Actuarial Society of South Africa

EXAMINATION

November 2010 (am)

Subject F203 — General Insurance Specialist Applications

EXAMINER'S REPORT

Question 1

Overall question 1 was not well answered. Students generally failed to address the specific issues of the provided in the detail of the question and answered more in terms of general knowledge as opposed to specific application.

i)
Students' responses were fair, but failed to generate sufficient marks. In addition students lacked in their comments on the appropriateness of the actual information provided.

Appropriateness:
- Overall, the information is not appropriate; there is not enough data.

Information requirements:
- UPR is not given, i.e. no indication of unexpired risk & no ability to assess AURR
- Outstanding claims information is not given explicitly and it is not clear if this is or isn't included in the claims cost line.(so perhaps one can assume that it is included, as IBNR is given)
- Information is not broken down by class of business, so it not possible to analyse the property and liability book separately.
- Information is only given per financial year and not per underwriting year which is necessary specifically for the analyses of the liability book.
- This is important as the liability portfolio is a large portion (40%) of the book of business.
- Run-off triangles would be ideal in terms of analysing the profitability of this book of information – to assess the reserving properly.
- There is only 3 year's worth of information and it would be better to get information since inception, specifically for Liability. Although business in written in the last year dwarf's previous years.
- Balance sheet information will give an indication of e.g. Debtor's portfolio and bad debts, if applicable. It will also indicate the reserves and capital being held for this business.
- The exact reinsurance structure would be necessary to understand the impact this has on the results and profitability
- This includes RI recoveries, i.e. claims gross and net.
- You would want to understand the on-going profitability of this book of business, i.e. assess price and risk, Additional information would include:
    - Pricing: Rating factors & pricing methodology
    - Risk Selection Criteria: Underwriting criteria and marketing philosophy/approach
    - Risk Management: claims assessment, repudiation and other risk management approaches.
    - Administration: Is the book being administered correctly and are there any risks implicit in the current business practice

- There are a lot of other things to consider that aren't provided:
  Claims handling ability, marketing strategy, mandate, - how much outsourcing is actually done by the UMA, how much does the insurance company need to get involved, i.e how much management will be involved.
- Claims information can be broken down into more detail, per risk factor, into cohorts, in order to analyse claim frequency and severity, i.e. to be able to analyse the profitability of this book of business
- Large claims vs. attritional claims analysis would also be important and hence the data is necessary
- More detail on the investment income is needed to get a breakdown of the actual underlying assets to ensure that the return being generated is appropriate and fair.
- Given that the book is moving from one insurance company to another, what about commutation of reserves / portfolio transfers? The current reserving bases will need to be obtained and interrogated to analyse its appropriateness.
- Actual policy wording and terms & conditions will need to be reviewed to gain an understanding of the level of risk that the insurance company will be exposed to.
- The data contains no projections:
  - So business plan will be necessary;
  - Future targets of mix of business & volumes; and
  - Profitability.
- This will include a comprehensive market analysis explaining the viability of the projections, including assumptions used

ii)

Students' responses were generally poor, with several students not interpreting the information provided adequately. Risk and concerns were not addressed in sufficient detail, with not enough points being generated.

Potential risks and concerns:
Mix of business:

- This has changed significantly in 2009
- The average sum insured has more than doubled from R30m to R75m
- However, the number of policies remained unchanged, which indicates the risks have changed significantly.
- Past data will therefore not be a good indication of future experience

Strategic objectives

- This seems to be changing constantly & is therefore of concern as there is no consistency
- 2007 was profitable, but then it appears overall average rates were dropped in 2008 to gain business (0.08% to 0.075%), given that average sum insured remained unchanged. However, you would need the detail on mix in business to determine the accuracy of this assumption.
- This seemed to have worked as number of policies increased/doubled
- However this resulted in change in mix as opposed to just growth
- But the underwriting result was impacted negatively due to this.

- Also evident by deterioration of claims (claims/ net premium income) (assuming claims are net of RI.

2009 premium rating:

- How appropriate are the 2009 rates given the significant jump in premium income that occurred?
- It is very difficult to know, as rates did go back up to original levels, but the mix of business changed completely
- So far the experience is good/improved (claim/net premium income), but it might still be too early to tell.
- Is the IBNR flat reserving % appropriate? This is doubtful due to the fact that the mix of business has changed.

Reinsurance:

- The risk XL premium rate staying the same from 2007 to 2008 might suggest that the underlying risk profile had stayed the same,
- I.e. the same type of risks were being written with regards to location/geographical spread.
- The CAT premium rate doubled which would mean that the underlying risk exposure doubled.
- The number of clients doubled, with the average sum insured staying the same. The reason for the doubling of the CAT premium could therefore be solely due to the doubling of the number of clients.
- It is possible that the geographical spread stayed that same as any change in geographical spread would impact the CAT rate as it would impact the CAT exposure. Either this or changes in geographical spread and their impact on the CAT rate offset each other.
- In 2009 the Risk XL rate went up by 60%, which could indicates a change in the risk profile
- Or it could indicate that additional cover is being purchased due to the increase in average sum insured
- In 2009 the Cat premium decreases which does indicate change in mix of profile and exposure to Cat risk being reduced
- The new mix of business could have a wider geographical spread, and
- The large portion of liability business has significantly reduced the purchase for property catastrophe cover spending.

Sales Cost & Advertising Costs:

- Presumably the sales cost is attributable to brokers, given the regulatory commission rates for non-motor business being 20%.
- It is clear that advertising spend has impacted sales volumes, (growth in 2008 & 2009 vs. advertising spend)
- It is important to understand the marketing drivers to assess whether or not appropriate selling is taking place – i.e. a potential risk if this isn't being monitored properly.

Policy administration & head office:

- Would want to get a better understanding of these two line items to ensure that money is being utilised appropriately.

Investment income:

- Concern that the 10% flat allocation is incorrect
- Given the market conditions in the last 3 years and the global economic crisis it is highly unlikely that the investment return figure has remained flat at 10%.
- The 100% figure on which investment income is based is equal to the statutory minimum capital requirement, i.e. 25% of net written premium
- It appears that investment income on technical reserves is not being considered, which is of concern.
- May be misleading,
    - as assets will be invested on own balance sheet and will be dependent on own investment strategy & hence won't impact the value of the UMA

iii)

This question was not answered well and students failed to generate enough point for either aspect of the paper (evaluate & recommend).

Assess UMA remuneration:

- The current remuneration structure is not ideal
- There is no real incentive to improve results vastly as remuneration is still limited to 25%.
- There is no incentive to manage risk once the portfolio is loss making, as there is no negative impact, no matter how bad the result is
- There is actual incentive to reduce management spend as UMA received a fixed fee and if actual costs turn out to be less, then the UMA can still be profitable.

Recommend improvements:

- Need to incentivise better underwriting results / Return on capital
- E.g. for every 1% improvement in loss ratio, the share of profits increase by 5%.
- Need to incentivise risk control when book is deteriorating, i.e. a penalty if things go wrong
- E.g. for every 1% deterioration in loss ratio, there will be 0.5% reduction in fixed management fee or losses carried forward to extinction. However, this may not be practical
- Need to incentivise efficient management, including risk management
- E.g. expense sliding scale as opposed to a flat fee. For every 0.5% of reduced management spend, the profit share will go up by 0.5%, i.e. both (UMA and insurance company) share in the upswing.
- This would have a double positive impact as the profits themselves would increase and the share in profits would increase.
- Advertising cost reimbursement could have a ceiling on this to ensure that it doesn't impact too negatively on profits

iv)
This question was very poorly answered. Generally students focussed just on one aspect and didn't consider that certain aspects could be attractive and others not.

Attractiveness of proposal:
- rate of return is 20%, based on PE ratio and assuming last year's information is correct & this is greater than what is currently being achieved
- Capital will be recouped in 5 years time which is attractive. However this does need to be assessed in terms of market norm.
- Insurance company will have complete authority in terms of decisions and management as the UMA will be purchased as a whole.
- There may be internal synergies, e.g. HR & admin etc, therefore management expense would be reduced, i.e. more profitable

Not attractive:
- Complexity of taking over a 'company' and key staff could leave. Need to get culture match
- The last year's information is not a good indication & the price is expensive when considering all 3 year's worth of information.
- There is no recourse and company could lose the R14m if things go horribly wrong, as opposed to a UMA model with appropriate incentivisation.
- There is a cost involved in terms of taking over another company / management expense that will impact the ROE for the shareholder, which is being taken into account.

Other
- Would need to compare to other investment opportunities to assess attractiveness better.

v)
This question was not well answered. A few students commented on underwriting risks which was explicitly not asked for. Many students only mentioned a couple of non-underwriting risks, as opposed to the comprehensive list provided below.

- Operational Risk
- operation risk will be great as the insurance company has less direct control on the operations, as it is outsourced
- e.g. ensuring that underwriting limits are being adhered to may be difficult and
- enterprise risk management principles may be difficult to enforce at the UMA, so it could lead to increased worse operational risk experience, e.g. fraudulent activity
- the quantum of operational risk will also be greater due to the greater risk (sums insured and nature of the business/volatility)
- Reserving Risk
- What is the current reserving basis, methodology/philosophy of the company and how does it compare to your company's

- Need to investigate IBNR, UPR & outstanding claims separately
- Additional capital may be required as this is a considerable source of risk

- Investment Risk
- The liability business is long tail and will possibly have longer duration assets which could lead to a larger investment capital charge, e.g. investment in equities.
- Cash flow risk / liquidity risk may also be an issue depending on the actual nature of the underlying risk (e.g. large immediate claim payments needed) and the actual investments.

- Credit Risk
- This will also be greater due to the increased reinsurance purchase that is necessary
- However, it does depend on the credit rating of the reinsurers
- The impact of the credit risk will need to be assessed and will be impacted by the actual credit rating of the reinsurers and the quantum of reinsurance spend in comparison to the company’s current reinsurance spend.
- The fact that monies flow through the UMA first in terms of administration and management of the portfolio places reliance on this 3rd party and hence will also increase credit risk exposure.

- Expense Risk
- This will be fixed in terms of the UMA remuneration,
- But it will be difficult to quantify this in terms of how expensive is it for the insurance company to run the UMA. The capital model will need to take account of this.

QUESTION 2

Generally this question was answered reasonably well.

i)
This question was answered very well by most students.

- Property Risks both trains & stations, against perils such as (Flood, Rain, Lightning, Storm, collisions or derailing, earthquake, theft, vandalism.
- Property damage policy covering the multitude of perils would be required to cover these risks.
- They are transporting passengers. They could get sued if passengers are injured or killed whilst in their stations or on their trains. Passenger liability cover would be used for this.
- If anything happens to prevent them from being able to do business – e.g. damage to trains or stations, system failure, they will lose out on profits. Business interruption would also be necessary.
- The staff could injure themselves whilst on duty. Workmen's compensation would be covered by COIDA & hence no open market insurance product
- Train accidents or problems at stations, e.g. explosion, may end up injuring other people in the public or their possessions. Public liability cover would be useful.
- Political unrest would cause damage and delays in operation. This is covered by SASRIA. Limit may be too low so you may offer this cover in excess of the limits, i.e. approach the insurance market for this
- The trains themselves could emit Pollution or any activity in construction of the project – purchase specific pollution liability cover
- Passenger delays may occur due to maintenance& unforeseen events. Travel insurance type covers may be bought to compensate passengers for the delays
- Engineering and contractors all risk cover during construction of the infrastructure, including Machinery breakdown could be purchased for these risks faced at this time.
- Unforeseen events causing derailing / crashes could cause damage to the public (injury & assets). The project could be sued for damages. Public liability cover can be purchased to protect this
- The governance around the project may cause huge losses. E.g. not collecting money properly or charging incorrect rates or misrepresentation in key meeting. Professional Indemnity cover can be purchased for the key decision makers
- Internal Fraud, Stolen money, and any such perils can be protected under. D & O and Fidelity guarantee
- Catastrophe risks such as flooding, earthquakes, heat-waves causing rail distortion – can purchase appropriate Cat cover.

(ii)
This question was answered well by most students.

Risk factors
- Value of carriages, including cost of spare parts – will affect size of claim
- Area of operation – underground / over ground – recovery impact
- Construction of carriage – will an accident result in a full or partial loss, i.e. will there be a salvage / recovery
- Location – weather conditions, crime levels, prevalence of natural disasters
- The number of different stations operated (spread of trains)
- Speed at which they travel – may increase likelihood of claim or severity
- Driver & technical staff skill – less skill may result in more / worse accidents
- Condition of rail tracks – poor conditions more / worse accidents
- How long the trains will operate per day
- Safety features – e.g. auto stopping, will limit claims
- Security measures in force both while in and not in operation

- Consider the basis of the policy; will this be on a defined perils or "all risks" basis?
- No South African experience currently so you won't be able to analyse existing business directly.
- Consider your other experience and determine which is closest for the South African risk.
- Determine a suitable exposure measure to use, e.g. hours worked, Rand value of ticket sales
- Split your past data into exposure records – i.e. a unique risk for each combination of factors
- Match your past claims to your exposure data
- Depending on data you may need to group some factors together
  Determine how each rating factor will impact the risk
- Identify whether there are any differences in the cover provided between this data set and the SA market. E.g. In SA riot etc. is covered by SASRIA. What is the case in Europe? You may be offering less cover in SA, so all else being equal the price should be cheaper.
- Identify all other potential differences affecting either frequency or severity between the risks including:
- How does the Gautrain differ from sample data trains? Do you expect Gautrain to be safer / less safe?
- Will different weather conditions have any impact on risk?
- Train driver skill – if not as skilled, there may be worse experience. South African drivers will be new to their jobs.
- Safety and risk features may differ. There may be different safety legislation
- Average distance travelled and working hours. May be on the tracks for shorter time reducing exposure to risk.

- Where are trains parked at night? How safe & secure are the parking areas? Is there potential for damage while parked?
- Vandalism – both by passengers and while parked. Maybe a different moral standard in SA – more likely to vandalise
- Repair costs – are they more expensive in SA due to import costs, lack of skills, etc.
- Different market considerations – is the SA market more or less competitive. Due to newness & lack of info, you may be able to go in at a higher price that you would in the UK and still get the business.
- Quality / condition of railway tracks. SA will be newer and hence should be in better condition, but they are not tested
- Calculate a burning cost based on assumptions
- Adjust this to get gross premium:
- Reinsurance – would you retain more / less of the risk, or would you use the same RI treaty? If RI premiums or cover differ, you would need to amend your price?
- Capital considerations – would you need to hold more or less capital. Increased diversification may reduce overall capital required but how much is allocated back to this policy? Higher capital may be required for new uncertain business.
- Management expenses – will you use existing management structures or will you need to increase expenses? Where will claims be handled? If you need to set up a small office in SA, you would expect higher management expenses because there will be less business to spread the risk over.
- Other market prices / competition may impact rates – you may choose to charge more or less in UK or Europe.

iii)

This question was answered fairly well with only a couple of students demonstrating that they hadn't covered the bookwork.

EML is the largest loss that is reasonably expected to arise from a single event in respect of an insured property. This may well be less than either the market value or the replacement value of the insured property and is used as an exposure measure in rating certain classes of business.

Total sum insured would be the total value of all the train carriages, i.e. each train is insured individually to its sum insured The total sum insured for a policy is likely to be much higher than the EML. A policy written on an EML basis can generally accept larger risks than one written on a sum insured basis, as on an EML basis on a portion of the sum insured value is deemed to contribute to capacity.

In both cases it is important to consider the accumulation risk, e.g. length of train, depots. However, this can be more easily determined on a sum insured policy as there is more comprehensive information provided.

(iv)

This question was poorly answered, showing that students didn't have a good understanding of the practicalities of how EML works in practice.

- Risk is that too little cover is purchased as EML is too low & hence you could have a loss that you don't have enough capital to cover.
- Mitigate: strict underwriting criteria and controls & involve appropriate experts in assessment / surveys
- Mitigate: purchase EML error protection cover.
- Currency risk? Converting Rand exposures and covering them in a Sterling risk contract could lead to gaps in cover. This could be made worse by the EML basis.
- Mitigate: Separate treaty in South African Rands.
- If EML is too high at the top end – paying away unnecessary profits.
- Mitigate this by ensuring rigorous process and criteria being applied when determining EML, including surveys and appropriately skilled people.
- Reputation risk: if EML's are continuously incorrect they can quickly lose credibility with reinsurers
- Mitigate: convert to sum insured treaty, but adds expense and more information requirements.

(v)

This question was poorly answered. Insufficient marks were generated, with most students failing to grasp the impact of the different territories.

- Does your current treaty allow you to write business in South Africa? (location) Does the current treaty cover the same perils / risks or is there a mismatch. If not, then you would need to either amend or purchase separate RI.
- Will there be a rate impact for covering South Africa? i.e. cost of reinsurance and impact on returns
- You may be able to improve rates due to added exposure / reaching a critical mass and potential diversity between the locations
- How much capital will the new business require? What are the specific risks being faced. The current treaty may be a mismatch. Covering catastrophe risks in two locations under one treaty may not be practical. A different structure and/or additional RI may be needed.
- The profitability and the capital requirements of the SA business will affect your overall ROE – both a return and a capital impact.
- If the business increases your ROE overall capital requirements you may be able to purchase less RI. Or you may be forced to purchase more to meet ROE. Diversification benefit may lower your need for RI.
- You may be able to find a different RI structure that will enable you to increase your ROE.
- Since you now have more exposure, you are more likely to eat through the aggregate, if any, and to use your reinstatements. Do you need additional reinstatements? i.e. the added exposure may make the current treaty inappropriate (too low) for the combined portfolio.

- Do you have enough cover at the top? You may find that the maximum loss from the Gautrain is higher than for UK trains.
- The exclusions, treaty restrictions, administration, loss limits etc, applicable in the UK may not be applicable in SA. Different terms and conditions may be needed for each.
- You may need to re-evaluate channel / entry point to reinsurance market – e.g. direct or via broker. This might change and impact price due to current skill set in this regard and how this is impacted due to the change.
- You may want a separate treaty for SA with much higher limits due to your limited knowledge of the business. You may want a much lower retention until you get more experience. In the early phase of a new business, you require more/different protection to a well established business. Hence potentially appropriate to split the contracts.
- Should you consider placing business with other reinsurers if they have more SA market knowledge?
- Due to your lack of knowledge of SA market, you may find that a quota share treaty is useful. You can limit your exposure but still build up experience of the risks.

END OF EXAMINER'S REPORT