Subject ST5

CMP Upgrade 2017/18

CMP Upgrade

This CMP Upgrade lists all significant changes to the Core Reading and the ActEd material since last year so that you can manually amend your 2017 study material to make it suitable for study for the 2018 exams.

You can buy a full replacement set of up-to-date Course Notes at a significantly reduced price if you have previously bought the full price Course Notes in this subject. Please see our 2018 *Student Brochure* for more details.

This CMP Upgrade contains:

- all non-trivial changes to the Syllabus objectives and Core Reading
- changes to the ActEd Course Notes, Series X Assignments and Question and Answer Bank that will make them suitable for study for the 2018 exams.

1 Changes to the Syllabus objectives and Core Reading

1.1 Syllabus objectives

There have been no changes to the Syllabus Objectives.

1.2 Core Reading

There have not been any major changes to the Core Reading. The change to Chapter 11 detailed below is arguably the most important in the sense that it has knock-on effects throughout the course.

Chapter 0

Page 7

The Core Reading in Section 3.6 has been reworded slightly. We provide a replacement Chapter 0 at the end of this document.

Chapter 8

Page 17

In Section 6.2, another "Other restriction" has been added. This is important as it is very likely to be 0.5 marks on a marking schedule, should this list be required in the exam as part of a bookwork question. The section now reads:

Other restrictions, applying to all mandates, might include:

- **asset classes that are entirely prohibited**
- **limitations on the use of assets and asset classes, such as a prohibition on the *speculative* use of derivatives**
- **maximum permissible holdings in individual assets or asset classes** (to ensure diversification)
- **counterparty exposure limits for derivative investments**
- **prohibitions on "self-investment" in the sponsor's own securities**
- **ethical or social limitations.**

Chapter 11

Pages 16 and 17

The Core Reading in Section 1.7 has been reworded to reflect the increasing use of central clearing for OTC contracts.

One difference between many (OTC) forwards and (exchange-traded) futures is that forwards often have no cash flow until the maturity. For a future, there are daily marking-to-market and settlement of margin requirements. Nowadays, many forwards do require to be cleared through a clearing house, which will involve margin agreements and margin payment cashflows in the same way as futures. In such cases, the difference between forwards and futures becomes blurred and the discussion below would no longer be valid.

If interest rates are constant then the values of the cash flows are equal and, hence, the prices must also be equal. When interest rates vary unpredictably, (un-margined) forward and futures prices are no longer the same because of the daily cash flows from settlement and the interest earned on cash received (or paid on borrowing). When the price of the underlying asset is strongly positively correlated with interest rates, a long futures contract will be more attractive than a similar long forward contract and futures prices will tend to be higher than forward prices. The reverse holds true when the asset price is strongly negatively correlated with interest rates.

The theoretical differences between (un-margined) forward and futures prices for contracts that last only a few months are, in most circumstances, sufficiently small to be ignored. However, for long-term futures contracts, the differences between (un-margined) forward and futures rates are likely to become significant.

2 Changes to the ActEd Course Notes

Chapter 0

The Core Reading in Section 3.6 has been reworded slightly and we've modified the prerequisite knowledge section to keep it up to date. Because the chapter is only 8 pages long, we provide a replacement Chapter 0 at the end.

Other chapters

There have been no significant changes to any of the ActEd text in the other chapters. However, some of the wording throughout the course has been altered slightly to reflect the changing practices in Over-The-Counter (OTC) forwards and swaps, specifically the increasing use of Central Clearing Parties (CCPs). The Core Reading in Chapter 11 also changed (as detailed above) to reflect this.

We are not going to detail every single minor change throughout the course but it is just important to be aware that, if a forward or swap is centrally cleared, the credit risk will be minimal in the same way as it is for a standardised, exchange-traded contract such as a future.

To illustrate this idea, we now give an example of a change that we've made as a result of this:

Chapter 2

Page 2

Question 2.1 asks us to "list the fundamental differences between forward contracts and futures contracts."

The solution to this question now reads:

Traditionally, the main differences between (un-margined) forwards and futures are as follows:

Futures contract	*(Un-margined) forward contract*
exchange-traded	normally over-the-counter or OTC
standardised	tailored
highly marketable	non-marketable
liquid	illiquid
minimal counterparty credit risk	counterparty credit risk
delivery price determined openly by buyers and sellers in the marketplace	delivery price negotiated privately between buyer and writer
index futures readily available	contracts normally based on specified underlying security
can be closed out prior to maturity and most are!	difficult to close out and so usually settled at maturity

Nowadays, many forward contracts are centrally cleared through a Central Clearing Party (CCP). The CCP will require margin to be deposited and this significantly reduces the counterparty credit risk. In other cases, the buyer and seller of the forward contract may agree between themselves to deposit margin or other collateral; this will also reduce credit risk.

Chapters 1, 2, 3, 4 and 11

We've clarified the difference between margined and un-margined forwards in a similar way throughout the course. Chapters 1, 2, 3, 4 and 11 have all had minor changes as a consequence.

3 Changes to the Q&A Bank

There have been no significant changes to the Q&A bank, just some changes to the wording in Q&A Bank Parts 3 and 7 to reflect the changing practices in Over-The-Counter (OTC) forwards and swaps. You just need to be aware that, if a forward or swap is centrally cleared, the credit risk will be minimal in the same way as it is for a standardised, exchange-traded contract such as a future.

4 Changes to the X Assignments

There have been no significant changes to the X Assignments, just some minor changes to the wording in Assignment X6 to reflect the changing practices in Over-The-Counter (OTC) forwards and swaps. You just need to be aware that, if a forward or swap is centrally cleared, the credit risk will be minimal in the same way as it is for a standardised, exchange-traded contract such as a future.

5 Other tuition services

In addition to this CMP Upgrade you might find the following services helpful.

5.1 Study material

We offer the following study material in Subject ST5:

- Mock Exam
- Additional Mock Pack
- ASET (ActEd Solutions with Exam Technique) and Mini-ASET
- Sound Revision
- Revision Notes
- MyTest
- Flashcards.

For further details on ActEd’s study materials, please refer to the 2018 *Student Brochure*, which is available from the ActEd website at **www.ActEd.co.uk**.

5.2 Tutorials

We offer the following tutorials in Subject ST5:

- a set of Regular Tutorials (lasting three full days)
- a Block Tutorial (lasting three full days)
- a Revision Day (lasting one full day).

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

5.3 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 2018 *Student Brochure*, which is available from the ActEd website at **www.ActEd.co.uk**.

6 Feedback on the study material

ActEd is always pleased to get 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 **ST5@bpp.com**.

Chapter 0

Introduction to Subject ST5

0 Introduction

This introductory chapter contains some Core Reading that is intended to give an introduction to the ST5 course. We also provide an overview of the ST5 course structure. We recommend that you read this chapter both before and after reading the rest of the course.

1 Structure of professional examinations

Earlier parts of the actuarial qualification have covered accounting, discount rates, economics and financial economics in the CT subjects. CA1 — Actuarial Risk Management brings all the core technical skills together and shows how actuaries use them in risk management, which is the fundamental skill of an actuary. All of these form an important background to this subject and you are encouraged to refresh your knowledge of them before embarking on the study of this subject.

2 Prerequisite knowledge

You may find the following material (from subjects CT1, CT2, CT7, CT8 and CA1) useful background and refer to it if you need to refresh your memory.

2.1 CT1

- the summary for the chapter on *investments*.
- the summary for the chapter on *arbitrage and forward contracts.*
- the chapter on the *term structure of interest rates*

2.2 CT2

- the chapter on *agency theory*
- the summary for the chapter on *financial instruments*.
- the chapter on *derivatives*
- the chapter on *interpretation of accounts*
- the summary for the chapter on *limitations of account*.
- the summary for the chapter on *financial institutions*.

2.3 CT7

- the module on the *balance of payments and exchange rates*
- the module on *growth strategy and globalisation*

2.4 CT8

- the summary for the chapter on the *efficient markets hypothesis*.
- the summary for the chapter on *measures of investment risk*.
- the section on *behavioural finance*.
- the summary on *portfolio theory*.
- the summary for the chapter on *asset pricing models*.
- the chapter on *introduction to derivatives*.
- the summary for the chapter on *credit risk*.

2.5 CA1

- the summary for the chapter on *external environment*.
- the summary for the chapter on *regulation.*
- the summary for the chapter on *money markets.*
- the summary for the chapter on *bond markets.*
- the summary for the chapter on *equity markets.*
- the summary for the chapter on *property markets.*
- the summary for the chapter on *futures and options.*
- the summary for the chapter on *collective investment schemes.*
- the chapter on *sources of risk*

Examination questions may include sections based on this prior knowledge in the formation of an answer.

3 The scope of ST5

3.1 Background knowledge

Some sections of the ST5 course provide a useful background to the other sections of the course:

- The first four chapters cover various asset classes. Chapters 1 and 2 cover the more basic derivatives, futures, forwards and options. Chapters 3 and 4 cover credit derivatives and other more specialised investments. It is important that you have a good grasp of the mechanics of all the assets covered in the first four chapters.
- Chapter 6 looks at how businesses are run and considers conflicts of interest that exist between stakeholders of any firm.
- Chapters 7 to 9 consider the regulatory and legislative environment within which firms operate.
- Chapter 13 explains how industries can be classified into sub-groups. It is important that you understand the common characteristics of firms within each sub-group.
- Chapter 14 gives us an idea of how indices may be constructed before explaining all the major world indices in equities and other assets.

Recent years have thrown up a wealth of ST5-relevant material. World economies have experienced a global financial crisis and there has been much in the news:

- Private equity has been scrutinised for its treatment of employees and pensioners. Private equity is covered in Chapter 4.
- In 2007 the UK bank, *Northern Rock* was saved at the last minute by the Bank of England's decision to provide liquidity support. Chapter 5 considers central banks and their role within the banking system. QE, the process of buying government bonds using new money, is also described in this chapter.
- Worldwide, budget deficits have been a serious concern since the financial crisis. In the UK, the issues of the UK's high budget deficit and large outstanding stock of government bonds featured highly in the 2010 and 2015 general elections. Government policy is discussed in Chapter 5.
- Greece has had numerous bail-outs in the Eurozone sovereign debt crisis and has had to cope with harsh austerity. Government policy is discussed in Chapter 5.
- More recently in the UK, we've seen multinational companies such as Google, Amazon and Starbucks come under fire for their tax avoidance methods. Chapter 23 discusses tax.

To keep up to date with ST5-relevant events, we strongly recommend that you read the financial press, namely:

- *The Financial Times.*
- *The Economist.*
- the business section of any broadsheet newspaper – these are excellent for providing a high-level view of events and their consequences in the financial world.
- Google – if in doubt, you can Google any of the key words in the index to find more resources.
- BBC business news – television and internet.
- *City AM*
- YouTube – there have been some good documentaries in recent times about a wide range of events happening in the financial world. This website gives you a chance to watch them.

3.2 Risk versus return

The course is broken down into a number of component parts. You will have learned in earlier courses about the use of risk free rates in discounting income streams. The risk-free rate is defined at the beginning of Chapter 17.

This course focuses on how these returns can be achieved and what other returns may be available dependent upon the level of risk that one is prepared to accept. The course looks into the factors that affect the returns including political and regulatory aspects.

The idea of risk versus return is critical in choosing whether to invest in any asset. Chapter 10 looks at how to value equities fairly by considering all the fundamental factors that will contribute to each firm's future profits. This chapter also considers the rating and analysis of bonds. Chapter 11 looks into the *valuation* of bonds.

3.3 Portfolio analysis

The Course gives an appreciation of the different forms that investments may take, their key characteristics, how they should be assessed, including analysis of securities, and how they can be used to build portfolios for different investment mandates.

Evaluating securitisations and credit derivatives now receives more emphasis. This is covered in Chapter 11.

A key outcome from the course is the ability to develop appropriate portfolios for different types of investor with individual financial planning being as important as that for institutional mandates.

3.4 *Risk management*

Risk management is a feature of the course emphasising both actuarial and investment aspects. Liquidity risk, counter-party risk, operational risk and credit risk also feature.

Chapter 17 provides the central focus for types of financial risk and how to control them. Chapter 22 looks in particular at how derivatives can be used to control risk.

In the wake of the 2007-08 financial crisis these have taken on more significance than has previously been the case. Value at risk and risk budgets are important aspects of the actuarial approach as are asset liability modelling (ALM) and liability hedging.

Value at Risk and Risk budgeting are both covered in Chapter 21. ALM is first covered in Chapter 17. Chapters 18 and 19 focus in more detail on it and, in particular, liability-driven investment (LDI). Choosing assets with a particular focus on liabilities has become a very important factor in fund management in recent years.

3.5 *Performance measurement*

A key component of this course is performance measurement. This covers not only the analysis of returns for securities and portfolios but also performance attribution.

There is a strong emphasis on risk adjusted returns and on the interpretation of the results from such analysis.

Benchmarking and the construction and use of indices form important parts of this section.

3.6 Regulatory and legislative environment

Although not covered by many guidance notes or actuarial standards, it is important to understand the regulatory and legislative environment which applies to the investment management and securities industry. It is key that actuaries understand this because more and more we will find ourselves working with other professions.

In particular, although it only applies to actuaries working in the UK, or for UK regulated entities, the Financial Reporting Council's high level standard, TAS 100 – Principles for Actuarial Work (which replaces the Generic Technical Actuarial Standards TAS R, TAS D, and TAS M from July 2017) is a good foundation for all actuarial work and is covered in the CA subjects, particularly CA2.

3.7 Behavioural finance

Behavioural finance has become important in assessing investment outcomes. Although in most cases it cannot be quantified it is an input that has to be understood in evaluating market activity or, for example, the actions of trustees. It tends to explain why an alternative outcome happens to the one that looks most sensible in valuation terms.

The theory relates to the psychology that underlies and drives financial decision-making behaviour and you will have met it when you studied Subject CT8. It is also covered explicitly in Chapter 6.

4 Further reading

Although there is no list of further reading for Subject ST5, the sources consulted in developing the Core Reading below may be useful:

- Principles of corporate finance. Brealey, R. A.; Myers, S. C.; Allen, F. 10th ed. and earlier McGraw-Hill, 2010. ISBN: 0071314172
- Options, futures and other derivatives. Hull, J. C. 8th ed. and earlier Pearson Education, 2011. ISBN: 0273759078

Occasional references to other reading and websites that you may find interesting or useful are also given in the Course Notes.