

EXAMINERS' REPORT

June 2011 examinations

Subject F101 — Health and Care Fellowship Principles

INTRODUCTION

The attached report has been prepared by the subject's Principle Examiner. General comments are provided on the performance of candidates on each question. The solutions provided are an indication of the points sought by the examiners, and should not be taken as model solutions.

Overall, the paper was fairly straightforward.

Common problems encountered were poor exam technique and a lack of mastery of material covered in A301 (Actuarial Risk Management). Examples of poor exam technique include:

- not attempting questions that require a demonstration of higher order thinking skills;
- providing a generic solution that does not address the specifics of the scenario presented in the question; and
- poor structuring of solutions (in terms of readability and prioritization of key points).

There was a marked difference in performance between bookwork questions, application questions and higher thinking questions. Students appear relatively well prepared for bookwork questions but for the most part display very poor critical thinking skills. This may reflect poor time management (i.e. insufficient time allocated to allow for thinking through the more difficult questions) or that students are underprepared for examinations at this level.

QUESTION 1

i.

Operating profit should be to show a true and fair value of the company position. As such the assumptions should be on a best estimate or realistic basis.

For solvency, a higher level of comfort is required, such that the company would be able to meet all liabilities arising out of insurance contract. The basis should thus be suitably prudent.

ii.

The solvency capital requirements cannot be looked at in isolation of the reserving requirements. Could have strong reserves and small solvency capital requirement or not-so-strong reserves and strong solvency capital requirement? For example, the basic liabilities could be calculated on a best estimate basis but the capital required would then need to be determined allowing for adverse deviations such that the company would have a 99.5% probability of solvency over a 2 year period.

The capital held should be related to the risks to which the company is exposed.

An amount of capital could be held for each of the different risks but the total amount required could be reduced to allow for correlation between the different risks.

Approaches may differ between long term and short term business. This is important as health insurance may extend across both types of business.

iii.

Embedded Value: Embedded value is the present value of future shareholder profits in respect of the existing business of a company. This is important as it gives an idea of the present value of the company to shareholders.

Statistical Information: As a regulator you would want to see the details of the business that the company is writing in order to understand the nature of the risks faced, for example, number of policies, types of business, amount of cover being offered.

Asset Information: To ensure that the company is investing in appropriate assets, which may be specified by legislation?

Persistency: If a company has unduly high withdrawal rates, this may indicate some form of mis-selling or inappropriate selling of policies to clients.

Numbers of complaints received: This, together with other metrics looking at customer satisfaction may indicate whether or not the company is treating customers fairly.

As expected students coped better with the bookwork elements of this question than with the higher thinking elements.

QUESTION 2

i.

- Policy benefit is care or financial benefit (indemnity or pre-defined) for qualifying beneficiaries.
- Benefits may depend on the different levels of care (personal care/nursing care/domestic services) and different settings (own home/day centre/state-sponsored centre/private facility) that are possible.
- Claims are triggered with reference to a measure such as number of activities of daily living failed. There may also be more complex benefit triggers (3 ADLs plus requiring night care, or mental impairment trigger).
- Important design considerations include the length of the deferred period, the rate of benefit escalations, length of payment period, any limits on the benefit.
- benefits may include recuperation after surgery for the beneficiary.
- add-ons need to make attractive but not too expensive and provide value to the premium payer.
- other add-on benefits may include recuperation benefit for the premium payer
- Premium escalation guarantee.
- or investment component (structured on a unitised basis) to pay out on death of beneficiaries.
- may have life cover to continue premiums on death of the premium payer.
- policy could be on a joint life basis to cover both parents.
- could have other dread disease elements.
- could also offer independent care advice.
- surrender value not likely as will increase lapse risk.

Other reasonable suggestions that relate to adapting a standard product for sales to the young professional market should be rewarded.

ii.

- Anti-selection risk – risk of policy being purchased only by those likely to claim e.g. with family history of Alzheimers.
- Lapse risk – risk of higher than expected number of lapses and risk of selective lapsation by those whose parents are in better health.
- Expense risk and expense inflation risk – risk of policy expenses exceeding premium provision.
- Data risk – new product thus will need to rely on external sources of data.
- Claim risk – risk of greater proportion of policies being eligible to claim than anticipated.
- Severity risk – risk of average claim exceeding expected value.
- Longevity risk – risk of claimants living for longer than anticipated.
- Investment risk – risk of investment performance being lower than provided for in pricing.
- Environment risk – risk of changes in legislation, economic cycle affecting viability of the product.
- Volumes of new business – new product thus uncertain. Insurers have had difficulty selling volumes of long term care products (relatively expensive).
- Competitive risk – risk of competitors undercutting product or creating more marketable product.

- Reputational risk – e.g. differences in interpretation of claim triggers, mis-selling of product by brokers, inflation eroding value of benefit.
- Policy wording – e.g. claim triggers may not be clearly enough specified or there may be some ambiguity.
- If it is an indemnity benefit – exposed to increases in the cost of care.
- Demographic changes – e.g. increase in mental impairment conditions affecting elderly.
- Any guarantees (e.g. premium increase guarantees) will increase risk.

iii.

- Up front commission means that there is an initial business strain.
- Therefore need more capital to write the business.
- And increased risk of lapse when there is a negative policy value – important because there is a high risk of selective lapsation.
- Low persistency increases expense risk because of initial expenses and affects business volumes (ability to meet fixed expenses).
- Need to have a commission clawback to minimise mis-selling and churn – this increases the risk of bad debts.
- But up-front commission promotes sales process and thus reduces the risk of insufficient sales volumes.
- Particularly for a policy where the value needs to be explained (and where product is complex) as is the case with long term care insurance.
- Increased risk of mis-selling and anti-selection if the incentive to sell the product is too high – important because anti-selection is a significant risk with this product.
- Ongoing commission basis may not be adequate incentive to sell the product.
- Although creates incentive to keep policy in force.
- Depends to some extent on what competitors are offering.

Students underperformed on part (i) of this question. Marks could have been improved by systematically considering the potential elements of a long-term care product.

Performance on part (iii) was disappointing given the straightforward nature of the question. Students could improve their marks by presenting solutions in a structured manner and by considering the particular issues that relate to the distribution of long-term care products (low sales volumes, product complexity, anti-selection risk).

QUESTION 3

i.

- restrictions on the type of assets that can be held or used to demonstrate solvency and/or restrictions on exposure to single counterparties
- a requirement that certain assets are held e.g. government bonds
- restrictions on matching: a requirement to match by currency, a limit on the extent of mismatching and/or requirement to hold a mismatching reserve
- restrictions on the valuation method or valuations assumptions used
- restrictions/requirements on the custodianship of assets

ii.

- PMI business usually sold on annually renewable basis
- So time horizon is short
- Reserves are likely to be fairly small
- Typically indemnity products with real liabilities (medical inflation) but offset by short term
- Need for liquidity is high
- Need to match by currency
- Seasonal variation in claims experience means periods of investment (summer) and disinvestment (winter)
- Need to have high weighting towards cash and near cash (bonds) investments
- Quantify free assets for longer term investments
- Construct cashflow model to assess funding and liquidity requirements
- Need projections of
 - business volumes
 - Premium rates
 - Claim expenses
 - Other administration expenses
 - Investment expenses
- And investment returns per asset class
- Take account of tax implications (net returns)
- Also assumptions for inflation
- May consider pooled investment vehicles depending on size of business
- Investment strategy may be presented as a range of allowable exposure per asset class

Part (ii) was very poorly answered. It is concerning that students appear to have a very weak understanding of asset-liability matching principles. This may indicate a lack of mastery of the assumed knowledge from A301 (Actuarial Risk Management).

QUESTION 4

i.

- Financial need for an income can be met if there is a loss of income
- Financial need to repay a mortgage or loan can be met
- Medical expenses e.g. surgery or other expensive treatment
- A change of lifestyle can be funded to improve health e.g. less stressful job, or shorter working hours
- Additional expenses incurred as a result of diagnosis (recuperation, tax planning, home care)
- Greater benefit for more serious diagnosis as related costs and implications for ability to work are greater

ii.

- Facultative cover considers each risk separately at the time it is written
- Complex to administer
- But appropriate if only wanting to transfer large risks
- Treaty cover has all policies covered on a consistent basis
- Easier to administer for a working level of cover
- So it depends on level at which reinsurance is required
- Which in turn will depend on the reasons the insurer needs the cover (capital available, volatility of experience etc)?

iii.

- CI cover likely to be stipulated as % of sum assured
- There are 20 possible levels of cover
- Retention level will be different for each type of cancer
- Reinsurance cover will cover 10 types of claim (stages 3 and 4 for 5 types of cancer)
- % of cover will differ for each of these
- Cover is for the more serious stage 3 and 4 cases
- Easy to administer since operates on treaty basis
- Experience may differ i.e. could be more serious cases than expected and fewer less serious cases
- So experience will not necessarily be the same for reinsurer and insurer (follow the fortunes) even though cover is proportional

Students underperformed on part (iii) despite fairly lenient marking. A large number of students did not attempt the question at all.

QUESTION 5

i.

- Will depend on capacity of state facilities
- And level of quality of care
- Using state facilities means more control on costs and claims
- No need to fund private industry profits
- but previously uncovered lives will perceive they are paying for something they were getting for free and currently covered are unlikely to want to use state facilities
- However can use SHI funds to improve facilities
- can benefit from expertise and economies of scale in private sector
- and benefit from competition between providers
- but need to have checks and controls to prevent abuse
- need to assess private sector capacity to accommodate more lives
- can phase in by lowering salary threshold over time

ii.

- fixed % for all salaries means large income cross subsidies
- However, this may be socially desirable
- Impact will depend on income distribution of the country concerned
- With fixed % higher income earners pay more (in monetary terms) than lower income earners for same cover
- can have reducing % of salary and financial limit to make more palatable for high income earners but still have cross subsidy
- also consider whether % is of total salary or salary above the threshold (latter is more fair to avoid discontinuity for those moving from just below the threshold to just above it)

Part (ii) was poorly answered. A large number of students did not attempt the question.

QUESTION 6

i.

Operational issues

- You currently only sell a group product. The distribution network for group is often different to individual.
- It is possible that you can sell through the same distribution channel, but you may need to find a new one.
- If you are selling through your own agents, this should be easier, but you would need to train them on the differences between group and individual products.
- Will have implications for administrative simplicity e.g. collection of premiums.

Medical underwriting

- Under group business most people would fall below the free cover limit (proof free limit). For individual products you would have to underwrite everyone.
- You need to consider if you have the capacity and skills to underwrite the product.
- Importance of underwriting is greater given potential anti-selection and absence of “active at work” filter.

Financial underwriting

- With group business this isn't an issue as the individual is formally employed and it is easy to get proof of income (the salary slip).
- Many people taking out individual cover are likely to be self employed and it will be more difficult to get proof of income.
- Individuals may want to be covered for fluctuating income as well.
- This can be done through tax returns, although the argument is often used that this is not an accurate measure of income.
- Otherwise this can be done looking at the financial statements of the individual's company, but this is not a trivial exercise.

Product design

- Formally employed people in the group market would usually have paid sick leave. This influences the waiting period for IP. Self employed people will not have paid sick leave and hence would want shorter waiting periods.
- If you change the waiting period it will have a significant impact on the rates.
- Many self employed people choose to work past age 65. There may be a demand for a product with a higher NRA. This will complicate the pricing.
- The fixed 5% increase may not match inflationary increases, so there may be demand to add an inflationary increase option.
- Individuals may want closer to 100% replacement ratios, as they have to cover their own retirement funding.
- Individuals are likely to want an own occupation definition.

(Some marks may be given for valid additional points e.g. reinsurance, increased administrative expenses, as long as key points are also made)

ii.

Effect of product changes on pricing

- For all the changes you need to consider the claim inception and termination rates
- For all the pricing changes you should speak to your underwriters, claims assessors and doctors.
 - a. For the increased NRA option the incidence rates will increase after age 65. You don't have data on this so you would have to make assumptions. You could look at other data (even mortality data) that would show you how mortality, accident rates etc increase after age 65. For termination rates it is very unlikely that someone would go back to work after 65, so you could assume termination is mortality only, probably higher than standard mortality as the individual is disabled. Claims that would otherwise terminated at age 65 will be paid for a longer period.
 - b. For the shorter waiting period the incidence rates will go up (you are covering less severe conditions) and the termination rates will also increase, for the same reason. You could start by looking at the ratio of 3 month to 6 month waiting periods. You could also see if there is sickness data available. If your product requires hospitalisation you could see what hospitalisation data there is.
 - c. Different increases in payment. Increases may be higher or lower depending on the level of inflation relative to the fixed 5%. If the increases are higher the cost of claim payments will be higher. If the increases are higher than the current product, it is likely that incidence rates will go up and termination rates will go down. However, this is not likely to be significant.
 - d. Change in definition to own occupation. This will increase the incidence rates and reduce the termination rates. It will be difficult to get an accurate idea of the quantum of the change. You may not want to offer this definition to all occupations as the impact will differ between occupations.
 - e. Increased replacement ratios. These will increase the incidence rates and reduce the termination rates. Claim size will increase with a higher replacement ratio. It will be difficult to get an accurate idea of the quantum of the change.

iii.

Data

- You would need to collect relevant data for the pricing exercise.
- The best place to start would be your own group IP product, especially as you are a large insurer with many years of experience.
- You should find out when the last experience analysis was done. If it was a while ago you should request and updated one.
- You should see if there are relevant country specific industry tables for individual IP, unlikely as it is a new product in your country.
- You should see if there is any internationally relevant individual IP experience
- You can ask your reinsurer to assist you with the pricing.

Will need to price the impact on claims experience of any product design changes

Changes to other assumptions

- You need to consider whether the additional financial and medical underwriting you do on individual products will make the product cheaper (in terms of improved claims experience) . It is possible that the actively at work condition for group products will result in similar, or better experience, than even the fully underwritten product.
- Any change in definition of income will also impact on pricing i.e. basic vs. gross salary for self employed
- Will need to consider the extent to which experience rating is used for group schemes – will not be able to use experience rating with individual business.
- Expenses. You would need to load for the correct expenses. They will be higher for the individual product as there is more underwriting and more administration associated with policyholder communication and premium collection.
- Commission. Load for as regulated, or what you expect to pay.
- Expense inflation. As for the group product.
- Lapses. This is a key assumption. Group business is annual renewable (or guaranteed for a minimal numbers years). Therefore you will not have experience from the group book. You can look at the experience on other products you sell, mortality, lump sum disability etc. You may need to get some assistance from your reinsurer.
- Investment return. This is an important assumption due to the build up of claims in payment reserves. However you can probably match the liabilities with suitable government bonds. You can use your assumption for the group product as a starting point

Part (iii) - Most students did not take into account that there is an existing group product and that it would make sense to use the group pricing as a base, with the necessary adjustments. Most students approached this as a standard pricing question and did not use the information provided in the question.

QUESTION 7

i.

- Competition – PMI, other health products
- Distribution channels
- Regulatory environment – e.g. licensing requirements, reporting requirements, underwriting restrictions
- Financial sophistication of the market
- Existing State benefits
- Tax – e.g. tax deductibility of premiums
- Affordability (income distribution of market)
- Employers - involvement in health care, subsidies for premiums
- Medical inflation
- Medical providers – fees, capitation agreements, capacity
- Consumers – e.g. needs?
- Demographic and epidemiological characteristics of market

ii.

- Underwriting and acceptance – process may be misunderstood, medical underwriting may be complex
- Limits– may vary between products in the market, may be applied in different ways, product may have been marketed as being an indemnity product
- Exclusions– may vary between products in the market
- Cost sharing – arrangements may be intricate, different forms (coinsurance, co-payment, deductible, excess)
- Pre-authorisation – restriction on freedom, may not be understood from the outset
- Provider networks – may not have been fully understood at purchase
- Treatment protocols i.e. some care may not be covered because of cost/benefit analysis

END OF EXAMINERS' REPORT