EXAMINATIONS

April 2001

Subject 303 — General Insurance

EXAMINERS' REPORT

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1 *There were many points that the candidate could make in response to this question, as a consequence most candidates scored well.*

Evaluation of the existing portfolio

- ALM to assist in setting investment policy
- Allocating investment income between classes of business
- Allocating capital between classes of business
- Allocating risk based capital
- Determining the return on capital
- Determine discount rate to apply to liabilities
- Determine the return made on the investments compared to appropriate benchmarks
- To evaluate the performance of the investment managers
- Statutory assessment
- Determine level of non-investible assets
- Check liquidity
- Check security
- Put value on assets
- Check matching by currency / term / nature

2 *This question tested the candidates understanding of rating factors in relation to household product. Many candidates missed the obvious factors of sum insured and number of bedrooms. Some candidates showed their lack of understanding of rating factors by including risk factors which could not be used as rating factors i.e. difficult to measure or verify. The better candidates managed to list enough factors to score reasonably well though.*

Sum insured
Number of rooms / bedrooms
Location / postcode
Excess
Business use
Owner occupied or rented
Type of property
Type and standard of construction
Age of building
Age of policyholder
Locks / alarm / neighbourhood watch — security discounts
Claims history / NCD
Occupied day / night
Heating method
Occupation
Sex
Periods property is vacant
High value items

3 *The answer given below is the one the examiners had expected the candidates to come up with. It was however clear to the examiners that the course material must indicate an alternative way in which such contracts work. As a consequence, the examiners gave full credit for the alternative approach providing the candidate was consistent in parts (ii) and (iii). Most candidates scored very high on this question.*

(i) The premium payable for the restoration of full cover following a claim. For higher levels of XOL reinsurance a claim my lead to the amount of cover for the remaining period of insurance to be reduced or terminated unless a further premium is paid for reinstatement. Such a premium may also be required for lower layers of cover if there is a limited number of free reinstatements.

(ii) \$0.5m, \$1.0m, \$0.5m, \$0m

(iii) \$0.12m, \$0.12m, \$0m, \$0m

(iv) 20% as the reinstatement premium is not included

4 *This question was answered very well by the majority of candidates*

(i)

- This is the usual form of funded accounting
- underwriting profits are first recognised at the end of the third accounting year from the start of the underwriting year.

(ii)

- Used because underwriting year is of fundamental importance e.g. at Lloyd's (determines who is on risk)
- e.g. for reinsurance contracts that operate on a policies incepting basis
- because for some classes considerably more information is available after three years compared with after only the first year regarding premium payment, claims settlement and making reinsurance recoveries
- e.g. marine and aviation insurance and non-proportional reinsurance

(iii) Assumptions

- no other expenses
- claims expenses incurred at same time as claims paid
- no further claims incurred
- valid assumption about taxation

	Year 1	*Year 2*	*Year 3*
Brought forward	0	83.5	40.95
Premium	100	0	0
Commission	5	0	0
Expenses	5	15	10
Claims	10	30	20
Investment return	3.5	2.45	1.05
Carried forward	83.5	40.95	12.00

i.e. profit at the end of the third year is 12.00

5 *Most candidates did not score very well on this question. Candidates showed a lack of wider thinking other than the basic understanding of the Policyholders' Protection Board*

In the event of insolvency there will be two broad categories of policyholder liability outstanding, outstanding claims not yet settled and unexpired periods of risk

Appoint insolvency practitioners, with any excess outstanding liabilities to be met by the Government from taxes.
This offers the maximum protection.
But is unfair as the cost is met by all taxpayers

Meet outstanding liabilities via levies on the insurance industry.
As above, but unfair on those policyholders who are more astute and companies which are better run.

Require deposits to be held in an insolvency fund which can then be used in the event of insolvency.
As above, but to a lesser degree since the insolvent insurer will have contributed at least in part to the outstanding liability.
Could apply the above systems to just private policyholders, or those who purchased compulsory insurance on the basis that corporate policyholders are more able to assess the likelihood of future insolvency and take steps to avoid or withstand the effects.
Could apply the above systems to just specific types of insurance or outstanding liability which are deemed of greater importance.
E.g outstanding claims, rather than unexpired risk
Or liability claims rather than property damage

Apply the above approaches to only outstanding claims.
Insureds lose out to the extent of cover not then provided
May not be able to get such advantageous rates on new cover
May need to cover a specified period after failure as insureds would otherwise without realising be without insurance cover
Could give refunds in respect of unexpired periods of risk
By covering all remaining periods of risk, ensures little or no risk periods of non-insurance

Additional marks were given to those candidates who mentioned ways of reducing the risk of insolvency in the first place. Marks were also awarded for additional valid points such as requesting capital from parent (if one exists) or finding a purchaser for the company.

6 *This question proved to be one of the main questions which showed those candidates* who understood some basic principles of general insurance and could demonstrate to the examiners their understanding. Some candidates thought that everything must be false in such questions and therefore proceeded to argue against all such statements, whilst others limited their answer to each part by one word statement of true or false.

(a) Only if the paid claims are underwriting year paid claims.

True. As claims incidence reflects exposure.

Only if the incurred claims are accident year incurred claims.

True. As claims incidence reflects exposure.

(b) False. It is a form of proportional reinsurance where the cedant is free to choose(within limits) the proportion of each risk ceded.

(c) False. They appear as an asset — held to reflect the spreading of acquisition costs over the exposure period.

(d) False. The method assumes that past development pattern is stable but nothing else.

(e) False. Both methods estimate the same thing, the ultimate claim. IBNR is simply the ultimate claim less a known figure, the incurred claim. If all the assumptions behind the two methods are valid they should produce very similar answers. The paid development method is as likely to produce higher IBNR estimates as it is lower ones.

7 *Many candidates could not demonstrate to the examiners sufficient reasons for carrying out such an exercise, although most mentioned the more common reasons.*

To ascertain the overall profitability of the current premium rates
To ascertain the overall profitability of proposed new premium rates
To analyse segment level profitability of the current premium rates
To analyse segment level profitability of proposed new premium rates
Performance of current premium rates not in line with expectations
Comparison of current rates with competitors
Review the suitability of current rating structure in light of the current risk environment, allowing for changes in the political areas, legislation, traffic, new technology etc.
Assess effect of lapse rates
Assess new potential rating factors
Assess impact of cover changes, new perils in, old perils out, excess etc.
Assess extent of X-subsidies
Assess change in cost of reinsurance
Assess need for APUR
Change marketing strategy

8 *This was a fairly straightforward bookwork question which the examiners thought the well prepared candidate would score highly on without too much difficulty. However, it proved that many candidates failed to score sufficient marks on this question owing to lack of bookwork detail and the skills needed to answer part (iii b).*

(i)

- Date claim occurred
- Date claim notified
- Dates of payments
- Amounts of payments
- Date(s) of settlement
- Date(s) of reopened
- Estimates of the outstanding amounts
- Rating factor details (at the time the claim occurred)
- Cause of claim
- Type of peril
- Claim number

(ii)

- The length of time that can elapse before sufficient claims have been notified on which to base a rating exercise
- Delays in processing and analysing the claims experience
- The time taken in assessing and receiving agreement that the premium rates can be changed
- The administrative time taken to implement a rate change
- Time taken to receive approval from a regulatory body (necessary in some countries)

(iii) (a) Experience in the intermediate period may turn out to be different to that expected because

- Claims trends not as expected
- Claims inflation not as expected
- Commission rates have changed
- Expense levels have changed
- Volume assumptions have proved inaccurate
- Competition and market has changed
- Investment returns have changed
- Changes in legislation and court awards
- Cover changes in product
- Changes in risk levels

(b) scenario test the profitability so the range of possible outcomes is understood
use the most up to date data that is available and developed enough, use different periods for different perils
consider competitors likely reaction to any rating changes that are in the pipeline (i.e. where the decision has been taken but the rates are not in the market)

analyse the results of previous rating changes to try and assess the likely changes in volumes

(iv)

- Expenses — fixed
  — variable
- Loading — per policy
  — proportional to premium
  — per claim
  — proportional to claims
- Commission if applicable
- Investment return both income and capital growth
- Reinsurance costs i.e. the net cost to the insurer of buying reinsurance
- Profit margin required by the company
- Discounts available e.g. loyalty discounts
- Payment method (admin fee for monthly payers)
- Competitive analysis
- Required growth of business volumes by number of policies and premium and hence standing in the market in respect of market share

9 *The examiners were very disappointed in the majority of answers given to this question. There did not appear to be a time problem for the exam as a whole and in fact a significant number of candidates attempted question 9 earlier than others. In recent examinations for 303 there has been a trend of candidates not being able to demonstrate their interpretation of a set of data. The class of business in the question was one that most candidates should be fairly familiar with, but many candidates failed to mention more than a couple of the obvious points and most did not demonstrate their understanding of this particular situation. Part (ii) was not very well answered in that there was very little discussion given in most candidates answers – most candidates merely made a couple of calculations. Despite the question not referring to pricing the business at all, several candidates indicated curtating the effect of the hurricane and spreading the cost over all years which is not an approach used in reserving.. Although part (iv) was a straightforward discounting question many candidates managed to make it more complicated by not reading the question carefully and noting the instructions given. In addition many candidates attempted to calculate the discount based on the notified triangle as well as the paid. The examiners were generally pleased though with the answers given by those candidates who managed to get as far as the last part in showing their understanding of the different bases of accounting year definitions.*

(i)

- The notified pattern shows slight redundancy after 24 months.
- This is not untypical for this type of business that is typically reported quickly with fairly accurate case reserves being posted soon after notification. The main exception to this would be in the case of subsidence claims on buildings policies.

- As this is an underwriting year triangle we would expect around 50% of the exposure and hence 50% of all losses to have been reported by month 12.
- The paid pattern seems unusually slow for such a normally short tailed class of business. Actual pattern will depend upon the mix of contents and buildings.
- It appears to be developing linearly which is unusual.
- The paid pattern is clearly not fully run-off after 60 months. The notified pattern probably is and it shows that the paid claims are only about 50/77=65% paid at this stage.
- The selected paid pattern looks wrong because it is not fully run-off and should therefore be queried.
- The paid and notified data both seem very stable. There is no evidence of unusual losses in the data that could distort the development patterns. The paid claims would be expected to lag behind the notified data.
- The selected patterns are consistent with the data (apart from the lack of a paid tail).

(ii)

- The true ultimate claims should be increased by the cost attributable to the hurricane.
- Whether the ultimate claims calculated using an unadjusted chain ladder method accurately reflects this depends on the relative reporting and payment patterns of hurricane compared to non-hurricane losses.
- If hurricane related losses are reported faster than non-hurricane losses then the unadjusted notified chain ladder estimate will overstate the overall claims and vice-versa.
- Similarly, if hurricane related losses are paid faster than non-hurricane losses then the unadjusted paid chain ladder estimate will overstate the overall claims and vice-versa.
- The relative reporting speeds of hurricane and non-hurricane losses will be influence by when during the year the hurricane happened. If the hurricane happened early in the year it is likely to be more reported than non-hurricane losses.
- If most policies are 12 months in duration then there will be some hurricane related losses in the 1999 underwriting year.
- The ratio of hurricane paid/notified losses is (50–11)/(100–46)=72.2%. This is much higher than the non-hurricane ratio of around 25%. This would imply that Hurricane related losses are shorter tailed than average and/or that the hurricane took place towards the beginning of the year.

(iii)

- The simplest way to improve the accuracy would be to remove all the hurricane related losses and project those separately.
- We are still left the problem of how to accurately project the hurricane loss but at least is does not distort the non-hurricane triangle.

- If the hurricane occurred in the early part of the year we could assume all loss notification have now been received and assume zero (or even slightly negative) hurricane related claims.
- If the hurricane happened towards the end of the year we could use an exposure based approach (i.e. look at all the properties insured by X in the path of the hurricane and estimate the likely frequency and severity of future claims.

(iv)

- Assume claim payments made mid-year (or any reasonable assumption).
- Assume ultimate claims are selected based on selected payment pattern (or adjust calculations accordingly).
- Use incremental paid pattern — 18%, 23%, 20%, 19%, 20%.
- Discount to end of 31/12/2000 for the 2000 underwriting year i.e. pattern is 12 months old already.
- Formula is
$$\frac{23\% * 1.1 \wedge -0.5 + 20\% * 1.1 \wedge -1.5 + 19\% * 1.1 \wedge -2.5 + 20\% * 1.1 \wedge -3.5}{(100\% - 18\%)}$$
- Answer is 0.84

(v)

- For accident year accounts we need a UPR reserve in addition to the outstanding claims reserves.
- Depending on the profitability of the book we may also require a URR in addition to the UPR.
- You may be allowed to discount before deciding whether a URR is required
- As data in triangles in unaltered the numerical value of the IBNR calculated will be identical.
- The difference is that for the underwriting year triangle the IBNR will be represent future losses in respect of all business written up to 31/12/2000 and not just the amount earned up to 31/12/2000.
  The overall level of reserves will be lower for the company with the underwriting year data by the amount of the UPR (plus any URR if applicable).
- Additional data required:
  - Premium volume with inception and expiry dates to enable UPR to be calculated
  - Knowledge of the underlying business to decide if even incidence of risk or not
  - Information required to estimate (discounted) loss ratio for recent years to see if URR required