Faculty of Actuaries **Institute of Actuaries**

EXAMINATIONS

April 2000

Subject 303 — General Insurance

EXAMINERS' REPORT

1 *This question was largely bookwork and was reasonably well answered.*

Inadequate levels of technical reserves can lead to.

- Inappropriate pricing decisions.

If they are overstated, this might:

- Worsen the apparent results, leading to a loss of confidence by shareholders, brokers and the stock market.
- Reduce the apparent solvency margin, causing possible problems with the regulators.
- Tie up assets that could be applied more usefully to other projects, or have an effect on the investment policy for example in relation to matching liabilities.

If they are understated, this might:

- Lead to profits being prematurely distributed, leading to future problems meeting liabilities.
- Tax payments could be higher in the short term than would otherwise be the case.
- Might set inappropriate reinsurance arrangements.

2 *This bookwork question requiring a list was very well answered by most candidates.*

Premium risk
Claims experience
Expenses
Commission
Investment income
Catastrophes
Latent claims
The acquisition and renewal of business
Poor policy wordings
Inflation
Judicial decisions
Legislation
Insurance Cycle
Failure of third parties
Fraud
Management risk

3 *This question involved considering the factors influencing the claim ratio. Many candidates failed to gain marks by giving general answers and not giving proper consideration to the specific points raised in the question.*

The claims ratio is defined as Claims incurred/Premium earned.
It is usually calculated net of reinsurance.
Although will need to calculate gross to assess the performance of the target company's underwriters bearing in mind the recent catastrophes.
Will need to look at overall ratio and separate ratios by class of business and territory.
Will probably wish to analyse in local currency to avoid the impact of exchange rate movements,
but also in home currency terms.
Will need to consider the strength of the reserving basis.
Claims incurred incorporates estimates of outstanding claims, including IBNR.
The former are likely to be high because of recent storms and the latter high because of the recent court decision.
The trend in this ratio over the last five to ten years is likely to be severely distorted because of the above.
So it is useful also to look at this ratio with the effects of each removed, if possible.
There may be prior year movements that will affect the ratio, especially on the tobacco claims.
Comparison with other companies and hence form a benchmark.

4 *Several candidates did not structure their answer around the business categories mentioned in the question and produced a generic answer. In addition some candidates showed a lack of knowledge of the coverage given under different types of insurance. In particular their were several cases of confusion regarding aviation and travel insurance.*

(i) Many employers liability claims are reported and settled quickly.
However, some may take some time to determine / agree liability, some of which may go to court and experience lengthy delays.
Also the potential for latent claims is now considerable.
Settlements are likely to be in real terms.

Marine and Aviation claims may be for damage and/or liability. Delays in reporting are not significant.
However, settlement delays, especially for liability claims can often be lengthy due to the number of parties involved.

Private motor claims are mostly reported and settled quickly.
A few liability claims may take a few years to settle.
Many claims are for repairs and will be affected by wage, inflation and the level of prices of motor vehicle parts.

Country of business and hence currency of liabilities.

(ii) If used it is likely to reflect the total return on assets backing the technical reserves.

May use a different discount rate for different parts of the business.

Where mismatched a notional portfolio reflecting a more matched position may be used instead.

A lower discount rate than that calculated may be used to make a small implicit allowance for contingencies

There may be statutory rules about whether or not you discount, and what rate should be used.

No discounting of liabilities is likely

5 *This question was generally well answered.*

(i) Period (for some types of liability claim) for the condition to develop.

Occurrence of insured event.

Claim reported to the insurer.

Claim processed by the insurer.
In some cases a period of time may be allowed for any medical conditions to settle.

Claims accepted by insurer and any disagreements in respect of the amount to be paid are sorted out.

In some cases disputes may result in lengthy court proceedings

Partial payments and outstanding estimates.

Claim settled and file closed.

Claim reopened if conditions reappear

(ii) Some liability claims may have a long period of gestation, thereby leading to long delays before the condition is reported,
whereas property insurance claims encounter few reporting delays. The main exception to this is probably subsidence.

May be lengthy delays in determining liability in employers liability claims — long tailed.
Usually delays are short in property claims

6 *This very good question regarding the interpretation of accounts was very poorly answered by most candidates. Many candidates failed to calculate simple ratios proerly and to recognise when their calculations were wrong, for example when the proportioned reinsured was greater than 100%. In addition, many candidates failed to reconcile their calculations with the information given by for example stating that the company was losing money as the combined ratio was 147%, despite the P&L account showing a profit.*

The company's outwards reinsurance premium is 48% of its inwards premium. This would generally be considered to be a high proportion. It may indicate that the company writes high-risk business that needs a lot of protection, or possibly that it obtains a lot of business from other companies with a reciprocal arrangement. It is not likely to need surplus relief, as it has a high level of free capital.

The gross loss ratio is 144%, but the net is only 104%. This may indicate the clever use of a soft reinsurance market, or possibly one or two major losses occurred or came to notice during 1999 that meant that the reinsurance programme was extensively used.

The adjustment for DAC is small, suggesting that premium levels were stable in 1999.

Technical reserves are more than 8 years' premium. Unless the company's business has reduced greatly, and we know that it has not in the past year at least, this suggests that the company's business is very long tail. This is how the company can be profitable: it generates enough investment income to offset the effects of a loss ratio of 104%, commission of 20%, and expenses of management of 23%, a combined ratio of 147%.

Capital is 500, about 200% of premium. This would normally be considered a very high ratio, but with such a long tail account, and the possibility of needing to strengthen reserves, it is probably merely prudent. There is no mention of whether or not reserves are discounted. If they are not, then the effective solvency position is even stronger than this.

The assets show a larger proportion of equity type assets than is usual for a general insurance company. This is probably related to the long tail nature of the account. Presumably this reflects a large portion of liabilities being to some extent linked to inflation.

The return on capital is 15%. This is healthy, but not extremely high, and would be lower still if reserves were discounted.

Broker balances are 20% of net premium, suggesting an average credit term of about 2½ months.

The company's assets yielded about 8% during 1999.

7 *This question was generally well answered.*

(i) To arrive at a risk premium per policy.
To select rating factors.
To determine premiums using experience rating procedures.
To demonstrate the estimated effect of changing the level of cover by changing the level of deductibles or the effect of reinsurance.
To estimate the likely variability of claims experience.
To estimate the impact on reserves of latent claims/industrial diseases.
Financial planning.
To set the reserves.
For asset / liability modelling.

(ii) The model must be valid, rigorous and adequately documented.
The model chosen must reflect adequately the distribution of the classes of the business being modelled.
The parameter values being used should be appropriate to the classes of business being modelled.
The outputs from the model should be capable of independent verification for reasonableness and should be readily communicable to those to whom advice will be given.
The model must be robust to internal or external changes.
Must be realistic and easy to use.

(iii) Actual investments held at start of projection
Amount of liabilities at start of projection split by currency
The expected payment profile and variability associated with payments
Nature of liabilities and how strongly correlated to price and wage inflation
An asset / economic model that produces projections of expected wage and price inflation and their variability, expected investment returns by type and currency of investment and variability of investment return by type of investment
The amount of business to be written in the future, split by currency and nature
Tax rate
Reinsurance
Any restrictions on investment policy, either statutory or management specific
Definitions of solvency and return to be used in assessing the benefits of any one investment strategy
The amounts of any dividends paid
A rule or target

8 *(i) A question about a non-standard coverage. Most candidates failed to generate many valid points.*

(ii) Again, poorly answered. Few people cosidered excluding death, bodily injury or illness, or even mentioned the policy limit and excess.

(iii) A standard question. Generally well answered.

(iv) Few people mentioned the need to re-negotiate the existing treaties, or the possibility of setting-up stand-alone cover for the new risks.

(i) There is little or no claims data available from any source.
So the ability to accurately estimate claims costs likely to arise from this source is very limited.

There is always uncertainty surrounding new legislation and how it will be interpreted and operate in practice.

The legislation may change in the future in such a way that the effects are retroactive.

As an option to the homeowner there is a risk of adverse selection.
Those homeowners in high risk locations may be more likely to take up the cover.

There is a risk of moral hazard,
where the homeowner knows that the land is already contaminated at the time the cover is taken out.

Large accumulations of risk may arise,
where many homes in the same road or estate are covered.

(ii) Deliberate pollution caused by the homeowner. However this may be difficult to prove.

Contamination which arises as a direct or indirect result of a homeowners actions. For example, interfering with a precautionary measure, such as a membrane, installed to prevent such contamination.
However, difficult to prove — may be caused by a previous owner

Pre existing conditions

Exclude certain specified types of contamination

Death, bodily injury, disease, illness or injury to mental health.

Blight — loss in value of the home as a result of the contamination

Criminal penalties in any way related to the contamination.

Costs below the designated excess level for such claims and above the specified policy limit.

(iii) Quota share treaty
to increase the spread of risks, as the insurer is small.

Risk XOL
for very expensive homes.

Aggregate XOL
to cover concentrations of risk by area or type of claim.

Cat XOL (or Stop Loss)

to cover against the effects of a catastrophe and hence limit the risk of insolvency.

(iv) May desire a larger layer of cover on the Aggregate XOL policy, or increase the limit on a risk XOL policy to cover the increased concentration of risk and potential for large claims.

Treaties may have to be renegotiated
if the current reinsurers do not wish to insure the new option.

Alternatively, separate treaties may be arranged solely for this particular option.
May use QS, Surplus, risk XOL or Aggregate XOL or a combination thereof depending on what the reinsurers deem to be acceptable.

9 *A bookwork question that was generally well answered.*
Accident Year

- Claims are grouped by the time period during which they occurred.
- All claims in a cohort belong to the same period of exposure.
- They will all therefore be subject to the same risk environment.
- Even though they may have been written under different rating and policy conditions.
- IBNR claims will be included (eventually) in the time period in which they occurred,
- as will recoveries and re-opened claims.

Year of Reporting

- Claims are grouped by the time period in which they are reported to the company,
- irrespective of when they occurred.
- An apparent advantage is that no further claims will be added after the end of the time period.
- The method does not allow for the cost of IBNR and reopened claims.
- Claims will arise from different exposure periods
- which may have different volumes of business, cover applying and claims settlement patterns.
- Hence any claims patterns derived may not represent the current position.

Underwriting Year

- Claims are assigned to the calendar year in which the policy was written
- Irrespective of whether the claim occurred in the first or second calendar year of the policy.
- Therefore claims occurring on two consecutive calendar years will be assigned to the same claim year.
- The method follows the way in which funded accounts are divided
- and follows the total outcome of all policies written in each year.
- It takes up to two calendar years before all claims have occurred

- and an additional period before all are reported.
- Each cohort of claims will have occurred over a wider risk period than an accident year cohort.
- IBNR claims included (eventually)

10 *(i) Bookwork. Well answered.*

(ii) Poorly answered. Candidates did not consider that different distribution channels will attract different market segments, and hence have different risk premiums. Few mentioned the possibility of using market or reinsurer data to counter the stated lack of experience.

(iii) Bookwork. Generally well answered.

(iv) Few people seemed to know what benefits were likely to be provided. Most failed to mention labour or transportation/call-out costs. A number seemed to think coverage would be given for electrocution, or for missing components in the system.

(i) Possible distribution channels are:

- personal lines/small commercial lines brokers
- employed staff paid by salary and/or commission
- direct telephone
- direct mail
- direct internet
- affinity groups
- banks and other financial institutions
- specialist brokers for large commercial risks and inwards reinsurance
- personal computer retailers and manufacturers.

(ii) The implications are:

Volume/market

A move to direct marketing may alienate existing source for motor business.

Different channels may give access to different segments of the market.

Different channels may have different profitability owing to competitive position.

Direct methods are suitable only for personal lines and small commercial.

Expenses/set up

Direct operations would require significant investment in infrastructure and training.

Persistency of business will determine the spreading of new business costs.
Rates may need to vary by channel to reflect differing expense structure.

If distributing through banks or other financial institutions — who does all the processing and claims handling — net rate agreement.

Risk Premium

Market segment may vary by distribution channel; therefore rates may need to vary by distribution channel.

Lack of experience

The company appears to lack experience in both the new products and also the distribution channel. Need to acquire this by using market data and also possible assistance from reinsurers.

Even reinsurers may not have adequate experience for the PC extended warranty product.

(iii) **Quota Share**

These are new classes of business and distribution channels, so we may want to share the experience with a suitable reinsurer for the homeowners/motor/small commercial/PC extended warranty. Also there will be overriding commission to assist new business strain.

Surplus

Large commercial risks will be very variable in size, so a surplus treaty may be suitable. This will give the insurer the opportunity to write large risks without taking on excessive risk on its own account.

Aggregate XL

The quota share will not protect the company against the accumulation of claims from a single source (e.g. subsidence) so aggregate XL may be needed.

Risk XL

There will be exposure to large single losses, so risk XL may be required.

CAT XL

The area is known to be susceptible to windstorms, and other catastrophic events are always possible. This could be protected against by cat XL.

(iv) Policy benefits:

- Replacement of faulty parts
- Labour for replacement and repair
- Transport costs/callout charge
- Replacement of system if beyond repair

Factors:

- Manufacturer
- Manufacturer's warranty period
- Manufacture date
- Components of system (VDU/CPU/printer)
- Model numbers
- Retailer
- Extended warranty period
- Cost of system (possibly broken down by component)
- Purchaser type — individual/business
- Cover provided
- Date of purchase
- Location
- Date of loss
- Claim amount by component