMP Upgrade

This CMP Upgrade lists the changes to the Syllabus, Core Reading and the ActEd material since last year that might realistically affect your chance of success in the exam. It is produced so that you can manually amend your 2023 CMP to make it suitable for study for the 2024 exams. It includes replacement pages and additional pages where appropriate.

Alternatively, you can buy a full set of up-to-date Course Notes / CMP at a significantly reduced price if you have previously bought the full-price Course Notes / CMP in this subject. Please see our 2024 *Student Brochure* for more details.

We only accept the current version of assignments for marking, *ie* those published for the sessions leading to the 2024 exams. If you wish to submit your scripts for marking but only have an old version, then you can order the current assignments free of charge if you have purchased the same assignments in the same subject in a previous year, and have purchased marking for the 2024 session.

This CMP Upgrade contains:

- all significant changes to the Syllabus and Core Reading
- additional changes to the ActEd Course Notes and Assignments that will make them suitable for study for the 2024 exams.

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1 Changes to the Syllabus

The Syllabus is contained in the Subject SA4 Study Guide. Syllabus objective 6 has been deleted and there have been a number of changes to the wording of other objectives and surrounding text. Replacement pages for the Study Guide are attached. We recommend that you use this to update the syllabus objectives at the start of each chapter.

2 Changes to the Core Reading and ActEd material

This section contains all the ***non-trivial*** changes to the Core Reading and ActEd text.

Chapter 1

Chapter 1 has been restructured and rewritten. A replacement chapter is attached.

Chapter 2

Page 7

The first bullet point has been extended and now reads:

- **Limit the extent of tax advantages, for example by having an overall limit on the amount of tax-efficient pension savings that can be made over an individual's working career.**

Page 11

The third bullet point has been extended and now reads:

- **ensure pension schemes are run properly by trustees and sponsoring employers, making sure employers balance the needs of their defined benefit pension scheme with growing their business**

Page 24

A sentence has been added after the bullet point list:

There may be a requirement to make this statement public for greater transparency to scheme members and other stakeholders.

Page 25

The second paragraph has been extended and now reads:

In exercising their discretion in relation to the recipients of a death lump sum, the trustees would wish to consider the wishes of the deceased member, if these are available, for example on an expression of wishes form completed by the member on joining the scheme and amended as necessary during membership. They may also wish to obtain information from relations and close friends on the deceased member’s family arrangements. However, the ultimate decision as to who should be paid the lump sum would rest with the trustees, and they may require legal advice or consider historic precedents if there are conflicting sources of information.

The second paragraph of Section 5.4 has been extended and now reads:

Professional trustees are independent of the scheme that appoints them, and may act as trustee for several unrelated schemes. They would be expected to offer expertise in trusteeship matters, and to hold relevant professional accreditations. Professional trustees can bring synergies and efficiencies to the operation of defined benefit schemes as they can leverage their experience across multiple schemes to help make decisions.

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Chapter 3

Section 4 onwards

Section 4, the chapter summary and the end-of-chapter question have been updated to reflect changes to the Annual Allowance, Lifetime Allowance (LTA) charge and the UK government's stated intention to abolish the LTA. Replacement pages are attached.

Chapter 4

Page 3

The bullet about a central discontinuance fund has been rewritten and extended and now reads:

- **A central discontinuance fund which provides some form of compensation if a scheme is wound-up with insufficient assets to meet the promised benefits in full. Central discontinuance funds could provide a minimum level of benefits, could be subject to compensation caps or restricted pension increases.**

Page 17

Material about the proposed new UK funding regime has been added. Replacement pages are attached.

The proposed new UK funding regime is referenced in ActEd text throughout the course where UK funding legislation is described.

Chapter 5

Page 5

A paragraph of ActEd text has been added at the start of Section 2. It reads:

The Core Reading and ActEd text below is based on version 1.0 of TAS 100, which applies to work completed as at the date of publication of the Core Reading (31 May 2023). Version 2 of TAS 100 has been published and applies to work completed on or after 1 July 2023.

Version 2 of TAS 100 is referenced in ActEd text throughout the course where TAS 100 is discussed.

Page 11

The text under the first bullet has been amended and extended and now reads:

> **The current version of this standard came into effect on 1 March 2023. It is a mandatory standard and contains ethical material and builds on the Actuaries' Code.**
>
> The current version is similar to the previous version although it extends and introduces professional obligations to Scheme Actuaries of Collective DC Schemes.

Chapter 8

Page 17

The final paragraph has been amended and extended and now reads:

In the UK, any lump sums will be assessable against the Lifetime Allowance (LTA) with any excess liable to the Lifetime Allowance charge (although at the time of writing this Core Reading it is expected that the LTA will be abolished in the UK).

The government abolished the LTA charge from 6 April 2023. At the time of writing (May 2023), it is intended that the LTA will be fully abolished from the 2024/25 tax year, through a future Finance Bill.

Chapter 9

Page 3

The first bullet has been extended and now reads:

- **the provisions in the benefit scheme's documentation, including the treatment of any discretionary benefits (*eg* discretionary pension increases)**

Chapter 12

Page 5

In the solution, the examples of circumstances have been updated and now include:

- an organisation with a complex legal and operational structure
- an underfunded scheme which will require material deficit recovery contributions and investment returns to reach full funding
- an employer that is small relative to the scheme and generates limited cashflows relative to the funding needs of the scheme
- an employer that is planning to invest in sustainable growth which will constrain the level of funding available to the scheme in the short term
- an employer with material calls on its cashflow which restrict the affordability of contributions to the scheme
- an employer that has undertaken material corporate activities, such as acquisitions or restructurings
- an organisation which operates in a sector which is changing significantly
- a scheme that has a risky investment strategy and may require materially increased support from the employer in a downside scenario
- an employer that does not co-operate with the trustees and instructs them to rely only on publicly available information.

Chapter 13

Page 16

Section 2.12 has been rewritten and extended and a new section on cashflow driven investment has been added as Section 2.13 (later sections are renumbered). Replacement pages are attached.

Page 24

A final bullet has been added to the first list of bullets:

- **likely to be an irrevocable decision, *ie* policies cannot be surrendered or sold, other than in exceptional circumstances.**

Page 25

An additional paragraph has been added at the bottom of this page:

In the case of a partial buy-in, consideration will also need to be given to the scheme's overall investment strategy after the buy-in, and any funding or other implications associated with the post buy-in strategy.

Page 27

The UK example has been amended and now reads:

In the UK the insurance company would be authorised by the Prudential Regulation Authority (PRA) and the financial protection offered would be through the Financial Services Compensation Scheme ('FSCS').

Chapter 14

Page 7

A final bullet has been added to the list:

- **the expected long-term objective for the scheme (for example, an objective to reach buy-out by a certain date).**

Chapter 16

Page 13

A bullet point has been extended and now reads:

- **Any relevant legislative requirements, for example in relation to funding to a long-term objective.**

Chapter 18

Page 8

A final sub-bullet has been added under the ‘option terms and take up rates …’ bullet:

- **other member options, for example members selecting to exchange inflation-linked increases for a one-off larger increase at the point of retirement**

Page 11

A paragraph has been added at the end of Section 3.6:

There may be provisions in the rules of the schemes to deal with the risk that a spouse / dependant is significantly younger (for example, a young spouse reduction factor applicable to the spouse’s pension payable on death **if the age difference is more than 10 years).**

Page 15

Under the heading ‘other factors’, a new paragraph of Core Reading has been inserted between the existing first two paragraphs. The new paragraph reads:

Care may also be needed where short-term inflation expectations are materially different to long-term expectations (*eg* short-term inflation could be significantly higher due to a war affecting global food prices). When using an inflation yield curve it will be important to ensure the current year's inflation is allowed for appropriately and not double-counted or missed altogether.

Page 17

In the first paragraph beneath the solution, the word ‘**capped**’ has been corrected to ‘**floored**’.

Page 19

The first paragraph under the heading ‘discretionary increases’ has been extended and now reads:

Any allowance for discretionary increases will depend on the pension increases awarded in the past and the company’s and trustees’ intentions, both for paying the increases and the desire to specifically fund for them in the future. There could be expectations from scheme members if discretionary increases are awarded consistently, which could lead to employment or legal difficulties when **changing a discretionary policy in some cases.**

Page 27

The material on mortality projections in the UK has been updated. Replacement pages are attached.

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Page 36

The final paragraph of Core Reading has been extended and now reads:

Although the experience of the scheme is rarely used to establish family statistics, if the scheme is very small or if a data cleanse exercise has been conducted, the current actual family circumstances might be taken into account. This could be achieved by a write-out exercise across the scheme's membership.

A sentence has been added at the start of the final paragraph of ActEd text:

A write-out exercise involves writing to each scheme member to collect data about the member or to verify data already held.

Chapter 19

Page 6

The final sentence of Core Reading has been expanded and now reads:

If the surplus is very large, it may be appropriate for some money to be refunded to the employer. Legislation or scheme documentation might restrict this ability.

Chapter 24

Sections 5 and 6 and the Chapter Summary

New material has been added to Section 5 and an additional section on consolidation has been inserted afterwards. This has been numbered Section 6 and existing sections have been renumbered and the Chapter Summary has been updated. Replacement pages are attached.

Chapter 26

Page 13

In the list of bullet points, references to a compensation cap have been deleted.

Chapter 27

Syllabus objective, Section 0 and Section 1

The Syllabus objective has been removed and some of the content of Sections 0 and 1 has been reworded. Replacement pages are attached. (When replacing pages, ensure you retain the page which has the start of Section 2 on the back.)

Glossary

The definition of 'hybrid scheme' has been updated and now reads:

A scheme that offers a mixture of defined benefit and defined contribution benefits, and/or shares the risks between different parties, such as the sponsor and the beneficiaries.

3 Changes to the X Assignments

Overall

There have been minor changes throughout the assignments, including changes to mark allocations.

More significant changes are listed below.

Assignment X1

Significant changes have been made to the questions and solutions. Replacement pages are attached.

Assignments X3 and X6

There have been some relatively minor changes throughout these assignments but the 2023 versions remain 'fit for purpose'.

If you would like the new assignments *without* marking, then retakers can purchase an updated CMP or standalone X Assignments at a significantly reduced price. Further information on retaker discounts can be found at:

acted.co.uk/paper_reduced_prices.html

If you wish to submit your scripts for marking but only have an old version, then you can order the current assignments free of charge if you have purchased the same assignments in the same subject in a previous year, and have purchased marking for the 2024 session. We only accept the current version of assignments for marking, *ie* those published for the sessions leading to the 2024 exams.

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4 Other tuition services

In addition to the CMP you might find the following services helpful with your study.

4.1 Study material

We also offer the following study material in Subject SA4:

- Flashcards
- ASET (ActEd Solutions with Exam Technique) and Mini-ASET
- Mock Exam and AMP (Additional Mock Pack).

For further details on ActEd's study materials, please refer to the 2024 *Student Brochure*, which is available from the ActEd website at **ActEd.co.uk**.

4.2 Tutorials

We offer the following (face-to-face and/or online) tutorials in Subject SA4:

- a set of Regular Tutorials (lasting a total of three days)
- a Block Tutorial (lasting three days).

For further details on ActEd's tutorials, please refer to our latest *Tuition Bulletin*, which is available from the ActEd website at **ActEd.co.uk**.

4.3 Marking

You can have your attempts at any of our assignments or mock exams marked by ActEd. When marking your scripts, we aim to provide specific advice to improve your chances of success in the exam and to return your scripts as quickly as possible.

For further details on ActEd's marking services, please refer to the 2024 *Student Brochure*, which is available from the ActEd website at **ActEd.co.uk**.

4.4 Feedback on the study material

ActEd is always pleased to receive feedback from students about any aspect of our study programmes. Please let us know if you have any specific comments (*eg* about certain sections of the notes or particular questions) or general suggestions about how we can improve the study material. We will incorporate as many of your suggestions as we can when we update the course material each year.

If you have any comments on this course, please send them by email to **SA4@bpp.com**.

Part	Chapter	Title	X Assignment	Tutorial – 3 days
1	1	Introduction	X1	1
	2	Key stakeholders		
	3	Taxation		
	4	Security		
	5	Professional guidance		
2	6	Benefit provision	X2	
	7	Scheme design – general		
	8	Scheme design – specific features		
	9	Designing options		
3	10	Risks	X3	2
	11	Financing benefits		
	12	Sponsor covenant		
	13	Investment classes		
	14	Investment strategy		
4	15	Valuations	X4	
	16	Methods and models		
	17	Valuation data		
	18	Assumptions		
	19	Managing experience		
	20	Analysis of experience		
5	21	Accounting	X5	3
	22	Corporate activity – general		
	23	Corporate activity – calculations		
6	24	Managing risks	X6	
	25	Incentive exercises		
	26	Discontinuance		
	27	Problem solving and analysis		
		Glossary		

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1.2 Subject SA4 – Syllabus and Core Reading

Syllabus

The Syllabus for Subject SA4 is given here. To the right of each objective are the chapter numbers in which the objective is covered in the ActEd course.

Aim

The aims of Subject SA4 are as follows:

- Apply the main principles relevant to the provision of pensions and other benefits to the management of benefit arrangements, taking into account the regulatory, legislative and business environment, as well as professional requirements.
- Provide solutions and give appropriate recommendations to business problems relating to benefit arrangements and the management of risk.

Topics and topic weightings

This subject covers the following topics:

1. Pension and benefit provision and general business environment (30%)
2. Regulatory, legislative and taxation environment (15%)
3. Design and financing of benefit arrangements (20%)
4. Reporting / valuation and management of benefit arrangements (15%)
5. General business and risk management (20%)

The topic weighting percentage noted alongside the topics is indicative of the volume of content of a topic within the subject and therefore broadly aligned to the volume of marks allocated to this topic in the examinations. For example, if a topic is 20% of the subject then you can expect that approximately 20% of the total marks available in the examination papers, averaged over a number of examination sessions, will be available on that topic.

Students should ensure that they are well prepared across the entire syllabus and have an understanding of the principal terms used within the course.

Students will be expected to be able to apply knowledge and skills from across the syllabus topics to scenarios and questions proposed by the examiners and produce coherent solutions and actions, including:

- analysing complex problems in terms of actuarial, economic and financial factors to a level where appropriate analytical techniques may be used
- assessing the implications and relevance of such factors, integrating the results into a coherent whole
- evaluating the results critically in a wider context, drawing appropriate conclusions
- proposing solutions and actions, or a range of possible solutions and actions, based on this evaluation.

Objectives

1 Pension and benefit provision and general business environment (30%)

In-depth understanding of current and emerging types of benefit provision, key stakeholders and their roles and responsibilities, the comparison between State and employer pensions for individuals, and the environments in which the benefits are provided.

1.1 Understand the roles and responsibilities of stakeholders, in the current and emerging types of benefit provisions: (Chapter 2)
  – the State
  – any other central body within the jurisdiction
  – employers
  – individuals
  – trustees
  – actuaries
  – investment advisers
  – other advisers.

1.2 Understand the factors that influence the provision of benefits by the State, employers in the public and private sectors and individuals. (Chapter 6)

1.3 Understand the main saving alternatives to pension savings available to individuals. (Chapter 6)

1.4 Understand the relevance, and impact, of sponsor covenants: (Chapter 12)
  – what is meant by sponsor covenant
  – when / how it may be measured
  – integration of sponsor covenant with funding and investment.

2 Regulatory, legislative and taxation environment (15%)

Explore how regulation, legislation and taxation impact on the design, attractiveness, maintenance and affordability of benefit arrangements.

2.1 Understand the impact of relevant legislation on the provision of non-State benefits in terms of the following objectives: (Chapters 3, 4 and 11)

- encouraging appropriate non-State provision
- ensuring security for non-State provision.

2.2 Identify the impact of the environment in which benefits are provided on stakeholders: (Chapters 5 and 21)

- benefits policy
- regulation
- tax and national insurance regime
- accounting standards
- Actuarial Standards in relation to actuaries practising or giving advice in relation to pension arrangements.

2.3 Identify and compare regulatory, legislative and taxation environments between different jurisdictions. (Chapters 2, 3, 4 and 5)

3 Design and financing of benefit arrangements (20%)

In depth theoretical factors, and practical implications, to consider when designing and financing pensions and other benefit arrangements.

3.1 Understand the different ways in which providers are able to finance the benefits to be provided, including: (Chapters 11 and 13)

- timing of contributions (relative to when the benefits are due to be paid)
- forms and characteristics of investment that are available
- financial instruments and contingent funding arrangements that may be used to back benefit promises
- insurance products including annuity and protection policies.

3.2 Discuss the factors to consider in determining a suitable design for a pension scheme, or other benefits such as social security benefits, including: (Chapters 7, 8 and 13)

- type of pension scheme (*eg* defined benefit, defined contribution, risk-sharing)
- governance requirements
- level and form of benefits and/or contributions
- method of financing the benefits
- how risk is shared between parties
- choice of assets (when benefits are to be funded)

and describe how membership and other data analysis can be used to provide insight into individuals' current and future behaviour and therefore inform benefit design.

4 Reporting / valuation and management of benefit arrangements (15%)

Understand how benefit arrangements are managed in relation to financing, placing values on assets, benefits and contributions, monitoring experience, reporting requirements, and managing significant events, and the impacts on stakeholders.

4.1 Understand the issues that arise from the transfer / amendment of benefit rights (for example following significant corporate activity such as an acquisition or scheme merger): (Chapters 22 and 23)

- interests and responsibilities of the parties involved
- terms set out in the legal documentation
- financial aspects, such as the calculation of the bulk transfer value (if relevant) and benefits provided.

4.2 Determine an appropriate funding method, together with suitable financial and demographic assumptions, that can be used to value benefits and contributions in specific scenarios. (Chapters 16 and 18)

4.3 Determine values for assets, past and future benefits and future contributions, and perform calculations to demonstrate an understanding of the main methods used: (Chapters 15 and 17)

- data requirements
- reasons why assumptions and methods used may differ in different circumstances
- extent to which values should reflect investment / risk management strategy
- valuing guarantees and options
- sensitivity analysis and reasonableness checking.

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4.4 Understand the factors that need to be considered, and produce relevant financial and non-financial information to meet accounting standards: (Chapter 21)

- pension scheme or benefit objectives
- disclosure requirements, including those for directors' remuneration
- calculations of cost of benefit provision.

4.5 Discuss the issues concerning surplus / deficit including: (Chapters 19 and 20)

- identifying the sources
- factors that affect the treatment of a surplus / deficit

and describe how the financial significance of deviations from expectations should be monitored and assessed, including:

- data required
- methods used
- quantification of key items of experience
- use of the results to help identify issues and develop solutions.

5 General business and risk management (20%)

Understand the detail behind potential risks affecting benefit arrangements, as well as how these are managed and reported.

5.1 Understand the main risks and propose appropriate risk mitigation strategies in respect of: (Chapters 7, 10, 24 and 25)

- the level and incidence of benefits
- the level and incidence of contributions
- the level and incidence of return on assets
- the extent to which assets are exhausted during a member's lifetime
- the overall security of benefits

including risks which can, and cannot, be mitigated through the use of insurance products.

5.2 Analyse the existing investment strategy, or propose an appropriate investment strategy, for a provider of benefits, taking into account: (Chapters 14 and 16)

- any asset-liability matching requirements
- the trade-off between risk and reward
- an awareness of adding value to the shareholders of the business

and describe how projection models may be used to develop strategies.

5.3 Discuss the benefit options typically available to individuals: (Chapter 9)

- before retirement
- at retirement
- after retirement

and discuss how to set appropriate terms and consent requirements for these options (where appropriate), taking into account the risk and reward for all relevant parties.

5.4 Discuss the issues arising from the discontinuance of benefit provision, including: (Chapter 26)

- rights and expectations of beneficiaries
- availability and selection of a method of provision of discontinuance benefits
- level of available assets.

Core Reading

The Subject SA4 Course Notes include the Core Reading in full, integrated throughout the course.

The exam will be based on the relevant Syllabus and Core Reading. The ActEd course material will be the main source of tuition for students.

A list of required reading for Subject SA4 has been prepared by the Institute and Faculty of Actuaries and is provided in Chapter 1. A list of further reading and references, which might be useful in providing further insight, is also provided in Chapter 1. The references used to produce the Core Reading material on the topics covered in each chapter are also provided in the introduction to the chapter.

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1.3 Subject SA4 – summary of ActEd products

The following products are available for Subject SA4:

- Course Notes
- X Assignments – six 100-mark tests (you are allowed 3¼ hours to complete each of these)
- Series X Marking
- Flashcards
- ASET (2020-23 papers) – four years of exam papers, *ie* eight sittings, covering the period April 2020 to September 2023
- Mini ASET – covering the April 2024 exam paper
- Mock Exam – one 100-mark test
- Additional Mock Pack (AMP) – two additional 100-mark tests
- Mock Exam Marking
- Marking Vouchers.

Products are generally available in both paper and eBook format. Visit **ActEd.co.uk** for full details about available eBooks, software requirements and restrictions.

The following tutorials are typically available for Subject SA4:

- Regular Tutorials (three full days / six half days)
- Block Tutorials (three days).

Tutorials are typically available both face-to-face and live online. Full details are set out in our *Tuition Bulletin*, which is available on our website at **ActEd.co.uk**.

1

Introduction to Subject SA4

Syllabus objectives

There are no syllabus objectives specifically covered in this introduction. The main objective of this chapter is to focus on the skills and background information that will help you to pass Subject SA4.

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0 Introduction

This introductory chapter has four sections:

Section 1: Advice to help you pass Subject SA4

Section 2: The structure of Subject SA4

Section 3: The Subject SA4 Core Reading

Section 4 Further reading and references

1 Advice to help you pass Subject SA4

To pass the Subject SA4 exam you will need to demonstrate the higher skills that you require as a qualified actuary. Understanding, analysing and assessing alternative solutions are more important than learning and recalling. The Core Reading provides important guidance on these skills.

The examiners will expect candidates to be able to apply the knowledge and understanding they have developed through the study of the Core Reading for this subject to produce coherent solutions and actions in relation to the financial management of pension arrangements.

In particular, candidates are expected to be able to combine ideas across the Units in the Core Reading and apply them to scenarios proposed by the examiners. Some examples might include, but not be limited to:

- **discussion of advantages and disadvantages of different benefit arrangements**
- **recommendations regarding appropriate assumptions to be adopted for investigations, such as determining the funding level of a benefit scheme**
- **demonstration of an understanding of the different approaches to scheme valuations under different circumstances**
- **demonstration of an understanding of the key risks associated with benefit provision as applicable to different stakeholders and recommendations of strategies to mitigate those risks**
- **comparison of various investment strategies and their appropriateness for a particular benefit scheme or stakeholder under given circumstances**
- **demonstrate an understanding of the needs and responsibilities of the different stakeholders involved in benefit arrangements and how these may be factored into any recommendations.**

Hence, as you read this course (and any articles or journals) you should try to understand the reasoning behind the statements. Criticise where appropriate and decide on the extent to which you agree.

1.1 Higher skills

In particular, the examiners will set questions that rely less on bookwork and more on testing students' ability to apply higher skills.

In this section, we will look at four higher skills:

- analysis
- synthesis
- critical judgement
- communication.

Analysis

The examiners will expect you to analyse situations, which may be complex and/or unusual. The purpose of an analysis can be to identify:

- issues which need addressing
- investigations required in a situation.

Good analytical skills often involve a fairly 'picky' approach. Pore over the details of the question carefully to discover all the relevant points.

Be selective as you analyse. In the analytical stage, many ideas may occur to you which are irrelevant or of only minor importance. These must be filtered out or presented in your answer so that they do not distract from the main points.

You should cover the main points in sufficient detail, deal with more minor issues briefly and make no mention of the really minor or irrelevant issues.

Often, analysis will be followed by synthesis.

Synthesis

'Analysis' is sometimes described as a 'destructive' activity. By contrast, 'synthesis' is more 'creative'.

Examples of synthesis that might be required are:

- having identified the issues needing addressing in a situation (analysis), suggest a method of addressing them (synthesis)
- having stated the investigations needed (analysis), describe how you would use the results of the investigation (synthesis).

Sometimes, the examiners split the analysis and synthesis into different parts of the question. If they do, it is relatively easy to know how much detail they want in each part of the answer.

It is more difficult if the analysis and synthesis are both in the same part of the question, *eg* 'state any problems with this course of action … and suggest solutions'. Be particularly careful to give the examiners sufficient evidence not only of the synthesis (*eg* the solution) but also of the analysis which preceded it (*eg* a structured and well-argued statement of what the problems are).

Often, an appropriate synthesis will require you to exercise critical judgement.

Critical judgement

Some questions require you to make a decision, or to make a recommendation. If you feel that the question indicates that you do need to exercise judgement, do so.

A common problem with exercising judgement in exam situations is lack of detailed information. If you feel that insufficient information has been provided to make a decision, it is normally best to state your provisional view and to indicate further information you require and steps that need to be taken. Try to make sure that your judgement is critically swayed by information present in the question rather than by an assumption you have made.

In the past, examiners have stated that when requiring a judgement, it was not the decision which gained marks, but the quality of supporting argument. This is the equivalent of giving method marks in a mathematical question. It would not occur to you to write down the final result of a mathematical question and expect to gain full marks. Similarly, for a question requiring judgement, show the examiners how you reached your conclusion.

Communication

Communication skills can be very useful in answering some examination questions. Although you will not be required to present your answer to a question in the form of a formal document, you should consider a number of factors in your solution such as:

- the person you are directing your answer to
- the level of knowledge you assume
- the level of technical detail you provide.

1.2 Links with Subject SP4

This course will revisit many of the topics covered in Subject SP4 with some sections containing detailed explanations of topics introduced in Subject SP4.

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2 The structure of Subject SA4

The Course Notes have been structured so that they broadly follow the order of events for a typical benefit arrangement, from its design and set up to the eventual extinguishing of the liabilities. Accordingly, they are split into six parts as described below.

2.1 Part 1 – Objectives and the environment: Chapters 2 to 5

Objectives

The three sources of financing for retirement provision are the State, the employer and individuals.

Many schemes are set up under trust and, in this case, the trustees also play an important role.

Actuaries and other professional advisers work with these stakeholders to help them achieve their objectives. It is important the advisers understand the objectives of the parties involved, so that they can provide appropriate and coherent advice. The actuary will also need to be aware of any potential conflicts of interest when advising more than one party.

Chapter 2 concerns the key stakeholders.

Environment

When the scheme is being set up and throughout its lifetime the external environment within which it is operating will need to be considered. This includes taxation (Chapter 3), legislation and professional guidance (Chapter 5).

Chapter 4 concerns the security of benefit provision which is often enhanced by legislation.

2.2 Part 2 – Design: Chapters 6 to 9

Having considered the needs and objectives of the key stakeholders and the external environment appropriate benefit provision will be designed.

Chapter 6 introduces the concept of benefit provision, providing example of designs from various countries.

Chapter 7 includes consideration of general, big picture issues such as whether the scheme should be:

- defined benefit, defined contribution or risk-sharing
- set up under trust or contract
- contributory or non-contributory.

Risks relating to the different types of pension scheme are discussed. Different risks will arise for the sponsor and for members and depend on the type of scheme and the nature of the benefits.

Chapter 8 and 9 consider specific design issues, for example for a risk-sharing scheme, the following questions could be asked:

- What eligibility criteria (if any) should be imposed?
- How should risk be shared between the different parties? Should the scheme be collective defined contribution, cash balance, pure career average *etc* ..?
- What is the overall target benefit? Should State benefits be allowed for? How?
- What benefits should be offered on normal / late / early retirement, ill-health, death and withdrawal?
- What options should be made available to members and how should the terms be set?

Other considerations apply for individual arrangements, defined benefit (DB) and defined contribution (DC) schemes.

2.3 Part 3 – Risks: Chapters 10 to 14

Benefit arrangements involves risk for the parties involved. The three main risks are often sponsor covenant, investment and financing, which are interrelated. Chapter 10 begins the discussion of these risks.

An important risk for DB schemes is funding risk, the risk that insufficient funds are built up to meet the liabilities as they fall due.

The financing of benefits is covered in Chapter 11. For DB schemes there may be some flexibility on how the benefits are financed. A decision will also need to be made about whether, when and how much members pay towards the cost of their benefits. Again, the conflicting objectives of the various parties are likely to result in differences in their preferred approaches.

For a DB scheme, the cost of the scheme will not be known in advance. Assumptions will need to be set so that an appropriate contribution rate can be determined to be paid into the scheme. However, in this case, the assumptions determine only the *pace* of funding, rather than the *cost* of providing the benefits.

Sponsor covenant is discussed in Chapter 12. It is the combination of the ability and willingness of the sponsor to pay (or the trustees to require the sponsor to pay) sufficient contributions to meet the benefits as they fall due.

Chapter 14 covers investment strategy. The risk of choosing assets that are not appropriate for meeting the liabilities is likely to be a particularly important risk for DB schemes. The available investment classes are discussed in Chapter 13, including the use of relatively new financial instruments such as Liability Driven Investment strategies.

Investment risk can be interpreted in a number of ways. For example: mismatching; default; volatility; lack of marketability, liquidity or diversification; high expenses and changes in taxation could all be important investment risks.

2.4 Part 4 – Valuations: Chapters 15 to 20

Type of valuation

Since the different parties involved in pension provision have different objectives, they are likely to use different approaches and make different assumptions to place values on the assets and liabilities. These differing objectives, together with regulatory requirements, result in a need for various valuations. These are discussed in Chapter 15. Specific valuations commissioned by the employer only are covered in Part 5.

Funding valuations are required:

- to assess the financial health of the pension scheme (*ie* a comparison of the valuation of assets and liabilities)
- to determine an appropriate contribution rate to meet the cost of future benefits and correct any under or over-funding.

Discontinuance valuations are carried out on ongoing schemes with a DB element in order to determine what the situation would be if the scheme discontinued.

For DC schemes, including those used for personal provision, valuations may be used to review contribution rates and/or to understand the possible benefits which may be provided. Benefit illustrations will be provided to members to help them to understand the risks concerning the level, and the possible amount, of benefits that may be achieved.

Valuation process

Assets are usually taken at their market value, or a market-related value. It will then be necessary to construct a market-consistent model of liability (or benefit) cashflows in order to place a value on the liabilities.

The key inputs to the valuation process are the valuation method and funding method (both covered in Chapter 16), the data to be used (Chapter 17) and the choice of assumptions (Chapter 18). The valuation method, funding method and assumptions will need to be considered together.

When carrying out valuations it is important that appropriate data is collected, and that checks are carried out to ensure that the data is 'fit for purpose'. As well as membership data, other important sources of data when carrying out a valuation include the scheme rules and the scheme accounts.

The scheme's financial position is likely to have changed since the last valuation. It is important to:

- understand and manage the reasons for the changes, *ie* the sources of surplus / deficit, as discussed in Chapter 19
- quantify the effect of the changes, *ie* to carry out an analysis of experience, as described in Chapter 20.

Ownership of surplus (and deficit!) is a contentious issue and the factors affecting surplus distribution are discussed. The analysis process is described and can help with understanding of the risks if assumptions do not turn out to be as expected. An analysis of experience may also help with setting the financial and demographic assumptions.

The results should be communicated appropriately to stakeholders and will be used to make decisions relating to the scheme.

2.5 Part 5 – Valuations for the employer: Chapters 21 to 23

This part of the course looks in detail at accounting valuations (Chapter 21) and actuarial work that may be required as part of corporate activity (Chapters 22 and 23). The valuation process covered in Part 4 of the course remains relevant to Part 5 also.

For the employer, an accounting valuation is completed in order to account for employee benefit costs in its income statement and on the balance sheet. The accounting standards discussed are FRS 102 (UK), IAS 19 (International) and ASC 715 (USA).

Where there is a change to benefit arrangements as a result of corporate activity (such as mergers and acquisitions) or changes to scheme governance structures there are implications for stakeholders, for example:

- understanding the powers of each relevant party
- treatment of, and possible changes to, accrued and future benefits
- consideration of changes to the strength of the sponsor covenant
- possible consequent changes to funding and investment strategy.

A valuation may be required to determine an appropriate bulk transfer value and benefits on transfer when members are transferred from one scheme to another as part of a merger or acquisition. The choice of method and assumptions when calculating a bulk transfer value will be negotiated in the context of the overall deal. It is also necessary to determine the benefits that will be paid to members who transfer to the receiving scheme.

2.6 Part 6 – Managing risk and extinguishing the liabilities: Chapters 24 to 27

The main areas of DB benefit provision which can be reviewed in order to manage risk are discussed in Chapter 24 and include:

- investment strategy
- actions to improve the sponsor covenant
- financing
- option terms and consent requirements
- insurance provisions
- design of the benefits.

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Chapter 25 provides further analysis of incentive exercises which are one-off exercises often used to de-risk or extinguish liabilities.

The discontinuance of a benefit arrangement is described in Chapter 26. There are a number of options available when a scheme is discontinued. For schemes with a DB element, a different course of action may need to be followed depending on whether there is a surplus or deficit. Ultimately, as the scheme continues to contract, the most appropriate solution may be to wind it up.

Chapter 27 provides advice as to how to problem solve and analyse questions in the examination, providing some examples of possible questions.

3 The Subject SA4 Core Reading

3.1 Introduction

This Core Reading has been produced by the Institute and Faculty of Actuaries. The Core Reading supports candidates in their learning and development of this subject by providing information and explanation of the topics and objectives in the syllabus.

The Core Reading is updated annually to reflect any changes to the syllabus and current practice as well as for continuous improvement. Tuition providers may use the Core Reading as a basis of their tuition services or products.

This version of the Core Reading is up-to-date as of 31 May 2023. The Core Reading will reference the version of any legislation, standards, professional guidance *etc* as of this date. Any known upcoming changes to the references will be noted where relevant in the Core Reading.

The longer term effects of the coronavirus pandemic are still uncertain. Where relevant, Core Reading has been updated to include short-term impacts, however this version of the Core Reading does not attempt to address all areas impacted by the coronavirus pandemic or any anticipated longer term impacts.

The United Kingdom left the European Union on 1 January 2021 without an EU-wide arrangement for the operation and regulation of financial services and this continues to be the situation. This version of the Core Reading reflects the situation as of 31 May 2023.

In addition, at the time of writing (Spring 2023) the implications of the UK Government's decision to abolish the pensions Lifetime Allowance (LTA) is still being worked through. This version of the Core Reading seeks to generalise these issues and may not represent an accurate reflection of the UK's approach.

3.2 Required reading

The required reading forms part of Core Reading for Subject SA4.

The following papers, whilst not included in this document, form part of Core Reading. It is therefore important that they are read.

The Institute and Faculty of Actuaries (IFoA)

Core Reading: Subject SP4

Financial Reporting Council (FRC)

Framework for FRC technical actuarial standards

Technical Actuarial Standard 100: Principles for Technical Actuarial Work

Technical Actuarial Standard 300: Pensions

Glossary of defined terms used in FRC technical actuarial standards

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Professional Guidance for Actuaries

> **APS P1: Duties and responsibilities of members undertaking work in relation to pension schemes**
>
> **APS X1: Applying Standards to Actuarial Work**
>
> **APS X2: Review of Actuarial Work**

3.3 Assessment

Examiners can set questions based on any area of the syllabus within any examination sitting and will consider and draw from the Core Reading when setting examinations questions.

Candidates will be expected to apply the Core Reading to scenarios and questions proposed by the examiners. Past papers indicate to candidates how the examiners apply the Core Reading. The Examiner Reports provide further insight as to how candidates answered the questions and how marks were awarded.

IFoA handbooks and regulations

Please read the IFoA Examinations Handbook, IFoA Qualifications Handbook and IFoA Assessment Regulations before sitting any IFoA examination. For the 2024 examinations, these documents will be updated and published in the weeks leading up to each examination session, and will be available here:

https://actuaries.org.uk/qualify/

3.4 Accreditation

The Institute and Faculty of Actuaries would like to thank the numerous people who have helped in the development of the current and previous versions of Core Reading.

Those particularly involved in the current version for this subject were Richard Akroyd, Gresham Arnold (ActEd), Sally Calder (IFoA, Education Actuary), Chris Collins, Graeme Foster, Simon Hubbard, Justine Peggs (ActEd), Danny Quant, Ian Rogers (Module Lead, SP4 and SA4 exams), Richard Smith, Stuart Underwood (ActEd) and Debbie Webb.

4 Further reading and references

4.1 Further reading

The items included as further reading help to boost and broaden your knowledge of pensions. Many of the documents are related to UK pensions topics. If you do not have time to read all the papers in detail, try to read some executive summaries, introductions or concluding sections to give you at least a flavour and some of the salient points of each paper.

The following list of suggested reading for Subject SA4 has been drawn up. Candidates will find it useful to consult some of the material to obtain a different viewpoint when studying a particular topic. However, candidates are not expected to have read all of the items on the list for their chosen subject. Equally candidates may use other sources of information to enhance their wider understanding, such as:

- **The financial and trade press, including The Actuary magazine.**
- **Bulletins and other publications from consultancies and insurers and other providers of benefits.**
- **Information on the websites of other bodies such as The Pensions Regulator.**
- **Other papers from the Institute and Faculty of Actuaries and SIAS.**
- **Continuous Mortality Investigation bulletins.**
- **Presentations made at recent Pensions Conferences or other events.**
- **Pensions related presentations made at recent cross-practice conventions or for other practice areas (*eg* Life, Risk, Investment).**
- **Pensions seminars arranged by the Institute and Faculty of Actuaries.**
- **Other recommended references on the Pensions practice area of the Institute and Faculty of Actuaries' website.**

Many of these sources of information are available on the appropriate website, *ie*:

- The Actuary magazine's website is www.theactuary.com
- the CMI area of the IFoA's website is:

  www.actuaries.org.uk/learn-and-develop/continuous-mortality-investigation
- the pensions practice area of the IFoA's website is:

  www.actuaries.org.uk/practice-areas/pensions.

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4.2 Example papers

The following may be of interest for candidates who wish to read further on this subject, but it should be noted that this list is not exhaustive:

- **TASs are available on the FRC website (https://frc.org.uk) and professional guidance is available on the Institute and Faculty of Actuaries' website via:**

  https://www.actuaries.org.uk/upholding-standards/standards-and-guidance.

- **Access to electronic versions of papers in journals and publications such as the British Actuarial Journal (BAJ) and Annals of Actuarial Science is available on the Institute & Faculty of Actuaries website via:**

  https://www.actuaries.org.uk/learn-and-develop/research-and-knowledge.

  These journals and publications are now available via:

  https://actuaries.org.uk/thought-leadership

  You may be asked to log in, using your normal website login, to access some items. In case of difficulty in accessing any item, contact the libraries (e-mail: libraries@actuaries.org.uk).

- ***Good governance for pension schemes*. Thornton, P.; Fleming, D. Cambridge University Press, 2011. 322 pages. ISBN: 9780521761611**

- **Staple Inn Actuarial Society (SIAS) papers can be located at:**

  http://sias.org.uk/resources/papers/

  These papers can now be found at:

  https://sias.org.uk/resources/

- ***Detailed guidance for trustees*. The Pensions Regulator.**

  https://www.thepensionsregulator.gov.uk/en/document-library/scheme-management-detailed-guidance

- ***Code of Practice 03: Funding Defined Benefits*. The Pensions Regulator**

  http://www.thepensionsregulator.gov.uk/codes/code-funding-defined-benefits.aspx

  This code can now be found at:

  https://www.thepensionsregulator.gov.uk/en/document-library/codes-of-practice/code-3-funding-defined-benefits-

- ***DB Investment Guidance.* The Pensions Regulator**

  http://www.thepensionsregulator.gov.uk/guidance/db-investment.aspx

  This guidance can now be found at:

  https://www.thepensionsregulator.gov.uk/en/document-library/scheme-management-detailed-guidance/funding-and-investment-detailed-guidance/db-investment

- ***DC Investment Guidance.*** **The Pensions Regulator**

  http://www.thepensionsregulator.gov.uk/trustees/investment-management-in-your-dc-scheme.aspx

  This guidance can now be found at:

  https://www.thepensionsregulator.gov.uk/en/document-library/scheme-management-detailed-guidance/funding-and-investment-detailed-guidance/investment-guide-for-dc-pension-schemes-

- ***Draft DB funding code of practice.*** The Pensions Regulator

  https://www.thepensionsregulator.gov.uk/en/document-library/consultations/draft-defined-benefit-funding-code-of-practice-and-regulatory-approach-consultation/draft-db-funding-code-of-practice

4.3 Resources

A list of additional resources to support candidate learning and development for this subject can be found on the Module pages on the IFoA website:

https://actuaries.org.uk/curriculum/.

If a candidate is using the online version of the Core Reading, the resources are also available in the same area as the Core Reading on the IFoA Virtual Learning Environment (VLE):

https://vle.actuaries.org.uk.

All resources are hyperlinked to their source publication or the IFoA Library. Where a resource is available through the IFoA Library, members, students and affiliates can 'request' from the IFoA Library Service, subject to availability.

4.4 References

The following were consulted in the production of this Core Reading.

- **Fleming, D., and Thornton, P., *Good governance for pension schemes*. Cambridge University Press, 2011. 322 pages. ISBN: 9780521761611**
- **McGill, Brown, Haley & Schieber, *Fundamentals of Private Pensions*, (2004) and (2010), 8th and 9th Ed. Oxford University Press.**
- ***Pensions Pocket Book*, (2013), Rev. Ed., Economic and Financial Publishing Limited in association with Aon Hewitt**
- ***Pensions Terminology – A Glossary for Pension Schemes*, The Pensions Management Institute/ Pensions Research Accountants Group (PRAG), 8th and 9th Ed.**

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- **The Pensions Regulator (TPR)**

  http://www.thepensionsregulator.gov.uk

  TPR's website can now be found at:

  https://www.thepensionsregulator.gov.uk

  Integrated risk management:

  https://www.thepensionsregulator.gov.uk/en/trustees/investment-and-db-scheme-funding/integrated-risk-management

  Glossary **– Trustee Toolkit (The Pensions Regulator)**

  https://trusteetoolkit.thepensionsregulator.gov.uk

  Code of Practice 03: Funding Defined Benefits. **The Pensions Regulator**

  http://www.thepensionsregulator.gov.uk/codes/code-funding-defined-benefits.aspx

  This code can now be found at:

  https://www.thepensionsregulator.gov.uk/en/document-library/codes-of-practice/code-3-funding-defined-benefits-

  DB Investment Guidance. **The Pensions Regulator**

  http://www.thepensionsregulator.gov.uk/guidance/db-investment.aspx

  This guidance can now be found at:

  https://www.thepensionsregulator.gov.uk/en/document-library/scheme-management-detailed-guidance/funding-and-investment-detailed-guidance/db-investment

  DC Investment Guidance. **The Pensions Regulator**

  http://www.thepensionsregulator.gov.uk/trustees/investment-management-in-your-dc-scheme.aspx

  This guidance can now be found at:

  https://www.thepensionsregulator.gov.uk/en/document-library/scheme-management-detailed-guidance/funding-and-investment-detailed-guidance/investment-guide-for-dc-pension-schemes-

- **Financial Reporting Council (FRC)**

  Framework for FRC technical actuarial standards

  Technical Actuarial Standard 100: Principles for Technical Actuarial Work

  Technical Actuarial Standard 300: Pensions

  Glossary of defined terms used in FRC technical actuarial standards

  (TASs are available on the FRC website (https://frc.org.uk))

- **Professional Guidance for Actuaries**

  APS P1: Duties and responsibilities of members undertaking work in relation to pension schemes

  APS X1: Applying Standards to Actuarial Work

  APS X2: Review of Actuarial Work

  (Professional guidance is available on the Institute and Faculty of Actuaries' website via: https://www.actuaries.org.uk/upholding-standards/standards-and-guidance)

- **Staple Inn Actuarial Society (SIAS) papers can be located at:**

  http://sias.org.uk/resources/papers/

Access to electronic versions of papers in journals and publications such as the British Actuarial Journal (BAJ) and Annals of Actuarial Science is available on the Institute & Faculty of Actuaries website via:

https://www.actuaries.org.uk/learn-and-develop/research-and-knowledge

In addition to these references, several publications by the IFoA are referenced elsewhere in the Core Reading:

- *Risk Alert on Climate Change*, IFoA website:

  https://www.actuaries.org.uk/system/files/field/document/Risk%20Alert%20-%20Climate%20Change%20FINAL.pdf

- IFoA resource material on 'conflict of interest':

  https://actuaries.org.uk/standards/conflicts-of-interest/

- *The Actuaries Code*, IFoA website:

  https://actuaries.org.uk/standards/standards-and-guidance/the-actuaries-code

TPR's code of practice on incentive exercises is also referenced elsewhere in the Core Reading and can be found at:

https://www.thepensionsregulator.gov.uk/en/document-library/scheme-management-detailed-guidance/administration-detailed-guidance/incentive-exercises

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These conditions remain in force after you have finished using the course.

4 Restrictions

4.1 Restrictions on tax concessions

Generally the State will monitor benefit schemes to restrict the tax concessions offered using limits to the benefits and contributions enjoying tax concessions.

The State's main intention will be to limit any abuse of the taxation concessions by schemes.

For example, **the State can introduce limits on the level of benefits in schemes which attract tax relief.**

4.2 UK example

The UK government introduced the Annual Allowance (AA) which sets the annual limit on tax relieved pension savings and the Lifetime Allowance (LTA) which is the overall limit of tax relieved savings in a pension scheme. The important features are described below.

Annual Allowance (AA)

Individuals can claim tax relief on personal contributions up to a limit. The limit is currently the higher of £3,600 and 100% of annual earnings. **Restrictions will apply for certain high earners which are covered in more detail below.**

In addition, individuals can claim full tax relief in respect of any contributions paid on their behalf by a third party, provided the total personal contributions does not exceed a limit (which is currently the same limit as above)**.**

For non-taxpayers, 'tax relief' will be granted on pension contributions up to the maximum of £3,600. In practice this means that the individual can contribute the amount net of tax and the Government will add the tax 'paid' so that the overall contribution is £3,600.

Individuals can pay in greater amounts but they will not attract tax relief.

In order to control the flow of contributions to, or accrual in a registered pension scheme, there is an upper limit, known as the AA, on the amount of contributions (including employer contributions) and benefits that may be built up in any one tax year that are eligible for tax relief. The standard AA for the 2023/24 tax year is £60,000.

There is also further consideration for individuals who have accessed their pension as a result of the pension flexibilities introduced in April 2015, namely the Money Purchase Annual Allowance (MPAA). The rationale for the MPAA is to prevent individuals from using the flexibility to avoid tax on their current earnings by diverting their salary into their pension scheme, gaining tax relief then effectively withdrawing 25% tax-free. It also restricts individuals from gaining a second round of tax relief by withdrawing savings and reinvesting them into their pension.

The MPAA applies to money purchase pension savings for individuals who flexibly access a money purchase arrangement in certain circumstances. The MPAA is £10,000 with effect from 6 April 2023.

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Lifetime Allowance (LTA)

The total value of a member's aggregate benefits from registered schemes is assessed against a Lifetime Allowance (LTA). Registered schemes include occupational pension schemes, personal pension plans, stakeholder plans, retirement annuity contracts and deferred annuity contracts.

The LTA is £1,073,100 for the 2023/24 tax year. The value of a member's benefits will generally be assessed against the LTA when they come into payment, either on death or retirement. Broadly speaking, a member's benefits will also be tested against the LTA when:

- part of the benefit is transferred to an overseas pension scheme, or
- the member reaches age 75 without starting to draw on part of their pension benefits.

These events are known as benefit crystallisation events (BCEs).

Pensions after commutation paid by a registered defined benefit pension scheme are valued at 20 times the pension payable (or a higher factor, depending on the level of increases to pensions in payment provided by the scheme). DC funds and cash lump sums are taken at face value.

Question

Akash will retire in August 2023. He will receive:

- a New State Pension of £10,600 *pa*
- a pension of £20,000 *pa* and a tax-free lump sum of £45,000 from a registered defined benefit scheme
- a lifetime annuity of £19,000 *pa,* purchased using Akash's fund of £570,000 in a Stakeholder Pension Scheme
- a lump sum of £50,000 from a non-registered pension scheme.

Calculate the value of Akash's benefits for the purposes of comparison with the LTA.

Solution

Only benefits from registered pension schemes are to be valued *ie* benefits from the State and non-registered pension schemes are excluded.

So, the value of Akash's benefits is:

$$20{,}000 \times 20 + 45{,}000 + 570{,}000 = £1{,}015{,}000$$

This is less than the Lifetime Allowance for the 2023/24 tax year of £1,073,100.

Until 6 April 2023, if the value of an individual's benefits exceeded the LTA, a tax charge, known as the Lifetime Allowance charge (LTA charge) was imposed on the excess benefit. Excess benefits taken in the form of:

- a lump sum were taxed at a rate of 55%
- income were taxed at a rate of 25%.

Question

Show that, if a member was subject to a marginal rate of income tax of 40% and took their excess benefit in the form of income, their excess benefit was liable to an overall tax charge of 55%.

Solution

If the member was subject to a marginal rate of income tax of 40% and the excess benefit was taken as income, the LTA charge was 25%. Therefore, the net income the individual received was 60% × 75% = 45%. So the total tax charge was 55%.

In the Budget in March 2023, the UK Government announced that it wished to abolish the LTA. This change required legislation which would take time to implement, so the government removed the LTA charge for BCEs that occurred after 5 April 2023. The government plans to abolish the LTA entirely from the 2024/25 tax year.

Therefore, at the time of writing (May 2023), benefits are still assessed against the LTA but are not subject to an LTA charge. Excess benefits (including lump sum payments paid in many circumstances) may now be taxed at the recipient's marginal rate of income tax.

Other features of the UK tax regime

The other main features of the current tax regime are as follows:

Taking benefits as cash

Members of defined contribution schemes

For members of defined contribution schemes up to 25% of the member's accumulated fund can be taken as tax-free cash.

From 6 April 2023, the amount of tax-free cash for most members is subject to an overall maximum of £268,275. (This figure represents 25% of the LTA that applied when the intention to abolish it was announced.)

The remainder of the fund can also be taken as cash, subject to income tax.

Members can enter into an income drawdown arrangement where the fund remains invested but the individual withdraws cash when required. There are no restrictions on the amount of cash that can be withdrawn. The amounts withdrawn are subject to income tax.

An income drawdown arrangement is a mechanism for the withdrawal of income while annuity purchase is deferred. Whilst deferral of annuity purchase may allow the individual to remain invested for longer, survivors will experience mortality drag if they purchase an annuity at the end of the drawdown period.

Due to the increased flexibility on DC pensions, it is anticipated that the number of members of DB schemes opting to transfer their benefits out of their scheme will increase. The Pensions Regulator has issued specific guidance – DB to DC transfers and conversions – to assist DB pension scheme trustees and managers of private and funded public service schemes to manage transfer requests and their impact.

At the time of writing (May 2023), this guidance can be found at:

https://www.thepensionsregulator.gov.uk/en/document-library/scheme-management-detailed-guidance/administration-detailed-guidance/db-to-dc-transfers-and-conversions

Members of defined benefit schemes

A tax-free sum of up to 25% of the value of the benefits within the LTA can be taken, subject to the rules of the member's scheme.

From 6 April 2023, the amount of tax-free cash for most members is subject to an overall maximum of £268,275 (25% of the LTA at the point that its intended abolition was announced).

It is more difficult to determine the maximum tax-free cash sum in a defined benefit scheme than a defined contribution scheme. This is because the value of the benefits and hence the maximum lump sum depends on the amount of pension being given up and the commutation factor that is applied. Setting aside the overall £268,275 limit, the maximum tax-free lump sum (*LS*) can be calculated using the formula:

$$LS = \frac{20 \times p \times f}{20 + (3 \times f)}$$

where:

- p is the member's initial pension before any is exchanged for cash
- f is the commutation factor.

Question

Show that $LS = \dfrac{20 \times p \times f}{20 + (3 \times f)}$

Solution

Let's define *AC* as the value of the residual (after exchange for cash) scheme pension, which is calculated as 20 multiplied by the residual scheme pension.

The maximum tax-free cash lump sum, *LS* is 25% of the value of the benefits *ie*

$$LS = \frac{AC + LS}{4}$$

Now, $AC = \left(p - \frac{LS}{f}\right) \times 20$

So, $LS = \frac{\left(p - \frac{LS}{f}\right) \times 20 + LS}{4}$

Rearranging this expression leads to the equation given *ie*:

$$LS = \frac{20 \times p \times f}{20 + (3 \times f)}$$

Question

A defined benefit scheme has a commutation factor of 16:1. Lucy is about to retire and is entitled to a pension of £30,000 *pa*. Calculate the maximum tax-free lump sum that Lucy can take (subject to compliance with the scheme's rules and the overall limit of £268,275).

Solution

The maximum tax-free lump sum, *LS*, can be calculated using the formula:

$$LS = \frac{20 \times p \times f}{20 + (3 \times f)}$$

where:

- p is the initial pension before any is exchanged for cash, *ie* £30,000
- f is the commutation factor, *ie* 16

Therefore:

$$LS = \frac{20 \times 30{,}000 \times 16}{20 + (3 \times 16)} = £141{,}176.47$$

So, Lucy can take a tax-free cash sum of up to £141,176.

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Age limits on receiving benefits

Benefits, except in cases of ill-health, cannot generally be drawn before age 55. Scheme rules may permit members to take benefits while remaining in service. The UK government has proposed to raise this minimum age to 57 from 2028, thereafter maintaining it ten years below State Pension Age.

Benefits are not required to come into payment by age 75. However, a 'benefit crystallisation' event will automatically be triggered at age 75 in relation to any benefits that have not already come into payment and the value of those benefits will be tested against the LTA.

Benefits payable on death

On death before vesting any lump sums will be assessable against the LTA with any excess liable to a 55% lifetime allowance charge. On death after vesting (but before age 75) a lump sum can be paid equal to the capital value of the pension less any payments made to date. In addition schemes can offer a ten year guarantee (in practice a five year guarantee is common).

In the UK, a member's benefits vest if they have two or more years of qualifying service on exit. Qualifying service is pensionable service completed in the scheme, plus actual pensionable service completed in a previous scheme whose benefits have been transferred into the current scheme.

As mentioned above, the LTA charge was abolished from 6 April 2023 and lump sum payments in excess of the LTA may be subject to tax at the recipient's marginal tax rate. However, in practice the tax treatment of benefits payable on death is complicated, varying with factors including the type of benefit, the member's age on death and the time between death and payment.

The value of dependants' pensions will not be tested against the LTA.

Pensions sharing on divorce

Pensions sharing on divorce, when a proportion of the member's pension rights is given to an ex-spouse, is covered in more detail later in the course.

The member's rights given up to the ex-spouse do not count towards the member's assessment against the member's LTA. These rights will, however, count towards the ex-spouse's LTA assessment.

Neither pension credits nor debits will count towards the AA.

Unauthorised payments

There will be a punitive tax charge on the member / employer and on the scheme in relation to any unauthorised payments.

Broadly speaking unauthorised payments are payments that break the rules of legislation.

4.3 Refunds from an occupational pension scheme

A sponsor may be permitted to take a refund from a scheme it sponsors if the scheme is funded to a level sufficient to meet the full buy-out cost of benefits were the scheme to wind up.

UK example:

In the UK any refund would be taxed and the power to repay the surplus to the sponsoring employer can only be exercised by the trustees, subject to the agreement of the employer.

Surplus can only be refunded if the scheme is overfunded on a buy-out basis, and any refund is subject to tax at 35%. In addition, the trustees must be satisfied that a payment to the employer is in the interests of the members and must write to the members and TPR with certain information concerning this payment.

If there is an existing power in a scheme's rules to pay a refund while the scheme is not winding up, the trustees must have made a resolution by 5 April 2016 if they wished to retain this power.

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The chapter summary starts on the next page so that you can keep all the chapter summaries together for revision purposes.

Chapter 3 Summary

Encouraging provision

One of the main methods of encouraging non-State retirement provision is tax concessions on contributions, investments, and / or benefit payments. In the UK, the most generous tax concessions are only available to or through registered schemes.

Pension arrangements not eligible for tax concessions

It may be possible to set up financial provision (for retirement or otherwise) that does not receive tax concessions, or receives limited tax concessions.

In the UK an example of such an arrangement is an Employer Financed Retirement Benefit Scheme (EFRBS). An EFRBS is a pension scheme set up by an employer which has not been registered with HMRC. EFRBS may be funded or unfunded. They are not eligible for the tax concessions and are not subject to the regulations that restrict the tax concessions and benefits that can be provided under a registered scheme.

Non-retirement specific saving

In the UK, the most significant examples of non-retirement specific savings that also benefit from some form of tax concessions are the Individual Savings Account (ISA) and Lifetime ISA (LISA).

Restrictions

The tax concessions granted may be subject to restriction in order to minimise the risk of abuse.

In the UK:

- tax concessions on pension contributions and registered scheme benefits are restricted via, for example, the Annual Allowance and the limit on the amount of benefit that can be taken as a tax-free cash sum
- the government has said it intends to abolish the Lifetime Allowance from the 2024/25 tax year.

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The practice questions start on the next page so that you can keep the chapter summaries together for revision purposes.

Chapter 3 Practice Questions

3.1 Outline the following methods, and their tax treatment (ignoring the Lifetime Allowance), by which the self-employed may make financial provision for their retirement in the UK:

Exam style

- a personal pension scheme
- an Individual Savings Account
- a Lifetime Individual Savings Account. [9]

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The solutions start on the next page so that you can separate the questions and solutions.

Chapter 3 Solutions

3.1 ***Personal pensions***

Personal pensions are individual defined contribution arrangements. [½]

Tax relief is granted on contributions. [½]

A tax charge (at the individual's marginal rate) applies in any year in which contributions exceed the AA. [½]

A variety of investment options exist. [½]

A maximum of 25% of the fund can be taken as tax-free cash (subject to an overall maximum of £268,275), and the remainder of the fund can also be taken as cash, subject to income tax … [½]

…or used to purchase an annuity, the income from which will be subject to income tax. [½]

ISAs

Contributions are paid out of net income but funds are accumulated tax free and payable tax free. [½]

There are limits on annual contributions to ISAs. [½]

Individuals can invest in shares, life insurance products or cash. [½]

ISAs are not quite as tax efficient as personal pensions, however there is currently much more flexibility regarding when the proceeds may be taken, *ie* basically any time. [½]

The proceeds of any savings from ISAs may be used to purchase an annuity at retirement, which attracts tax relief on the initial capital. [½]

LISAs

Lifetime ISAs (or "LISAs") are available for individuals between ages 18 and 40. [½]

Contributions of up to £4,000 per year can be paid in, until age 50. [½]

Each year the Government will pay in an additional amount equal to 25% of the individual's contributions into the fund. [½]

Subject to some restrictions, an individual can withdraw the fund from their LISA without penalty if: [½]

- they are aged 60 or over. [½]
- the funds are being used to purchase their first home. [½]
- they are terminally ill with a life expectancy of less than 12 months. [½]

If none of these conditions are met, the individual may still withdraw cash or assets from their LISA, subject to a 25% charge. [½]

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There are limits on an individual's annual contributions to all ISAs, including any LISAs. The limit is £20,000 *pa* for the 2023/24 tax year. [½]

[Maximum 9]

UK example

In the UK, legislation aims to protect pension scheme members by setting a long-term scheme specific funding standard in the context of a strong regime of transparency and disclosure.

Schemes must have a Statement of Funding Principles (SFP) which sets out the policy for ensuring that the Statutory Funding Objective (SFO) is met.

The SFO is to require schemes to have appropriate and adequate assets to meet their *technical provisions*.

Technical provisions are defined as the actuary's assessment, calculated on scheme-specific funding assumptions determined by the trustees (with the agreement of or in consultation with the employer), of the amount required to meet the schemes' liabilities as they fall due. It is usually determined either on an ongoing or a solvency basis, depending on the circumstances of the scheme.

TPR is keen to identify those schemes where members' benefits appear to be at greatest risk. In order to identify these schemes, TPR passes the information disclosed by trustees (discussed in Section 3) through a filter mechanism based on a suite of risk indicators. TPR may question the trustees of such schemes further to see whether they have taken all reasonable steps to maximise the security of members' benefits.

Further details of the current **UK framework are set out in Chapter 11.**

The new UK funding regime for defined benefit pension schemes

The new regime is expected to come into force from October 2023 and apply to all funding valuations with an effective date from October 2023 onwards.

In broad terms, trustees will be required to determine a funding and investment strategy to deal with:

- **the planned funding 'end game' for the scheme over the long term**
- **the journey plan, bridging from the current funding position to that 'end game'.**

Under the regime, trustees must set the date at which the scheme is expected to have reached 'significant maturity' as estimated by the scheme's actuary, where 'significant maturity' is defined by reference to a duration of less than 12 years. Trustees must assume that, on, or before reaching significant maturity, the scheme assets will be invested in accordance with a low dependency investment allocation, that is, an allocation that is either on a cash flow matching basis, and/or such that the funding level is highly resilient to short-term adverse changes in market conditions.

Further detail can be found on the Pensions Regulator's website here:

https://www.thepensionsregulator.gov.uk/en/document-library/consultations/draft-defined-benefit-funding-code-of-practice-and-regulatory-approach-consultation/draft-db-funding-code-of-practice#chapter5

At the time of writing (May 2023), it appears likely that the new regime will come into force during 2024.

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4.3 Covenant

The covenant should be assessed and monitored as part of an integrated approach to managing risks so that action can be taken as necessary to improve security.

The level of detail required in the covenant assessment depends on a scheme's funding position and the perceived covenant strength. A large scheme will typically carry out a detailed covenant review with frequent monitoring, as will a scheme where there are significant concerns about the sponsor's ability to support the scheme.

The sponsor covenant will usually be assessed as part of an actuarial valuation so that it can be taken in account when determining the funding approach and investment strategy.

4.4 Investment

The trustees usually have the power to determine investment strategy, although it is good practice to consult with the sponsor if it is backing the scheme. To this end, legislation may require sponsor consultation or agreement.

It is important that a scheme's investment strategy is set appropriately, monitored frequently and regularly reviewed. A number of factors should be considered when determining investment principles, for example:

- the risks relating to the current investment policy and the expected returns
- interaction with the funding strategy and covenant
- diversification and the balance between different types of investments
- restrictions (including those under legislation and guidance) on holdings in different asset classes, different currencies, companies and illiquid assets
- the extent to which liabilities should be matched by nature, term and currency
- the use of derivatives
- self-investment
- corporate governance and socially responsible investment.

Question

Explain self-investment.

Solution

Self-investment is sometimes referred to as employer-related investment and is best defined by example. The main examples are:

- ownership by the pension fund of the equity of the employer
- ownership by the pension fund of the debt of the employer
- ownership of land or property used by the employer.

Additionally, unpaid employer contributions and scheme deficit could be considered as self-investment. There could be other examples of self-investment and legal advice will often be needed to clarify the position.

Investment restrictions: Employer-related investment

In order to increase the security of benefits there may be restrictions on the amount of scheme funds that are allowed to be invested in the sponsor.

The motivation for self-investment comes from employers who wish to use pension fund assets to support their own business. This may be the case if the employer feels the effective return (*ie* including opportunity cost due to the release of other company assets) would be greater than that available within the pension scheme.

Self-investment is more risky than investing in the equity of a similar company, since the value of the investment falls just as the employer is in difficulty and is least able to put extra funds into the scheme.

UK example

In the UK, investments in a sponsoring employer are restricted to 5% of the value of the assets and any such holding must be disclosed in the annual report and accounts.

5 Compensation Funds

5.1 UK example: Fraud Compensation Fund

In the UK, the Pensions Act 2004 introduced the Fraud Compensation Fund and **a number of levies aimed at protecting pensions, one of which is the fraud compensation levy that will be payable by all types of defined benefit scheme. The levy is determined by the Board of the Pension Protection Fund (PPF) (see below).**

The Fraud Compensation Fund pays compensation to eligible schemes where generally, on or after 6 April 2005:

- the employer is unlikely to continue as a going concern
- there is no likelihood of the pension scheme being rescued, and
- the value of the scheme's assets has been reduced due to an offence involving dishonesty.

Broadly speaking, the Fund will compensate a scheme for the loss incurred, taking into account the change in asset value during the period between the date of the fraud and the date of application for compensation.

5.2 UK example: The Pension Protection Fund

The Pension Protection Fund (PPF), a central discontinuance fund, came into force on 6 April 2005 under the provisions of the Pensions Act 2004 which also introduced the scheme-based and risk-based levies, which meet its cost.

The aim of the PPF is to provide a minimum level of benefit for the members of underfunded defined benefit schemes where the sponsoring employer is insolvent or at serious risk of becoming insolvent.

The PPF does not provide cover against events that happened before 6 April 2005, although the Government has set up a Financial Assistance Scheme to compensate victims in these cases.

Benefits

The PPF guarantees a certain level of benefits based on the member's scheme benefits, age and whether they are in ill-health early retirement. However broadly these benefits are likely to be lower than those which were previously available from the member's pension scheme.

Eligibility

The majority of pension schemes are eligible for the PPF. However, schemes such as those that provide benefits only on death in service, EFRBS and some public sector schemes are ineligible.

The PPF Board may refuse to accept a scheme if it regards the employer as having organised its affairs so as to impose a liability on the PPF.

Infrastructure

Infrastructure tends to be separated into two broad subsets – economic and social. Economic infrastructure includes highways, water and sewerage facilities, energy distribution and telecommunication networks whereas social infrastructure encompasses schools, universities, hospitals, public housing and prisons.

As for commodities, infrastructure investments provide diversification from the more traditional real assets but they are of a much longer duration. Because infrastructure investments also tend to be characterised by high initial costs the initial investment is often known as 'patient capital'.

The risks associated with these investment fall into two broad categories – risks specific to the infrastructure asset itself such as construction, design and operation of the asset or project, and those risks affecting the broader asset class such as market and political risks.

Generally these assets tend to experience low growth in the income stream, compensated for by a higher expected overall yield than equities.

Infrastructure assets tend to exhibit the characteristics of natural monopolies due to the high barriers to entry and few, if any, alternative suppliers giving the potential for firms operating in infrastructure to earn abnormal profits by charging higher prices. As a result, these investments are often subject to regulation which may provide a level of certainty regarding the income stream. This, in turn, may give rise to the investment displaying characteristics between those of equities and bonds.

For a pension scheme which requires cashflow to pay benefits (such as a DB scheme closed to new entrants and future accrual), a level of certainty with regard to the income on assets may be desirable.

2.11 Derivatives

In addition to pure investment in the above assets, there is a large market for trading derivatives of these assets.

These investment products (typically available 'over the counter' from investment banks) enable a pension scheme to hedge against some of the risks associated with inflation or with currency or other market fluctuations. They might also be used to simulate or limit exposure to certain asset classes.

Derivatives can be used for the following purposes:

- Hedging. For example, currency hedging, to reduce part of the risk of overseas investments, or hedging against adverse movements in equity or bond markets.
- Portfolio management. Derivatives may be used to effect a strategic change in the structure of the portfolio, *eg* to reduce the proportion in equities in favour of more government bonds.

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2.12 Liability driven investment (LDI)

LDI strategies have become increasingly popular for defined benefit schemes. The general definition is a strategy which is set with explicit reference to the liabilities. The aim is usually to reduce, or 'hedge' inflation and interest rate risks faced by pension schemes.

For pension schemes in general the liabilities have a very long duration, often greater than the duration of the assets held, leading to interest rate risks if the scheme's funding uses a discount rate based on market interest rates. However, where a DB scheme has been closed to future accrual, timescales for investing assets are not as long as they were when the scheme was open.

It is difficult to choose an investment strategy that matches the liabilities well. In particular, matching by duration can be prohibitively expensive *eg* bonds of a suitably long term may be in short supply.

Even for schemes that set the discount rate in some other way (*ie* not based on market interest rates), **there will still be inflation risks.** Inflation risks will exist unless the assets and liabilities which are linked to inflation are matched or hedged.

A hedging strategy will invest in assets that move in the same direction as the liabilities if interest rates or inflation change. This will usually involve investing in bonds (often index-linked) or using swaps to generate a similar outcome (see below).

Many LDI strategies involve a cautious investment approach, primarily in government and corporate bonds.

An LDI strategy will often be 'geared'. This means the sensitivity of the assets to interest rates or inflation is greater than the nominal value of the assets, allowing a scheme to cover, say, 50% of its liability interest rate exposure using only 25% of its assets.

If interest rates decrease by 1% *pa,* and this is reflected in the discount rate, then the value of the pension liabilities might increase by around 30% say (assuming one-third of the liabilities is pensioners and two-thirds is non-pensioners). An LDI strategy with 25% of the assets held to cover 50% of this interest rate risk requires these assets to broadly increase in value by 60% if interest rates decrease by 1% *pa* (or more if the scheme is not fully funded). Thus, the value of these assets needs to be very sensitive to interest rates.

LDI can be leveraged or unleveraged. In leveraged LDI, financial instruments are used to increase the allocation in certain assets (such as bonds) but they do require collateral as security.

Question

Define collateral.

Solution

Assets that are given as security for a loan, to be used in the event of default. By taking collateral, the creditor has an additional source of repayment should its counterparty be unable to meet its obligations. Examples of collateral include cash, shares and bonds.

The financial instruments used are often derivatives, such as interest-rate and inflation swaps, or secured funding arrangements, such as repo contracts.

Question

Explain what a repo contract is and how a pension scheme can use it to increase its exposure to bonds and hence interest rates.

Solution

A repo contract is a repurchase agreement. Under a repo contract, a pension scheme can sell bonds with an agreement to buy these back at a future date at a pre-agreed price.

During the period of the repo, the scheme can use the money it has raised from selling its bonds to invest in more bonds, increasing its exposure to bonds and hence interest rates.

Because the repurchase price of the bonds is fixed at the outset of the repo, the scheme retains economic exposure to the bonds. For example, if during the period of the repo:

- the market price of the bonds falls, the scheme will be repurchasing at a price above the market price and will be more likely to have made an investment loss
- the market price of the bonds rises, the scheme will be repurchasing them at a price below the market price and will be more likely to have made an investment profit.

Whether the experience of the repo leads to an actual investment gain or loss to the scheme depends on:

- the performance of the extra bonds purchased as a result of the repo
- the performance of the bonds within the repo contract and the price paid to buy these back.

Schemes may use leveraged LDI to fully match their liabilities (in terms of interest rate and / or inflation) using only a portion of their assets. They may then invest the rest of the scheme's assets in return-seeking assets, in the expectation that these will outperform bonds and help to meet any deficit.

Underfunded schemes may not be able to fully match their liabilities using bonds because, even if they invested all their assets in bonds, they may not be sufficiently geared *ie* they may change in value less than the liabilities in response to a change in inflation or interest rates. Such schemes may follow a leveraged LDI strategy in order to match their liabilities fully.

Swaps can provide a relatively straightforward vehicle for schemes to control the amount of mismatch in timing or maturity of the assets and liabilities.

Under a typical swap contract, the scheme will receive fixed payments for the duration of the contract in exchange for floating payments, the floating payments often being linked to London Interbank Offered Rate (LIBOR). The scheme will be able to meet the floating payments by investing the underlying assets on deposit to earn LIBOR or through a benchmarked return.

LIBOR rates have now been replaced by other measures of floating interest rates. For example, sterling LIBOR rates have been replaced by the Sterling Over Night Indexed Average (SONIA).

However floating interest rates move, the scheme is exchanging the floating rate it can achieve in the market at a given point in time with a fixed return. Such a strategy will reduce interest rate risk for the part of the fund invested in this way.

Risks of LDI

Many LDI investments such as swaps will introduce counterparty risk.

Question

Explain what is meant by counterparty risk.

Solution

Counterparty risk is the risk that one party to a transaction fails to meet their side of the bargain. An example of counterparty risk is settlement risk, which arises when a party pays cash or delivers assets before the counterparty is known to have performed their part of the deal.

Gearing or 'leveraging' in these investments can introduce new risks. For example, there may be a requirement for the scheme to post collateral to the derivative managers, and in certain circumstances the managers could demand more collateral. This introduces a liquidity risk to the scheme as they look to maintain enough cash to meet collateral demands.

Collateral demands can change over short periods when interest rates change.

UK example

Markets reacted negatively to **the September 2022 mini-budget** which **caused a sudden, sharp increase in gilt yields** (reflecting the falling of gilt values) **and collateral calls, creating significant and sudden liquidity issues for many UK pension schemes.**

The rise in gilt yields caused many pension schemes' LDI investments (such as swaps and repos) to fall in value as the underlying bonds fell in value. Under the rules of these contracts, pension schemes were required to deposit additional collateral to meet these falls in value. Some schemes struggled to raise enough cash to meet these calls for collateral within the timeframes specified by the contracts, often selling gilts to do so. This further increased gilt yields, triggering more calls for collateral, and so on

To ensure proper market functioning, the Bank of England (BoE) was forced to step in and purchase gilts, emphasising that this was not a long-term intervention but a short-term response to the liquidity issue. The drop in gilt yields as a result of the BoE purchasing gilts was therefore temporary. When many of the changes introduced by the mini budget were reversed, stability returned to the market.

2.13 Cashflow driven investment (CDI) strategies

CDI strategies can be used to mitigate the liquidity risk for a pension scheme that arises from the need to make payments to members. Under a CDI strategy the scheme invests in assets that will provide cashflows that match the expected benefit cashflows.

Government and other high-quality bonds may form the core of a CDI investment strategy, as bonds can be matched to a target cashflow profile with a high degree of confidence.

2.14 Longevity bonds or swaps

Another major risk affecting DB pension schemes is longevity risk. This can be mitigated by investing in longevity bonds or swaps.

Longevity bonds and swaps can be viewed as an intermediate step between funding the scheme on an on-going basis and buying out the liabilities in the form of annuities. Issues to be considered in relation to these investments include how the asset would be valued for scheme funding purposes (as it is unlikely there would be a quoted market for such investments) **and whether the asset could be sold or passed to an insurer in the event of the scheme moving to buy out the liabilities in full.**

Longevity bonds

Longevity bonds work where the coupon payments are linked to the mortality experience of a particular set of lives, such as a specific age group in the national population. Coupon payments will reduce over time in line with the mortality experience of that population.

If longevity is higher than expected, the coupon payments received will be higher, thus hedging the longevity risks of the pension scheme.

The hedge is not perfect if the population underlying the bond is not the same as that in the pension scheme.

For example, if the increase in the longevity of the pension scheme members is unexpectedly high and higher than that of the population being tracked. The hedge will also not be perfect if investment returns and / or pension increases are at a different rate than expected.

UK example

The market for longevity bonds is currently very limited, though it has been suggested that the UK Government could issue longevity bonds to help meet its borrowing requirement and address longevity risks to UK DB pension schemes and annuity providers.

If the UK Government issues longevity bonds then longevity risk is being transferred from private DB pension schemes to the UK Government. This may not be desirable for the UK Government as it is already significantly exposed to the risk that the national population lives longer than expected, through its State pension and public-sector pension promises.

Longevity swaps

These contracts may be written as derivatives or as insurance contracts and are generally offered to trustees of DB pension schemes by insurance companies.

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There are two types of longevity swap, a named lives swap and a population index swap and these are described below.

The two types of longevity swap differ according to the reference population being tracked and the members for whom longevity risk is being hedged.

Named lives swap

This type of swap protects the pension scheme against members (generally just those who are already receiving a pension) living longer than expected over a pre-agreed term.

The payments are therefore linked to the mortality experience of the scheme's *actual* **membership rather than the national population.**

The cashflows are as follows:

The **scheme pays:**

- **expected pension amounts (which may include pension increases and spouses' pensions)**
- **a contribution for the swap provider's expenses and profits.**

The **swap provider pays actual pension amounts (which may include pension increases and spouses' pensions).**

The details of pension increases and dependants' benefits will be set out in the contract.

In practice, the scheme will continue to pay the actual pensions as usual, and **a net** 'correction' **payment is made at regular intervals, such as annually,** to the scheme by the swap provider equal to the difference between the amounts actually paid and the expected amounts. The 'correction' payment could be negative in which case the scheme will make a payment to the swap provider.

This type of swap requires a lot of administration and documentation as it is necessary to track the actual scheme membership**. It is, therefore, suitable only for large pension schemes** with sophisticated administration systems**.**

Population index swap

Under this type of swap, the reference measure is a population index (such as the national index for the membership's location), rather than the actual scheme's experience.

Again, these contracts do not offer a perfect hedge if the population underlying the swap is not the same as that in the pension scheme.

These contracts tend to be focused on hedging improvements in longevity for members who are under pension age. This potentially mitigates longevity risk for non-pensioners where there is more exposure to longevity risk due to the expected longer term (than for pensioners who are mainly over pension age).

The swap provider pays out if the reference population experiences fewer deaths than expected (using a pre-agreed baseline assumption) **over the pre-agreed term, say 10 years, of the contract.** The pension scheme makes a payment to the swap provider if there are more deaths in the reference population than expected.

The main objective of the swap is not to hedge against pre-retirement mortality but to protect the pension scheme against post-retirement longevity improvements over the swap's term.

These contracts require far less administration. This is because it is not necessary to track the actual membership of the scheme.

2.15 Diversified growth funds (DGFs) and absolute return funds

This type of fund offers investors growth potential with generally lower risk than equity investment, while also utilising the expertise of the investment manager. DGFs will generally be actively managed, hence fees can be high. It consists of a diversified portfolio of assets with the primary aim of achieving growth, *ie* capital appreciation, as opposed to paying income or dividends.

The assets underlying DGFs include equities, but also assets which may not be available to, or practical for, smaller schemes to invest in, such as commodities, property, emerging markets and derivatives.

Fund managers will set an objective, relating to the target capital growth and are given an element of freedom over how they achieve that objective. The objective is typically defined as a set percentage in excess of a particular measure, such as LIBOR, as opposed to tracking an index. Managers of DGFs employ 'dynamic asset allocation' whereby the portfolio is continually monitored and rebalanced when market conditions change. This allows a scheme to achieve a diversified investment strategy without consuming too much management time.

The majority of DGFs run on a pooled basis, but bespoke funds can be arranged for larger schemes.

2.16 Environmental and social and governance (ESG) driven investments

Investment decisions based on ESG factors, such as green bonds and green loans.

ESG issues are discussed in more detail later in the course.

Broadly speaking, green bonds and green loans are designed to raise money for projects with clear environmental benefits.

More information about green bonds can be found at:

https://www.icmagroup.org/sustainable-finance/the-principles-guidelines-and-handbooks/green-bond-principles-gbp/

2.17 Employer-related investments

Employer-related investment (also known as self-investment) is best defined by example. Examples include:

- ownership by the pension scheme of the equity or bonds of the employer
- ownership of land or property used by the employer.

Additionally, unpaid employer contributions and scheme deficits could be viewed as employer-related investments (although is not for the purposes of the UK self-investment regulations).

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2.18 Other investments

Other investments only usually form a tiny proportion of pension fund assets, but it is worth being aware that they exist. They include:

- Works of art
  - These have a subjective market price and possible marketability problems.
  - These are of limited use due to their lack of income other than by sale of the asset.
- Gold
  - This is of limited use due to its lack of income other than by sale of the asset.

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Stochastic approaches to projecting mortality

Stochastic approaches can also be used.

It is expected that actuaries will continue to illustrate the uncertainty in future mortality by using a range of different projections. This could include the use of stochastic approaches.

This means that a range of future possible scenarios can be allowed for, regardless of how small the probability of any particular scenario arising may be.

Mortality projections in the UK

The CMI has also undertaken significant research into possible methods of projecting mortality.

Mortality during 2020 and 2021 was higher than previous years, due to the coronavirus pandemic. CMI will therefore not be placing any weight on data in respect of these years when projecting future mortality rates. Mortality during 2022 remained high despite the pandemic easing, although the long-term effects of the pandemic on mortality are still unknown. Trustees therefore, with the help of their advisers, **need to decide how much reliance to place on data obtained during the pandemic, and how much smoothing should apply to the underlying qx rates.**

More information can be found at:

https://www.actuaries.org.uk/mortality-improvements-and-cmi-2021-frequently-asked-questions-faqs

The link above provides commentary on the CMI_2021 Mortality Projections Model,. At the time of writing (May 2023), the latest projection model released is CMI Mortality Projections Model, CMI_2022. The Frequently Asked Questions (FAQ) page that accompanies this model can be found here:

https://www.actuaries.org.uk/learn-and-develop/continuous-mortality-investigation/cmi-working-papers/mortality-projections/cmi-working-paper-177/mortality-improvements-and-cmi2022-frequently-asked-questions-faqs

It describes the following key findings:

- Standardised mortality rates in England & Wales were, on average, 3% lower in 2022 than in 2021. Both years had significantly higher mortality than before the coronavirus pandemic.
- Mortality in 2020 and 2021 was volatile and made it difficult to estimate the long-term impact of the pandemic on mortality.
- Since mid-2021, mortality has been less volatile and so mortality in 2022 may be an indicator of future mortality rates, at least to some extent. Therefore, the standard version of CMI_2022 makes some allowance for 2022 mortality data.
- The standard version of CMI_2022 produces cohort life expectancies at age 65 that are about 6 – 7 months lower than in the previous version of the CMI Model, CMI_2021.

- Over the period 2011-2020, people aged between 65 and 89 living in less-deprived areas of England & Wales have experienced mortality improvements around 1.5% a year higher than those living in more-deprived areas.

The CMI has published a library of mortality projections, including two methods of stochastic mortality projections: the Lee-Carter method and the P-spline method.

Each has its own advantages and disadvantages, mostly relating to the way historic data is used – and the weighting placed on more recent experience. Knowledge of these methods, or the more recent Cairns Blake Dowd model, is not required for Subject SA4.

For those interested, considerable information on these methods can be found in CMI Working Papers 3, 15 and 25. However, a brief summary of the methods is given below.

The Lee-Carter method is a bilinear model (*ie* a model with two variables such that if one is held constant, the results vary linearly with the other) with age and calendar year as variables. It is a simple, much-studied model and can be used to generate scenarios using the same techniques as are already used in asset-liability models. Lee-Carter models generally use a time series approach to model the change in overall mortality.

P-spline models are examples of regression models. The P-spline method can be defined in many dimensions to fit, for example, a surface of rates of mortality over the (x,t) plane where x could be age and t could be calendar year or year of birth. It can automatically allow for parameter uncertainty and easily incorporate cohort effects.

The Cairns Blake Dowd model is a two-factor stochastic model for the development of the mortality curve through time for individuals over age 60. The first factor affects mortality-rate dynamics at all ages in the same way, whereas the second factor affects mortality-rate dynamics at higher ages much more than at lower ages.

UK example

Most UK schemes now use suitably adjusted SAPS tables with allowance for future improvements in line with the CMI Mortality Projection model, typically using the Core Parameters and a long-term rate of improvement in the range 1–2% *pa*.

Mortality advice in the UK

Low real discount rates (*ie* net of pension increases) and the increasing use of liability cashflows in the design of investment strategies have made it more important than ever for UK pension actuaries to provide high quality mortality advice.

Longevity in the UK has improved over the last 30 to 40 years. This, combined with low real discount rates (*ie* net of pension increases) and increasing use of liability cashflows in the design of investment strategies has led to increased attention being paid to mortality projections and longevity risk for pension schemes. This reflects the increased significance of the mortality assumption.

Regulations and professional guidance in the UK

In the UK, The Pensions Regulator has published guidance to trustees on setting mortality assumptions under the scheme funding regulations.

5 Insurance

Insurance can be used to remove or control risks that custodians or members are unwilling or unable to bear themselves.

It is possible to insure a specific type of risk or a combination of risks and the intention of using insurance to mitigate risk is to try to ensure a degree of certainty, better match liabilities, or to aid liquidity.

The main risks that can be insured against are:

- **investment risk**
- **inflation risk**
- **longevity risk**
- **liquidity risk**
- **sponsor risk.**

However, when introducing another party schemes expose themselves to counterparty risk and reputational risk if there is a problem with the insurer chosen.

In addition, in DC schemes members open themselves to regret risk where they choose to lock-in to a certain level of market conditions.

A member of a DC scheme who chooses to purchase an annuity may regret this action if annuities become cheaper soon after the purchase has taken place.

The most common form of insurance used in DB and DC schemes to secure benefits are annuity policies.

In return for taking on the scheme's unwanted risks it is likely that an insurer will require more capital than a scheme would require on an ongoing basis as the insurer is providing some degree of certainty. As a result, they are likely to require a premium that will allow them to fund on a cautious basis and indeed, may be required to hold a capital reserve. This approach allows the insurer to make a profit from the business whilst also maintaining an expected high level of security over the long-term for the member.

Insurance products are the next step along from incentive exercises as insurance products can be used to fully remove risks from a scheme. Alternatively partial insurance can be considered, for example buying out the pensioner liabilities only.

Question

Discuss the advantages and disadvantages of a DB pension scheme insuring pensioner liabilities.

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Solution

The advantages of a DB pension scheme insuring pensioner liabilities include:

- no mortality, inflation or investment risk remains with the scheme in respect of the liabilities secured
- competition between insurance companies sometimes provides the opportunity to purchase annuities on advantageous terms
- no expense risk for the scheme and administration may be passed to the insurance company (if annuities are paid direct to member).

The disadvantages of a DB pension scheme insuring pensioner liabilities include:

- the overall cost may be higher because the insurance company will need to generate some profit, charge a contingency margin, cover expenses, and invest in fixed interest / index-linked bonds
- no opportunity for investment or mortality profit for the scheme on the assets backing the pensioner liabilities
- arrangements become very complex for any subsequent discretionary increases
- immediate liquidity constraints when buying the annuities
- may save little or no administration (particularly if subsequent discretionary increases are paid).

The scheme can either undertake a buy-out, where all or part of the scheme's liabilities are passed to an insurance company at an agreed price, or a buy-in, where annuities are purchased and held as scheme assets to protect against the investment, inflation and longevity risks.

Strictly, a buy-in is an investment decision. Buy-ins and buy-outs were discussed in detail in Chapter 13 (investment classes).

However, the use of insurance products substitutes covenant risk for counterparty risk and also introduces the possibility of reputational risk if members face unfavourable experiences and subsequently complain.

Furthermore, trustees and employers should be aware of any other risks that may not be covered by the insurance policy but which could remain after a buy-out, and consider how to deal with these. For example, how to deal with the risk of data errors or missing beneficiaries. Separate insurance policies may be required to cover these residual risks.

5.1 Alternatives to insurance products

As an alternative to a buy-in or a buy-out, a scheme could enter into a commercial agreement with an alternative third party (which may not be an insurance company) whereby risk is transferred in an alternative way. For example, the third party could provide capital to the pension scheme in exchange for an agreed run-off strategy, with expected emerging profit being returned to the third party over time.

Alternative products such as these could be cheaper and hence more accessible than a buy-in or buy-out, but carry additional transaction risks (*eg* obtaining regulatory approval) and could be less secure overall than a more traditional insurance product.

In the example above, the payment to the scheme by the third-party will, all other things being equal, increase members' benefit security. However, the trustees (and any regulator) will be concerned about what the third-party will require in exchange. For example, obligations to the third party may include:

- payments from the scheme in the future which:
  - will reduce the security of remaining members' benefits
  - may require changes to scheme documentation to be possible
- restrictions to how the trustees run the scheme, *eg*:
  - their freedom to determine the scheme's investment and financing strategies
  - their freedom to buy-out liabilities.

Another example of an alternative to insurance is transfer of the scheme's assets and liabilities to a non-insurance consolidator. This was discussed in Subject SP4 and is considered in more detail in the discontinuance chapter of Subject SA4.

6 Consolidation

6.1 Consolidation of schemes

Smaller schemes (or larger schemes in certain circumstances) could opt to join a consolidation vehicle (*eg* a DB master trust).

Broadly speaking, a DB master trust is a trust that is run by a single set of trustees and which contains the assets and liabilities of multiple, unconnected, DB pension funds. As the funds and their sponsors are not associated with each other, the assets and liabilities of each fund are ring-fenced from those of the others in the master trust. Each sponsor remains responsible for the financing of their fund's liabilities and, if necessary, will pay contributions into their part of the master trust.

These vehicles could significantly streamline ongoing operational requirements, reducing administration (and other) costs and reducing management time spent by senior members of organisations in making decisions related to their legacy defined benefit scheme (which may comprise of very few current employees).

A single trustee board would be responsible for the operation of all schemes within the master trust creating further efficiencies.

Moving a scheme's assets and liabilities to a master trust may also lead to an improvement in governance. For example, small schemes may not have the resources and expertise to maintain best practice in every area of scheme management.

6.2 Consolidation of advisors and trustees

Advisory firms (including administration providers) and professional trustee firms may find that merging with or acquiring a competitor further contributes to risk management. For example, a merger of two large actuarial firms can yield synergies in maintaining complex IT systems, market knowledge and business development time which could lead to more efficient outcomes for trustees.

7 Benefit design

It may be possible to amend benefits in order to manage risk.

There may be restrictions in the scheme documentation or legislation such that changes cannot be made to the detriment of the members' benefits that have already accrued and therefore changes may only be possible for future rights only. For example, a fundamental change may be to offer a DC pension scheme for future service, whilst retaining DB accrued rights.

Risk-sharing benefit schemes could be used.

Question

Outline possible risk-sharing benefit designs.

Solution

Possible approaches include:

- cash balance schemes
- longevity adjustment factors: the retirement age is increased for future service in light of increasing longevity, thus mitigating the cost to the sponsor of increasing life expectancy
- risk management options: schemes that employ risk management options such as longevity swaps and insurance company investments
- simplified / Core DB schemes: a basic, 'core' level of DB benefits is offered with other benefits such as indexation being discretionary and subject to less regulation
- conversion of benefits: a defined level of benefit is promised to the member which is converted to a DC fund of equivalent value when the member leaves the scheme (through withdrawal, death or retirement)
- fluctuating pensions: the scheme provides a core non-increasing pension on retirement with an additional element which is entirely discretionary and subject to the financial status of the scheme
- links to changes in State Pension Age (SPA): the scheme's retirement age would be permitted to be adjusted in line with revisions to the SPA
- the use of with-profit funds within DC
- guarantees and risk-sharing provided by the insurance industry: guarantees on the return on the fund and the income at retirement whereby the member is not subject to the downside risk but takes a share in the upside risk
- collective DC schemes: the employer pays a fixed rate of contributions. Benefits paid are dependent on the funding level of the scheme and may be varied once in payment.

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The chapter summary starts on the next page so that you can keep all the chapter summaries together for revision purposes.

Chapter 24 Summary

A number of options exist to facilitate risk management of a DB pension scheme:

Investment strategy

Most de-risking strategies involve a switch of assets from return-seeking assets to those which provide a better match for the liabilities. Derivatives may also be used.

Sponsor covenant

Sponsor covenant risk can be mitigated by improving the covenant by obtaining guarantees; investing in assets that pay out on sponsor default; contingent assets; requiring new company debt to rank below the scheme and/or agreeing ratchets and/or contingent contributions.

Financing

The sponsor and/or trustees may revise their financing strategy if there is a change in the risk inherent in benefit provision or their attitude to that risk.

Options

The option terms can be set in order to mitigate risk, for example reducing transfer values.

Similarly consent requirements can be introduced in order that options can be refused if they increase risk unacceptably.

Incentive exercises could be used to reduce risk.

Insurance and alternatives

Insurance products can be used to fully or partially remove risks from a scheme. These substitute covenant risk for counterparty risk and introduce the possibility of reputational risk if members face unfavourable experiences and subsequently complain.

Alternatives to insurance products may also exist. These may be cheaper than insurance but lead to concerns about benefit security and the obligations of the trustees.

Consolidation

Consolidation of schemes, advisers and trustees can improve governance and streamline operational requirements, reducing administration costs and management time.

Benefit design

Subject to any restrictions, it may be possible to amend benefits in order to manage risk.

For example, a fundamental change may be to offer a DC pension scheme for future service, whilst retaining DB accrued rights. Other risk-sharing benefit schemes could be used.

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The practice questions start on the next page so that you can keep the chapter summaries together for revision purposes.

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Problem solving and analysis

Syllabus objectives

This chapter does not cover any syllabus objectives directly. The main objective of this chapter is to focus on the skills that will help you to pass the Subject SA4 examination.

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0 Introduction

The Core Reading suggests that successful candidates should be able to:

- **Recommend coherent solutions and courses of action in relation to the overall financial management of benefit arrangements.**
- **Analyse complex problems in terms of actuarial, economic and financial factors to a level where appropriate analytical techniques may be used.**
- **Assess the implications and relevance of such factors, integrating the results into a coherent whole.**
- **Evaluate the results critically in a wider context, drawing appropriate conclusions.**
- **Propose solutions and actions, or a range of possible solutions and actions, based on this evaluation.**

The ability to analyse a problem, develop a solution and communicate the results clearly is a very important skill that actuaries need in their day-to-day work, in whatever field that they work. The examiners will test your ability to solve problems.

The aims of this chapter are:

- to help you to develop the skills required to pass the exam
- to explain how to apply the skills when answering an exam question
- to give you some hints and tips on how to develop these skills further.

1 Examples

To pass the Subject SA4 exam you will need to demonstrate the higher skills that you require as a qualified actuary. Understanding, analysing and assessing alternative solutions are more important than learning and recalling. The Core Reading below, repeated and expanded from Chapter 1, provides important guidance on these skills.

The examiners will expect candidates to be able to apply the knowledge and understanding they have developed through the study of the Core Reading for this Subject to produce coherent solutions and actions in relation to the financial management of pension arrangements.

In particular candidates are expected to be able to combine ideas across the Units in the Core Reading and apply them to scenarios proposed by the examiners.

Some examples might include, but not be limited to:

- **Demonstrate an understanding of the needs**, objectives **and responsibilities of the different stakeholders involved in benefit arrangements and how these may be factored into any recommendations.**

  The key stakeholders are usually the sponsor (which could be the employer or the State), the managers (which are the trustees if the scheme is trust-based), the beneficiaries, the advisers and any relevant statutory body.

  Part 1 of the course concerning the fundamentals of benefit provision, including the needs, objectives and responsibilities of the key stakeholders, would be useful in answering these questions.

- **Discussion of advantages and disadvantages of different benefit arrangements.**

  This discussion can be from the sponsor's and/or the beneficiaries' viewpoint.

  Part 2 of the course concerning the design of benefits would be useful in answering these questions.

- **Comparison of various investment** and financing **strategies and their appropriateness for a particular benefit scheme or stakeholder under given circumstances.**

  Investment classes and investment and financing strategy are discussed in Part 3 of the course.

- **Recommendations regarding appropriate assumptions** and methods **to be adopted for investigations, such as determining the funding level of a benefit scheme.**

  In general, the assumptions and method will depend upon the purpose of the investigation and the objectives of the key stakeholders.

  Part 4 of the course concerning valuations would be useful in answering these questions.

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- **Demonstration of an understanding of the different approaches to scheme valuations under different circumstances.**

  Similarly, the valuation approach, such as whether it will be deterministic or stochastic and how much prudence is required, will depend upon its purpose and the objectives of the key stakeholders.

  Part 4 of the course concerning valuations would be useful in answering these questions.

- **Demonstration of an understanding of the key risks associated with benefit provision as applicable to different stakeholders and recommendations of strategies to mitigate those risks.**

  The key risks usually concern the sponsor covenant, investment strategy and funding strategy.

  Part 3 and Part 6 of the course concerning risks and risk management respectively would be useful in answering these questions.

X1.1 The government of a particular country is reviewing various aspects of pension provision.

(i) Explain how a government can structure the tax regime to encourage retirement saving in pension schemes. [5]

The government is reviewing how non-retirement savings and savings in pension schemes are taxed. Non-retirement savings are subject to a 'taxed, taxed, exempt' tax regime, whilst pension scheme savings are subject to an 'exempt, exempt, taxed' tax regime. It has been suggested that it would be fairer to bring the taxation of pension scheme savings in line with non-retirement savings.

(ii) Set out the arguments for and against this change. [7]

The government is also reviewing regulation and professional standards and as part of this is assessing the situation in other countries.

(iii) Describe the measures that have been put in place in the UK to ensure that actuarial advice given as part of the statutory funding valuation of a defined benefit pension scheme can be relied upon. [7]

The government is undertaking a review of the adequacy of retirement provision for a 'typical citizen', who is defined as a median-earner currently approaching State Pension Age (SPA). The following information is currently available:

- The median earnings of citizens in the year before they reach SPA is 119,000.
- Employees must be auto-enrolled into an approved defined contribution (DC) pension arrangement. The employees and the employer are required to meet minimum contribution rates which, in total, equal 8% of each employee's earnings each year. A typical citizen who has been enrolled for their full working lifetime has a fund of 470,000 from contributions at the minimum rates.
- At retirement, citizens can use their funds from approved arrangements to purchase an annuity, take one or more cash sums and / or use income drawdown.
- 25% of citizens' funds from approved arrangements can be taken as tax-free cash sums.
- Annuity rates at SPA are typically 30 for a single-life pension which increases in line with price inflation.
- Average life expectancy from SPA is 20 years.
- Each citizen will receive a flat-rate State pension, which increases annually in line with increases in national average earnings. The State pension is currently 35,700 *pa*.

(iv) Discuss whether income on retirement at SPA is likely to be adequate for a typical citizen. [11]

(v) Set out reasons why the adequacy of a typical citizen's income may worsen during their retirement. [5]

[Total 35]

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X1.2 (i) Describe the role and responsibilities of a pension scheme trustee. [8]

(ii) Outline the advantages of having the Finance Director on the board of trustees. [2]

(iii) Describe the potential conflicts of interest that the Finance Director may face in the role as trustee and suggest ways in which these conflicts of interest could be managed. [5]
[Total 15]

X1.3 A developed country has a substantial occupational defined benefit pension scheme market. Schemes tend to invest in a mixture of equities and bonds. The government is establishing a Central Discontinuance Fund (CDF).

(i) State the main aim of a CDF. [1]

On employer insolvency, if a scheme has insufficient assets to secure the CDF benefits with an insurance company, the scheme's assets are to be transferred to the CDF which will then provide CDF benefits to the members.

The benefits provided by the CDF will be:

- For members under age 65 when the sponsoring employer becomes insolvent, 90% of the scheme pension accrued to date or in payment.
- For members aged 65 or over when the sponsoring employer becomes insolvent, 100% of the scheme pension accrued to date or in payment.
- No future increases to pensions in payment are made after the sponsoring employer becomes insolvent.
- In other respects, full scheme benefits are provided.

The CDF is to be funded on a buy-out basis. It requires an additional source of funding when there is a shortfall between the value of the CDF benefits provided in respect of each scheme accepted on a buy-out basis and the amount of scheme assets inherited.

(ii) Discuss the choice of funding basis for the CDF. [8]

(iii) Discuss the advantages and disadvantages of financing the shortfall using general taxation. [8]

(iv) Discuss the advantages of financing the shortfall using an upfront-tax or 'levy' paid by employers who sponsor defined benefit pension schemes. [4]

The government decides to adopt the levy method.

(v) Discuss the key risks of the CDF to the key stakeholders of the eligible schemes. [15]

The levy will be calculated to reflect the financial risk that each scheme poses to the CDF. The levy will be calculated every 1 January as:

Levy = $s \times P \times (120\% \times L - A)$ where:

- s = variable scaling factor used to ensure an appropriate overall levy is collected over time
- P = probability of the sponsoring employer becoming insolvent over the next 12 months
- L = the liability of the CDF benefits for the scheme
- A = the scheme's assets.

(vi) Suggest reasons why the government is using a 120% factor rather than having the levy proportional to the deficit ($L - A$). [6]

(vii) Discuss the shortcomings of this levy formula and improvements that could be made. [8]

[Total 50]

END OF PAPER

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Assignment X1 Solutions

Solution X1.1

Comment

Parts (i) and (ii) of this question test knowledge and understanding of the material in Chapter 3 (Taxation). Part (iii) focuses on the material in Chapter 5 (Professional guidance). Parts (iv) and (v) test application of ideas discussed in Chapter 2 (Key Stakeholders).

(i) ***Structuring the tax regime to encourage retirement saving through pension schemes***

General

More favourable tax concessions could be granted in respect of retirement savings in approved pension schemes than are available for other savings. [½]

The government should consider granting exemptions or reductions from tax on pension scheme:

- contributions [½]
- investments [½]
- benefits. [½]

The government should take account of the fact that an individual's retirement income may be lower than their pre-retirement income and so (in a progressive tax system) be subject to a lower marginal rate of income tax … [½]

… which may lead the government to focus on tax concessions to contributions and investments rather than benefits. An example of such a system is given below. [½]

Example

Contributions to an approved pension arrangement

- Contributions by an employee could be deducted from personal taxable income before the calculation of income tax (*ie* employee contributions could be exempt from income tax). [½]
- Individuals may be able to claim tax relief on contributions made on their behalf by third parties. [½]
- Contributions by an employer:
  - could be allowed as a business expense and so deducted from profits before the calculation of corporation tax [½]
  - may not be classed as a taxable benefit in kind for the employee [½]
  - may not be subject to other taxes, such as 'national insurance' which applies in the UK. [½]

<u>Investments</u>

- Investment income in a pension scheme may be exempt from tax. [½]
- Capital growth in a pension scheme may be exempt from tax. [½]
- Double taxation agreements could be in place with a number of countries to reduce the tax paid on overseas investment income. [½]

<u>Benefits</u>

- Lump sum death benefits may be exempt from income or inheritance tax. [½]
- Some pension income and / or lump sum benefits on retirement may be subject to income tax, but at a lower marginal taxation rate than income from other sources… [½]

  … or may also be exempt from tax. [½]

[Maximum 5]

(ii) ***Arguments for and against the change***

Arguments for the change

- It accelerates the government's receipt of tax revenue … [½]

  … and could increase tax income, *eg* if citizens tend to be in a higher tax band whilst working than in retirement. [½]
- The government could receive more tax if there are situations currently where some benefits are exempt from tax, *eg* lump sum on retirement. [½]
- It could lead to a simpler regime overall, which could: [½]
  – be easier for citizens to understand [½]
  – result in lower communication and administration costs for the government and pension providers [½]
  – encourage more people to save. [½]
- It is arguably fairer to citizens overall as the EET system is particularly beneficial to those high earners who are in a high tax band pre-retirement and a lower tax band post-retirement. [½]

Arguments against the change

- Accelerating receipt of income tax means that the government may spend more money now and collect less in the future, which may force future governments to raise income tax rates. [½]
- The government will incur the costs and complexity of implementing the new system and transitioning between the systems. [½]
- The change may lead to a greater reliance on the government in retirement … [½]

  … *eg* through means-tested benefits, because for example: [½]
  - there may be less incentive to save via a pension scheme … [½]

    … which could lead to lower retirement benefits for citizens … [½]
  - citizens may save via non-pension savings products instead of via a pension scheme, and spend their savings before retirement [½]
  - the incentive, through the use of progressive taxation, not to spend retirement savings too quickly in retirement could be lost. [½]
- It will make the system more complex for many years as people will have accrued savings under both the old and new tax regimes. [½]
- There is a risk that the taxation approach will change back to EET in the future leading to double taxation of both contributions and benefits. [½]
- Higher rate tax payers could lose out if their pension benefits would have been taxed at a lower rate than their contributions will be. [½]

[Maximum 7]

(iii) ***Measures to ensure actuarial advice is reliable***

The trustees must appoint a suitably qualified actuary as the Scheme Actuary. [½]

The trustees must instruct the Scheme Actuary to perform the statutory funding valuation. [½]

The Scheme Actuary must:

- hold a current Scheme Actuary certificate [½]
- complete the annual CPD requirements. [½]

Professional guidance

Actuaries must comply with any relevant legal requirements, *eg* Data Protection Act … [½]

… and professional standards or guidance. [½]

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The following Technical Actuarial Standards (TAS) apply to statutory funding valuations in the UK:

- TAS 100: Principles for Technical Actuarial Work [½]

  The purpose of TAS 100 is to promote high-quality technical actuarial work and to support the Financial Reporting Council's over-arching 'reliability' objective. [½]

  It contains detailed guidance around the principles of judgement, data, assumptions, models, communication and documentation.

  [½ mark for mentioning at least two of the principles]

- TAS 300: Pensions [½]

  The purpose of TAS 300 is to promote high quality technical actuarial work in pensions on matters where there is a high degree of risk to the public interest. [½]

  The provisions of TAS 300 support the reliability objective and the general principles in TAS 100. [½]

Members of the IFoA must comply with the relevant Actuarial Profession Standards (APS):

- APS P1 – Duties and Responsibilities of Members Undertaking Work in Relation to Pension Schemes [½]

  This sets out ethical requirements for Scheme Actuaries … [½]

  … including putting in place a written agreement with the trustees requiring the trustees to notify the Scheme Actuary of specified events which could be of material significance to the financing or solvency of the scheme. [½]

- APS X1 – Applying Standards to Actuarial Work [½]

  This provides actuaries with a means of clarifying which standards apply to their work. [½]

- APS X2 – Review of Actuarial Work [½]

  This relates to the need to consider the extent to which review is required of any actuarial work. [½]

Members of the IFoA must also comply with the Actuaries' Code … [½]

… which sets out six core principles which members are expected to observe in their professional lives, and which must be complied with both in spirit and to the letter. [½]

The six principles in the Actuaries' Code are integrity, competence and care, impartiality, compliance, speaking up and communication.

[½ mark for mentioning at least two of the principles]

[Maximum 7]

(iv) ***Adequacy of income on retirement at SPA***

General

The adequacy of benefits at retirement depends on what benefits are likely to be available and citizens' financial obligations. [½]

The benefits available will include:

- State benefits and benefits from the minimum contributions to the approved DC arrangement [½]
- additional benefits from approved arrangements [½]
- other savings and sources of income (such as property, inheritance, savings accounts *etc*). [½]

The financial obligations will depend on citizens' personal circumstances and characteristics … [½]

… although for practical reasons the government will need to make a judgement about what could generally be considered adequate for a typical citizen … [½]

… and may use a replacement ratio strategy to assess this. [½]

Expected benefits at retirement for a typical citizen

<u>Approved DC arrangement with minimum contributions</u>

The expected benefits at retirement depend on how the fund is used; in particular the combination of lump sums, income drawdown and annuities the citizen wishes to use. [½]

The choice of benefits will depend on the citizen's:

- attitude to risk [½]
- plans for the retirement income, *eg* use of the lump sum [½]
- expertise; to be able to manage their fund throughout retirement [½]
- personal circumstances; *eg* if they have no dependants they will not need to provide a dependant's pension. [½]

[Maximum of 1 mark for examples]

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Examples of how the fund may be used include:

- A single-life annuity which increases with price inflation in retirement may provide a pension of around $£470,000/30$ = £15,700 *pa*. [½]
- Under income drawdown the fund could provide an income of $£470,000/20$ = £23,500 *pa* … [½]

  … assuming that the citizen chooses to spread the fund as level payments over the average life expectancy of 20 years … [½]

  … and does not take credit in advance for expected future investment returns. [½]
- A lump sum at retirement of at least the 25% of the fund which can be taken tax free, *ie* $£470,000 \times 0.25$ = £117,500 … [½]

  … which would reduce the amount available to purchase an annuity or for income drawdown, reducing the ongoing retirement income accordingly. [½]
- If the 25% tax-free lump sum is taken, the remaining fund of $£470,000 \times 0.75$ = £352,500 could also be taken as a lump sum … [½]

  … although this may be subject to a high tax charge. [½]

[Maximum of 2 marks for examples]

Overall, income from annuities or drawdown is expected to give a replacement ratio of 13–20%. [1]

After-tax income is likely to be enhanced if the tax-free lump sum is taken. [½]

State provision

The State pension is expected to be around 30% $(35,700/119,000)$ of a typical citizen's income at retirement. [½]

State provision plus approved DC arrangement with minimum contributions

Overall the benefits allowed for from these sources provides a replacement ratio of 43%–50% of a typical citizen's income at retirement. [½]

Additional approved benefits

The government may (or may not) feel it is appropriate to take account of any additional benefits provided through approved arrangements as they will have required citizens and/or their employer to have paid additional (voluntary) contributions. [½]

If the total contributions of 8% of salary provide a replacement ratio of around 13–20%, for every extra contribution of 1% of salary the typical citizen has made to an approved DC scheme, the replacement ratio could increase by around 1.6–2.5%. [½]

<u>Other savings and sources of income</u>

The government may (or may not) consider it appropriate to take account of citizens' other savings and sources of income in retirement. [½]

These are likely to vary significantly between citizens, for example:

- Citizens may continue working, perhaps on reduced hours, after retirement which would reduce the amount of income they require from their retirement arrangements. [½]
- Citizens may own their own property, although this may be required to meet the cost of social care or as inheritance for their dependants. [½]

Adequacy

The impact of taxation on income before and after retirement needs to be considered, perhaps with the use of the net replacement ratio (NRR). [½]

It can generally be assumed that less income is required in retirement than when working because net outgoings are likely to reduce and therefore a replacement ratio of less than 100% can be targeted. [½]

To assess the level of income in retirement that will be adequate for the typical citizen, the government should assess their likely regular outgoings, for example: [½]

- they may reduce on retirement as pension contributions cease [½]
- they may increase to meet the cost of leisure activities. [½]

Conclusion

It may be that a replacement ratio of up to 50% is adequate for a typical citizen if, for example, net outgo reduces substantially on retirement. [½]

It may be that a replacement ratio of up to 50% is inadequate for a typical citizen if their standard of living would be materially worsened. [½]

Markers: credit any reasonable examples.

[Maximum 11]

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(v) ***Worsening adequacy of income during retirement***

The adequacy of a typical citizen's income may worsen during retirement if their outgoings necessary to maintain an adequate standard of living become a greater percentage of their retirement income as they age. [1]

This may be as a result of their outgoings increasing … [½]

… particularly if they increase at a faster rate than their income … [½]

… or their income declining. [½]

Increasing outgoings

Outgoings may increase if:

- the cost of the citizen's existing financial obligations (food, heating *etc*) increase, which could be at a faster rate than income if, for example: [½]
  - price inflation exceeds increases in national average earnings, as the State pension increases in line with the latter [½]
  - the citizen purchased an annuity with level payments or low fixed increases [½]
  - the citizen opted for level payments from income drawdown … [½]

    … or net investment returns on the fund are lower than expected [½]

  [Maximum of 2 marks for any reasonable examples]
- the citizen starts to incur additional financial obligations during retirement … [½]

  … *eg* their health declines and so they need to fund the cost of nursing care. [½]

Declining income

Income may decline if:

- the citizen's income drawdown fund is becoming exhausted … [½]

  … *eg* because they are living longer than expected [½]
- the government reduces the State pension [½]
- the government raises income tax rates, so net income falls [½]
- the relevant annuity or income-drawdown provider defaults [½]
- the proceeds of any tax-free lump sum taken at retirement are exhausted [½]
- income from other sources reduces or ceases. [½]

[Maximum of 3 marks for any reasonable examples]

[Maximum 5]

[Total 35]

Solution X1.2

Comment

Part (i) of this question tests knowledge and understanding of the material in Chapter 2 (Key stakeholders) and Chapter 4 (Security).

Parts (ii) and (iii) focus on the trustee board and conflicts of interest; the material in Chapter 2 and Chapter 5 (Professional Guidance) will provide useful background for this question.

(i) ***The roles and responsibilities of a pension scheme trustee***

A trustees' role is as guardian or custodian of trust assets for the benefit of the beneficiaries … [½]

… acting prudently and conscientiously with the utmost good faith. [½]

Requirements of a trustee's role include:

- maintain confidentiality [½]
- not profit from their duties [½]
- act in the best interest of beneficiaries [½]
- strike a fair balance between the interests of different classes of beneficiary [½]
- delegate duties to appropriate specialists [½]
- obtain specialist advice … [½]

  … as due to the complexity surrounding pension schemes, trustees often seek expert advice to assist in carrying out their duties [½]
- assess the sponsor covenant. [½]

A trustee's responsibilities include:

- Investment and custody of the assets [½]
  - the trustees should document how the scheme's assets will be invested. [½]
- Financing benefits [½]
  - the trustees should document any agreement with the sponsor regarding financing. [½]
- Benefit administration, *eg*: [½]
  - calculation and payment of benefits in accordance with the scheme documentation [½]
  - maintain member records [½]
  - prepare scheme accounts [½]
  - provide information required by disclosure requirements. [½]

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- Exercise of discretionary powers, *eg*: [½]
  - payment of death in service lump sum [½]
  - increase benefits. [½]
- Regular meetings and maintenance of proper records and minutes. [½]

Markers: give credit for any other appropriate examples

[Maximum 8]

(ii) ***Advantages of having the Finance Director on the trustee board***

The Finance Director (FD):

- is financially literate and can use this financial experience and acumen to help the other trustees … [½]

  … *eg* to understand the results of the valuation [½]
- may have a good knowledge of investments, which may help the trustee board when considering the investment strategy [½]
- has a very good understanding of the financial situation of and prospects for the company … [½]

  ... and may be able to use their knowledge to help inform the trustees, in particular with regard to the company covenant (assuming they can do this whilst managing any conflicts of interest) [½]
- is a member of the board of the Company and so may be able to raise the profile and issues of the pension scheme with the other members of that board … [½]

  … *eg* raise the trustees' issues and concerns [½]

[Maximum 2]

(iii) ***Potential conflicts of interest***

The FD has the same responsibilities as the other trustees, who must act prudently and in the best interests of the beneficiaries. [½]

Conflicts include:

- negotiations between the trustees and the company about contributions ... [½]

  ... The FD as a trustee should negotiate for prudent funding and high contributions / a short deficit recovery period ... [½]

  ... but in their company role may be required to reduce the employer's contributions to the scheme, so may argue, for example, for a longer deficit recovery period. [½]

- when the trustees determine the investment strategy. The trustees may wish to have a low-risk strategy to protect the security of members' benefits … [½]

  … the company may have more to gain if a higher risk strategy is followed as if investments perform well, this may lead to lower employer contributions [½]

- when taking decisions which may have cost implications for the company ... [½]

  ... *eg* deciding whether and to whom to grant discretionary benefit improvements ... [½]

  ... especially when their own benefits are being considered [½]

- when they have confidential information regarding the company that they would prefer not to disclose to some or all of the other trustees. [½]

Managing the conflicts of interest

The conflicts of interest could be managed in the following ways:

- the company, FD and trustees could take professional advice on how to identify conflicts and manage them [½]
- the FD could resign their position as a trustee [½]
- the FD could abstain from discussions and votes where they have a conflict [½]
- the FD could appoint another person in the company to negotiate on behalf of the company in any situations where the trustee and the company were in conflict. [½]

[Maximum 5]

[Total 15]

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Solution X1.3

Comment

This question tests idea generation skills and understanding of CDFs, which are discussed in Chapter 4 (Security).

(i) ***Main aim of a CDF***

The main aim of a CDF is to provide a minimum level of benefits … [½]

… for the members of underfunded defined benefit (DB) schemes … [½]

… where the sponsoring employer is insolvent … [½]

… and cannot afford to meet the funding shortfall to pay this minimum level of benefits. [½]
[Maximum 1]

(ii) ***Choice of funding basis for the CDF***

Positives

A buy-out basis is a prudent approach to funding the CDF … [½]

… and assumes a cautious investment strategy, *eg* government and high-quality corporate bonds. [½]

Such prudence increases the likelihood that members will get their benefits … [½]

… which is important given members' benefits have already been reduced. [½]

Any surplus arising could be used to reduce future levies. [½]

Alternatively, any surplus arising could be used to improve benefits, *eg* to offer pension increases or 100% of benefits to those under 65. [½]

This may be desirable given benefits have been reduced. [½]

Negatives

It may not be necessary to fund the CDF so prudently. [½]

The more prudent the basis, the higher the contributions required to meet the cost of the CDF, at least in the short term. [½]

Insurers include *profit* margins in their assumptions … [½]

… which may be unnecessary as it appears that the CDF is not profit seeking. [½]

Insurers may choose to include significant *contingency* margins in their assumptions … [½]

… or may be required to hold significant contingency margins by their regulators. [½]

Large contingency margins may be unnecessary given the CDF appears to be backed by the government … [½]

… and the government could:

- borrow money [½]
- print money [½]
- cut other benefits [½]
- increase taxes. [½]

The CDF may also choose to hold slightly more risky investments than an insurer … [½]

… *eg* a limited amount of corporate bonds and equities. [½]

Insurance companies include *expense* margins in their assumptions … [½]

… smaller margins may be acceptable as the government may benefit from economies of scale if the CDF is to provide benefits for many members. [½]

If a surplus arises due to excessive prudence in the basis, this may cause problems of inter-generational fairness … [½]

… as future contributors may gain at the expense of current and past contributors … [½]

… and future benefit recipients may gain at the expense of current and past benefit recipients. [½]
[Maximum 8]

(iii) ***Funding a shortfall through general taxation***

Advantages

- An increase in general taxation may be simpler to administer than setting a levy. [½]
- If most people are members of DB schemes, then it may be reasonable to expect the taxpayer to pick up the shortfall through general taxation. [½]
- It may be an objective of the government to encourage employers to continue with DB provision or re-open existing schemes. A general increase in taxation is less likely to be a disincentive for employers to continue to support their DB scheme. [½]
- Similarly, the government may be seen as providing 'free' insolvency insurance … [½]

  … which may encourage employers to continue with DB schemes or even re-open them to new entrants. [½]

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Using general taxation to fund the shortfall may be less politically unpopular than the introduction of a levy because: [½]

- nobody has to pay immediately – the burden that falls on the taxpayer can be spread over a number of years [½]
- spreading the cost over the entire population may lead to a relatively small increase in tax per taxpayer [½]
- it may be possible to 'hide' the increase – the amount of tax collected may be increased without increasing 'headline rates' … [½]

  … *eg* by freezing or reducing personal allowances rather than increasing the percentage rates of income tax. [½]

Disadvantages

- The key disadvantage is that this proposal will increase cost for the government in future and it will need to fund this. [½]

So in the future:

- public spending will need to be cut elsewhere, or [½]
- taxes will need to be increased, or [½]
- government borrowing will need to be increased. [½]

None of these options are likely to be popular with all of the electorate. [½]

There is a greater risk of moral hazard; employees / unions may place excessive pressure on employers to offer overly generous DB pension benefits … [½]

… if the costs turn out to be manageable, employers and members share in the upside risk … [½]

… whereas if the cost is unmanageable and the employer fails, the taxpayer meets the cost of providing benefits. [½]

Taxpayers who are not members of a pension scheme, or are members of DC arrangements, are likely to feel that this approach is unfair ... [½]

… as they will see an increase in taxes and be subsidising individuals of DB schemes who may already enjoy a higher and/or more secure pension benefit. [½]

The CDF is unlikely to run into problems in the early years, however as more and more schemes fail the costs are likely to increase … [½]

… in order to maintain political popularity the government may wish to defer tax rises until the later years. [½]

This leads to the risks that:

- tax rates in future years are very high. [½]
- future taxpayers have to meet the burden of current pensioners' benefits [½]
- the level of debt built up in the country increases rapidly. [½]

[Maximum 8]

(iv) ***Advantages of funding a shortfall through CDF levy***

The levy can be set up so that it is fairer … [½]

… rather than all taxpayers contributing, the levy can be targeted towards those employers who sponsor schemes which are most likely to need compensation … [½]

… *eg* the default risk of the employer can be reflected in the levy. [½]

Provided that amounts are collected each year so that the levy covers the cost of the compensation payments:

- the government will not need to fund the difference [½]
- public spending will not be reduced elsewhere (now or in the future) [½]
- no burden builds up for future generations [½]
- there is less incentive to provide overly generous benefits – addressing the moral hazard issue. [½]

The introduction of a levy is more transparent than a general increase in taxation. [½]

Levies collected can be ring-fenced to meet the cost of compensation from the CDF, whereas amounts collected from general taxation may be used for other purposes. [½]

If the levy is risk-based this may encourage sponsors to reduce risk … [½]

… *eg* by increasing the funding level of their pension schemes. [½]

[Maximum 4]

(v) ***Key risks of the CDF***

To scheme members

<u>Contributions</u>

- in a shared cost scheme, member contributions can be expected to increase due to the introduction of a levy … [½]

  … and may also need to be increased in a balance of cost scheme [½]
- an increase in contributions reduces employees' take home pay … [½]

  … and could reduce spending in the economy … [½]

  … or lead employees to opt out of the scheme. [½]

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<u>Accrued benefits</u>

The CDF may refuse to accept a scheme if it regards the employer as having organised its affairs so as to impose a liability on the CDF … [½]

… leaving the scheme members with no benefits. [½]

Accrued benefits are less valuable than in the scheme, *eg*: [½]

- a 10% reduction in benefits for non-pensioners [½]
- there may be a significant reduction in the value of the benefits if the pension increases paid by the scheme were generous. [½]

The CDF benefits may be further reduced if the cost of the CDF proves prohibitive … [½]

… as the Government may not provide financial backing for the CDF. [½]

The levies / CDF may mean that employers pay lower contributions into their schemes and so schemes' funding levels fall … [½]

… so that there is reduced security of the 'full' benefits … [½]

… and less possibility of benefit improvements or discretionary benefits. [½]

<u>Future benefits</u>

The CDF offers no protection for future service benefits. [½]

The level of future benefit provision may reduce in general, as a result of the levy … [½]

… *eg* sponsors may reduce future accrual. [½]

The form of future benefits may be changed to reduce risk to the sponsor … [½]

… *eg* moving from final salary to career average or even to DC provision. [½]

To scheme trustees

The introduction of a safety net of the CDF may influence the scheme's funding policy. [½]

As the risk to the members of no benefits is reduced, there may be pressure from the sponsor: [½]

- to fund the scheme less prudently … [½]

  … given the buy-out funding level becomes less important to the sponsor [½]
- to invest in more risky assets. [½]

To scheme sponsors

Profitability

The main risk for the sponsor is the additional cost of the levy. [½]

The levy may need to be met out of profits: [½]

- this threatens the employer's ability to expand or take on staff [½]
- the employer will make more *volatile* profits if levies vary from year to year [½]
- the employer may wish to reduce benefit costs, *eg* by reducing future benefits … [½]

  … which is likely to be unpopular with members. [½]

The introduction of a levy may lead to higher administration costs, … [½]

… especially if the calculations are complex (*eg* if the levies charged are risk-based). [½]

A larger levy than expected could lead to liquidity problems. [½]

Solvency

The additional cost of the levy may increase the risk of insolvency for this employer. [½]

There may be pressure from the trustees and members to fund the scheme more prudently such as on the CDF buy-out basis. [½]

This may not be the best use of the sponsor's funds and may in turn affect the business. [½]

Prudent funding may lead to overfunding, which could lead to benefit improvements, increasing the cost of provision. [½]

Levy greater than expected

The levy required each year may be volatile and may be greater than expected. [½]

If other companies fail as a result of increased levies, this increases calls on the CDF … [½]

… which could further increase levies. [½]

If the levy is risk-based, it may be very large if:

- the scheme is underfunded [½]
- the employer is financially weak [½]
- the scheme's investment strategy is risky [½]
- the scheme's benefit design is generous. [½]

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<u>Reducing the levy</u>

The employer may take action to reduce the levy, but there is a risk of negative consequences, *eg*: [½]

- increasing contributions to the scheme has an opportunity cost [½]
- paying down debt may restrict the employer's business plans [½]
- de-risking the investment strategy may lead to lower investment returns and increase the cost of the scheme [½]
- amending the scheme design to reduce cost or risk may be unpopular [½]

[Maximum 15]

(vi) ***The government is using a formula based on 120% of liabilities***

The '120%' factor encourages employers to fund their schemes well … [½]

… arguably targeting a funding level over 120% in order to minimise the levy. [½]

Some members' benefits are reduced on entry to the CDF by 10%, and so a factor of 120% may encourage employers to fund full scheme benefits, rather than just the CDF benefits ... [½]

… this may keep levies down, if it reduces claims on the CDF. [½]

Schemes less than 100% funded on the levy basis and method

Considered in isolation, the '120%' factor increases the levies of schemes that are underfunded on the levy basis. [½]

However, the '120%' factor allows the CDF to collect some levies from schemes in surplus on the levy basis and so have a lower scaling factor … [½]

… and so, overall, the '120%' factor means that schemes in surplus effectively subsidise the levies of underfunded schemes. [½]

Schemes over 120% funded on the levy basis and method

It seems relatively unlikely that such a scheme will need to enter the CDF … [½]

… so it is fair that the scheme is exempt from paying the levy in the short term, at least while its funding level is maintained above 120%. [½]

Schemes between 100% and 120% funded on the levy basis and method

It seems reasonable that a levy should be paid as there is still a very real risk that the scheme will claim in the future … [½]

… since the funding level at 1 January is just a snapshot … [½]

… and certain factors can impact both funding and covenant such that the covenant is likely to fail at the time when the funding position is poor … [½]

… *eg* the company may fail due to adverse trading conditions across the economy which may also result in a higher value being placed on the liabilities or a lower value on the assets. [½]

In addition, the employer could become insolvent at a time when the funding level has deteriorated below 100%, perhaps due to the CDF liabilities growing more quickly than the assets, due to, for example: [½]

- paying full benefits to under 65s (who would not receive full benefits in the CDF) [½]
- paying pension increases (which would not be received in the CDF) [½]
- members reaching age 65 (and becoming eligible for full benefits). [½]

[Maximum 6]

(vii) ***Drawbacks of the levy formula and potential improvements***

General issues

There will be a cost of introducing this levy *eg* administration, communication, IT systems, legal requirements. [½]

Annual calculations will be required which may be expensive (*eg* funding / covenant updates). [½]

So the following improvements could be made:

- calculations could be carried out less frequently (but this would reduce the effectiveness of the risk-based nature of the calculation) [½]
- a separate administration levy could be introduced to enable the CDF to cover its costs. [½]

Variable scaling factor – s

The scaling factor is variable which provides more uncertainty to levy payers as to how much the levy will be … [½]

… so the factors could be fixed, even if just for a limited time period. [½]

Short-term insolvency risk – P

This is costly to implement as a credit assessment of each employer is required at each 1 January. [½]

For some smaller companies, or non-standard companies such as charities, this information may not be readily available. [½]

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The insolvency probability is a short-term probability so this may not be a reliable guide to the long-term risk posed to the CDF by a scheme … [½]

… so a longer-term measure of insolvency risk could be used in the calculation – however this information may not be easily available. [½]

The levy could be very high for weak employers with high probabilities of insolvency … [½]

… this could result in an unbearable burden on an already struggling employer, thereby making insolvency more likely … [½]

… so the formula could be amended to reduce the burden on the weakest companies, by introducing an upper limit on P, or perhaps an upper limit on the size of the levy. [½]

Other sources of security

The formula takes no account of:

- guarantees that are in place that kick in upon sponsor insolvency, for example parental guarantees or bank guarantees [½]
- other efforts to improve the funding position, for example contingent assets or a fixed charge over an employer's assets. [½]

To allow for this, credit could ideally be given for such guarantees, in a simple way that does not introduce too much further complexity. [½]

Underfunding risk $(120\% \times L - A)$

This is costly as a funding assessment of each scheme is required at each 1 January and may not be representative of the usual position as it is a snapshot ... [½]

… so instead perhaps allow a roll-forward method, or some smoothing or other approximation.[½]

Currently, if the scheme is more than 120% funded it appears that the levy will be negative ... [½]

… so consider setting a minimum levy of zero. [½]

Schemes that are just over 120% funded are likely to present at least some risk to the CDF ... [½]

… so instead perhaps have a sliding levy scale for schemes over 120%, or introduce a scheme-based levy too. [½]

Investment risk

At present the levy formula does not take account of the scheme's investment strategy which is another key source of risk … [½]

… so this could be introduced to the levy formula, ideally in a way which does not significantly complicate the formula and increase costs. [½]

[Maximum 8]

[Total 50]