

Subject ST7

CMP Upgrade 2016/17

CMP Upgrade

This CMP Upgrade lists the changes to the Syllabus objectives, 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 2016 CMP to make it suitable for study for the 2017 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 2017 *Student Brochure* for more details.

This CMP Upgrade contains:

- all significant changes to the Syllabus objectives and Core Reading
- additional changes to the ActEd Course Notes, Question and Answer Bank and Series X Assignments that will make them suitable for study for the 2017 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

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

Chapter 9

Page 8

The following two sentences have been added at the end of the second paragraph of Core Reading:

A year of account may be held unnaturally open for longer than three years if the liabilities cannot be reasonably quantified, due to fundamental uncertainty. In this case, the managing agent will look to close the year of account in later years, when the liabilities are more certain.

Page 18

The discussion regarding Equitas has been updated. Please remove pages 17 and 18 of your Course Notes and use the replacement pages that can be found at the end of this Upgrade.

Chapter 10

Page 14

The first sentence now reads:

The internet is now the dominant sales channel for personal lines and smaller retail products.

Chapter 11

Page 23

The following sentence has been added after the first paragraph of the section entitled “Written and signed amounts”:

Within the context of the London Market, signed premiums are the written premiums at the signed share of a risk.

Chapter 13

Page 12

The following sentence has been added to the end of the last paragraph at the bottom of the page:

In particular, the latter may be due to an increase in either claim frequency or claim size or both.

Chapter 15

Page 29

The following paragraph has been added after the second paragraph of the section entitled “Under-estimation of variability”:

More generally, the historical data may not capture all sources of variability to which the reserves may be subjected in the future (eg potential changes in the Ogden discount rate, one-off increases in claims costs arising from court judgments, or a prolonged period of above average inflation).

Chapter 17

Page 7

The discussion relating to Solvency II has been updated. Please remove pages 7 and 8 of your Course Notes and use the replacement pages that can be found at the end of this Upgrade.

Page 21

The third paragraph after the bullet points has been corrected to read:

Note that on the assumption that the phrase “best estimate” means the actuary’s best view of the mean or expected value of the eventual outcome (possibly excluding certain remote contingencies), then we can think of a range described as “a range of reasonable best estimates” as a range that illustrates the parameter uncertainty and model error alone.

Chapter 18**Page 18**

The last paragraph has been updated to read as follows:

An insurer would typically analyse its asset risk separately from its insurance risks and other liabilities. Many companies have started to consider all their risks from wherever they arise using asset-liability modelling (ALM), increasingly so under the requirements of Solvency II. ALM is discussed later in this chapter.

Chapter 19**Page 3**

The following paragraph has been added after the first paragraph that follows Question 19.1:

Earned premium could also be used depending on the capital model structure / requirement.

Page 7

The following sentence has been added to the end of the second paragraph of Section 2.2:

Similar data issues apply equally to deterministic processes.

Page 9

The following sentence has been added to the end of the penultimate bullet point:

(This can be hard to implement. In practice many different fits are equally acceptable.)

Page 13

The second sentence of the fourth bullet point now reads:

This allows us to concentrate more on the important areas of the distribution of outcomes for the key risks when a full specification of the distributions is subject to substantial potential error.

The fifth bullet point now reads:

- **By developing deterministic stresses and scenarios, we can help to link the capital model with the risk register, helping to integrate capital and risk management (this would also apply in a stochastic environment by considering each individual simulation as a scenario).**

Page 16

The first and fourth bullet points under Section 3.2 have been clarified to read as follows:

- **be rigorous (ie strictly applying to constraints or principles) and self-consistent**
- **use sufficient simulations to reduce the simulation error that could arise from the model – this is likely to be at least 10,000.**

Page 22

The following sentence has been added to the end of the second paragraph of Section 4.7:

Documentation should also justify the methodology selected and mention the alternatives considered and why rejected.

Page 24

The following additional point has been added to the list of bullet points:

- **Aggregate exposure by location to assist in catastrophe modelling.**

Page 26

The first bullet point now reads:

- **Gross written or earned premium (or written / earned exposures plus gross premium per unit of exposure if this is practical).**

Page 32

The following sentence has been added after the table:

Aggregation inputs (eg correlation coefficients) are considered below.

Chapter 20**Page 2**

The following sentence has been added to the end of the second paragraph:

“Own funds” is a further term used in Solvency II.

Page 3

The following sentence has been added to the end of the third bullet point:

The capital required to achieve a particular credit rating will probably be higher than that to meet regulatory requirements

Page 9

The last paragraph has been amended to read:

One way to apply a realistic basis would be to exclude any profit expected (deducting any such baseline profit from the capital requirement as a separate item). It would then be based on projected eventual results, that is, with best estimates of the ultimate cost of claims.

Page 10

The last paragraph of the section entitled “Modelling attritional claims” has been updated to read:

For classes that are small or not subject to large claims it may be more practical to model loss ratios rather than separately model individual large claims.

Page 11

The second paragraph after Question 20.6 now reads:

The Poisson and negative binomial distributions are often used for frequency, but the Poisson distribution is only appropriate where the claims are independent, since if there is any correlation between claims, this distribution will underestimate the tail risk.

Page 16

The first paragraph of the section entitled “Correlations over policy years” has been amended to read:

We should correlate underwriting risks from adjacent policy years (or earned exposure), for example, when we use a multi-year model or when there are multi-year risks.

Page 23

The first bullet point has been expanded to read:

- **a rise in interest rates of $W\%$ leading to reduced asset values and changed value of discounted liabilities (if the model discounts the liabilities)**

Page 27

The following sentence has been added after the first sentence of the second paragraph:

It can also include downgrade impacts.

The following sentence has been added after the bullet point list at the start of Section 5.1:

It is worth noting that investment credit risk is sometimes included in market risk.

Page 29

The last bullet point of Section 5.2 has been expanded to read:

- **any collateral held by the insurer in relation to specific counterparties – such as letters of credit.**

Page 32

The following sentence has been added to the end of the last bullet point:

Cyber risk (any risk of financial loss, disruption or damage to the reputation of an organisation from some sort of failure of its information technology systems) might be included here or separately.

Page 33

The first paragraph of the section entitled “Methods of modelling operational risks” has been replaced by the following two paragraphs:

We may use stochastic techniques in assessing the capital impact of operational risk. While we may be limited to determine the parameters, we can still model it stochastically using simulations of operational risk losses. It will usually be modelled as frequency / severity.

Alternatively, risks may be considered separately by personnel with the skills to appraise such risks.

Page 37

The following two points have been added to the end of the first list of bullet points:

- **pension risk may be modelled separately from operational risk**
- **impact of tax on results (though not strictly a risk in its own right).**

Chapter 21

Page 9

The following sentence has been added to the end of the paragraph before Question 21.6:

With the publication of SCR ratios, there is now also market pressure to be seen to have ratios within a certain range.

Page 10

The following Core Reading has been added after the second paragraph of Section 1.3:

This is non-trivial in the real world. Many issues come into play simultaneously, including:

- **risk management, eg concentration limits**
- **large differences based on allocation methods**
- **longer term strategic growth strategies etc.**

Page 16

The following sentence has been added to the end of the first paragraph of Section 3.1:

This is often referred to as a “driver” correlation.

Chapter 22

Page 2

The following Core Reading has been added after the penultimate paragraph:

Other factors to consider, if applicable:

- **large volumes of catastrophe business**
- **riskier investment portfolios**
- **complexity of reinsurance covers**
- **classes of business with losses linked to economic cycles**
- **credit or surety business etc.**

Page 4

The third bullet point has been expanded to read:

- **how underwriters select risks and decide upon the terms to offer in each case, as well as underwriting guidelines**

The following point has been added to the first bullet point list:

- **risk appetite limits set by management**

Page 6

The following paragraph has been added after the first paragraph:

A further issue, for larger companies is the group / entity structure and how it should be modelled. This will vary depending on regulatory reporting needs and fungibility of capital.

The following sentence has been added to the end of the first bullet point in Section 2.3:

Aggregate reinsurance covers and parametric triggers are now also becoming more common in some sectors, adding to the complexity of modelling the risks in the tail of the relevant distribution.

Page 9

The following sentence has been added to the end of last bullet point before Section 2.5:

An example of this would be scenarios such as RDSs being populated by underwriters for regulatory submissions and internal risk management of exposures.

Pages 11 and 12

There have been some changes to the Core Reading and Course Notes on these pages. Please remove pages 11 and 12 and replace them with the replacement pages that can be found at the end of this Upgrade.

Page 14

The last sentence has been amended to read:

They will want to ensure all the key risks have been identified, modelled and independently validated appropriately.

Chapter 23**Page 4**

The second paragraph has been updated to read:

With the arrival of Solvency II, the requirement to change claims provisions into technical reserves and risk margins has changed the amount and calculation of free reserves.

Page 13

The discussion regarding ICAs has been updated in light of Solvency II. Please remove pages 13 and 14 of your Course Notes and use the replacement pages that can be found at the end of this Upgrade.

Chapter 27**Pages 11 to 26**

The discussion regarding Solvency II has been updated. Please remove pages 11 to 26 of your Course Notes and replace them with replacement pages 11 to 24 that can be found at the end of this Upgrade. Subsequent pages will need to be renumbered accordingly.

Glossary

The two bullet point sentences have been deleted from the definition of “Events not in data (ENIDs)”.

The definition of “Technical reserves (provisions)” now reads:

Technical reserves (provisions)

The accounting entries in the balance sheet that represent the insurer’s liabilities from the business that has been written.

Under Solvency II, technical provisions comprise claims provision + premium provision + risk margin, where:

- **The claims provision is the discounted best estimate of all future cash flows (claim payments, expenses and future premiums) relating to claim events before the valuation date.**
- **The premium provision is the discounted best estimate of all future cash flows (claim payments, expenses and future premiums due) relating to future exposure arising from policies that the (re) insurer is obligated to at the valuation date.**
- **The risk margin is intended to be the balance that another (re)insurer taking on the liabilities at the valuation date would require over and above the best estimate. It is calculated using a cost of capital approach.**

The following definitions have been removed from the Glossary:

- Accounting classes*
- Base Capital Resources Requirement (BCRR)*
- Claims equalisation reserve
- Equalisation reserve (provision)
- General Insurance Capital Requirement (GICR)*
- Guarantee fund*
- Minimum capital requirement (MCR)*
- Required Solvency Margin*
- Statutory returns*

The following abbreviations have been removed from the Appendix:

- BAS Board for Actuarial Standards
- BCRR Base Capital Resources Requirement
- ECR Enhanced capital requirement
- ICA Individual capital assessment
- ICAS Individual capital adequacy standard
- ICG Individual capital guidance
- LSICA Lloyd's Society individual capital assessment

The following abbreviations have been added to the Appendix:

- APS Actuarial Profession Standards
- FRC Financial Reporting Council
- RSR Regular Supervisory Reporting
- SFCR Solvency and Financial Condition Report

2 Changes to the ActEd Course Notes

This section contains additional *significant* changes to the ActEd Course Notes. However, if you wish to have all the changes to the ActEd Course Notes, you will need to buy a full set of the up-to-date version (which you can do at a significantly reduced price if you have previously bought the full-price Course Notes / CMP in this subject).

Chapter 1

Page 15

The following two sentences have been added at the end of the sub-section entitled “Claims equalisation reserve”:

Since Solvency II came into force, UK (and other EU) insurance companies no longer need to hold claims equalisation reserves. However many other countries worldwide still hold them.

Chapter 3

Page 70

In Solution 3.13, the paragraph after the bullet points has been clarified to read as follows:

The risk of fraudulent claims will be greater with replacement cover. Having shelled out their (admittedly higher) premium, policyholders with replacement cover have more to gain from such claims, *eg* it may save them going shopping to buy a new TV to replace their 20 year old set.

Chapter 6

Pages 39 to 42

We have expanded the discussion of LPTs to reflect the content of recent exams. Please remove pages 39 to 42 of your Course Notes and use the replacement pages which can be found at the end of this Upgrade.

Page 53

The last paragraph on Page 53 now reads:

Loss portfolio transfers are not a form of reinsurance. They involve the transfer of liability for a specified book of business from one insurer to another. Reserves are transferred to the new insurer along with all remaining exposure to the business.

Page 57

In Solution 6.9, the following sentence has been added after the end of the first sentence:

If they cede the largest possible proportion then they must use all 8 lines. In which case the percentage ceded will be $\frac{8}{9} = 88.9\%$.

Chapter 8**Page 11**

The discussion of Solvency II at the top of the page has been updated. Please remove pages 11 and 12 of your Course Notes and use the replacement pages that can be found at the end of this Upgrade.

Chapter 9**Page 18**

As stated above, the discussion regarding Equitas has been updated. Please remove pages 17 and 18 of your Course Notes and use the replacement pages that can be found at the end of this Upgrade.

Chapter 17**Page 8**

As stated above, the discussion relating to Solvency II has been updated. Please remove pages 7 and 8 of your Course Notes and use the replacement pages that can be found at the end of this Upgrade.

Chapter 19**Pages 39 and 40**

In light of the above changes to the Core Reading, the Chapter Summary has been updated. Please remove pages 39 and 40 of your Course Notes and use the replacement pages that can be found at the end of this Upgrade.

Chapter 20**Pages 43 and 44**

In light of the above changes to the Core Reading, the Chapter Summary has been updated. Please remove pages 43 and 44 of your Course Notes and use the replacement pages that can be found at the end of this Upgrade.

Chapter 21**Page 7**

The last paragraph has been deleted.

Page 8

The second paragraph after the bullet point has been deleted.

Chapter 22**Pages 11 and 12**

As stated above, there have been some changes to the Core Reading and Course Notes on these pages. Please remove pages 11 and 12 and replace them with the replacement pages that can be found at the end of this Upgrade.

Chapter 23**Page 13**

As stated above, the discussion regarding ICAs has been updated in light of Solvency II. Please remove pages 13 and 14 of your Course Notes and use the replacement pages that can be found at the end of this Upgrade.

Chapter 25**Page 7**

In the table, the unearned premiums brought and carried forward should both be gross of DAC.

Page 15

Question 25.5 has been clarified so that the UPR given in the balance sheet in point 7 is net of DAC.

Page 36

In light of the above clarification to Question 25.5, the solution has been updated accordingly. Please remove pages 35 and 36 of your Course Notes and use the replacement pages that can be found at the end of this Upgrade.

Chapter 27**Pages 11 to 26**

As mentioned above, the discussion regarding Solvency II has been updated. Please remove pages 11 to 26 of your Course Notes and replace them with replacement pages 11 to 24 that can be found at the end of this Upgrade. Subsequent pages will need to be renumbered accordingly.

3 **Changes to the Q&A Bank**

This section outlines the changes that have been made to the Q&A Bank. However, if you wish to have all the changes to the Q&A Bank, you will need to buy a replacement CMP (which you can do at a significantly reduced price if you have previously bought the full-price CMP in this subject).

All $\frac{1}{4}$ marks have been changed to $\frac{1}{2}$ marks, which we believe to be reflective of the examiners' current marking strategy. Totals have been adjusted accordingly, where appropriate.

Other significant changes to the Q&A Bank are detailed below.

Q&A Bank Part 5

Solution 5.7

The following point has been added to the solution:

Documentation should also justify the methodology selected and mention the alternatives considered and why rejected. [1/2]

Solution 5.11

The following point has been added to the solution:

- aggregate exposure by location to assist in catastrophe modelling [1/2]

Solution 5.16, part (ii)

The first point in the solution now reads:

- gross written or earned premium (or written / earned exposures plus gross premium per unit of exposure)

Solution 5.22, part (i)

The fourth point in the solution has been updated to read:

One way to apply a realistic basis would be to exclude any profit expected on the business from this calculation and deduct it from the capital requirement as a separate item. [1/2]

The eighth point in the solution has been updated to read:

If the insurer limits the size of the risks taken on, then it should be able to limit the number of large claims. [½]

The ninth point in the solution has been updated to read:

In this case, it may be more practical to model loss ratios rather than separately model individual large claims, at least until relevant internal data becomes available. [½]

Q&A Bank Part 6

Question 6.11

Part (iii) of the question has been updated to read:

(iii) State the key objectives of Solvency II and state the types of companies to which it applies. [4]

In addition, the question is now worth 10 marks in total.

Solution 6.11

The solution has been updated in light of the above changes. Please remove pages 7 and 8 of your Q&A Bank Part 6 – Solutions and use the replacement pages that can be found at the end of this Upgrade.

Solution 6.16

The answer to part (h) has been corrected to read as follows:

(h) return on capital: $\text{post-tax profit} / \text{initial free reserves}$

4 **Changes to the X Assignments**

This section outlines the changes that have been made to the X Assignments.

If you wish to have all the changes to the X Assignments, you will need to buy a replacement CMP (which you can do at a significantly reduced price if you have previously bought the full-price CMP in this subject).

However, if you wish to have your assignments marked by ActEd this session then you can order the current assignments free of charge if you have purchased them in the same subject the previous year (*ie* sessions leading to the 2016 exams), and have purchased marking for the 2017 session.

Assignment questions

Question X5.2

This question has been replaced with a completely new question. To obtain the revised question and solution, you will need to obtain a replacement copy as detailed above.

Assignment solutions

While the *content* of the solutions remains largely unchanged, there have been some changes to the *marks* available for each question. This is so that our assignments reflect the examiners' new marking strategy more accurately. Significant changes to the content of the assignment solutions (*ie* excluding marking changes) are detailed below.

Solution X1.8, part (i)

The points relating to "Use of vehicle" have been removed from the marking schedule as they are covered elsewhere in the solution.

Solution X5.1

Some of the points in the solution have been moved from part (ii) to part (i) and others have been updated in line with the changes in the Core Reading detailed above.

Solution X5.3, part (ii)

The following point has been added to the solution:

- classes of business written [½]

5 **Other tuition services**

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

5.1 **Study material**

We offer the following study material in Subject ST7:

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

For further details on ActEd's study materials, please refer to the 2017 *Student Brochure*, which is available from the ActEd website at **www.ActEd.co.uk**.

5.2 **Tutorials**

We offer the following tutorials in Subject ST7:

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

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 2017 *Student Brochure*, which is available from the ActEd website at **www.ActEd.co.uk**.

5.4 *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 **ST7@bpp.com**.

***This page has been left blank so that you can slot the replacement pages
into your Course Notes***

6 **Run-off reinsurance**

6.1 **Run-off solutions**

Run-off reinsurance is not a term generally used in the market place and so the meaning would be described in any question. It could in practice involve any treatment or processing of any closed book of business. The reinsurance of a closed tranche is just one possible run-off solution.

The aim of run-off reinsurance is the transfer of reserve development risks. It provides cover against the insurer's earnings volatility arising from past activities. It may be sought in circumstances such as:

- **corporate restructuring**
- **mergers and acquisitions**
- **closing lines of business**
- **economic changes in the value of the liability**
- **regulatory, accounting or tax changes**
- **legal developments, for example court decisions.**

The “book” is sold to the reinsurer who assumes all remaining premiums and all of the risk. The claims reserves are also transferred from the insurer to the reinsurer.

For example, there have been many run-off solutions applied to accounts with exposure to US asbestos-related claims, in view of the uncertainty (and deterioration) of that claims experience.

There are two main types of run-off reinsurance:

- **adverse development cover**
- **loss portfolio transfers.**

6.2 **Adverse development cover**

Adverse development cover is a reinsurance arrangement whereby a reinsurer agrees, in return for a premium, to cover the ultimate settled amount of a specified block of business above a certain pre-agreed amount.

It protects the cedant from significant reserve deterioration on run-off business. This caps the liability and protects the balance sheet from any further development on existing losses, and from future losses in respect of old business.

The premium that is payable for the cover will depend on the risk appetite of the market.

Usually it is only possible to reinsure a layer above a specified amount. This specified amount may be in excess of the current level of reserves. There could be an upper limit. If the ultimate cost of losses is in excess of this, the insurer is liable for the excess. The reinsurer may also insist that the insurer has a small participation in the layer.

Claims are usually still handled by the insurer and hence there are the associated expenses. Reserves are maintained by the insurer and it receives all investment income generated from the investments backing these reserves.

There is no transfer of reserves from the insurer to the reinsurer. The insurer simply pays a premium for the reinsurer to take on responsibility for the development of reserves beyond a specified position.

Question 6.25

What sort of traditional reinsurance arrangement would achieve this?

The insurer is exposed to the credit risk of the reinsurer. Legally, the insurer remains liable to the insured parties for all claims within the block reinsured. Hence, some but not all of the risk from adverse run-off of the reserves is removed.

6.3 Loss portfolio transfers (LPTs)

Although not a form of reinsurance, a loss portfolio transfer is an alternative to an adverse development cover when considering run-off solutions and so is included here for completeness.

LPTs are an arrangement whereby the liability for a specified book of business is passed in its entirety from one insurer to another. Policyholders will be informed of this “novation” and the deal may need to be approved by a court. This enables the original insurer to concentrate on any remaining book of business.

The Glossary defines a “novation” as “The transfer of the rights and obligations under a contract from one party to another.” Note that this definition is strictly only part of the Subject SA3 Core Reading.

Novation is not strictly reinsurance since the new insurer is responsible for the liabilities in total from the date of the transfer.

The original insurer will transfer the reserves and the remaining exposure to the new insurer. It is likely that there will be a premium in addition to the existing reserves. This would normally include a claims handling service.

All adverse claims risks and the investment income will be passed to the new insurer.

Advantages of LPTs

- **They can improve the credit rating of the original insurer.**
- **The new insurer will gain diversification if not already in this area and achieve a larger client database. There are specialist players in the market that can possibly run-off such portfolios more profitably than the original insurer.**
- The original insurer will no longer have any remaining exposure to the book of business, including any subsequent reserve deteriorations.
- The deal may be good value for money for one of the companies. For example, the reserves transferred, plus any additional premium payable and investment income earned, may be more than sufficient to pay the remaining claims, so the new insurer may end up making a profit.
- The original insurer's capital requirements will be lower and capital will be freed up for other purposes.
- The new insurer may gain access to historical data for the class of business.
- An LPT is a quick method for exiting a line of business (and a quick way for the new insurer to acquire a book of business).
- The original insurer may no longer need expensive specialist resources, *eg* claims handlers, to manage the liabilities.
- Unlike with some forms of reinsurance arrangement (*eg* adverse development cover), if the new insurer defaults on its liabilities they will not fall back on the original insurer.

Disadvantages of LPTs

- **Assets may need to be realised to pass across the value of the reserves to the accepting insurer which is particularly important if there is mismatching or if tax gains / losses would be crystallised.**
- **If the new insurer defaults, this could damage the reputation of the original insurer.**
- **The transfer may require the buy-in of reinsurers where there are existing reinsurance arrangements covering the portfolio.**

- **There will be an associated cost to the original insurer of the risk transfer, which will depend on the current risk appetite of the market. This cost would be any premium payable plus the “lost” investment income.**
- Any required court approval may be time-consuming and expensive, and may not necessarily be obtained.
- The new insurer may be exposed to the future emergence of new latent claims on the portfolio which may not have been anticipated / allowed for in the LPT calculations.

The “premium payable” referred to above is an amount to compensate the new insurer both for taking on the risk and for expenses associated with the transfer. This would be paid on top of the value of the reserves. The “associated cost” referred to is therefore this premium plus the value of any investment income effectively lost if the transferred value of the reserves uses a discount rate which turns out to be too low.

Example

Suppose a general insurer has a block of business and the discounted value of expected future claims in respect of this business is \$100*m*. If the regulations prohibited the discounting of future claim reserves, the regulatory provisions would be somewhat higher, say \$150*m*.

The general insurer could seek to reinsure this block of business. It would pay the reinsurer a premium. This should be sufficient to meet expected claims (*ie* \$100*m* in this case) plus the reinsurer’s fee (say \$10*m*). So, the insurer’s assets would decrease by \$110*m*. However, its liabilities would decrease by the amount of the provisions now passed to the reinsurer, *ie* \$150*m*. Therefore, the general insurer’s reported financial position has been improved.

If the actual claims experience is such that the \$100*m* is more than is required to meet the actual claims, the excess could be returned as a profit commission. If the \$100*m* is less than the actual claims, then (depending on the terms of the arrangement) the insurer might be required to pay an additional amount to the reinsurer.

For many years, the EU regulatory minimum capital requirement (MCR) for general insurers (known as “Solvency I”) was approximately 16%–18% of annual premiums. This was modified in some situations (*eg* if claims were very high), but nevertheless the Solvency I MCR formula is very simplistic compared to the risk-based Solvency II regime, which became effective on 1 January 2016. Solvency II is covered in more detail in Subjects CA1 and SA3.

Question 8.6

What do you think was the rationale behind this approach?

Using only simple measures, such as the former EU minimum, does mean that if an insurer cuts its premium rates, it does not need to hold so much capital. This does seem counter-intuitive: if it cuts its rates, it is more likely to become insolvent (*eg* due to inadequate premiums) and it would need to hold a higher level of capital to cover this risk!

This meant that it required less commitment of capital to write a policy if it were underpriced than it would have done if it had been overpriced, the exact opposite of what risk-based considerations would merit. This means that companies can write more business – in terms of the amount of risk taken on rather than the amount of premium written – as premium rates fall. Conversely, as premium rates rise they must restrict the amount of risk taken on unless they can raise more capital. This exacerbates the difficulty of finding cover and will tend to drive premium rates even higher.

Economies of scale

The economics of insurance business may also help to enforce the cycle. Insurers’ overheads tend to be, if not fixed, then less variable than premium rates. There may be little or no cost saving (apart from commission) from an insurer not writing a policy. Therefore if business at least covers its claims cost it may be marginally profitable for an insurer to write it, even if business overall makes losses. However, in the depths of soft markets, it is common for business to fail to do even this. Insurers sometimes do not want to lose market share because of the cost of acquiring the business again in the future, loss of reputation and other reasons.

In a competitive market, an insurer may set premiums at a level that makes an insufficient contribution to its fixed expenses. This may be justified on the grounds that there is still *some* contribution to fixed expenses, as opposed to the zero contribution which would result from trying (and failing) to sell an uncompetitive product with a “correct” contribution built in.

So, it is important that an insurer is aware of the true underlying profit or loss of its business. Otherwise it is all too easy for it to get carried away with making premium cuts in line with the competition and end up in a position where premiums do not even cover claim costs, and this can result in unprofitable business.

1.4 **Investment conditions**

Insurance companies take premiums from customers and hold them until they have to be paid out in claims; these monies will be placed in financial investments during this period. Most of their capital is also available for investment.

An insurance company needs to decide how to invest the money that it has at any one point in time. It will be exposed to the investment conditions of the assets it invests in. For example equity investments will be exposed to changes in the underlying market values (of the individual shares or of the market overall).

The capital that the insurance company holds can be split into two broad categories:

- that required to meet the liabilities, eg the statutory reserves, plus
- the free assets, which is the excess of the company's assets over its liabilities.

Generally, an insurer will try to hold assets to match its liabilities (by term, nature, certainty and currency), but will have greater freedom over how it invests its free assets.

In this, insurers are unlike non-financial companies, whose capital is usually tied up in capital goods or stock. This means that income from invested securities is an integral part of insurance business.

Only a small proportion of an insurance company's assets is likely to be tied up in fixed assets, such as the office buildings or machinery. Therefore, where the assets are invested, and the investment return those assets make, are more important decisions for an insurance company to make than they are for other companies, such as manufacturing firms.

6.2 ***Reconstruction, renewal and the formation of Equitas***

The losses led to a package of reconstruction and renewal that was crucial to the survival of Lloyd's, including:

- the admittance to Lloyd's of limited liability corporate capital in 1994 (individual Names too are now permitted limited liability and many have gone down that route)

Corporate capital now makes up the vast majority of the market capacity.

- the setting up in 1996, by Lloyd's, of a reinsurance company, Equitas, that has reinsured the outstanding liabilities from the 1992 and earlier years of account.

Equitas took on the reserves and premiums held in syndicates for those years, and received further funding:

- from Lloyd's own reserves, including its buildings, contributions from brokers, auditors, underwriting agents, a charge on the ongoing membership and a loan
- through individual reinsurance contracts entered in to with each Name whereby Equitas took on the Name's liabilities at Lloyd's in return for a premium.

Equitas is a separate entity from Lloyd's, and is outside Lloyd's regulatory regime. Equitas is not authorised to write new business.

The logic underlying the establishment of Equitas was that their concentration of resources and exposures would enable them to deal with the outstanding liabilities more efficiently than if all the individual syndicates (at one stage there were 430) were separately dealing with their own liabilities.

Equitas enjoys economies of scale in investment, expenses and claims settlement. By being a much larger entity than any one syndicate, its solvency position is enhanced. Also the results will be more stable (you win some, you lose some!).

Other aims of establishing Equitas were to:

- enable Names to retire from Lloyd's if they wish
- restore Lloyd's reputation in the world insurance market
- encourage new capital into the market
- allow syndicates to concentrate on the future rather than the past.

However, ownership of Equitas has now changed.

In March 2007, a deal was approved between Equitas and Berkshire Hathaway that resulted in subsidiary companies of the Berkshire Hathaway group of insurance companies:

- **reinsuring all Equitas' liabilities**
- **providing up to a further \$5.7 billion of reinsurance cover to Equitas (increased to \$7 billion following the subsequent Part VII transfer)**
- **taking on the staff and operations of Equitas and conducting the run-off of Equitas' liabilities.**

In June 2009, a Part VII transfer was approved that achieved finality for Names by transferring all liabilities from them to Equitas Insurance Company. These continue to be reinsured to Berkshire Hathaway companies.

Names here refers to those individuals that insured the 1992 and prior liabilities of Lloyd's.

A Part VII transfer is form of risk transfer. It will be discussed in a lot more detail in Subject SA3.

The subsidiary of Berkshire Hathaway that is managing the run-off of Equitas' liabilities has since been renamed Resolute Management Services Limited.

Definition

A term commonly used is the actuarial “best estimate” reserve. This is a point estimate reserve. This is usually taken to mean the expected value of the outstanding liabilities, after allowing for all the areas of uncertainty outlined above.

A point estimate is a single number, rather than a range of estimates.

(If you have previously studied CA1, remember that in Subject CA1 it is defined as the basis that has an equal chance of overstating or understating the cost.)

But in practice, when we determine the value of liabilities, we may not distinguish between the mean, mode and median, though of course we should, as the values may be very different.

Exam Tip

It is good practice both for Subject ST7 and in your own work to clarify what you mean when you use the term “best estimate”.

The term “best estimate” reserve is also used in other areas and is not necessarily defined in a statistical framework. For example, under the Solvency II regime, the reserving actuary is required to identify “best estimate” reserves, which are the mean of all possible outcomes, not just those present in the data.

The key characteristics of a “best estimate” in this context are that:

- **It is a point estimate. The best estimate is described as a single number, not as a range of reasonable outcomes.**
- **It is not inherently optimistic or pessimistic. The best estimate does not include any deliberate bias in the setting of the underlying assumptions. It is meant to be the actuary’s impartial view of the reserves with no margins, implicit or explicit, for prudence or optimism.**
- **It is based on sound and appropriate actuarial or statistical techniques.**
- **It is based on current and credible information.**
- **The requirements say nothing about the skewness of the underlying distribution or its inherent volatility.**

Solvency II is the new regulatory regime applicable to UK general insurance companies which came into force on 1 January 2016. It is discussed in detail in Subject SA3. Solvency II requires firms to value their assets and liabilities on a market-consistent basis and more risk-sensitive capital requirements address asset as well as liability risks. It consists of three “pillars”.

Pillar 1 sets out the reserving basis and the capital requirements companies are required to meet for insurance, credit, market and operational risk. Capital requirements may be calculated using a standard formula or, if firms have supervisory approval, they may use their own capital models.

Question 17.4

For a general insurer writing household insurance give examples of:

- (i) insurance risk
- (ii) credit risk
- (iii) market risk
- (iv) operational risk.

Pillar 2 consists of a supervisory review process to evaluate the adequacy of capital and the company’s risk management systems and processes. Supervisors may decide that a company should hold additional capital against any risks not adequately covered in Pillar 1.

The aim of Pillar 3 (disclosures) is to harness market discipline by requiring firms to publish certain details of their risks, capital and risk management.

In previous chapters, we describe various techniques or methods that help us to estimate the reserves for outstanding claims. In assessing the “best estimate” reserve, we must understand that these methods only give guidance and do not provide a definitive value.

Example

The impact of a current company initiative to defend vigorously every claim will not be reflected in many of the standard models based on past data. However, using our judgement, we may reduce outstanding claim liabilities for certain claim types, increase reserves for claim handling expenses, and lengthen the claim development pattern.

Data and assumptions

The main items of data needed for capital modelling are:

- unexpired premiums (gross and net), split by class of business
- planned premiums (gross and net), split by class of business
- gross unpaid claims, split by class of business
- claims payment profiles
- claim limits
- aggregate exposure by location to assist in catastrophe modelling
- future reinsurance costs
- reinsurance programmes for gross unpaid claims, unexpired business and planned reinsurance programmes
- expenses
- asset values
- details of risks, such as credit exposures and operational risks.

The assumptions that must be set include:

- gross written or earned premium
- ceded reinsurance premiums
- ultimate gross claims (including claims management costs)
- catastrophe claims
- claims payment profiles
- gross reserve movements, split by class of business
- reinsurers' share of gross ultimate claims and the proportion of this the firm may be unable to recover
- reinsurance exhaustion and reinsurer downgrade assumptions
- expenses
- inflation
- investment returns, split by asset class
- operational losses
- tax and dividends.

A decision will be needed as to which assets to include in the model.

The following checks should be carried out:

- a reconciliation of data used in the model to financial statements and business plans
- reasonableness checks that the assumptions produce sensible outputs.

The process should be carefully documented and communicated, including:

- any concerns over data
- the rationale for selecting assumptions and methodology
- any alternatives considered and why they were rejected
- the business classification that has been used in the model.

Aggregation methodologies

If more than one approach, model or stress test has been used in considering risks, these need to be brought together. Risks may be aggregated by determining joint probabilities that capture correlations between variables. If the determination of a joint distribution is not possible, then more approximate methods of combination will need to be used.

Correlation assumptions will typically be subjective. These should be set while considering:

- historic events
- an acceptable range of considerations
- the subsequent impact on the capital models.

Validating the model

Stress testing quantifies the effect of varying a single parameter.

Scenario tests quantify the effect of changing a combination of parameters. They help the insurer analyse severe scenarios. Allowance should be made for correlations between risks.

Sensitivity testing is the process of testing the extent to which the results of a capital model change as a result of making a small change to an assumption in the model. The purpose of sensitivity testing is to identify the most sensitive assumptions.

Credit risk

Credit risk refers to the risk of loss if another party fails to meet its financial obligations, or fails to meet them in a timely fashion. It can also include downgrade impacts.

It is typically split into:

- investment credit risk
- counterparty credit risk – the most significant counterparty is the reinsurer(s).

In each case, it will be necessary to consider the probability of default for each counterparty and the size of the loss given that the default event occurs.

It will be necessary to consider the different levels of risk in different environments, *eg* recessions.

Stochastic models may be used to model credit risk, however stress tests will still be needed to check the model for reasonableness and to help calibrate the assumptions.

Investment credit risk is sometimes included in market risk.

Operational risk

Operational risk is defined as the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events. Operational risks include risks relating to administration, compliance, impact of events, fraud, governance, strategy, technology and pension scheme provision.

Some operational risks will overlap with other categories of risk.

Due to its uncertain and subjective nature, operational risk is difficult to model and requires a considerable amount of judgement.

Group risk

Group risk is defined as the risk a firm experiences from being part of a group as opposed to being a standalone entity. The size of the group risk will depend on the ownership structure of the firm and how it is funded by the parent. Capital may not be a good mitigant for group risk.

Group risks might include: reputational risks, concentrated credit risks and risks arising from centralised functions.

Other risks

Other risks include:

- strategic risk – these arise from the inability to implement appropriate business plans and strategies, make decisions, allocate resources or adapt to changes
- political risk – any political changes that affect the probability of achieving business objectives.

ERM refers to the methods and processes used by organisations to manage risks.

With a stochastic model, there are two ways of providing such a risk breakdown:

- **Firstly the model can report on each individual risk and subsets of risks to the same level of confidence. This gives us information on the stresses applied and the explicit or implicit correlations assumed.**

Correlations were discussed in Chapter 21.

- **Secondly the model can provide a breakdown of the individual risk values in the critical scenarios. This gives us an understanding of typical scenarios in which a loss of the magnitude of the capital requirement occurs.**

The overall required capital is a point chosen from the output distribution that reflects the desired confidence level. This point will have been generated by a particular (random) scenario.

We can look at the individual risk values generated in this scenario to give an indication of the capital to be allocated to each risk type. As we discussed in Chapter 20, we will also look at the scenarios generated around this chosen (critical) scenario, to gain a greater understanding of the factors driving the overall capital requirement.

It is important to check that the results make sense in the real world to ensure that the model is not giving spurious results.

It is usually more straightforward to check this by considering a detailed results breakdown, rather than assessing the reasonableness of the overall capital requirement figure directly.

Where we have carried out a capital modelling exercise previously, it is good practice to identify the reasons why the capital figure has changed from the last exercise, and explain qualitatively and quantitatively the effect of each key change.

Producing a detailed analysis of change / walkthrough quantifying the impact of each smaller change, using a series of model runs to build up to the new result could be one way of achieving this. This can also be used to quantify the impact of change in exposure data versus parameter changes versus model changes.

More detail is provided in Chapter 19 on the validation of capital models.

3 **Further considerations**

3.1 **Capital modelling for regulatory or internal use**

We may use models for both:

- regulatory capital requirement calculations
- internal capital assessment.

Regulatory requirements may not be the same as those required by the business for internal capital assessment. For example, the regulator may require more prudent assumptions than best estimate (particularly where data is limited), or may want the company to assess capital assuming that it closes to new business.

Where we use a model for regulatory purposes, there may be guidelines (such as those issued by the EIOPA in Europe, the PRA and Lloyd's in the UK) that may give constraints on the assumptions used and level of detail in the model. Guidance issued by the FRC and by the Institute and Faculty of Actuaries should also be borne in mind from a work viewpoint, but is not examinable in Subject ST7.

Note that in the UK, the regulators only give guidelines and constraints, rather than completely-prescribed methods. EIOPA is the European Insurance and Occupational Pensions Authority, and is an advisory body formed to support the stability of the European financial system, improve the transparency of financial markets, and deal with policyholder protection.

Under Solvency II – the regulatory regime which governs capital requirements for insurance companies in the European Union – capital requirements may be determined using a “standard formula”, that allows for underwriting, market, credit default and operational risks. The alternative is for an insurer to use an internal model of its risks. Internal models aim to create a stochastic model that reflects the company's own business and risk structure.

However, for a company to use an internal model for PRA (or other relevant authorities') purposes, the model has to satisfy the “use test”; that is, the company must use the model to help manage the business, not simply to produce numbers for regulatory purposes.

The “use test” is simply that the insurer will have to show that the model is used as a decision tool in the company's daily risk management work.

2 Impact of capital management on reinsurance purchasing

This section builds on the comments in Section 1.2, which discussed the use of capital (or free reserves) as an alternative to reinsurance.

An insurance company's reinsurance strategy will largely be dictated by its capital management policy. For example, an insurer with access to cheap capital in its group is less likely to take out reinsurance compared to a small company with no parental backing.

Insurers can change the amount of capital that regulators require them to put aside, by purchasing reinsurance. More so now with the arrival of Solvency II in Europe, the interplay of capital and reinsurance has become an important consideration in reinsurance structuring and buying decisions.

Solvency II came into effect on 1 January 2016. It is discussed in depth in Subject SA3.

2.1 Using reinsurance to reduce capital requirements

An insurer may wish to purchase (additional) reinsurance to reduce the amount of capital it needs to set aside to meet regulatory requirements.

Regulators will require insurers, on writing a book of business, to allocate capital against this business to cover future losses.

Through an effective reinsurance strategy, we reduce the amount of capital required to support this book because the insurer is transferring exposure to the risk of losses to the reinsurer.

2.2 Using reinsurance as a form of capital

Following the previous point that reinsurance can be used to reduce the amount of capital required, we can consider it to be a form of capital. By purchasing an effective reinsurance programme, an insurer can free up capital that is otherwise allocated to support the premium income against future uncertain losses. Therefore, reinsurance can be an effective means of reducing the capital required and may be cheaper than raising extra capital by other means. The insurer could use the extra capital to generate increased revenue by writing additional business.

Note, however, that reinsurance and capital are not completely compatible. There are some things that reinsurance can do that capital cannot, and vice versa. For example, reinsurance also enables an insurer to receive technical assistance.

2.3 How does the cost of reinsurance capital compare with the cost of an insurer's capital or alternative forms of capital?

The cost of reinsurance capital will differ from the cost of alternative sources of capital, such as that obtained through the more traditional capital markets. Reinsurance may be a cheaper way for an insurer to reduce the capital it needs, enabling it to increase its overall return on equity and increase its value to shareholders.

Question 23.6

How can reinsurance *increase* value to shareholders?

2.4 Reinsurance for new companies

New companies use reinsurance to reduce the capital strain of financing new business. They usually do this by ceding large proportions of business to reinsurers via quota share reinsurance. This is an addition to many of the points made earlier in this chapter which covers issues that also apply to new companies.

Question 23.7

Why else would a new company use reinsurance?

Chapter 25 Solutions

Solution 25.1

Method 1

Claim payments during the year were £1.2m.

The reserve for claims outstanding at the end of the year is:

$$£1m + £0.3m = £1.3m$$

The reserve for claims outstanding at the end of the previous year was £0.9m.

So the claims outgo for the year of account is:

$$£1.2m + £1.3m - £0.9m = £1.6m$$

Method 2

Payments on claims incurred during the year were £0.8m.

The reserve for claims incurred during the year and still outstanding is £1m.

The payments on claims incurred in earlier years is:

$$£1.2m - £0.8m = £0.4m$$

The reserve for claims incurred in earlier years and still outstanding at the end of the year is £0.3m.

The reserve for claims outstanding at the end of the previous year was £0.9m.

So the claims outgo for the year of account is:

$$£0.8m + £1m + £0.4m + £0.3m - £0.9m = £1.6m$$

Solution 25.2

$$243 - 3.5 - 0.3 + 1.2 - 2.6 + 3.6 = £241.4m$$

Remember that increases to reserves defer the emergence of profit, whereas DAC is a notional asset.

Solution 25.3

All true.

Solution 25.4

- The apparent financial strength would be very volatile (*ie* reflecting the volatility of market values).
- The financial strength would be overstated if the market values were on a “high” (*ie* this would not be prudent).

Solution 25.5

Start with the retained profit and work up the account to find that paid claims = £63m:

	Written premiums	121	given
–	Increase in UPR (net of DAC)	7	47 – 40
–	Claims paid	x	the answer! Find $x = 63$
–	Increase in o/s claims	21	103 – 82
–	Expenses paid	39	given
+	Investment income	17	$0.1 \times (154 + 186) / 2$
=	Profit before taxation	8	because tax is at 50%
–	Taxation	4	
=	Profit attributable to shareholders	4	
–	Dividends	0	given as zero
=	Retained profits	4	Increase in shareholders' funds: 36 – 32

Note that, as the UPR given on the balance sheets is already net of DAC, you do not need to use the information that you are given in the question relating to the increase in DAC.

Solution 25.6

Possible if the policies give cover for a period longer than two years. Suppose a single policy provides cover for three years. Such a policy written on 1 July 2013 would have 6 months unexpired exposure at 31 December 2015 when the 2013 accounting year is closed.

4.2 Specific implications for insurers

This section discusses more specific implications for insurers of being required to comply with ICPs.

In summary, these are:

- a best estimate basis will be used when valuing assets and liabilities
- expected higher volatility of profits, due to a move to risk-based capital assessment
- disclosure of intra-group arrangements for insurance groups
- higher costs to regulators and insurers, due to the need to demonstrate effective ERM
- consistent standards may help improve efficiency and promote product development.

Current assumptions

Risks for valuation purposes would require assumptions based on a portfolio's experience analysis and possibly move away from prudent margins.

The potential change of emphasis towards a risk-based assessment of capital could lead to greater volatility of distributable profits and significantly alter ratios of available-to-required capital.

Group-wide supervision

At the group level, broader reporting requirements will probably compel the disclosure of intra-group arrangements to the supervisor.

Enterprise risk management

Revised requirements to demonstrate the ability to control, mitigate and manage risk exposure will initiate greater demands on the resources of regulators and insurers.

Regulatory convergence

The emergence of consistent regulatory standards may suggest strategies, products and operating methods that could provide further advantages (eg consolidating product development and wider product introductions).

5 Solvency II

5.1 Introduction to Solvency II

Solvency II is a risk-based approach to prudential requirements which will bring harmonisation at EEA level.

Recall that risk-based capital assessment was introduced in Chapter 20. You will have already heard of Solvency II if you have studied Subject CA1.

Question 27.7

Suggest reasons why, under a risk-based approach, one insurer may have a higher capital requirement than another, despite having a lower written premium income.

Solvency II governs the capital requirements for insurance companies in the European Union.

The key objectives are to:

- **increase the level of harmonisation of solvency regulation across Europe**
- **introduce capital requirements that are more sensitive to the levels of risk being undertaken**
- **provide appropriate incentives for good risk management**
- **improve consumer protection.**

Scope of Solvency II

Solvency II supersedes the previous Insurance Directives and the Reinsurance Directive and, by reforming the solvency requirements for life and non-life insurance undertakings, improves policyholder security.

Solvency II requirements became live for companies on 1 January 2016.

The Solvency II responsibilities of supervisors and EIOPA were in effect from 1 January 2014.

(EIOPA is the European Insurance and Occupational Pensions Authority, one of the EU's main financial supervisory bodies, previously known as CEIOPS.)

The Solvency II Directive applies to all insurance and reinsurance companies with gross premium income exceeding €5m or gross technical provisions in excess of €25m.

5.2 Development of Solvency II

Lamfalussy process

The new Solvency II framework was created in accordance with the Lamfalussy four-level process.

The Lamfalussy framework was drawn up by the “Committee of Wise Men” in 2001, chaired by Baron Alexandre Lamfalussy.

It is basically a step-by-step guide on how to introduce new legislation. It allows legislation to be developed and implemented gradually over a period of time.

The four stages of the Lamfalussy process are:

- **Level 1 – developing an EU legislative instrument that sets out the key framework principles, including implementation powers (completed in 2009, adopted in December 2013 and finalised in March 2014)**
- **Level 2 – developing more detailed implementing measures and technical standards (finalised in 2015)**
- **Level 3 – developing supervisory guidance and common standards, and conducting peer reviews and consistency comparisons**
- **Level 4 – enforcement across the Member States (from 1 January 2016).**

Development has been supported through a number of Quantitative Impact Studies (QIS) that insurance companies have been asked to complete, and through liaison with national supervisory bodies.

EIOPA has provided technical advice and support to the European Commission for the development of the implementing measures under Level 2, and is responsible for producing the Level 3 additional guidance.

Further information can be found on EIOPA’s website:

<https://eiopa.europa.eu/regulation-supervision/insurance/solvency-ii>

Solvency II is discussed in considerably more detail in Subject SA3.

6 **Examples of regulatory proposals**

Listed below are examples of restrictions and requirements that a regulator might put in place to achieve the objectives outlined in Section 1 above. The purposes and advantages of these approaches are listed in the sub-bullets.

6.1 **Restrictions on underwriting**

- **Restrictions on the type / amount of business a general insurance company can write / classes of business it is authorised to write.** An authority could prevent an insurer from writing volatile classes of business or classes where it has little expertise.
 - **This ensures companies have appropriate expertise / sufficient capital to write the business classes.**
- **Limits on contract terms and premium rates that can be charged.** For example, the authorities in some US states, *eg* Massachusetts, set the personal motor premium rates that must be charged. An authority could also set a maximum or minimum premium or restrict the way in which the premiums are calculated. For example an authority could set a maximum allowance for expenses defined as a percentage of the gross premium.
 - **This ensures premium rates are sufficient to meet future claims/ ensures policyholders not overcharged.**
- **Restrictions on information that may be used in underwriting and premium rating,** *eg* restrictions on rating factors used, or on the ability to decline cover.
 - **This is for ethical / anti-discrimination reasons.**
- **Requirements to file / publish premium rates before they can be used.**
 - **This prevents anti-competitive practices and therefore protects policyholders.**
- **Restrictions on countries a general insurance company can write business in.**
 - **This prevents exposure to volatile risks and unfamiliar legal systems and regulations.**
- **Mandatory restrictions on cover, *eg* no deductible on employers' liability.**
 - **To protect policyholders and claimants and to ensure consistency of cover.**

- **Prohibiting illegal products from being sold.**
 - This discourages illegal practices.
- **Requirements to purchase certain cover eg high-risk flood areas, employers' liability and motor third party liability.**
 - This promotes social responsibility and helps the economy as a whole.

6.2 Capital requirements

- **The requirement to deposit assets to back claims reserves.**
 - This ensures the company has sufficient funds to pay claims.
- Requirement to hold a claims equalisation reserve (if allowed).
- **The requirement to maintain a minimum level of solvency, ie a minimum level of free assets.** This might, for example, be calculated as a proportion of premiums written.
 - This ensures that if claims are significantly worse than expected the company will still remain solvent.
- **The use of prescribed bases to calculate premiums, asset values and liabilities to demonstrate solvency.**
 - This ensures accurate / consistent estimates of liabilities and uncertainty.
- **The requirement for risk-based capital calculations and ICA analyses.**
 - This ensures accurate estimates of liabilities and uncertainty.

6.3 Investment requirements

- **Restrictions on the type or amount of certain assets allowed to demonstrate solvency.**
 - This is to prevent high-risk assets from backing liabilities, or to encourage diversification.
- **Restrictions on the currency, domicile and duration of assets allowed to demonstrate solvency (or mismatching reserves).**
 - This ensures that assets match liabilities by term and currency so that short term changes in exchange rates will not have an impact on solvency margins.

- Other regulations concerning investments could include:
 - requirements to hold prescribed assets, *eg* government securities
 - restrictions on holding certain assets, *eg* foreign securities
 - restrictions on the amount of investment in any one company / group
 - custodianship of assets.

6.4 Reporting requirements

- **Disclosure / transparency of reporting requirements**, *eg* a requirement to provide detailed reports and accounts at prescribed intervals.
 - **This helps regulators, investors, capital providers and policyholders assess the soundness of the company.**
- **Requirements for a Statement of Actuarial Opinion to be produced by an approved actuary.**
 - **This promotes confidence in the level of reserves and helps to prevent the failure of a general insurance company.**
- **Restrictions on the type of reinsurance that may be used.**
 - **This prevents exposure to risky reinsurers or reinsurance products.**
- **Restrictions on the discounting of liabilities and discount rates that can be used.**
 - **This ensures consistency and that reserves are sufficient.**
- **Requirements for general insurance companies to be audited.**
 - **This gives regulators and investors confidence in the company and prevents fraud.**

6.5 *Authorisation requirements*

- **Initial authorisation of new insurance companies.**
 - This ensures companies have appropriate expertise / sufficient capital to write the business classes.
- **Licensing agents to sell insurance and requirements on the method of sale.**
 - This ensures that a company has the necessary expertise and that the insured is well informed.
- **Requirements for management to be fit and proper, eg restrictions preventing specific individuals from holding key roles in companies.**
 - This promotes confidence in the industry and helps prevent fraud.

6.6 *Other requirements to protect policyholders*

- Requirement to purchase reinsurance.
- **Legislation to protect policyholders should general insurance companies fail, eg Financial Services Compensation Scheme.**
 - This protects policyholders and maintains faith in the insurance market.
- **The requirement to pay levies to consumer protection bodies.**
 - This protects policyholders and maintains faith in insurance market.
- **A cooling off period, eg fourteen day cancellation rules on policies issued.**
 - This protects policyholders and promotes confidence in the industry.
- Advertising restrictions.
- **Regulations with respect to treating customers fairly.**
 - This protects policyholders and promotes confidence in the industry.
- **Restrictions with respect to anti-competitive behaviour.**
 - This prevents the formation of cartels, concentrations of risk, and protects policyholders.

6.7 *Disadvantages of regulatory proposals*

The disadvantages are less specific and surround the following general issues:

- the cost in terms of resource and finance to comply with and supervise the rules
- the loss of business opportunities that arise from any restriction on a free market
- the inability to maximise investment returns when there are controls on investment decisions
- the amount of regulatory bureaucracy deterring new entrants
- the difficulties and hence potential inaccuracies in complying with complex (risk-based) liability and capital calculations
- the increased premium cost to the public arising from levies and the general increase in insurer expenses
- the inability of companies to benefit from economies of scale and cost reductions due to anti-competitive legislation
- the failure of insurance to reach certain sectors of the population due to the increased cost of and restrictions on methods of distribution.

7 Glossary items

Having studied this chapter you should now read the following Glossary items:

- Risk-Based Capital (RBC)
- Value at Risk (VaR).

8 *End of Part 6*

What next?

1. Briefly **review** the key areas of Part 6 and/or re-read the **summaries** at the end of Chapters 23 to 27.
2. Attempt some of the questions in Part 6 of the **Question and Answer Bank**. If you don't have time to do them all, you could save the remainder for use as part of your revision.
3. Attempt **Assignment X6**.

Time to consider – “rehearsal” products

Mock Exam A / AMP and Marking – There are three separate mock exam papers that you can attempt and get marked. A recent student survey found that students who do a mock exam of some form have significantly higher pass rates. Students have said:

“I find the mock a useful tool in completing my pre-exam study. It helps me realise the areas I am weaker in and where I need to focus my study.”

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And finally ...

Good luck!

Chapter 27 Summary

Objectives of insurance regulation

The key objectives of legislation are to promote efficient, fair, safe and stable insurance markets for the benefit and protection of policyholders.

Further objectives of regulation are to:

- to help growth and competition in the insurance sector and contribute to economic growth
- enhance the overall efficiency of the financial system
- reduce transaction costs
- create liquidity
- facilitate economies of scale in investment
- allocate resources efficiently
- manage risk
- mobilise long-term savings.

Direct costs

- administering the regulation
- compliance for the regulated firms

Indirect costs

- alteration in consumer behaviour
- undermining of the sense of professional responsibility amongst intermediaries and advisors
- reduction in self-regulation by the market
- reduced product innovation
- reduced competition

Regulatory regimes

The main types of regulatory regime are:

- *unregulated markets* – where no financial services specific regulations apply, market participants are instead subject to the normal laws of the land
- *voluntary codes of conduct* – drawn up by the financial services industry itself
- *self-regulation* – organised and operated by the participants in a particular market without government intervention
- *statutory regulation* – in which a government body sets out the rules and polices them
- *mixed* – a combination of the above (many countries adopt such a mixture).

Each of the above regimes can adopt any of the following forms:

- *prescriptive regimes* – with detailed rules as to what may or may not be done
- *“freedom of action”* – with rules only on publicity of information
- *outcome-based regimes* – with prescribed tolerated outcomes.

The International Association of Insurance Supervisors

The IAIS represents insurance regulators and supervisors around the world.

Its key activities are to issue principles, standards and guidance papers, provide training and support and organise seminars for insurance supervisors.

The objectives of IAIS are to:

- promote effective and globally consistent supervision of the insurance industry in order to maintain efficient, fair, safe and stable insurance markets for the benefit and protection of policyholders
- contribute to global financial stability.

The IAIS core principles (ICPs) are a set of guidance papers for insurers and insurance regulators. They are supported by the IMF and World Bank.

Implications of ICPs

Potential implications to insurers of complying with ICPs include:

- a best estimate basis will be used when valuing assets and liabilities
- expected higher volatility of profits, due to a move to risk-based capital assessment
- disclosure of intra-group arrangements for insurance groups
- higher costs to insurers (and regulators) due to the need to demonstrate effective ERM
- consistent standards may help improve efficiency and promote product development.

Solvency II

Solvency II has brought a risk-based approach to determining capital requirements across the European Union.

It aims to:

- increase consistency of regulation across Europe
- reward effective risk management
- improve policyholder security and consumer protection.

It came into force on 1 January 2016 and applies to all EU insurers with GPI in excess of €5m or gross technical provisions greater than €25m.

Solvency II was developed using the Lamfalussy process, with consultation from insurers and insurance regulators, and support from EIOPA.

Effects of regulation

Regulation may affect the following areas:

- amount / mix of business written, including location of business, mandatory cover, restrictions on selling illegal products, *etc*
- authorisation of insurance companies and management
- restrictions on sales methods, *eg* licensing of agents and cooling off periods
- underwriting and premium restrictions, *eg* approval required for premium rates
- capital requirements, *eg* requirements to hold reserves, minimum capital requirements, risk-based capital calculations, restrictions on discounting, *etc*
- investment restrictions, *eg* assets held, matching requirements, *etc*
- contributions to consumer protection bodies
- requirements to treat customers fairly
- restrictions on anti-competitive behaviour
- reporting and disclosure requirements
- audit requirements and requirements to produce a statement of actuarial opinion
- reinsurance requirements.

The disadvantages of regulation include:

- monitoring and compliance costs
- fewer business opportunities
- lower investment returns
- barriers to entry
- higher costs passed on to policyholders
- fewer economies of scale
- less insurance provision to some sectors of the population.

Solution 6.11**(i) IAIS activities**

The IAIS:

- works closely with other organisations to promote financial stability [½]
 - issues global principles, standards and guidance papers [½]
 - provides training and support on issues related to insurance supervision [½]
 - organises meetings and seminars for insurance supervisors. [½]
- [Total 2]

(ii) Implications of complying with the IAIS Insurance Core Principles (ICPs)

Some advantages of complying with the ICPs are:

- confidence in the insurer's financial strength and risk managements processes is improved ... [½]
- ... which should reduce its cost of capital [½]
- the IMF and World Bank will take it into account when reviewing loan provisions and trading status [½]
- a greater understanding of the nature of the risks taken on [½]
- consistent standards may help improve efficiency and promote product development. [½]

Some disadvantages of complying with the ICPs are:

- higher compliance costs ... [½]
- ... which may be passed onto customers via higher premium rates [½]
- being forced to use of a best estimate valuation basis, which may restrict flexibility [½]
- distracting insurers from their core activities [½]
- potentially more volatile profits, due to using a risk-based capital approach [½]
- more stringent disclosure requirements. [½]

[Maximum 4]

(iii) ***Objectives of Solvency II***

The key objectives of Solvency II are:

- to increase the level of harmonisation of solvency regulation across Europe [½]
- to introduce capital requirements that are more sensitive to the levels of risk being undertaken [½]
- to provide appropriate incentives for good risk management. [½]
- to improve consumer protection. [½]

Solvency II supersedes the previous Insurance Directives and the Reinsurance Directive and by reforming the solvency requirements for life and non-life insurance undertakings, improves policyholder security. [1]

The Solvency II Directive applies to all insurance and reinsurance companies with:

- gross premium income exceeding €5m, or
- gross technical provisions in excess of €25m. [½]

The Solvency II responsibilities of supervisors and EIOPA were in effect from 1 January 2014. [½]

Solvency II requirements became live for companies on 1 January 2016. [½]
[Maximum 4]