INSTITUTE AND FACULTY OF ACTUARIES

EXAMINERS' REPORT

September 2021

Subject CP1 – Actuarial Practice
Core Practices
Paper One

Introduction

The Examiners' Report is written by the Chief Examiner with the aim of helping candidates, both those who are sitting the examination for the first time and using past papers as a revision aid and also those who have previously failed the subject.

The Examiners are charged by Council with examining the published syllabus. The Examiners have access to the Core Reading, which is designed to interpret the syllabus, and will generally base questions around it but are not required to examine the content of Core Reading specifically or exclusively.

For numerical questions the Examiners' preferred approach to the solution is reproduced in this report; other valid approaches are given appropriate credit. For essay-style questions, particularly the open-ended questions in the later subjects, the report may contain more points than the Examiners will expect from a solution that scores full marks.

The report is written based on the legislative and regulatory context pertaining to the date that the examination was set. Candidates should take into account the possibility that circumstances may have changed if using these reports for revision.

Sarah Hutchinson
Chair of the Board of Examiners
December 2021

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A. General comments on the *aims of this subject and how it is marked*

The aim of the Actuarial Practice subject is that upon successful completion, the candidate should understand strategic concepts in the management of the business activities of financial institutions and programmes, including the processes for management of the various types of risk faced, and be able to analyse the issues and formulate, justify and present plausible and appropriate solutions to business problems.

This subject examines applications in practical situations of the core actuarial techniques and concepts. To perform well in this subject requires good general business awareness and the ability to use common sense in the situations posed, as much as learning the content of the core reading. The candidates who perform best learn, understand and apply the principles rather than memorising the core reading.

The examiners set questions that look for candidates to apply the principles specific to the situation set out in the questions, having read the question carefully. Many candidates gain few marks by writing around the subject matter of the question in a more general fashion. Detailed specialist knowledge is not required and nor is very detailed development of particular points.

Good candidates demonstrate that they have used the planning time well to understand the breadth of the question and to structure their answer - this is a big advantage in making points clearly and without repetition. This also enables candidates to use the later parts of questions to generate ideas for answers to the earlier parts.

Time management is important so that candidates give answers to all questions that are roughly proportionate to the number of marks available.

The comments that follow the questions concentrate on areas where candidates could have improved their performance. Candidates approaching the subject for the first time are advised to use these points to aid their revision.

Candidates who give well-reasoned points, not in the marking schedule, are awarded marks for doing so.

B. Comments on *candidate performance in this diet of the examination.*

Paper 1 scored higher than Paper 2 with the average scores being circa 5% different between the papers which is consistent with previous sessions. Paper 1 was generally answered well with no question giving most candidates concerns although candidates struggled with higher order skills questions with stronger candidates clearly structuring their answers in a coherent way giving evidence that they planned their answers again this is a similar theme to previous sessions

C. Pass Mark

The Pass Mark for this exam was 55
708 presented themselves and 254 passed.

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Solutions for Subject CP1-1 – September 2021

Q1

Greatest risk for person A is that there are insufficient funds available to provide the promised defined benefits [1]

This may because of:

Insufficient funds having been set aside i.e. scheme is underfunded [½]
Insolvency of a sponsor or provider of the scheme benefits [½]
The risk of insufficient funds is heightened when holding investment which are not matched to the liabilities [½]
Person A is exposed to changes to the defined benefits, for example: [½]
Closure of the scheme to future accumulation [½]
Change to future benefit accumulation [½]
A's employee contribution rate may have to increase and this could make it unaffordable for the member to be in the scheme [½]
Both A and B are exposed to regulatory or tax changes [½]
Both A and B are exposed to the risks arising from leaving the scheme [½]

For person B, further risk that the level of benefits will be lower than expected if:

The investment return is lower than had been anticipated [½]
Or any expense charges deducted are higher than expected [½]
Longevity has increased (i.e. people are living longer than expected) [½]
Person B also has the risk that benefits will be reduced if the terms of purchase for any investment vehicles are worse than had been anticipated e.g. annuity terms [1]
This could mean that B has to save for longer or increase their contribution rate [½]
Risk that the funds, although sufficient, are not available when they are required to finance the benefit [½]
Both are exposed to the risk that the benefits do not meet their needs e.g. impact of inflation, change in individual's circumstances [½]
Both are exposed to operational risk e.g. risk of fraud/human error [½]

[Marks available 10, maximum 5]

Most candidates scored well on this questions. Candidates that did less well started off describing the operation of each type of scheme, which did not strictly answer the question and therefore scored few marks. Some responses went into too much detail on specific points such as the investment risk for person B and therefore didn't pick up other marks for having enough breadth in their answer.

Q2

(i)

Obtain a clear brief from the client on the scope of the advice [½]
And obtain any relevant background on the brief [½]
Research the client to understand their business [½]
(e.g. review statutory accounts) [½]
Understand any conflicts of interest [½]
(e.g. will their firm be advising the scheme trustees) [½]

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Collect information on the risk appetite of the client [½]
Collect information on the culture of the company [½]
Collect information on how much the client can afford [½]
Collect information on previous/existing schemes that may have been offered to employees of this client [½]
Consider timescales for delivery (in particular are they realistic) [½]
Consider any outside influences that could impact delivery of the brief (e.g. regulatory requirements) [½]
Ensure that all of the information collected is treated in a confidential way (i.e. processes in place to ensure that this happens) [½]

[Marks available 6½, maximum 3]

(ii)
Lack of face to face or more informal meetings will make it harder to assess the company's culture [½]
There may only be contact with one individual at the client, rather than a broader group (e.g. including the scheme trustees) [½]
This may make it harder to understand the business environment and any conflicts of interest within the client [½]
The actuary may need to ensure that the brief is very detailed at the outset, as there could be more scope for misunderstandings with all work done remotely [½]
It may be difficult for the actuary to carry out the work fully if unable to attend usual workplace [½]
and technology available may not be sufficient to achieve all objectives [½]
and it may be difficult to fully tap into expertise of colleagues working remotely [½]
It may be difficult for the client to concentrate for too long if the meeting is too long and over teleconference facilities [½]

[Marks available 4, maximum 2]

[Total 5]

Part (i) was answered reasonably well but candidates that focused on information on the new scheme rather than the client did less well.

Part (ii) most candidates answered this question well, with the stronger candidates focusing on number of issues rather than focusing on one (e.g. confidentiality. Those candidates that used (i) as a checklist to generate ideas generally scored full marks on this part.

Q3
Start-up/initial/development/one-off costs [½]
Fee to register with Government [½]
Purchase or lease of property the business will operate from [½]
Development of the property so that if can be used for provision of childcare business [½]
Purchase of initial materials needed, i.e. paper, buying toys, books etc [½]
Initial training course fees (to meet government standards) for example [½]

child care course [½]

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first aid	[½]
food hygiene/allergies	[½]
safeguarding	[½]

[Marks available 2, maximum 1]

Cost of apply for criminal records checks	[½]
Initial marketing costs for the business	[½]
including setting up a website	[½]
Ongoing-running costs	[½]
Cost of utilities e.g. heating, lighting	[½]
Cost of replacement of materials, i.e. paper, buying toys, books etc	[½]
Costs of CPDs/retraining	[½]
Maintenance costs for the facilities	[½]
Regular fee to remain Government-registered	[½]
Cost of food and refreshments for staff and customers	[½]
Financial costs	[½]
such as interest on loans, bank charges, accounting fees etc	[½]
Marketing Costs	[½]
Salaries of staff	[½]
Insurance costs	[½]
Tax on profits	[½]
Rent	[½]

Marks for ongoing costs were capped at 4 marks to ensure a breadth of points were generated on this question.

Income

Fees charged to children's carers	[½]
Fees/Ongoing subsidies received from the government for free child-care)	[½]
Grants/Subsidies from government, for starting a new business	[½]
Finance (e.g. loans received/donations)	[½]

[Marks available 14½, maximum 6]

This question was answered very well by all prepared candidates.

Q4

The provider will need to assess the relevance of this study to its current book of business	[½]
e.g. proportion of liabilities that relates to women	[½]
with the right age profile and location (or other example)	[½]
Will want to analyse and compare the lives from the study for similarities and differences with its book of business	[½]
Data from the study may not be easily attainable as it could be confidential	[½]
The number of lives used for the study may be significantly lower than those covered by the provider e.g. 100 for the study vs 100,000 for the provider	[½]
This is only one study and it's likely far too early to be definitive to say whether the treatment works	[½]
More studies will be required before the treatment is approved by medical regulators	[½]

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This takes time and by that stage, the profile of the book of business could look different [½]
The treatment may be very costly and so only available to a few rich individuals [½]
Provider may be cautious and decide to increase its provisions for annuities to allow for the potentially higher life expectancy [1]
More realistically, it may keep its provisions at the same level and wait for evidence from further studies to emerge before deciding whether to increase [½]
It may come under pressure from financial regulators to increase its provisions for annuity type business in light of these results [½]
If the company thinks the information is credible then it may be able to reduce provisions for protection policies paying out on death [1]
But increase provisions for income protection policies since it may have to pay out for longer [1]
Unlikely to have any significant impact on savings products, unless they incorporate an element of death benefit [1]

[Marks available 10, maximum 6]

This question was answered less well than others with only the stronger candidates giving enough breadth in their answers to score high marks, with a lot of candidates focusing on one issue (e.g. pricing issues)

Q5

(i)

Term assurance: [½]
provides a benefit on the death of the life assured provided it occurs within the term selected at outset [½]
Income Protection Insurance contracts: [½]
The contract enables individual to provide an income for themselves and their dependants in the event of the insurer risk occurring [½]
Critical Illness contracts: [½]
The contract provides a cash sum on the diagnosis of a 'critical' illness, which will be explicitly listed in the policy documentation [½]
Vehicle damage insurance: [½]
E.g. Cover for farm vehicles breaking down or damaged [½]
Farm/Home Insurance [½]
The contract covers damage to the home or farm buildings [½]
Crop/Livestock damage insurance [½]
The contract covers damage to crops or livestock due to adverse weather or disease [½]
Health insurance: [½]
Provides some or all the money for medical treatment [½]
Vet Costs Insurance [½]
Public Liability Insurance [½]

[Marks available 8, maximum 3]

(ii)

Microinsurance involves the insurers selling very simple products (that is the design of the product needs to be easy to understand) [1]

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with a lower expected premium than traditional insurance business [½]
The product will need to be designed with the distribution model in mind [½]
the insurer could distribute products making greater use of digital technology to reach a broad market at low cost [½]
But this assumes that all of the prospective clients have access to the required technology [½]
Consider how to market to less financially sophisticated audience [½]
And how to advertise to people in possibly remote parts of the country [½]
Look to understand likely customer needs and design a product to meet those needs [1]
Need to monitor the product to ensure it still meets the needs of the customer [½]
Need to consider competitors proposition – this is because the products are simple to compare and therefore the product could be price driven [½]

Consider how much state support is given to farmers, this might impact the design of the product [½]

[Marks available 6½, maximum 4]

[Total 7]

Part (i) was answered well, with most candidates coming up with suitable products but the better candidates managed to link the specific questions being asked

Part (ii) was answered reasonably well, however the stronger candidates managed to focus on the target market and then tailored their solution accordingly.

Q6

(i)

Level of new business sales [½]
Costs of running new business [½]
e.g. marketing, commission, systems [½]
Costs and operational risks of merging two businesses [½]
How to reserve for new business [½]
How to invest premiums [½]
Reputational risk of new business such as customer service levels [½]
Pricing basis for new business [½]
Consider relative sizes of the two business books [½]
Per policy costs for new business [½]
Price paid for the acquisition relative to liabilities [½]
Diversification benefits of merging the 2 companies [½]

[Marks available 6, maximum 3]

(ii)

If the existing closed business book covers fixed costs, [½]
the new business will only need to cover variable costs [½]
Or the fixed costs would be spread over the whole of the business leading to
Improved economies of scale [½]
may lead to a competitive advantage over other firms [½]
in the form of lower premiums [½]
and increased sales [½]

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However if the closed book of business is mature and run's off quickly [½]
then the economies of scale could reduce over time [½]
There may be cross subsidies from profits on the existing book [½]
to further aid keen pricing on new business [½]
Solvency capital required could be reduced for the whole group [½]
Larger reserves and therefore assets may increase the available investment opportunities [½]
for example investment in larger unit size illiquid assets [½]
This could increase expected returns leading to competitive advantage [½]
If there was poor experience in the existing portfolio [½]
it may be necessary increase to premiums for new business [½]
That would have a negative impact on sales volumes [½]

[Marks available 8½, maximum 5]

[Total 8]

Part (i) very few candidates approached the question from the perspective of the new business being taken on and therefore missed out on marks. In general this question was answered less well than expected.

Part (ii) was not answered well, with very few candidates answering the specifics being asked, with a lot of candidates just focusing on data that could be migrated rather than thinking wider to this scenario.

Q7

(i)

Ethical investment funds are products that have a 'socially responsible overlay' to the selection criteria for investments and the investment managers commit to engaging in a constructive dialogue with company management to promote environmental and ethical objectives [1]

The selection criteria can include:

Corporate governance [½]
e.g. are stakeholders treated fairly, [½]
e.g. board diversity, separate CEO and Chair etc [½]
are directors appropriately remunerated [½]
ownership structures (mutual, shareholders etc) [½]
Environmental issues [½]
e.g. climate change [½]
Sectors of the economy to invest in – e.g. no arms companies or tobacco firms [½]
Ensure that the opportunities are definitely ethical – e.g. an electric car firm might be marketed as eco-friendly but the production of batteries might be very polluting [1]
Working conditions for workers [½]
Fair payment being made to workers [½]
Diverse workforce [½]
Avoiding certain areas of the world/political regimes [½]

[Marks available 8, maximum 3]

(ii)

The long-term fund performance should reflect risk taken [½]

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Higher risk funds may have higher expected returns; [½]
however, they also have more volatile returns with returns significantly lower than funds taking less risk [1]
A fund that takes higher risk is more likely to be top quartile returns where the bets pay off, but also more likely to be bottom quartile returns where they do not [½]
An investment with lower ethical credentials is more likely to be involved in a high profile environmental event with a high financial impact [½]
The risk of this happening is higher for firms with poor corporate governance, one of the ethical fund criteria [½]
Whilst a fund's ethical criteria may exclude certain sectors, e.g. arms or tobacco companies, these may be a small part of the economy [½]
and unlikely to be a significant fund holding even without ethical criteria [½]
The exclusion of such holdings is unlikely to have a significant impact on fund performance [½]
For most sectors the ethical criteria would lead to the exclusion of firms with poor corporate governance, [½]
taking higher environmental and ethical risks [½]
These firms are likely to be viewed as more risky so we would look to avoid even without the ethical criteria [½]
It is true that investments meeting ethical criteria may be in higher demand and price and lowering expected returns [½]
However, this has to be balanced against less volatility returns and lower risk. [½]
This could also lead to further increase to the prices of ethical investments if continued increase in demand of such investments [½]
Equity investment in ethical firms may benefit from lower borrowing costs due to higher demand for ethical investments [½]
which could lead to higher expected returns [½]
There will be opportunities to invest in higher risk and reward ethical investments [½]
e.g. new technology for climate change measures [½]
e.g. emissions trading and renewable energy may mean that such schemes will be profitable [½]
There is a significant number and diverse range of sectors and investments that satisfy the ethical investment criteria that the investment managers for an actively managed fund can try to select for better performance that the funds are not expected to achieve significantly lower returns [1]
Having higher costs running business ethically, e.g. paying higher wages and not seeking cheap unethical solutions and that leading to lower profit and lower return [½]
The problems highlighted in the above are short term but longer term if there are increased requirements e.g. from government to run business in ethical way then those already doing so will flourish and other businesses will have big costs of making those changes [1]

[Marks available 13, maximum 4]

(iii)
The firm's brand will be affected by other things than fund performance [½]
A brand that relies on and places highest weight to fund performance is ultimately most exposed to impacts to its brand from poor performance [1]

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Changing demographics and attitudes to social and environmental issues means there is increasing demand for ethical funds, particularly from younger retail investors, and therefore the company will need to be able to sell these type of funds [1]
Firms that have in vogue (or understand the risks of not adapting) attitudes to social, ethical and environmental issues are more likely to gain business [½]
from the increasing number of customers with similar attitudes and therefore ultimately be successful and produce better investment returns [½]
Firms should ensure higher standards of corporate governance and greater cognitive and neurological diversity [½]
such that they can make better and less risky decisions [½]
They should be better at managing risks therefore ultimately more likely to be successful and produce better investment returns [½]
Changing their products to provide investment opportunities in ethical funds [½]
is playing to an increasing demand from investors for such funds which should increase funds under management and profitability [½]
Comparing the firm's fund performance against other ethical investment funds sets the agenda for how the fund's performance is viewed [½]
The investment management firm itself will need to change to align itself with the ethical standards it applies to its investment selection with itself developing the ethical side of its brand [1]
The company's corporate activity, communications and marketing material can broaden its brand appeal [½]
both for itself a responsible investment manager and for the investment funds it offers so that it attracts the increasing number of customers who value the ethical approach [½]
Explaining to customers why the ethical criteria applied are important for good long term performance of companies invested in [½]
plays to countering a perception that that ethical investment funds will always produce lower returns than investment funds without these restrictions [½]
Work with other firms or regulator to encourage new rules [½]

[Marks available 9, maximum 5]

[Total 12]

Part (i) was answered less well than expected with most candidates focusing on narrow threads (e.g. environmental issues) rather than looking at the broader spectrum which limited the marks they could achieve.

Part (ii) was also answered poorly with few picking up on the "always" hint in the question. Those candidates that contrasted the short term problems with the long term benefits were given good credit for thinking widely about the question being asked.

Part (iii) was also answered poorly with again lack of breadth being the issue. No candidate scored full marks on this part which is unusual for Paper 1 questions.

Q8

Specifying the problem [½]
value of the future cashflows due on the accounts [½]

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i.e. the income versus outgo to the bank	[½]
The split between the two types of fee also	[½]
e.g. so can optimise acquisition vs retention activity	[½]
clarity on any other benefits to be valued	[½]
e.g. the supermarket may expect new customers from being attracted to banking facility	[½]
e.g. impact on food profits from them	[½]
bearing in mind that the company is new in the market	[½]
and has little or no experience of the product	[½]
There will probably be many supermarkets spread across different areas	[½]
Modelling the cashflows based on different population structures, and different infrastructure options, can also be used with a view to optimising profits.	[½]
identifying, analysing and understanding possible ways of managing risk	[½]
Developing the solution	[½]
Model to project the future cashflows/profits in various circumstances	[1]
The model needs to be developed or acquired	[½]
or an existing model modified	[½]
Determine initial assumptions about future experience	[1]
The supermarket will have lots of data about customers - numbers and other characteristics	[½]
e.g. level/type of spending and implied socio economic group	[½]
The latter could be used to suggest the percentage of such customers likely to need/take up a savings account	[½]
Assumptions will then be needed on likely amounts to be saved and for how long.	[½]
The bank may be willing to share relevant data with the company	[½]
Or some data may be available if other supermarkets already run such schemes, but likely to be confidential	[½]
Anyway will need to be used with care because of other factors changing over time	[½]
e.g. economic cycles will drive savings patterns	[½]
As this is a new development, the model will be run several times	[½]
To test the sensitivity of profits to changes in assumptions	[½]
This is important data to have available for the monitoring stage	[½]
Monitoring the experience	[½]
After the launch of the scheme the experience will be monitored very frequently to Determine how it compares with the assumptions made at launch	[1]
Even if the data is limited	[½]
It may take time for significant volumes of data to build up.	[½]
The smaller the volume of business, the greater the likely volatility of the experience	[½]
If the experience differs markedly from the initial assumptions,	[½]
revised assumptions may be determined	[½]
The product will be profit tested once more. If the scheme is much more successful than anticipated originally	[½]
the supermarket may be able to renegotiate better fees from the bank or look for alternative partners	[½]
This will depend on the terms of the partnership agreement	[½]
If the scheme is performing poorly, the supermarket will look to withdraw from the arrangement	[½]
The knock on impact for reputational risk/customer retention (food sales) will need to be allowed for, as offering banking will probably be popular with customers	[½]

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The chances of the bank withdrawing from the arrangement also needs to be allowed for [½]

General economic & commercial environment
Will need to take account of the commercial and economic environment [½]
e.g. what other supermarkets are offering in terms of banking, with what infrastructure, and with what level of success [½]
And how the reputation of the chosen bank can influence profits from the scheme [½]

Professionalism
The actuary should be mindful of compliance with relevant regulation and professional guidance when pricing the product [1]
e.g. how much can customer data be shared between bank and supermarket [½]
[Marks available 24½, maximum 12]

This question was answered very well with most candidates getting more than half of the marks available.

Q9
(i)
A lump sum will be received in advance and payments will be made over the lifetime of the policyholder; these payments will increase in line with a known index [½]
The provider will want to invest to ensure that these increasing payments can be made
This will mean investing in assets where the proceeds received match these payments [1]
It will probably be impossible in practice to find assets which exactly match the expected liability outgo [½]
due to the uncertainty of term as linked to life expectancy [½]
The most suitable match is likely to be index-linked securities, ideally chosen to match the term of the liability outgo [1]
The terms of the index-linked securities available may not exactly match the terms needed [½]
Index linked bonds in the required currency may not be available [½]
The index-linkage should match if it is using the same index [½]
However, the cash flows may not relate to the inflation index at the exact time of payment, due to delays in calculating the index [½]
There may be more demand for index-linked bonds than supply meaning they are relatively expensive [½]
This may mean that annuity rates may not be competitive [½]
Derivatives could be used to address many of the issues above [½]
However, this will need additional expertise [½]
It will also introduce additional risks [½]
Competitors may take mismatching risk which could lead to more competitive premiums that the insurer needs to take onto account [½]
Need to ensure the assets are diversified [½]
[Marks available 9, maximum 4]

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(ii)
The existing price index may not be considered to be a good measure of general inflation.
The new measure may be more suitable [1]
Old methodology may be flawed or out of date [½]
It ensures consistency with best practice price index methodologies used in other countries [½]
The new price index may be expected to give a lower rate of inflation which may benefit the government [1]
The price index is likely to be used for increasing many items of government expenditure [½]
These may include salaries, pension and benefit payments [½]
It will also be used for the increases in coupons and redemption proceeds for index linked gilts [1]
[Marks available 5, maximum 3]

(iii)
The financial provider will be affected if it receives income based on the index [½]
The extent to which the insurer is affected will depend on the proportion of its business that offers benefits linked to the inflation index [½]
Long term products which give guarantees relating to the previous index would be particularly affected as it would be much more difficult to match this liability [½]
They will need to make changes to their investments [½]
If the products referred to an official index rather than the actual index being changed then payments can be made in line with the new index [1]
New inflation linked products should refer to an official index (rather than a particular index) [½]
to ensure that they would not be affected by any future changes [½]
Any investment the provider has linked to the price index will be affected [½]
This would particularly apply to index linked bonds. [½]
Other investment income may also be linked to the previous index e.g. property and infrastructure [1]
These would be expected to reduce in value [½]
The provider may sponsor a defined benefit plan for its employees and this may also be affected [1]
Suitable assets that match the new index may not be available [½]
[Marks available 8, maximum 5]
[Total 12]

Part (i) This was answered reasonably well with most candidates picking up the essential points, however only the stronger candidates tailored the solution to the particular form of liability that was mentioned in the question.

Part (ii) This was answered well

Part (iii) This was answered less well with many candidates only covering one or two issues like admin complexities rather than focusing on the first order financial effects of the change in index.

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Q10

(i)

Advertising costs for new product [½]
Commission and sales expenses may be required for new target market [½]
Increased underwriting costs both at outset [½]
And to set up claims underwriting specific to this new product [½]
New admin costs if the systems don't support the new product [½]
And costs for any expertise needed relating to selling to vulnerable people [½]
Review of marketing material to ensure suitable for target market [½]
Review of homes that are being insured to the extent this is different to the current proposition [½]
Cost of obtaining the data for this membership [½]
Revised reinsurance costs of different offering from the reinsurer [½]
Research and development costs for the new product [½]
Cost of model development for pricing/reserving [½]
Additional costs relating to any regulation dealing with selling to vulnerable people [½]

[Marks available 6½, maximum 3]

(ii)

Until sufficient premiums/contributions have been collected the provider will need to meet these start-up costs for the new product from existing capital. If business volumes remain level, this additional capital can be rolled forward to the next tranche of business [1]
If volumes increase additional capital will be required, while if volumes reduce some of this capital can be released [1]
There may be some cross subsidies from the existing products enabling the company to absorb any additional capital as the new product starts to grow but this is probably unsatisfactory in the long run [1]
If volumes are significantly higher than expected then this may create additional strain for the company, but could increase premiums to compensate [½]
Noting it depends on the starting point [½]
The extent of guarantees in a product impacts the level of capital needed to cover the risk of the guarantees so this needs to be considered in the offering [½]
Regulator may require higher capital amounts to be held in the early years as a new product [½]
Due to greater lack of certainty re-experience [½]
Low sales volumes may mean low volumes of data [½]
Leading to higher level of regulatory capital due to uncertainty [½]
But over time the regulatory capital requirement may be lower are the insurer gains more experience [½]

[Marks available 7, maximum 3]

(iii)

Underwriting generally refers to the assessment of potential risks so that each can be charged an appropriate premium [½]
Firstly the company needs to understand why the claims have been higher than expected so needs to review where and how the claims are arising, i.e. are they coming from a specific area/population/type of policy [1]

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If the experience shows that the increase has come from certain areas of the country then they should consider the reasons for the claims – i.e. is this due to higher crime rates in that area and/or an area that has experienced one off events (e.g. hurricane) [1]
It could improve underwriting of the risks by:
Ensuring questions are asked about the security of the retirement homes, to improve the knowledge of how likely crime could affect the claims [1]
i.e. review application form [½]
Review the crime rates of certain areas and then decide to increase prices or not offer cover in high risk areas [1]
Consider exclusion clauses or higher excesses in the contract for higher risk areas (e.g. hurricane risks higher) [½]
Visit the retirement homes to assess likely risks [½]
Should review its business to see if it is exposed to anti-selection risks – i.e. has it sold to people in retirement homes that know they are exposed to issues on their contents [1]
Could just increase prices to reflect the risks in areas of concern [½]
Reducing anti-selection [½]
Claims control systems mitigate the consequences of a financial risk that has occurred. [½]
The company should review its claims process to ensure it paying out for valid claims [½]
The company has outsourced this to experts in this area so it should review the claims process that the company applies as it could be the company is just accepting any claim [1]

It could consider improving the claims process by:
Change the process that the outsourced company is following to be more strict [½]
Ensure the outsourced company is obtaining sufficient evidence from the policyholders [½]
Could independently review all/some of the claims that are being accepted before agreeing to be paid, this will incur more cost [1]
Could tighten the evidence requirements [½]
Needs to consider whether changing the approach will have a detrimental impact on the sales process so need to focus on fraudulent areas of claims [½]
Review high impact claims and require company sign off [½]
Ditto on possible multiple claims [½]
If the claims are all coming from the same retirement home complex/area then this could be evidence of either high crime rates OR fraudulent claims if the claims process is easier than it should be so could again review claims if overly high in one particular area [1]
Could consider bringing back the claims process to the insurance company to improve control on claims [½]
Ensure that the claims are being reviewed against exclusion clauses [½]
May want to avoid reputation risk by not paying claims [½]

[Marks available 16½, maximum 6]

[Total 12]

Part (i) This was generally answered well, with the stronger candidates going into a bit more depth in their answer to score very well

Part (ii) Most candidates picked up the essential connection with sensible reasoning although few considered the impact of extreme scenarios.

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Part (iii) Candidates did well on this question, however those that only covered good underwriting limited the number of marks they could get from the question.

Q11

(i)

A stochastic model can test a wider range of economic scenarios than a deterministic model [½]
This will be very important in assessing the impact of options and financial guarantees. These will depend on future investment returns or an investment value at a future point in time [½]
Due to this uncertainty a stochastic investment model will need to be used to assess provisions necessary for the guarantees [½]
Economic variables can be modelled stochastically to give a range of potential outcomes [½]
A stochastic model can allow for path dependency for complex financial products to be explored as an aid to improving understanding of the products [½]
It may be necessary to introduce a stochastic model where risk management includes complex hedging of risk exposures [½]
The model can also be used to allow for investment mismatching risks [½]
More realistic [½]
Gives a range of outcomes to aid decision making [½]
Increased compute power [½]
And expertise makes this a more viable approach [½]
Accuracy may be needed [½]
e.g. allowing for correlations between variables [½]
Regulator may require it [½]

[Marks available 7, maximum 3]

(ii)

It is possible that the model was not well understood and decisions were made which were not appropriate [1]
The assumptions may not have been suitable [½]
and may not have been fully understood [½]
Correlations and interactions assumed may not be appropriate [1]
The commercial product may not have been suitable for the insurance company's needs [½]
The model may have been overly complex with the results being difficult to interpret and communicate [1]
This may have led to not being sufficiently informed and not asking the appropriate questions to check if the model was delivering exactly what they were expecting [1]
May not have appreciated any implicit assumptions [½]
They may have had too much confidence in the commercial product [1]
The new pricing structure may have altered the mix and volumes of business [1]
This may have contributed to the loss [½]
It is possible that the loss is due to other factors and is not related to the use of the new model [½]
e.g. a pandemic (or any good example) [½]
Could be a model error [½]

[Marks available 10, maximum 7]

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(iii)
The following stakeholders might have been affected by the loss:
Policyholders – Current policyholders may be experience lower service standards because of higher volumes. For loss making business the company may more rigidly apply policy wording to reduce losses. Service standards may be reduced to cut costs [1]

Future potential policyholders - will have to pay higher premiums when the insurer corrects the premiums. The premiums may be increased further to recoup losses from the loss-making business [1]

Board of directors – Directors accountable for the mis-priced business may lose job or at least have bonuses reduced. The whole board may face reduced bonuses due to the losses [1]

Shareholders – reduced dividends and/or lower future growth in dividends. If the loss significantly reduces financial strength there may be a rights issue [1]

Creditors – there is greater risk the insurer defaults which could increase trade creditor insurance. Payment terms may be lengthened to improve the insurer's cash flow [1]

Auditors – if the auditors should have been expected to identify the error then they may be censured. Irrespective the Board may replace the auditors for failing to [1]

Employees – All employees involved in the error could have bonuses reduced and/or clawed back. If expenses need to be cut employees could lose their jobs. Future salaries may be lower and they may otherwise have been [1]

Benefit scheme members – the sponsor's financial covenant will be reduced putting the benefit scheme at greater financial risk. Discretionary and or unfunded benefits may be reduced. Benefit scheme could be closed to reduce the cost [1]

Investment manager – the insurer may look to reduce investment expenses so retender for investment services. The insurer may change its investment allocation to more secure investments with lower investment expenses reducing fee income. The investment manager may need to reduce head count for the asset classes the insurer no longer holds [1]

Regulator – the regulator may undertake an in-depth study of the insurance company. If the financial strength is significantly reduced then the insurer may be subject to special measures. The regulator will have to allocate additional resource to supervise the firm [1]

Government – may become responsible for providing provision that had previously been insured [1]

Competitors – losing business currently as this insurer is undercutting them with low premiums / may pick up more business in future if brokers/policyholders are concerned about insurer making losses [1]

[Marks available 12, maximum 5]

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[Total 15]

Part (i) This was answered reasonably well with most candidates going into enough breadth to score well

Part (ii) This was answered less well with only the stronger candidates thinking in enough depth to score the marks available

Part (iii) This was answered extremely well with a high number of candidates scoring full marks for this part. Given the command verb for the question, marks were generally not given for just stating the stakeholder without some reasoning on why the stakeholder could be affected.

[Paper Total 100]

END OF EXAMINERS' REPORT

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