INSTITUTE AND FACULTY OF ACTUARIES

EXAMINERS' REPORT

September 2016

Subject SA1 – Health and Care Specialist Applications

Introduction

The Examiners' Report is written by the Principal 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.

Luke Hatter
Chair of the Board of Examiners
December 2016

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

1. The aim of the Health and Care Specialist Applications subject is to instil in the successful candidates the ability to apply knowledge of the United Kingdom health and care environment and the principles of actuarial practice to the provision of health and care benefits in the United Kingdom.

2. Candidates who approach the questions, especially the more substantial elements of each question, in a methodical and detailed manner are far more likely to pass the subject. Candidates will gain few marks if they do not address the question asked but merely write around the topic of the question. The mark allocation for each question part gives an indication of the relative length of answer or number of points to be made to gain full marks.

3. It is often helpful to use subheadings when answering long part questions.

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

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

Overall the paper was a little harder than some recent papers; in particular question 2 required students to analyse a complex product. However, well-prepared candidates scored well across most of the paper. As in previous diets, questions that required an element of analysis or application of knowledge were less well answered than those that just involved repeating bookwork. The comments that follow the questions concentrate on areas where candidates could have improved their performance.

C. Pass Mark

The Pass Mark for this exam was 57.

Solutions

Q1 (i) The best estimate liability is the present value of expected future cashflows [½]

discounted using a "risk-free" yield curve [½]

(i.e. term dependent rates). [½]

These would be based on swap rates (or government bonds if swap rates not available) [½]

and adjusted by EIOPA to allow for the risk of default by the counterparty. [½]

For the UK, the rates are based on LIBOP swaps+B45 rates with a credit risk adjustment. [½]

There are two main elements of the best estimate liability, namely the claims provision [½]

and premium provision. [½]

Calculations would be done separately by product types. [½]

Claims provision relates to past exposure

This can be calculated as the sum of:

- outstanding claims [½]
- plus claims handling expenses [½]
- plus incurred but not reported claims [½]
- plus incurred but not enough report claims [½]
- claims in transit [½]

There will be no allowance for prudence margins. [½]

Premium provision relates to future exposure

All assumptions should be best estimate, with no prudential margins. [½]

The projections should allow for all expected decrements [½]

such as claim incidence rates [½]

and policyholder actions, including lapses. [½]

Expected future changes in health status should be taken into account. [½]

The insurer must take into account all relevant available data, both internal and external, when arriving at assumptions that best reflect the characteristics of the underlying insurance portfolio. [1]

Projection periods need to take into account the "contract boundary" which is broadly defined as the point at which a company can unilaterally terminate the contract, refuse to accept a premium or change the premiums or benefits in such a way that they fully reflect the risks. [2]

For PMI business, this normally means the next policy renewal date. [½]

For example, if the business is annually renewable, it means to the end of the policy year. [½]

The projections should also include business to which the company has committed but not yet booked OR Bound But Not Incepted (BBNI) business. [½]

For example, policies that are due for renewal where the renewal letter has already been sent to the policyholders concerned. [½]

Allowance for future expenses needs to take into account both overheads and directly attributable expenses, and future expense inflation. [½]

No closure reserve is required. [½]

Contractual options and guarantees need to be allowed for. [½]

For some of these, a market consistent simulation or stochastic analysis may be the most appropriate calculation approach, [½]

although a deterministic approach could be acceptable depending on the risks involved and the materiality. [½]

An illiquidity premium is defined as the additional compensation that investors gain by bearing the risk from holding an illiquid asset. [½]

Insurers with long-term predictable liabilities may be allowed to adjust the risk-free discount rate used to discount technical provisions to include an allowance for a matching adjustment. [½]

A volatility adjustment to reduce the risk of forced sales of assets in the event of extreme bond spread movements may also be permissible [1]

For short-term insurance business such as PMI, it is unlikely that a "matching adjustment" approval will be granted by the regulator. [½]

For short-term business such as PMI, the financial impact of discounting is unlikely to be material and hence the benefit of using a "volatility adjustment" is also unlikely to be significant. [½]

The cashflow projections should ideally be performed on a policy by policy basis. [½]

However approximations are permitted and grouped model points can be used provided certain conditions are met, including validation of accuracy. [½]

Reinsurance would be allowed for as an asset in the balance sheet rather than reducing the liabilities [½]

[Maximum 11]

(ii) Underlying business mix – the underlying business mix may change over time, [½]

introducing deviations from the best estimate assumptions which are derived based upon experience of past data. [½]

The change in mix could be in respect of:

gender [½]

geographical [½]

socio economic [½]

smoker status [½]

occupational [½]

Underwriting policy – changes in the underwriting policy may impact anti-selection, introducing deviations from the best estimate assumptions. [½]

There could be changes in the underlying policy terms of the contracts. [½]

Claims management – changes in the standards of claims management could introduce deviations from the best estimate assumptions. [½]

The change could be a results of in-house change or change of third party provider. [½]

There may have been significant changes in new business volume causing claims administration strains [½]

The original best estimate assumption could be based on rates provided by reinsurers which may be based on business with different profile. [½]

As the company builds further experience, it is reasonable to expect best estimate assumption to be refined over time. [½]

The level of credibility applied to the company's own experience and external data could change over time. [½]

There could be change in distribution method which leads to different business profile. [½]

Economic environment – changes in the economic environment can impact the incidence rates for morbidity policies. [½]

For example, a recession may cause an increase in the number of stress related claims. [½]

There is evidence to suggest that during a recession, there may be an increase in anxiety, depression and stress related claims, [½]

or selective lapses [½]

Government policy – changes in the provision of state health benefits can impact the incidence rates. [½]

For example, an increase in the expected waiting period for state health services could lead to an increase in claims. [½]

Government policies may change to encourage individuals with private cover to seek private health services. [½]

Any change in the standards of state health services could also affect the incidence rates. [½]

Changes in medical inflation could affect the costs and hence claim severity. [½]

Medical advances and availability of new treatments could lead to the change in claims amounts over time. [½]

There may have been changes in early diagnosis [½]

e.g. the introduction of a screening program [½]

or a campaign increasing public awareness of illnesses [½]

increasing the willingness of policyholders to claim [½]

Past data may not capture all the potential events, e.g. new diseases. [½]

The company may change services between different hospital groups with different pricing policies. [½]

Policyholder behaviour – changes in policyholder behaviour and the propensity to claim may impact incidence/termination rates. [½]

There may have been changes in claim settlement patterns [½]

Legal challenges could have given rise to extra claims that were not expected [½]

There may have been changes in policy features or designs not allowed for appropriately in the assumptions [½]

or the introduction of a no claims discount [½]

or a requirement for pre-authorisation [½]

There may have a general worsening in the health of the population [½]

or an epidemic [½]

Alternatively there may have been a cure found for some illnesses [½]

There may have been changes in competitors' pricing or products [½]

leading to selective lapses [½]

or increases in new business [½]

Changes in legislation – legislation could be changed to increase the range of services covered under a private medical insurance policy. [½]

There may have been errors in the data [½]

or analysis/calculations [½]

The subdivisions of the data may have changed [½]

[Maximum 13]

(iii) Controls should cover the following areas:

data inputs [½]

parameters inputs [½]

calculation model [½]

model outputs [½]

The whole process should be formally documented [½]

Data inputs

There should be checks on data input [½]

Policy data reconciliation to source systems for premium provision. [½]

Claims data reconciliation to source systems for claims provision. [½]

Reconciliation of key inputs to other reports [½]

e.g. finance report, control report. [½]

Reconciliation of data inputs with those used for previous best estimate liabilities [½]

Parameter inputs

Peer review and sign offs of all assumptions. [½]

Independent role between doers and checkers. [½]

Check inputs against basis document. [½]

Calculation model

Model used for production has been formally signed off. [½]

Restricted access to the model to authorised users only. [½]

Reasonableness checks through calculation. [½]

Agreed change control for amending the model [½]

and assumptions [½]

Discuss the model with the regulator [½]

and the assumptions [½]

Carry out backups of the model [½]

Model outputs

Peer review of results [½]

Sensitivity testing to indicate key parameters. [½]

and carry out further validation of the key assumptions [½]

Comparison of results between the reserves under the previous ICA regime and the Solvency II best estimate liability [½]

i.e. analysis of change. [½]

Comparison of key metrics to financial forecast. [½]

Comparison and analysis of results over time. [½]

Check the calculation of sample policies by hand to ensure model is working as expected [½]

Reconciliation of statistics between input data and results, [½]

such as policy counts, gender mix, age profile etc., [½]

to ensure that there is no data loss during the calculations. [½]

Benchmark the results against competitors [½]

Any component reports / worksheets have been formally signed off. [½]

Final report has been formally signed off by the Chief Actuary. [½]

Internal audit review. [½]

External audit [½]

Analysis of surplus. [½]

[Maximum 9]

[Total 33]

Part (i) was generally well answered with candidates providing a wide range of relevant points.

Part (ii) was reasonably well answered. Few students mentioned changes that might have occurred as the insurer built up their experience, changes in early diagnosis, or changes in legislation.

Part (iii) was often poorly answered. In particular, few candidates discussed reconciling data inputs with other sources. Very few candidates discussed controls for parameter inputs.

Q2 (i) Examine all documentation that pertains to portfolio:

Marketing literature pre and post sale [½]

Training material – for sales force / IFAs [½]

Illustrations of new business [½]

Illustrations of in-force business [½]

Terms and conditions [½]

Other policy holder communication (e.g. annual statements) [1]

Identify what terms can be reviewed [½]

and the mechanism [½]

and method of review. [½]

Dates when the review of morbidity charges can be performed. [½]

Experience analysis reports on claims experience. [½]

Previous reviews of charges carried out by the company. [½]

As this would set a precedent and shape PRE. [½]

[Maximum 4]

(ii) The over-riding principle is that the company must treat customers fairly. [1]

This is achieved by:

Taking into account communications relating to previous reviews. [½]

Checking if allowing for the spirit of the regulations to avoid intervention by the regulator (FRC in the UK). [½]

Only allow where product terms state clearly that premiums are reviewable. [½]

The basis for reviews should be clearly set out. [½]

Otherwise reviews might be subject to legal challenge under unfair contract terms legislation. [½]

Make sure communications are clear and not misleading. [½]

Reviews based on policy literature and terms and conditions that set out how the company will review the policy. [½]

At reviews, healthcare company should not aim to recoup earlier losses from claims. [½]

Review only from date of last review, missed reviews cannot be recouped. [½]

Apart from terms being reviewed, the healthcare company should base reviewable premiums on assumptions set at the new business pricing as the baseline assumptions [½]

The assumptions used for in-force business should be consistent with those used for new business with justifiable grounds for any differences. [½]

For example, if new business is based on different set of definitions then it would be justifiable to have a difference. [½]

Assumptions (mortality and investment return) should be believed valid for the full term of the policy. [½]

At reviews, premium increases can only be made if the healthcare company changes one or more of the relevant assumptions stated in the policy for "valid reasons". [½]

Reviews relate to general claims experience of similar policies. [½]

and not to the claims experience of the individual policy holder(s). [½]

Adhere to professional guidelines, [½]

regulations [½]

and market standards [½]

The results of the review should be notified to the customer. [½]

Premium/morbidity charge reductions and premium/morbidity charge increases dealt with consistently. [½]

Tolerance limit before a premium is altered [½]

e.g. 1% of current premium or £1. [½]

Give policyholders sufficient time to take alternative action before any changes take place [½]

and allow for any impact on marketability. [½]

If premiums increase as a result of a review, individual customers may be given the option to continue paying the same premium but reduce the sum insured instead. [½]

If the policyholder is offered the choice and elects to reduce cover then this would be done with his/her agreement. [½]

Policy literature and terms and conditions may not be watertight and policyholders may challenge the company on what has been done on the review. [½]

Have clear procedures in place to deal with policyholder complaints as a result of policy review. [½]

[Maximum 6]

(iii) Examples of valid reasons might be:

Medical advances which affect the healthcare company's expectation of future claims. [½]

Any event outside the healthcare company's control that the healthcare company expects to have an impact on future claims which the healthcare company could not reasonably have foreseen when the assumptions were last reviewed. [½]

e.g. change in cover offered (allow up to four relevant examples) [½]

The future incidence of taxation on the healthcare company. [½]

Change in long term investment returns, low inflation environment. [½]

Examples of invalid reasons might be:

The company wants to review existing rates without increasing new business rates. [½]

Trying to recoup losses, either on this business [½]

or other cohorts of business [½]

Poor underwriting processes leading to more claims than expected [½]

Poor claims management leading to higher claims than expected [½]

Reinsurer morbidity rates have increased. [½]

Need to ensure consistency between NB and in-force business. [½]

But may be different if there are justifiable grounds. For example, if new business is based on different set of definitions then it would be justifiable to have a difference. [½]

Discussion relating to practical implications of amending processes and record keeping. [½]

Market crash. [½]

Changes made because of errors made in derivation of assumptions. [½]

Change based on data not relevant to the company's business. [½]

[Maximum 4]

(iv) Historic claims experience of at least the last 5 years [½]

number of policies [½]

total sum assured [½]

number of claims [½]

and corresponding exposed to risk [½]

split by rating factor, e.g. age, smoker status, as a function of original pricing assumptions. [½]

Details of any retrospective addition of medical conditions added [½]

as this will affect the expected claims frequency and so influence whether experience is improving or deteriorating. [½]

Changes in diagnosis, medical advancements since launch [½]

as this will affect the future expected claims frequency and so influence future experience [½]

How these changes translate to future claims experience [½]

For old business it may be difficult to get clear statement of assumptions. [½]

Deciding how these changes translate to future claims experience is difficult and subjective to evaluate for an healthcare company [½]

For small portfolios probably insufficient experience data to be credible for experience analysis. [½]

Therefore company will need to consider other sources of data, [½]

similar business with similar conditions etc. [½]

Reinsurers may help with suitable data. [½]

CMI may help with suitable data. [½]

Consider whether there are limits to increases that can be put through [½]

Pricing assumptions for each series of contract in the portfolio: [½]

policy fee index level [½]

future investment return [½]

allowance for deterioration/improvement in morbidity claim rates [½]

[Maximum 6]

(v) Policy date start [½]

Age or date of birth [½]

Current sum assured [½]

Cause of claim [½]

Date of claim [½]

Current morbidity charge [½]

Policy duration [½]

Smoking status [½]

Occupation class [½]

Underwriting/medical loadings [½]

Occupational loadings [½]

Current policy fee [½]

Funds invested [½]

Annual management charge of fund [½]

Current fund value split by fund [½]

Allocation rates [½]

Current premium [½]

Premium frequency [½]

Details of family member on policy if more than one life [½]

[Maximum 4]

(vi) Follow an iterative process to find a premium where the fund is first exhausted at age 85. [1]

Use the revised morbidity charge rates, policy fee, policy fee indexation rate, investment return. [½]

For an estimated premium perform the following sequence of calculations: [½]

Take current fund at review date. [½]

If fund is negative then set it to zero, [½]

add premium after allocation to fund, [½]

index the policy fee (accept index done annually), [½]

deduct the monthly policy fee. [½]

For the policy holder details (age, smoker status, medical loadings etc.) derive the monthly morbidity charge. [½]

The sum at risk is sum assured less unit fund (subject to a minimum of zero). [½]

Deduct from the fund, the charge * sum at risk. [½]

As projection continues the monthly morbidity charge may be adjusted in line with the pricing basis to allow for expected deterioration or improvements in the future critical illness claims. [½]

Project forward the fund with investment return net of annual management charge to the next month. [½]

At the final age adjust the estimated premium so that the fund iterates to the desired value. [½]

Or any suitable alternative [½]

[Maximum 6]

[Total 30]

This question required students to analyse a complex product which had various items that were reviewable. Whilst students generally performed well on the part questions requiring more standard bookwork or approaches rather fewer performed well on the part questions requiring them to apply their knowledge to the particular product in question.

Part (i) was not well answered. Only the better candidates mentioned investigations other than examining the terms and conditions and past experience analyses reports. The use of the term "investigations" in a question indicates that students should consider any relevant area an insurer might need to research, and should not be limited to experience investigations. As always, students should ensure they read the full question carefully and answer what has been asked.

Many candidates scored well on part (ii), providing a wide range of relevant points.

Part (iii) was not well answered, Whilst most students gave the examples of medical advances as a possible valid reason and recouping past losses as an invalid reason most candidates failed to suggest other valid or invalid reasons (or sometimes gave invalid reasons as valid ones).

Part (iv) was also not well answered. Several students mentioned regulatory reform or increased market competition but very few mentioned any other points.

Part (v) was very well answered, with many students providing a wide range of data that would be required to perform the policy review.

Part (vi) was generally poorly answered by most students with very few students being able to describe a suitable method.

Q3 (i) Private health insurance solutions to national health system challenges

Private health insurance:

can operate as an alternative source of health financing. [½]

can increase the capacity of the health system. [½]

can be used to promote health policy goals, such as enhanced individual responsibility. [½]

can cover eligibility gaps based on categories of individuals, health services or providers not covered by public health systems. [½]

can potentially provide healthcare quicker than state system, reducing waiting times for individuals [½]

may be able to provide care or services not readily available under the state system

[½]

[Maximum 2]

(ii) **Considerations for entering Country A**

Need data to estimate potential demand [½]

e.g. GDP,/economic growth [½]

population size [½]

the affordability of products (or other relevant points) [½]

Products

What products can be sold [½]

Group, individual or both [½]

Does the company have sufficient knowledge to sell these products [½]

Level and type of competition

As the market is only just being opened up to private health insurers then the number and nature of competitors is unclear. [½]

The competition may be from long established large domestic non-health insurers who have decided to enter the new health insurance market. [½]

Country A may provide State-funded health insurance in some form alongside the private insurers. [½]

Other multi-national insurers from Country B or from other countries may enter the market. [½]

There could also be competition from local third-party administrators or community self-funding groups. [½]

Any incentive offered by Country A to establish private healthcare insurance [½]

State provision

Country A's State provision of health care/funding would be expected to change following the introduction of private health insurers. [½]

The State currently operates a monopoly in health provision and therefore the change in this market could be significant. [½]
It is not clear if the new private health providers and facilities will be better or worse than the state facilities. The outcome of this will drive the demand for private insurance. [½]

Also, it is not clear if all members of the population of Country A will be required to obtain private health insurance or if it will be optional. [½]

If it is optional, then possibly only the wealthiest members of Country A could afford private health insurance. [½]

Distribution channels available

No existing broker networks or Independent Financial Advisors would exist as the market is new. [½]

Therefore, distribution channels will need to be established in Country A. [½]

The insurer will need to understand the local market and its requirements in terms of sales remuneration and regulation, if any. [½]

Full sales training and tight control of sales will be necessary. [½]

The insurer may have to create its own salesforce until independent advisors are developed. [½]

If the regulations of Country A allow it, the insurer could distribute its products directly. [½]

However, for complicated products it is usually necessary for a knowledgeable insurance broker to advise potential policyholders and make sales. [½]

Local representation and assistance

For the company to be successful in Country A, it should set up a local presence. [½]

This would mean setting up a legal entity, most likely as a fully regulated health insurance company. [½]

It should seek local assistance. For example, all product and marketing literature will need to be translated into the local languages of Country A. [½]

The Company will need to hire staff and experts with experience in the following areas within Country A: [½]

Tax specialists; lawyers; administration and claims/client services staff with relevant knowledge of Country A's healthcare system and languages. [½]

Accountants and actuaries with knowledge of Country A's regulatory reporting and solvency requirements. [½]
A joint venture with an established local non-health insurer could be considered. Important local contacts would include hospitals and doctors/consultants. [½]

A reinsurer or consultancy firm with experience in Country A may be able to facilitate many of these introductions. [½]

There may be issues with preferred healthcare providers e.g. concerns on how long it will take for these to be established [½]

Local data will be needed for pricing. [½]

Culture

The culture of Country A will be a determining factor in the provision of healthcare and health insurance. [1]

Religious views may be a considerable factor in how healthcare is organised and delivered locally. [½]

The company should be wary of linking the admission of health and care claims to that of the State or State-sponsored scheme. [½]

Typically, the requirements for admission of the claim in a public healthcare system are far less rigorous than the private insurer. This leads to a far higher level of claim. [½]

Regulation and legal matters

The company should investigate the legal regime in Country A before starting operations there. [½]

and tax regime [½]

Advice will be required on legal and regulatory matters where local custom and practice of Country A will need to be taken into account. [½]

If little is known about the regulation in Country A (especially as it is likely that regulation will still be in the process of development as the market is only just opening to private insurers), the company runs additional risks. [½]

It should continually monitor these laws as these could change as Country A adapts to its developing private health industry. [½]

The insurer will need to put contracts in place, subject to Country A laws. [½]

Local representation will be vital to see that these are interpreted and effected as originally intended. [½]

Other issues

Is the launch a good fit for the company [½]

Does it fit with the company's risk appetite [½]

Will required profit and ROC targets be met [½]

Will volumes be sufficient to meet development costs, overheads etc. [½]

Availability and cost of capital [½]

Need estimates of cost of IT changes [½]

marketing literature *(or other relevant points not covered elsewhere)* [½]

Health standards in the country [½]

Availability of investments [½]

[Maximum 13]

(iii) **Capital requirements**

Health Care Insurance Plc must assess the capital required for entering this new market. [½]

It needs to identify the extent to which reserves and additional regulatory capital requirements will be necessary when designing the products that it intends to launch in Country A. [½]

Capital will be required to fund the market launch, both to support such reserves and to pay for product development and marketing costs. [½]

There are also likely to be expense allowance overruns generated in the early years of the new Country A product. [½]

The availability and cost of such capital, either from within the company or raised externally, are important considerations in deciding whether to enter the new market and, if so, in its pricing of the new products for Country A. [½]

Unless the company has substantial capital resources, the products for Country A should have benefits and charges which minimise its financing requirement. [½]

It may be possible to reduce capital requirements through the use of suitable reinsurance arrangements. [½]

Reinsurers may have lower capital requirements in Country A than Health Care Insurance Plc. [½]

This would mean that the higher proportion reinsured, the lower the total capital required by the insurer. [½]

The initial capital required in respect of the new products for Country A will be determined by means of an appropriate model. [½]

This should incorporate the forecast level of new business together with the other business and experience parameters [½]

e.g. model points, lapses, morbidity, development cost etc. [½]

A range of scenarios should be run to assess the likely level of capital required. [½]

Country A will have to create its regulatory solvency regime but it should be expected that this would require a statutory minimum level of capital to be held. [½]

Health Care Insurance Plc would have to find this minimum amount of capital from its first day as an insurer in Country A. [½]

This could come from its existing excess assets (own funds) or it may need to raise finance. [½]

This finance could be raised by issuing share capital or corporate bonds or arranging financial reinsurance. [½]

As part of its profitability projections, it should project the statutory solvency requirements for each of the scenarios considered. [½]

In the long term, writing profitable business should improve the solvency position. [½]

However, in the short term, there would be high start up costs [½]

(e.g. travel of staff from Country A to Country B, setting up infrastructure) [½]

which would cause a day 1 strain – these would adversely affect solvency. [½]

The local solvency requirements may be more onerous in Country A than in Country B and this would adversely affect the solvency of the group. [½]

For example, the regulations may be more cautious given that this will be a new situation for Country A. [½]

Higher reserving margins would be needed due to the additional uncertainty of operating in an unfamiliar territory. [½]

Given the additional risks of setting up a brand new subsidiary, the company would need higher economic capital. [½]

The effect on solvency will also depend on the means of writing business in Country A – if high levels of initial commission are paid, the impact on solvency will be more onerous. [½]

Alternative capital management tools may be available. [½]

Solvency Capital for the group as a whole may need to satisfy statutory requirements in both Country A and Country B (e.g. like Solvency 2). [½]

Need to consider the return on capital required by the various sources of capital to determine the optimal method. [½]

Also consider existing debt and any constraints that places on future capital raising. [½]

Will it be required to raise capital in Country A, in which case would the funding be secure. [½]

Investigate any benefits of capital diversification. [½]

Return on capital

The insurer should incorporate its required return on capital into its business and pricing models for entering Country A. [1]

This assessment should take account of other competing uses for capital as well as shareholders' demands. [1]

Shareholders' demands may include specific targets on the return of capital and/or a strategic fit or support to other company products and ventures. [1]

The insurer should consider if entering Country A fits in with its strategic objectives. [½]

The insurer could consider a WACC (weighted average cost of capital) approach, to encompass capital from many different sources: [½]

such as banks, reinsurers, venture capitalists, lenders and shareholders, each with different demands. [½]

In proposing an absolute level, the actuary will start at the risk-free rate of return e.g. the average yield on suitably dated government bonds. [½]

To this would traditionally be added a margin to reflect the riskiness of the insurance ventures undertaken [½]

so in this context, the riskiness of the cashflows expected to arise from the new market of Country A. [½]

or may accept lower rate with the aim of becoming established in Country A over the longer term [½]

The cashflow modelling would include projections of new business volumes and mix, operational expenses and financing and solvency capital requirements. [½]

The cashflow projections should be done under a range of scenarios: best estimate, optimistic and pessimistic. [½]

The return on capital should be viewed as the potential distributable surplus over a period of time. [½]

The return on the new business in Country A has to be comparative to other products and ventures in Country B. [½]

It has to be sufficiently attractive when viewed against that produced by the alternative uses of the capital, i.e. the existing business in Country B and potentially new products for Country B or alternative new countries. [½]

The return should make due allowance for the strategic role of the new Country A business in the company's operations. [½]

Balancing the return on capital (effectively, the "profitability") of the new Country A business with other considerations is a key part of the market assessment and product development process. [½]

Other profitability metrics that could be considered are:
Net Present Value (NPV). [½]

Discounted Payback Period (DPP)/Payback period [½]

Internal Rate of Return (IRR). [½]

[Maximum 12]

(iv) **Risks after entering the market**

Exchange rate risk

Premiums may be received in the Country A currency or the Country B currency, and if the product provides indemnity, claims will be paid in the Country A currency. [½]

The expenses of the subsidiary will mainly be in the Country A currency. [½]

The company's financial targets (at the group level) could be in Country B's currency. [½]

Exchange rate fluctuations risk reducing the profits or increasing the solvency capital requirements when exchanged to the currency of the key performance indicators. [½]

Investment risk

The company will either have to invest in a market with which it is less familiar to match the liabilities or accept a mismatching risk. [½]

Therefore the liquidity risk and currency mismatching risk may be higher. [½]

The investments may not perform as expected [½]

Data risk

As there is no own specific experience data available, the insurer will have had to use its Country B experience and adapt that when pricing the products [½]

or use external data, which may or may not be relevant. [½]

Assumption risk

The product will have been priced on a set of assumptions but there will be extra uncertainty about these as the company is not familiar with Country A experience. [½]

Expenses risk

It may be difficult to correctly predict the additional costs involved in operating in a foreign country, such as Country A. [½]

Claims incidence risk

This could be different in Country A than Country B due to: [½]

different prevalence of infectious diseases. [½]

the introduction of screening programs [½]

lifestyles (e.g. smoking and alcohol consumption patterns). [½]

accidents (e.g. due to motoring behaviour, crime rates). [½]

illnesses or conditions specific to each countries' climate (e.g. skin cancer in hot sunny countries, depression in cold countries with little daylight during winter). [½]

different government policies relating to sanitation, health education, childhood vaccinations. [½]

Changes in government policy leading to changes in claims incidence. [½]

Claims cost risk

Claims inflation risks may be materially different from that expected (e.g. more volatile). [½]

Claims cost risk may be greater due to potentially having less close ties and relationships with providers in Country A. [½]

The claims management system may not work [½]

e.g. in relation to pre-authorisation. [½]

Different legal processes may give rise to higher numbers of disputed claims [½]

New business risk

It may be difficult to predict the likely level of take up for the products offered by the company in Country A. [½]

There is a risk that volumes will be insufficient to recoup the development costs. [½]

or too high, leading to new business strain [½]

or higher capital requirements than expected [½]

or lead to a different mix from that expected [½]

There may be moral hazard [½]

Competition

As Country A is only now establishing a private healthcare industry, there are no existing competitors. [½]

However, it should be expected that other health insurance companies will be set up, e.g. other insurers in Country B may also be considering setting up a new subsidiary in Country A. [½]

This would impact the sales volumes. [½]

and lead to selective lapses. [½]

There may be high non-renewal rates if products don't offering what customers want or not seen to be offering value for money. [½]

Operational risk

There is a risk that pricing may be incorrect if data used is wrong. [½]

There may be issues arising from language differences. [½]

There may be the risk that IT systems don't work or can't cope with the new products. [½]

If a local claims management team in Country A is developed there may be issues of fraud. [½]

Fraudulent claims may be higher as it may be more difficult for the company to monitor what happens in an unfamiliar country. [½]

There is a risk of fraud from counterparties [½]

or churning by distributors [½]

Reinsurance cover may become unavailable [½]

Political risk

Future governments of Country A could reverse the changes that opened up the country to private healthcare. [½]

or change the benefits provided by the state [½]

making private insurance less attractive [½]

or make it harder for foreign-owned companies to operate there [½]

or repatriate profits. [½]

[Maximum 10]

[Total 37]

Overall whilst candidates generally did well in part (ii) generating a large number of points, the later parts of the question were not so well answered. The best candidates were those who distinguished clearly between the question parts: considerations before entering the market, capital requirements, return on capital, and risks after entering the market.

Part (i) was very well answered.

Part (ii) was also well answered with students providing a wide range of relevant points. It was particularly pleasing to see students providing subheadings for the various areas they considered and applying their

knowledge of these areas to provide points relevant to the specific scenario in the question.

Part (iii) was generally not well answered with many students not providing a wide enough range of points to score well, particularly for issues related to return on capital.

Part (iv) was generally well answered with many candidates considering the range of risks that might arise after entering the market. Few candidates provided discussion of the risks related to claims incidence and claims cost.

END OF EXAMINERS' REPORT