

EXAMINATIONS

September 1999

Subject 403 — UK Fellowship General Insurance

Paper Two

EXAMINERS' REPORT

- 1 *This question was on the whole not particularly well answered. In describing what is involved in an expense analysis, many candidates wrote at great length on timesheet analysis and functional costing and neglected to discuss the sources of information on expense analysis within a company, namely the finance, marketing and general management personnel.*

The answers to how the results of an expense may be used were generally very weak. Hardly any candidates included a formula for office premium in their answer. Only the better candidates gave a reasonable description of the inadequacies of the director's suggestion.

On the plus side, it was gratifying to see many candidates gain good marks for drafting the report. 5 marks were available for drafting and the elements that gained the marks included addressee and signoff, a clear contents / section plan (most candidates ignored this element), good paragraphing (i.e. one clear theme per paragraph), conciseness of expression, no jargon, and a helpful tone which recognised that you were dealing with a director and not a simpleton.

Solution

This report outlines the reasons why expenses are analysed in detail and how they are then allocated when deciding upon premiums to charge our customers.

There are three sections to this report covering the areas of why we bother to look at expenses in detail, the type of analyses involved and the end product that we are aiming for.

Reasons for Doing an Expense Analysis

Whilst claims are likely to be the higher percentage of the premium charged the expense element can be 1/3rd or even higher. We need to consider whether all expenses are expected to be covered by future premiums. If not, then we need to have some idea of amount not covered. We should understand any cross-subsidies either between classes or within a class.

What is Involved in an Expense Analysis?

First we need to define expenses. For this purpose we define an expense as any payment other than that made to a customer in settlement of a claim or return of premiums or payment of tax to the authorities. This report ignores the effect of any reinsurance we purchase to cover our liabilities. These expenses can be split into four categories:

Management/Administration

Commission

Claims

Investment.

The investment expenses are to be deducted from expected investment income prior to the allowance for such income in setting the premiums and are therefore not considered further here. In respect of the other items we look at

the actual expenses incurred over the last 3-5 years in order to assess levels and any trends.

Expenses may be split up in many ways. They may be analysed by process, e.g. new business, renewal, claim. They can be analysed by class of business. They may be analysed as to whether they are fixed (i.e. independent of volume of business) in the short term, or variable (i.e. dependent on the volume of business). They may also be analysed according to whether they are direct (i.e. can be attributed directly to a class of business) or indirect (i.e. can not be attributed directly to a particular class of business).

The company's accountants should be able to provide an expense analysis. However this will be limited to producing the figures for the statutory returns, in respect of accounting classes, as you refer to. In talking to accountants we can assess how appropriate their division of expenses is to our needs for premium rating. In particular, a split by accounting class is not likely to be detailed enough for premium rating as we wish to know of any cross-subsidies as referred to above. Accountants will be able to advise on the direct expenses such as levies which we have to pay to certain organisations which are class of business related.

To obtain a better understanding of expenses, contact is made with other departments. In particular, visiting the administrative departments gives an insight into what is done. In doing this you can assess what grades of staff do particular tasks and how long each task takes. Tasks include processing new business, renewals, endorsements etc. Information may also be gained from management of the number of staff working on different classes of business and whether costs are considered to be fixed or variable in the short term.

The claims department is also visited to assess how claims for different classes of business are handled and whether staff costs are linked to number of claims or the size of claims - as larger claims may take longer to deal with.

The marketing department will be able to provide details of the commission-related expenses which are likely to be able to assigned to classes of business directly.

In respect of general management, non-life actuaries, catering etc. Consideration of how to apportion these indirect expenses must be made. All such expenses could be grouped as one and then apportioned according to the premium of each class of business.

When talking to other members of staff to gain information, it is very important that clear and unambiguous questions are asked such that accurate information for the analysis is obtained.

From the above investigations an amount of expenses split in several ways is derived and allocated to different classes of business.

How the Results of an Expense Analysis May be Used

You suggest that the premium to be charged for a policy in a particular accounting class is the multiplication of an expense ratio (E) derived from the DTI returns and the premium (P) for that class plus the non-expense element of the premium (C). This can be expressed as:

$$P = E * P + C$$

This method therefore gives an expense loading for each policy in an accounting class in proportion to its premium. Whilst this is a simple approach, an even more simple approach would be to load the same proportion of premium to all policies irrespective of the accounting class. Both of these methods are simple, easy to understand and might be adequate if we had only one class of business. However, they lead to high loadings of expenses for high premium business which the analysis referred to above has shown gives rise to inequality in the treatment of different customers in respect of cross-subsidies. Also, these methods make no allowance for changes in our business from the base period associated with the statutory returns to the period for which the new premiums are to apply. These changes include inflation effects, volumes of business, one-off charges and other trends. In addition no allowance is made for the different costs associated with the processing of new business etc. within an accounting class.

It is therefore suggested that a method is used which overcomes these disadvantages and a proposal is as follows:

$$P = C * (1 + ce) + p * P + pp + c * P + O$$

Where:

P = premium to charge

C = claims cost

ce = claims expenses as a proportion of claims cost

p = per premium expenses as a proportion of premium

pp = per policy expenses in £

c = commission as a proportion of P

O = other items e.g. profit, contingencies, investment income

and ce, p, c and pp are after allowing for inflation and other trends from the base period of the analyses to the average date for which the new premiums are expected to apply.

This formula is then applied at the product level.

A further refinement would be to load expenses according to numbers of claims as well as size rather than just overall claim cost. This adds greater complexity to the formula which may not be justified.

By considering the expected volumes of business to be written in an accounting period we can then assess whether or not all of the projected expenses will be covered.

A departure from the above allocation based on our experience may be made if competitive pressures justify or the overall expense allocation for certain policies is not acceptable. However any such departure needs to be carefully documented.

- 2** *This question, although short, was illuminating from the point of view of separating those candidates who ultimately passed from those who failed. On the whole it was poorly answered with over 60% of candidates obtaining less than 3 marks out of 15, bearing in mind that up to 2 marks were available for drafting.*

The critical point in answering this question was to recognise that new business delays act in the opposite direction to delays in lapse notifications. Those candidates who failed to mention new business had a mountain to climb to convince the examiners that they were fit to assume professional responsibilities in due course.

Solution

Effects are likely to be present in accounts

But are likely to be smaller than expected because of two compensating factors:

- Reporting of new business is also delayed

- Resulting in an understatement of written premium and earned premium

- In the opposite direction to lapses.

If delays and volumes of lapses and new business are similar, they will tend to cancel out.

If there is a tendency for either lapses or new business to predominate then a similar effect will occur at the end of each year.

- Which will tend to cancel out

Unless conditions are changing rapidly, then distortions will be small

If the business is growing then the value of unreported new business is likely to be larger than the value of unreported lapses and therefore the reserve may turn out to be an asset.

Will need to consider if the company is prepared to show this asset in its accounts.

In order to measure the effect of the delays:

- Analyse new business and lapses reported in any one month into months of inception or renewal

- Need to repeat on a monthly basis for, say, two years, in order to get an idea of any seasonality

- May also be sensitive to the number of working days in that month, especially December

- Possible that larger policies are reported more quickly or more slowly

There should be a consistency in the patterns which can be used to project unreported new business and lapses.

It should then be a simple exercise to project numbers and average premiums to calculate the total value of unreported new business and lapses.

These estimates could then be used in place of the reported figures to assess written premium and earned premium.

Accounting principle of consistency implies that accounting practices ought not to change unless there are clear improvements to be made.

- 3** *Part (i) was generally well answered by those candidates who passed. In particular they dealt well with the reinsurance aspects. However, most candidates did not split the bodily injury claims into settled and outstanding.*

Part (ii) was on the whole satisfactorily answered. Many candidates missed out on a sizeable amount of marks by not describing the Companies Act discounting requirements adequately.

Part (iii) was not well answered with very few candidates going beyond stating the components of value and that the reserves had to be recalculated on the same basis. The better candidates did mention IT and distribution channels.

This part was well answered by most candidates. However many candidates paid a dividend out of the investment return on the initial solvency margin and a disturbing number thought that the relative proportions of EL and Motor business remained unchanged in the second year.

Solution

- 3** (i) The company's motor and EL accounts are large therefore individual claim data can be used if available as a basis.
Court judgement effects bodily injury claims which give rise to claims for loss of earnings and/or cost of care, extract these types of claims
For the two accounts identify historical settlements which could be used as a basis of analysis.
Consider stratifying the claims so that very large claims are analysed individually and smaller claims are analysed by looking at a sample.
Pay some regard to reinsurance retentions in choice of definition of large claim as need to assess the impact on r/I recoveries as well
Analyse motor and EL separately, see if common features, if so then use this information
Look at the factors recorded on the claims and how the new judgement would have impacted on the settlement.
Identify characteristics on claims which lead to an increase in multiplier (eg new multiplier can be expressed as old multiplier * constant, or old multiplier * age dependent factor, etc)
Split multipliers into cost of care and loss of earnings

Stratify open claims in same manner as settled claims
Evaluate new multipliers for the largest claims individually

For the smaller claims take a sample and extrapolate to the whole population of small claims
For large claims, which will impact the reinsurance programme, apply these to the reinsurance programme
Consider knock on effect on other non-injury claims that may be inflated because of higher expectations

Large account, therefore assume that reinsurance is likely to be risk excess of loss with a fairly high retention.
The effect of multipliers is likely to result in more claims entering the reinsurance program and much higher percentage increase in recoveries than the increase in gross reserves and net reserves.
Because of the gearing effect on reinsurers, the impact on them is greater and therefore they may have analysed market data that could be used as a benchmark.

- (ii) For classes of business where the average time to settlement is some years after the premium has been earned the investment income is a significant contributor to the profitability of the class. Therefore if a realistic estimate of the amount of funds which should be held, which together with the investment income earned on those funds will be sufficient to pay claims then the discounting of reserves is appropriate.

However discounting is only appropriate if a credible estimate of the payment profile of the claims and the investment income that may be earned can be made.

The merits of holding discounted reserves are really dependent on the purpose of the calculation:

Undiscounted reserves:

- would be more beneficial for tax calculations as a higher amount can be set aside tax free thereby deferring the payment of tax,
- provide a margin for contingencies,

Discounted reserves:

- result in a higher "headline" solvency ratio,
- however statutory authorities would adjust for this
- may be perceived as a sign of weakness if most peer companies hold undiscounted reserves
- provide a more accurate view of true profitability as investment income is a contributor to profit

For Companies Act Accounts purposes the following apply:

- Explicit discounting to categories of claims should be applied rather than to individual claims
- the mean term of liabilities (gross) for the class must be at least 4 years

- discounting should only be considered if an adequate model of the claims settlement process can be established
- Should only be applied where assets are available which are appropriate in amount and nature to cover discounted liabilities
- The discount rate should be justifiable by recent performance of such assets
- Disclosures are required which set out provisions before discounting, the claim categories to which discounting has been applied, average period to settlement, and rate of return used

The above may mean that for EL can set up discounted provisions but not for motor

- (iii) Although both companies underwrite similar classes there may be many differences between the companies which affect the value attributed to each company

The theoretical value of a company can be considered as a sum of two, the net asset value which can be calculated by taking the realistic value of assets and subtracting the realistic value of liabilities and the value attributable to future business (ie the value of management and goodwill in the business)

Company B sets up discounted provisions (which result in lower reserves) but has set up additional reserves in respect of a recent court judgement.

Reserves of Company A would have to be recalculated on this basis. Any other differences in reserve strength both for EL and motor would have to be adjusted for.

The value of assets may need adjustment depending on the depreciation accounting policies the two companies apply, however the value of investments are likely to be on a market basis and not need adjustment.

There may be tax differences or future credits which may enter into the value calculation

Although both companies write similar lines the processing infrastructure in terms of IT systems may be different one company may need huge investment to continue to operate (e.g. Year 2000 issue)

The markets the two companies operate in may be different for motor one may use direct distribution while the other is broker based. The prospects of the relevant distribution channels need to be taken into account in assigning value to the future business.

Although only EL and motor are ongoing classes are there any run-off classes with latent claims for which reserves will need to be brought on a comparable level of strength

(There are other valid approaches, which examiners will accept.)

- (iv) Solvency margin at the end of the year =
 Solvency margin at the start of the year
 + interest on opening solvency margin (net of tax)
 + gross insurance profit
 – tax on gross insurance profit
 – dividends declared

Evaluate this for the case in hand, using written premiums in year 100 of P and compare to target solvency margin.

	Time	
	0	1
EL%		10%
EL premium growth		25%
Motor premium growth		0%
EL insurance profit % premium		15%
Motor insurance profit % premium		4%
Premium growth%		2.5%
Solvency margin %	50%	50%
Tax rate %	30%	30%
Return on SM%	6%	6%
Insurance profit % premium		5%
Dividend % net insurance profit		50%
Premium	100	102.5
Solvency margin required target	50	51.25
Solvency margin by formula		53.89
Solvency margin by formula % premium		52.6%

Value by above formula exceeds target.