The Institute of Actuaries of India

Subject SA3 – General Insurance

14th May 2007

INDICATIVE SOLUTION

Introduction

The indicative solution has been written by the Examiners with the aim of helping candidates. The solutions given are only indicative. It is realized that there could be other points as valid answers and examiner have given credit for any alternative approach or interpretation which they consider to be reasonable.

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Chairperson, Examination Committee

Q. 1)

The problem before the underwriter is to increase the insurance profits.
Insurance profits is Underwriting profit plus investment income. Underwriting profit is earned premium income less incurred claims less expenses.
1.The options are: increase written premiums and hence earned premium income
2.Reduce acquisition expenses
3.Reduce administrative cost
4.Reduce reinsurance cost
5.Write to a lower loss ratio the new and / or the renewal business
6.Reduce claims cost
7.Reduce the reserves /change assumption in reserve setting methodology
8.Increase the investment credit

1. Substantial growth in written premium is necessary to achieve the target, assuming that policies are uniformly written throughout the year.
Rough calculations will show that written premium need to grow by 280crores.
How far the branches and market force can support this growth.
Will the new business be as profitable as the existing one?
To achieve the target premium, less profitable risks may be put on the books resulting in a larger loss ratio
Larger risks may be written but then appropriate reinsurance must be in place
Other business channels may be tried like call center, direct phone call etc.
Will the acquisition cost go up because business is through costlier channels
In view of the large volume of business, the direct costs will go up
Large claims may result in breaching reinsurance limits and fall back on the company and the need to renegotiate the terms of the reinsurance treaty may arise
Should additional capital be injected?

2. How much the acquisition expenses can be reduced? Do the different channels / sources of business differ in the acquisition cost? If they do, then obtain more business from less costly sources.
If possible negotiate brokerage with brokers but then it is possible that they place business elsewhere.
Restructure commission say profit commission based on volumes of business. Is it possible in this country where IRDA lays down the commission rates.
Go for direct business with low acquisition costs. Agents and brokers may protest.

3. The admin cost has been reduced by 2%. Is there any further scope for reduction?
Can unprofitable branches be closed thus saving on expenses? IRDA's permission is required to close down any branch. What about redundancy payments and VRS payments?
1% reduction may result in saving 2crores.
How to improve productivity using modern technology and save labour costs? Outsourcing is a possibility.

4. How well is the reinsurance used to smooth profits?
20% of 200crores is 40crores and if we assume that re-insurance recoveries is 50%, then the profits can go up by 20crores. If reinsurance is reduced by 10%, the profits will go up by10crores.
The consequences are more volatility and possibly there is need for additional capital.
The loss ratio may go up.

Again everything depends on the type of treaty and terms of the treaty. It may not be possible to change the terms immediately.
Quota share treaty may not change the volatility. XOL limits can be reduced by increasing the retention, reducing the upper limits, increasing the self insured share across the programme.
This appears to be a solution but may not liked by the underwriter as he may prefer less volatile but more certain profits.

5. Could write to a lower loss ratio by stricter policy conditions, more selective underwriting, increasing rates.
Increasing premiums may result in loss of business (not possible until 31st March 2008)
If the market cycle is hardening, it may be possible to increase rates, by being rigorous with New business/Renewals, get out of poor business
Statistical analysis of good and bad business will guide to target appropriate business
Writing larger volumes of business may lead to larger loss ratio
Identifying loss making branches and closing them may be a difficult decision
Exiting from some policies may mean breaking relationship as these were with the company for quite some time. The company may lose associated other lines of business from the same source.

6. Reduce incurred claims cost to increase profits.
Be strict in settlement of claims and settling outstanding claims for less
This may increase claims settlement costs but compensated by lower claims
Reduce margins in reserves but this would increase taxable profits

If higher conservative reserves were set, there can be some reduction in Outstanding and IBNR claim reserves.
Discounting reserves at a higher rate may be resorted to if allowed.
Tax payments are advanced. These may not add value to the company but only impact the timing of the emergence of profits.

7. Investment credit to this line of business is based on company's policy of allocating investment income.
Higher credit for this class of business can only be at the cost of other classes
It is presumed that investment income is credited on the basis of average reserves held.

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Q. 2)

This is a small company, with a low retention such that the data of 75 claims during the 5 years will be available. One should have detailed knowledge of

1. the type of company,
2. the quality of its underwriters and claims managers,
3. the nature of business written and
4. statistical evidence of past claims behaviour.

1.Type of company: Is it expanding all its business or only in certain areas of its business.
Being small company means, it has it has only small share of the market and may not be able to radically change its book of business during the 5 years. If it has expanded or expanding rapidly, then past data cannot be put to effective use without making adjustments and the past claims may not be indicative of the future.
Some small companies may specialize in certain risks or in certain geographical areas in which case it will be difficult to use general market data as an alternative to company's own data.

The re-insurer has to carefully isolate the sections of the general data relevant to the direct insurer's business before it can put to use the market data.

2. Quality of staff of the cedant;
The re-insurer should have good knowledge of the quality of the cedant's staff in underwriting and claims settlement. This could be ascertained while negotiating the terms of the treaty with the insurer or his broker. While this may be difficult to gather this information, one may get a broad idea of how good or how successful the staff in doing their job. This gives re-insurer confidence in quoting good terms.

3. Type of business:
Cover is required for liability business. This is a long tailed business requiring long number of years to settle claims. The recent year's claim may not have fully developed and may consist of estimates. Further a stability clause might have been included with varying excess points which would have applied in each of the last 5 years. Past data need to be adjusted using the index. Details of claim below the excess point will be useful to get a better knowledge of the distribution of claims
If the stability clause had not applied during the five years, then the approach will be different and a high reinsurance cover would have applied and one can get extra data required to apply necessary correction.

4. Statistical evidence of past claims:
There were seventy claims in the last five years .We may see an underlying claim amount distribution but the number is not large enough to confirm this distribution with available market data. We need to make an estimate the cost of the required excess by integration. In arriving at the distribution, account should be taken of any change in the past or planned for the future. Adjustment has to be made for changes arising out of legal conditions.

Loading for expenses, profit and contingencies would be added to basic risk premium. There may be some pattern or consistency in the claims in each of the last five years. If there were no major change, then we may use a weighted burning cost method. Make adjustments for inflation and other secular factors. Use top slicing for few infrequent but exceptionally large claims. Then make a loading for these exceptional large claims unless this has been in built in the safety margin. Make allowance for inaccurate claim estimates and slow notification of liability claims

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Q. 3)

The extent of reduction in premium will be subject to the rates filed with IRDA under the "File and Use" Procedure and subject to the underwriting policy of the insurer. For a very large firm with many properties, some consideration will be given for past claim experience,
provided that, the firm approaches the same insurer for all its general insurance needs- motor, liability etc.

The most important feature to be examined is probably the presence or absence of a total loss on a single large property.

The premiums for fire are (say) Rs2 ‰ sum insured. After allowing for commission, expenses and cost of many smaller claims, probably Re 1‰ might be left to cover total losses.

Unless our company has a very large number of large buildings, there might not have been a single total loss. But the premiums paid still have to provide for a share of the total losses that do occur amongst the other insureds.

If the cost of the smaller claims is abnormally low or if there are special features such as good safety precautions or many firebreaks within the property, then there is a case for a lower premium than the standard rate.

In addition the following points have to be examined.

- The number of manufacturing sites has risen by 50% over the last five years. Probably the latest year's experience will be very different than that of five years ago.
- Probably the proportion of new sites may be even higher, since some of the old sites would have been sold.
- Productive use per unit floor might be much above its level five years ago, leading to greater potential for more risks arising under the insurance.
- There might have been changes in manufacturing processes and pattern of stock keeping
- Greater awareness of good housekeeping may have offset or even neutralised these extra risks.

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Q. 4)
Classes affected

The main classes affected will be **employers' and product liability**.

Employers' liability cases could be brought against employers by employees where the employer is shown to be negligent. For example, encouraging overuse of the phone, ignoring any warnings or not paying for additional safety features.

Product liability cases will arise if the purchaser of the phone can prove that the manufacturer was negligent when designing or building the phone, for example not replacing parts that they knew would cause damage.

Impact on profits

The increased uncertainty and risk will lead to more volatile profits and higher chance of insolvency. This will impact on both the company and the policyholder.

The insurer may be able to increase premiums, especially if the market increases its rates and there is considerable publicity (making it easier for the policyholders to accept). Hence the insurer's profits will be protected, but the policyholder will end up paying more

Any court case will result in lower profits, both actual and reported. This is partly due to the cost of the claim but also legal and other costs associated with fighting the case.

These legal costs will be incurred even if the insurer wins the cases.

If the case is lost there will be cost of claim in addition

Reserving for expected losses will depress reported profit in the short term.

If the insurer subsequently does not lose the case then future profits will be higher

Future profits may be affected by factors such as:

a more restrictive investment policy
use of more reinsurance
lower new business levels.

If the court case is subsequently lost, profits at that time depend upon the payout compared to that allowed for in the reserves

If the case is not reserved for and is subsequently lost, the short-term profit is unchanged but profits later (ie when the claim is settled) will be much lower, ie profit will be reduced by the amount of the claim.

If there is considerable publicity and if the market increases the rates, the insurer will also be able to increase the premiums. Then the profits will be largely protected, but the policyholder will end up paying more.

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