INSTITUTE AND FACULTY OF ACTUARIES

EXAMINERS' REPORT

April 2020

Subject CP1 - Actuarial Practice

Paper Two

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.

Mike Hammer
Chair of the Board of Examiners
July 2020

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

1. 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.

2. 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.

3. 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.

4. 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.

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

6. 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.

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

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

The pass mark for CP1 is assessed over the 2 papers with the pass mark for this session being a combined 57. Paper 1 scored marginally higher than Paper 2 with the average scores being circa 1% different between the papers. This session was generally answered similar to April 2019 session, but Paper 2 was answered better than the previous 2 sessions. The answers tended to be structured in a more organised way meaning they were easier to follow and generally well thought through – this could be because candidates could use Microsoft Word.

C. Pass Mark

The Pass Mark for this exam was 57.
997 candidates presented themselves and 454 passed.

Solutions

Q1
(i)
Investors' preference for income and growth from their investments are governed by two main factors: cash flow requirements and tax. [1]

If an investor is subject to different rates of taxation on income and gains then this will influence their preference. [½]

Changes in the tax regime impacting the income/growth from an asset type could impact investor preferences. [½]

The expected return from a particular asset class will impact investor preference. This will be linked to the risk premium on a particular asset class which will depend on the characteristics of the asset and investors' preferences. These will be largely driven by their liabilities and changes to liabilities. So, the term and nature of liabilities will influence preferences. [2]

The supply and demand for a particular asset class will also be a factor. This could be influenced by the price of alternative investments as well as the introduction of new asset classes. [1½]

Significant changes to economic conditions could also impact preferences. [½]

Changes to investors' attitude to risk for a particular asset class could also be a factor. [½]

Other factors that affect investors' preferences are:
- Regulatory regimes [½]
- Uncertainty in political climate [½]
- 'fashion' or sentiment altering [½]
- Marketing [½]
- Investor education undertaken by the suppliers of an asset class [½]
- Sometimes for no discernible reason [½]

[Marks available 9½, maximum 5]

(ii)
Climate change is an example of an environmental issue. All companies will be affected by changes in their environment and so all investments of NEF Insurance are likely to be affected. [1]

The impact on the physical environment is uncertain. [½]

In addition, it will vary by geography. [½]

Climate change and extreme weather events will affect:
- agriculture and food supply, [½]
- infrastructure, [½]
- precipitation/rain fall, and [½]
- the water supply. [½]

The impact of climate change will extend beyond physical affects:
To keep the global temperature increase below 2°C governments are making changes to regulatory and taxation regimes. [½]

These changes will affect all companies to varying extents. [½]

Behaviour changes are likely to affect the investments of NEF Insurance. [½]

These may include:
- Investors to disinvest or not invest/lend to companies with poor climate change credentials. [½]
- Employees act with social conscience not to work for employers with poor climate change credentials. [½]
- Customers demand goods and services with positive climate change credentials. [½]

Different asset classes could be affected in the following ways:

Equities
There will be additional costs involved in dealing with climate change issues which could lead to reduced profitability and lower share prices. Some companies may be particularly badly hit e.g. in the oil and gas industry. Other companies could do relatively well e.g. companies involved in renewable energy. [2]

Property
There will be costs involved in improving energy efficiency. Older properties may be particularly affected leading to reduced demand and reduced prices. There may also be costs involved in dealing with the effects of climate change. Some locations may be particularly affected by climate change which will reduce demand. [2]

Government bonds
Likely to be a limited impact and may increase in price if there is an increase in demand. [½]
Corporate bonds
Falling profits will increase risk and reduce prices. There may also be reduced security as if assets reduce in value. [1]

Loans secured on commercial property
Increased spending may be needed on properties due to climate change and/or regulations. Loans may be less likely to be repaid which will reduce their value. [1]

Loans secured on infrastructure
The infrastructure could be affected by natural disasters. The income stream could be affected by changes due to climate change or regulations. [1]

[Marks available 1½, maximum 6]

(iii)
(a)
An insurance company as any company will need to make changes in response to climate change irrespective of its actual line of business. [½]

Companies will want to attract the widest possible range of investors. Employees and service providers will operate in a way where environmental and ethical issues are part of their decision-making process. [2]

For a company to maintain its climate change credentials it will need to:

- Change governance so that decisions follow the company's climate change standards and practices. [1]
- Recognise that maintaining its climate change credentials with stakeholders is critical to its climate change credibility. [½]
- Recognise that governance of any climate change credential failures has a response that meets stakeholder expectations. [½]

A company could take the following actions:

- Introduce committees responsible for climate change issues.
- Appoint a board member responsible for climate change issues.
- Ensure climate change gets sufficient board time e.g. regular agenda item.
- Ensure sufficient reporting of climate change issues to enable decision makers to make informed decisions. [2]

(b)
Risk management changes will be required:

- To put in place controls to ensure that the way it operates the company follows its climate change policy. [½]
- To put in place monitoring to detect control failure and weakness in the way it operates relative to its climate change policy. [½]
- That recognises climate change expectations are not static, and therefore it needs to detect changes in requirements including subjective sentiment to feedback into the way it operates. [1]
- For investment it makes as an insurance company that it assesses them against its climate change policy, and monitors on-going compliance of investments with its policy. [1]

It will be necessary to introduce a risk identification process to identify new risks from climate change and these risks will subsequently need to be managed. [1]

Risks will need to be categorised to ensure an owner is appointed for new material risks identified. [½]

Risk measurement will be needed to gauge the financial impact of these new risks. [½]

An insurance company sells insurance products:

Climate change will have an effect on the risks it underwrites. [½]
A changing climate will affect future experience making past experience a less reliable guide to the future. [1]
Short-term contracts will be may be less exposed to climate change than long-term contracts. [½]
Risk management changes will be required so that the impact from climate change risks on a forward-looking basis are taken into account in the design, pricing, reserving etc. for its insurance products. [1]

[Marks available 14½, maximum 6]

(iv)
Climate change will affect how the company operates, its investments and its products.

<u>Products</u>
Long-term products will be exposed to climate change impacts for a longer period than short-term products. [½]

The impact of climate change will depend on geographical regions of the world that NEF insurance has exposure to. [1]

Term assurance is a long-term contract that provides a payout on death caused by a range of perils from illnesses and accidents. Climate change is expected to cause more extreme weather events which could result in more accidental deaths. A range of diseases are more prevalent in different climates, so a changing climate could, for example result in a spread of tropical diseases to new regions causing additional deaths. [2]

Annuities are long-term contracts where payout depends on survival. There will be some regions of the world currently experiencing extreme cold that could become more temperate. This could increase survival rates, whereas in other regions more extreme environmental conditions could increase mortality. [1½]

NEF would need to analyse and monitor climate change research and modelling to gain a better understanding on how both its mortality and longevity experience could be impacted by climate change. There is uncertainty, so it will need to apply judgement to allow for it in reserving for existing risks and pricing for new risks. [1½]

NEF may also have to increase the amount of capital it holds for the increased uncertainty. [½]

There may be regulatory changes now or in the future requiring additional capital to be held for increased uncertainty. [½]

Property insurance is a short-term contract. Climate change is affecting the frequency and severity of extreme weather events. This will lead to additional claims due to damage, flooding etc. The rate of change is varying with geography, so the extent that climate change needs to be allowed for depends on the regions NEF provides insurance. NEF will also need to review its reinsurance programme, as climate change may require additional reinsurance, or make others uneconomic to insure. [2½]

Motor insurance is another short-term contract and will be also be affected by the above factors. Climate change may also lead to changes in car ownership. There may an increase in the number of electric-powered cars and/or a reduction in the number of cars owned (and so needing insurance). [2]

The level of competition in the market may make it difficult to increase premiums. [½]

<u>Investments</u>
NEF insurance will need to consider climate change risks for both the investments it invests in for itself and for the investments if offers within its savings products. [1]

NEF insurance will need to have regard how it is seen to invest by a range of external stakeholders. [½]

Savings products are a medium for investment. Whilst savers may direct the investments held under their policy, NEF insurance will need to have regard that there could be contagion risk by providing a medium for savers to invest in assets that do not meet its climate change or ethical standards. [2]

Therefore, NEF insurance will need to take account in designing its climate change policy both what standards will apply for its own investments and those that could be invested in by products it provides. [1½]

Introducing new climate change policies will affect the investments that it invests into and disinvests from. [1]

Some sectors/companies may become more attractive and others less attractive. Some investments may need to be sold if they do not meet the new standards - the company's own standards or those set by regulation. Climate change and its mitigation may give rise to new investments which will need to be considered. [1½]

<u>Operations</u>
NEF insurance will need to take account of regulatory and tax changes that are introduced to encourage changes that will help countries meet their climate change commitments. [1]

More governance is likely to be needed. [½]

NEF insurance may need to invest capital to meet the company's own climate change targets which could affect the capital available to write new business or capital distributed to shareholders. [1]

NEF will need to assess the climate change risk exposures for its operations, for example, location of offices, data centres etc. It may find that it needs to relocate offices or else be exposed to a higher risk of business interruption from climate change risks. [1½]

May need to introduce new processes, systems and staff. [½]

If the company provide cars for their employees, they may change the cars provided or stop completely. [½]

This is likely to lead to increased expenses that need to be allowed for in pricing and reserving for products. [1]

Other factors
NEF insurance will be exposed to a range of external stakeholders who will make judgements on the way NEF insurance responds to climate change. [½]

Depending on the way NEF responds it could affect:
- Demand and therefore pricing of its shares. [½]
- Its cost of borrowing, for example lower cost the better its credentials. [1]
- Demand for its products, for example higher volumes if climate change credentials becomes a material factor. [1]
- Publicity of company, for example bad publicity if it is significantly out of line with other companies. [1]

Adapting to climate change has a financial cost that needs to be balanced against the financial benefits realised by implementing its climate change policies. [1]
[Marks available 31, maximum 10]

(v)
The actuarial control cycle has the following parts:

Specify the problem [½]

The problem for companies is to balance the cost, impact and opportunities from climate change itself, regulatory changes, tax changes and changes in political/social climate. [1½]

It is necessary to identify and analyse the risks from the point of view of each stakeholder.[1]

It gives an assessment of the risks faced and how they can be managed, mitigated or transferred by the company. [1]

This stage provides an analysis of the options for the design of a solution to the problem that transfer risks between stakeholders. [½]

Developing the solution [½]

The company needs to evaluate the proposed solution. [½]

The assumptions will need to be clearly set out. [½]

Will need to consider how to gather data. [½]

A model could be selected to assist evaluating the proposed solution and alternatives, there are large numbers of risks with complex dependency and correlation together with uncertainty. [2]

The results will need to be interpreted with the implications assessed for all stakeholders. [½]

Monitor experience [½]

The climate change problem has many complex interactions.

The initial proposal could be subject to independent review and challenge with the results feedback into the problem specification and solution development stages of the control cycle. [1]

Once a proposal has been implemented similarly experience will need to be monitored and feedback into the problem specification and solution development stages of the control cycle. [1]

<u>Feedback loops</u> [½]

On-going monitoring is vital. [½]
This is required to identify if vital features have not been taken into account or some of the initial assumptions were incorrect. [1]

Will also need to allow for general economic background issues. [½]

[Marks available 14, maximum 6]

(vi)

Policy 1: energy efficiency of commercial properties

NEF will have exposure to the risks and costs arising from the commercial properties that it operates from as well as those it has exposure to through the investments it holds. [1]

For the properties it owns it will be financially responsible to make the energy improvements. [1]

Property values for properties that require improvements can be expected to fall in value.[½]

The extent of the fall in value depends on the cost of making energy improvements relative to any rent increases that can be passed on the tenants. There may also be an impact on marketability. [1½]

It will also have to consider whether the changes can be made whilst the property is being used. [1]

If properties have to be vacated this will cause disruption and additional cost. [½]

Some properties will not be cost effective to adapt, the redevelopment potential will determine the extent that property values are affected. [1]

The minimum standards are being progressively strengthened, so the impact may not be immediate and changes could be made over the 10 years, however, others could require significant unanticipated investment in the near term. [1]

It is possible that for some properties the financial penalties may be the more economic option or have to be planned for because the necessary changes cannot be made. [1]

NEF will also have exposure to the commercial properties through loans on commercial properties. The risk of loan defaults will increase to the extent that the owner is unable to repay the loan because property values have fallen, the cost of financial penalties reducing income to repay the loans, there being increased and longer voids where use becomes restricted or improvements are made. [1½]

If NEF takes possession of the property on a default it would become financially responsible for the improvements or penalties. [½]

Policy 2: requirement for permits

All companies will be affected by this policy change. [½]

The highest emission companies will be most affected by this change. [½]

NEF will be financially exposed through its lending or investments to the impact on other companies. [1]

Some companies may not be able to afford permits and could see their investment outlook worsen. Others may see their investment outlook improve if they can easily afford the required permits (or not need many). Any additional costs will lower asset values. [1½]

NEF insurance will need to ensure that it holds or buys sufficient permits for its own emissions. [1]

These additional costs will be borne by NEF insurance. [½]

NEF may be able to benefit if it is possible to trade in permits. [½]

For new business it may be able to increase premiums to offset the expense increase, however, for existing products this may not be possible. [1]

Even where it is possible to increase premiums it may still not be commercially able to pass on this cost to customers, for example if competitors have significantly lower emissions and therefore lower costs increases compared to NEF. [1½]

NEF will have to balance:

- Cost of reducing its emissions including potentially moving to lower emission offices. [½]
- The cost of permits [½]
- Financial penalties [½]
- Disruption to its business [½]
- The countries where it does business [½]
- Its ability to transfer work to other countries with lower operating costs [½]
- Its ability to pass on increased costs to customers or other third parties [½]

Policy 3: new petrol and diesel car ban

The operations of NEF will be directly impacted by this change longer term, but not immediately to the extent that it is reliant on cars, for example sales people visiting customers. [1]

The change is not being made for 20 years so it has time to plan for the impact of these changes. [½]

NEF will be financially exposed to through its investments. [½]

For companies, properties, loans and infrastructure could be exposed to this change. [1]

NEF will need to assess both its direct and indirect exposure, for example it is not just the car manufactures who would be impacted, but their whole manufacturing supply chain and other service providers. [2]

Whilst the change will not occur for 20 years the impacts are likely to be felt before this, for example:

- It will be more expensive for affected firms to raise new or replacement capital. [½]
- The extent that there are higher defaults or investment prices depend on the ability and opportunities to adapt its business. [1]
- Some companies affected will alter investment plans, and this will have a knock-on impact on other companies including the wider economy. [1]

There will be other companies and industries that will benefit from this change, e.g. electric car industry and chain. [1]

The policy change is likely to support additional investments into these alternative companies and industries. [½]

NEF's investments in or supporting these new industries are likely to perform better than those exposed to petrol/diesel cars. [1]

This ban will also affect NEF's motor insurance business. Again, in the long term rather than the short term. This will lead to a gradual reduction in petrol and diesel car ownership and an increase in the ownership of electric-powered cars. However, this change may come sooner as people gradually avoid buying diesel/petrol cars. The nature of the risks in the portfolio may change e.g. fewer miles driven, lower speeds. This will mean that many of the assumptions made in pricing and reserving for this business will need to be changed. There will be uncertainties and so careful monitoring will be needed. [3½]

[Marks available 35½, maximum 10]

(vii)
There is a risk that the current policy changes are altered, it could be strengthened or weakened. [1]

The implementation period could also be shortened or lengthened. [½]

The government has committed itself to internationally agreed targets and there is a risk that these are targets are strengthened and this increases the risk of further policy changes. [½]
The risk of changes depends on the current and future political climate. [1]

If the changes are successful in reducing emissions more than expected there is a risk the policies are weakened, particularly if the changes are adversely affecting the country relative to other countries. [1]

If the changes are less successful than expected there is a risk that they need to be strengthened and/or accelerated for the country to meet its international commitments. [1]

The logical rational economic decision in response to some of the policy changes may be to pay the financial penalties. [1]

However, NEF insurance also need to consider:
- Its environmental, social and governance policies
- The expectations of its stakeholders
- The impact of not meeting its stakeholder expectations
- Other regulatory regime changes, for example increase capital requirements for investments in high emissions sectors [2½]

Competitors may seek commercial advantage through its climate change and emission reduction achievements. [1]

There is a risk that stakeholders place a high emphasis on climate change credentials of companies in their decisions e.g. purchasing products, providing services etc. [1]
If this is a case the cost in terms of higher cost of capital, lower demand for NEF insurance's shares, lower demand for products needs to also taken into account and not just the cost of implementing the climate change policies. [2]

There will be the operational risk of not implementing the required changes correctly. [½]

There is a risk that the changes result in a change of focus resulting in other things being missed. [½]

There may be adverse changes to productivity as the business become more difficult to run. [½]
There may be reputation damage if sufficient changes aren't made. [½]

There may also be risks from external events which could affect climate change e.g. natural disasters. [½]
[Marks available 15, maximum 6]

(viii)
A credit rating agency will assess a company's long-term financial strength including its likelihood of default and loss given default. [1]

A company's future financial strength is affected by:
- Changes in its solvency [½]
- The profitability of its products [½]
- Changes in regulatory regimes [½]
- Changes in taxation [½]
- Uncertainty in political climate [½]
- 'fashion' or sentiment altering [½]

- Supply and demand for its products [½]
- Strength of governance and risk management. [½]

The rating agency is making changes to include environmental, social and governance (ESG) risks as it assesses this will be a significant factor driving future financial strength. [1]

- A good ESG rating will positively affect the 'fashion' or sentiment for the company. [½]
- This will drive increased demand for its products (or not a reduction) and therefore increased profitability. And vice versa. [1]
- Increased demand for its shares and/or lower cost of borrowing due to increased supply of ethical lending will increase profitability. [1]
- It will reduce exposure to adverse political risks for the company. [½]
- A good, strong risk, control and governance environment supports maintaining the likelihood a good ESG rating can be maintained long-term. Driving long-term business success. [1]

However, the cost of compliance could have a significant impact on future profitability. [½]

There may be a demand by investors for the rating as ESG is seen as an important factor in their investments. [½]

[Marks available 11, maximum 4]

[Total marks available 145, maximum 53]

Of the 2 questions candidates answered this question less well with a number of candidates struggling to distinguish between parts (ii), (iv) and (vi) with duplicate points being made.

(i) Generally well answered.

(ii) This part was answered less well with a number of candidates discussing changes to investments rather than describing the impact on the investments actually held.

(iii) This part was answered reasonably well with most scoring well on risk management but less so on governance. However most focused on the board rather than wider stakeholders and therefore limited the number of marks they could obtain.

(iv) This part was not answered very well with a lot of candidates repeating (ii) rather than answering the question being asked.

(v) Most candidates answered this part well. Most scored high marks and covered the range of points required.

(vi) This part was not answered very well. A noticeable number of candidates focused on property insurance for policy 1 rather than the investments. Candidates were better with the other two sections but didn't usually go into enough depth.to score full marks.

(vii) This part had mixed solutions. The candidates that made the risks relevant to the question scored more marks than those who just wrote generic risks.

(viii) This was answered reasonably well with a number of key points being raised but only the better candidates developed their answers further.

Q2

(i)

The government may want all citizens to have at least a basic level of income in retirement so they will provide a basic state pension. However, this may not be expected to provide for all needs in retirement. The fact that 75% of employed workers are saving towards a pension indicates that this is likely to be the case. [2]

If pensioners do not have sufficient income in retirement, the government may provide additional benefits. This may include additional income, housing benefit and/or health benefits. If the self-employed do not have adequate arrangements this is likely to lead to extra costs for the government and if the growth in self-employed continues, this cost may be expected to grow. This may become an excessive burden on the state. [3]

If the self-employed only have the state pension in retirement they may struggle to survive and this will increase pensioner poverty. This will particularly affect those who have been self-employed for longer. This may be a particular issue for the government if this disproportionately affects some sections of society. This could then become an electoral issue. [2]

If the government has taken action to increase the number of employed workers with pension arrangements there may be a significant income gap between the employed and self-employed in retirement. This may be considered unfair and the government may be blamed if sufficient action was not taken to encourage pension provision for the self-employed. [1½]

The self-employed may have to work for longer which may also be considered unfair. [½]
[Marks available 9, maximum 5]

(ii)
The self-employed may not see saving for retirement as a priority. Retirement may seem very distant and they may prefer to deal with more immediate priorities (e.g. saving for a home, childcare). This can be similar for the employed but additional features provided by the government e.g. compulsion and/or tax breaks may have encouraged the employed to save. [2½]

They may not be aware of the need to save for a pension. [½]

They may wish to invest any spare money they have in their business. This may be needed for expansion or if the business is in trouble it may be needed to survive. [1½]

They may have very low income and may not be able to afford any retirement savings. [½]

They are likely to have irregular and uncertain income and this may make regular saving more difficult. [1]

Pensions may suffer from a poor reputation possibly for historic reasons and they may not trust pension providers. They may find the products available unattractive. [1½]

They may find not understand pensions or find them confusing. They may not know how much they should save. They may also be concerned about the cost of any advice. There may be a lack of suitable products for them. [2]

Some of the self-employed may have other pension arrangements they expect to provide them with an income in retirement. [½]

They may have a pension from previous employment or property investments. They may plan to sell their business to fund their retirement. [1½]

They may not be making specific provision but expect to be able to rely on the pension of their partner being sufficient or for their children to provide for them. Or they may expect to continue working and not plan to retire at all. [1]
[Marks available 12½, maximum 7]

(iii)
The government could aim to introduce some form of automatic enrolment in a pension arrangement. This could be compulsory. This is likely to be much more challenging compared such an arrangement for the employed. The government will need to ensure that that the arrangement is accessible to all the self-employed. It may be suitable to introduce this through the taxation system as the self-employed will need to provide tax returns. For example, a percentage of profits could be used for pension contributions in a government approved pension arrangement unless the individual had made alternative arrangements. [3½]

They may encourage financial providers to provide pension arrangements to the self-employed e.g. by providing tax breaks. [1]

These products should be simple and provide stable returns with relatively low fees. They could cap the fees or even cover them. These products would need to allow for irregular cashflows to ensure they are suitable for the self-employed. [2½]

The products could allow for flexibility over benefits which should increase their attraction. [½]

Tax incentives could be provided on suitable products to encourage take up. These could be at source, on withdrawal or investment. [1]

The government could contribute e.g. offering top-ups or matching contributions up to a limit. [½]

The government could provide suitable products themselves. They could provide a guarantee of a minimum rate of interest to encourage take up. [1]

The government could provide security if a provider fails. [½]

Financial education could be provided at schools and universities to ensure all citizens were aware of the benefits of saving for retirement at an early stage. [½]

Explanation of the benefits of saving for retirement could also be made specifically aiming at the self-employed. Perhaps with illustrations of the amounts needing to be saved under different assumptions. Reminders of the benefits of saving and the incentives and products available could be sent regularly. [1½]

[Marks available 12½, maximum 5]

(iv)
In determining a suitable design for the new investment product BBB will need to consider many factors.

<u>Characteristics of the parties involved</u>

BBB and their self-employed customers will want a product that meets their needs in a cost-effective manner. [½]

This will be influenced by the potential customers capacity to pay, their attitudes to risk and the benefits that are needed. [1]

BBB will be influenced by the capital they have available to support the product and the expertise they have available. [1]

Actuaries, lawyers, accountants, financial backers and administrators will also be involved and the product should take their needs into account too. [1]

<u>Risk appetite or risk aversion of the parties involved</u>

The product will need to meet the risk profile of the intended customers. Given these are individuals who currently are not saving for a pension they may have a relatively low risk appetite. However, some of the self-employed may have a relatively high risk appetite. [1½]

Risk appetite will also be influenced by the age of potential policyholders as this will affect the term until expected retirement. [1]

A choice of investments could be incorporated in the product to allow for different risk appetites. [½]

Will also need to consider the risk appetite of BBB, this may be low due to their falling sales and profits. [½]

<u>Regulatory environment</u>

The design of the product must be consistent with any legal or regulatory requirements that apply to the investment product. [½]

If the government has made any changes to legislation, regulation and/or taxation to make saving towards a pension more attractive to the self-employed these should be taken into account in the design of the product. [½]

Any disclosures that may need to be made to potential customers should also be considered. They may want to keep the terms and conditions relatively simple. [1]

Will also need to allow for the effect of any cooling-off periods. Can make the product clear and simple to reduce the chances of cancellation. However, will still need to allow for the expenses related to any cancellations. [1½]

<u>Market for the product</u>

The product will be aimed at the self-employed. Many of these currently have no pension arrangements so there should be plenty of potential customers. [½]

Need to decide whether the product will target all the self-employed and whether different features will be needed for different customers. This may lead to a product that needs to allow for different levels of income and different risk appetites. [1]

<u>Competitive pressures</u>

There may be other financial providers who are also considering entering this market or some who are already established. [½]

Will need to ensure the product features are attractive to ensure they appeal to the self-employed market. They may need to differentiate this product. [1]

Will also need to ensure that any fees are in line with the competition as these may be easily compared. [½]

<u>Level and form of benefits to be provided</u>

This will depend on the potential customers' needs, risk appetite and ability to pay. [½]

Any options or guarantees that may be included

May wish to include options e.g. life cover. [½]

Or guarantees e.g. a minimum rate of return. [½]

Will need to consider how these could be charged for and whether these would be acceptable to potential customers. [1]

Benefits payable on discontinuance or transfer of rights

These will need to be fair to the policyholder, other policyholders and to BBB. [1]

There may be regulatory requirements which need to be allowed for. [½]

Method of financing the benefits to be provided

The investment product is likely to be funded by the policyholder but may need to consider how to finance any guarantees or options provided. [1]

Choice of assets when benefits are funded

The assets invested in will depend on the target market. There is likely to be a focus on stability and there may be a choice of investment funds to appeal to those with different risk appetites. [1]

Will need to balance risk and reward. [½]

Administrative issues

The product will need to be administered, so ideally administration should be relatively simple. BBB will need to make sure they have the systems needed to deal with all the features of the new investment product. [1]

This is likely to include flexible contributions. [½]

Charges that will be levied

These need to meet the costs incurred by BBB in setting up and managing the new investment product. [1]

There may be restrictions on these for the product to gain approval. [½]

BBB will need to ensure that all costs are covered so they make a profit. [½]

Capital requirements

These need to be allowed for in the product design. [½]

[Marks available 24½, maximum 9]

(v)
It is likely be appropriate to offer a range of funds suitable for different risk appetites and time until anticipated retirement. However, BBB may not wish to offer too many choices as this could lead to confusion and reduce the attractiveness of the product. [1]

The funds will invest in a range of investments. Some investments may be more suitable for some funds rather than others so the mix will be different for the different funds. [1]

There is likely to be a focus on stability overall and the link between risk and reward for different investments should be made clear. [1]

Bonds would be suitable investments particularly for life styling. [½]

These could be fixed-interest or index-linked. [½]

These could be issued by the government or by corporations. Corporate bonds will give higher yields for additional risk. [1]

Ordinary shares would be suitable for providing real returns. These may be more suitable for younger policyholders who have time for the market to recover. These could be in a range of industries. A lower risk fund may invest in more defensive industries and a higher risk fund may invest in the full range of equities. [2]

Overseas equities may also be suitable. These may increase expected returns and will increase the level of diversification. Could possibly invest in emerging markets although care should be taken to ensure these investments to not present too much risk. [1½]

Property would also be suitable for longer term investment as this should provide real returns in the long term. Direct property investments may not be possible initially due to size of the investments needed and pooled property investments could be used. [1½]

Infrastructure investments may also be suitable. [½]

Investment in money market instruments and short-term bonds may be suitable for short term investments and liquidity purposes. [½]

Derivatives may be suitable for stability/hedging purposes but not for speculation. [½]

An ethical fund may also be an attractive feature. This fund could invest in similar investments to the other funds (equity, corporate bonds etc.) but would need to ensure the investments met ethical guidelines. These guidelines would need to be defined clearly. [1]

[Marks available 12½, maximum 5]

(vi)
Public liability [½]
Professional indemnity [½]
Employers' liability if employing any other individuals [½]
Cyber insurance [½]
Business interruption [½]
Property damage insurance relating to self-employed business - for buildings

and moveable property [1]
Travel insurance [½]
Motor insurance [½]
Personal accident cover [½]
Health insurance [½]
Income protection [½]
Critical illness [½]
Life insurance/funeral cover [½]
Long term care insurance [½]
Other products may also be suitable

[Marks available 7½, maximum 5]

(vii)
BBB may offer some of the proposed products or similar products as part of their existing business. This means they are likely to have some relevant experience. However, this new business will be targeting different customers so it may not be suitable to use existing data and assumptions. [2]

Also, there has been a fall in sales and profits in all business areas. It will be necessary to investigate why this has happened and to take appropriate action. BBB will need to ensure any new business is profitable to ensure meet their aims. [2]

For all the products offered assumptions will be needed. [½]

These will include expected experience (amount and frequency of claims), expenses, persistency and volumes of business. They will also be making assumptions about the potential policyholders attracted to the new policies and the success of any new marketing initiative. If these are not as expected BBB may make losses on the new business. [3½]

It may be very difficult to obtain suitable data particularly as this group of potential policyholders may be quite diverse. Reinsurers may have data which could be used although this may need adjustment. [1½]

Due to the uncertainties in the assumptions BBB may need include margins when pricing the new products. This may lead to the new products being uncompetitive. [1½]
Marks may be given for other relevant well explained points

[Marks available 11, maximum 7]

(viii)
The actual experience of a provider should be monitored to check whether the method and assumptions adopted for financing the benefits are appropriate and, if not, what changes should be made to achieve the desired level of profit. Will need to monitor more frequently initially as this is new business. [1½]

The experience of this new business will be monitored to:

- update the methods and assumptions adopted so they reflect expected future experience more closely. [½]

This will be particularly important in this case as many assumptions will have been made when pricing the new products particularly relating to those assumed to be taking out these products. If these assumptions are not appropriate then it is important that the assumptions are changed to reflect the expected future experience both for pricing and reserving. [1½]

- monitor any trends in experience, particularly adverse trends, [½]

so as to take corrective actions [½]

- provide information to management and other key stakeholders [½]

This may lead to various changes e.g. to the products on offer, the marketing strategy, terms and conditions on some contracts. [1]

As time goes by, the actuary will have more information. The assumptions and models resulting from this should get closer to what will actually happen. [½]

This should help to meet BBB's aim of increasing sales and profits. [½]

[Marks available 7, maximum 4]

[Total marks available 96½, maximum 47]

This question was answered better than question 1 and produced some good answers. The weaker candidates tended to produce a narrow range of points rather than struggling with any particular part of this question.

(i) This part was answered well but after the key points were made candidates discussed periphery points which scored less marks.
(ii) This part was well answered.
(iii) This part was generally well answered.
(iv) Most candidates covered a wide range of points and applied their answers to the question that was being asked.
(v) This part was generally well answered.
(vi) This part was answered very well with most candidates scoring full marks.
(vii) Candidates struggled to answer this part of the question. Stronger candidates picked up on the data/experience issues as well as the difficulties with assumptions and the need for margins, but weaker candidates struggled with this part.
(viii) Well answered with candidates applying the part correctly.

END OF EXAMINERS' REPORT