Faculty of Actuaries **Institute of Actuaries**

EXAMINATIONS

April 2001

Subject 403— UK Fellowship General Insurance

Paper Two

EXAMINERS' REPORT

Generally candidates did not manage to score well on a question designed to test their understanding of the planning process and the control cycle. Very few candidates picked up the marks available for identifying ways in which the current situation could be mitigated and then turned around.

Candidates generally scored well on identifying the problems with the current methodology

Many candidates had a reasonably good idea of how the planning process should work in practice, but some they tended to go into too much detail on some aspects. In depth explanations about how functional costing works were not appropriate for the audience of this report. Very few candidates came up with key actions and measures that might be put in place to support and monitor the plan

1 Problems with the current method

The plan is not split by class of business

No allowance made for the likely impact of the premium increases in each class of business e.g. Loss or gain of business.

It is assumed that with a flat increase to premium rates the premium will increase by a similar amount. In practice this does not happen.

Also, it is unlikely that all of the classes will support the same premium increase.

Blanket increases will be too high for some classes, not enough for others, resulting in a loss of business for some, increase for others

No allowance for changes in expenses associated with changes in the volume of business.

Claims inflation is likely to be different for each class

No allowance is being made for any changes in the strategy for any of the classes

No allowance made for expense inflation

One year does not take any account of the volatility og the experience

Any over/ under reserving in previous years would be incorporated into the plan.

In this case, if the current under-reserving problem isn't allowed for in the plan then the claims will probably be understated (unless there is significant prior year run-off coming through in the results.

The expected profit will therefore probably be higher than what is achievable.

only looking back 1 year doesn't make allowance for large claims or catastrophes

Similarly large losses aren't analysed separately.

If the year has been exceptionally bad with regards to large losses and the premiums are increased to cover the entirety of the large losses then the premiums could be out of line with the market, and large volumes of business will be lost.

No account taken of the competitive position / insurance cycle

No allowance made for changes in the reinsurance arrangements or the cost

Monitoring isn't carried out by class of business

Year to date figures on their own don't give a particularly good indication of trends in the experience, and seasonal impacts and reserving patterns can mask the true underlying picture.

Producing data on a rolling 12 month basis enables a better understanding of any trends.

Separate the results for prior year and current year in order to understand the effect that the prior year run-off is having

Producing a more realistic financial plan

Actions and measures

The actions and measures should be sufficient to ensure that the operation is on target to follow its strategy and meet its goals. If the measures being used to monitor the progress of the plan don't produce the results expected, then there may be a need to revise the key actions in the light of the new knowledge to ensure that the plan is back on track.

Overall

In order to put together a more realistic financial plan, it is necessary to obtain the following information

historic data for each of the classes of business which allows the past experience to be studied for each of the main rating segments,

separating out the effect that prior year run-off is having on the results from the current year experience

At the very least having the calendar year experience in order to calculate the loss ratio, but ideally having frequency and claims severity information.

The strategy of each of the lines of business should be clearly identified

For example
- Key segments to target
- Growth/ maintain market share
- Re-balancing a portfolio where the business has been hit by recent anti-selection
- Retention of profitable customers

In order to achieve the required ROE, it may be necessary to carry out the following, putting actions in place to ensure that any intermediate targets are being met, and that the plan is on target

Identify the profitable customers
Remove the loss-making customers, or put suitable premium increases in place.

You want to ensure that if the experience is very different to that expected then it is identified at an early stage

Action is taken to remedy the situation and put the plan back on track

Volume of business

Investigate the experience of each of your brokers.
Are any of them writing "accommodation" business for certain classes of business? If so are they providing profitable business for the other classes?

Possible actions —have clear targets
- stop writing business through some brokers
- Target others
- change the method of sales / remuneration of sales force
- ensure that the package and the commission structures are consistent with the strategy and goals of the company

Monitoring of experience for each class of business

Monitor the volumes of both new business and existing business by
- main rating factors
- brokers (or certainly the larger ones)
- new business by previous insurer — if you can capture this information as it gives information on where you are picking business up from

compare the expected volumes of new business and lapses with the actual experience
look at the spread of business for each of the factors.
compare rates with those of competitors

e.g. if the expectation is for 20% new business across your whole book, and you have 20% in total, but it is all in one or two rating cells, then this gives an early indication of a potential problem with the rating structure. This is something that is often seen in a market where you apply a flat increase and your competitors apply a very different pattern of increases

ideally this should be produced on a monthly basis

investigate past changes in the volume of business in conjunction with changes in premium rates

Premium

Consider the overall product design with reference to the pricing structure, it underwriting, and the target market / customer

Consider the current and recent past market situation for each class.

<u>Risk Selection</u>

Look at your each class of business by each of the main rating factors

Look at periods longer than a year to assess trends

Allow for trends, changes in cover and any large losses in the analysis

Ideally look at the frequency and the severity of claims and carry out a multi-variate analysis.
This is time-consuming, and may need to be carried out at a later date rather than as part of the immediate action plan
First step look at the loss ratios by factor

If some factors have a 30% loss ratio, and others a 130% ratio, there is a fairly obvious pricing problem.

<u>Underwriting</u>

By line of business
Consider the acceptance criteria of each broker
Identify any areas of anti-selection in the existing product
Reduce new business strain by tightening up on the acceptance standards / procedures
Particularly for the class that saw the 3 large losses
Investigate whether the large losses were bad luck or poor underwriting / risk acceptance
Avoid fraud / anti-selection
Carry out scenario testing / profitability analysis on the planned premium rates
review policy limits

Claims

Obtain triangles of data in order to assess the adequacy of the reserves for each class of business.

Historic data on large losses — to establish the expected number of large losses for each class of business

put measures / methods in place to ensure that under-reserving isn't such a problem in the future.

investigate reasons for past under-reserving

assess the amount of the previous shortfall

Start to carry out reserving triangulations on a regular basis,

and put measures in place to ensure that the appropriate information is being collected to monitor

Average costs of opening claims
Average cost of closed claims
Speed of settlement
Proportion of nil claims
Calculate the historic claims inflation observed

Obtain information on each type of claim, by each class of business for the last few years

Attempt to identify which claims have seen major increases.

Identify the large losses and truncate them when analysing the experience for trends

Look for ways to overcome the reduce future increases in claims costs, and if possible to reduce costs

A possible problem is fradulent claims

Look for ways to reduce claims leakage

Are the internal control processes working correctly
Is there any problems with specific brokers — some having higher claims inflation than others
Possible actions measures in place to avoid future under-reserving
Reduction in claims costs by
Introducing preferred providers
Contracting in / out certain procedures
Introduction of standard fees

medium to longer term there may be a need to re-engineer the claims handling process.

Expenses

Carry out a review of expenses to try and establish why expense increases have been excessive in the last year
Identify the fixed and the variable costs
- Accommodation / Staff costs
- Expenses of writing new pols / renewals
- Commission

Allocation of expenses between classes

Look for ways of reducing the fixed costs

Consider implementing cost control measures

These should be consistent with the overall strategy
Any commission changes should be consistent with the sales goals/ targets
Identify exceptional costs

Possible actions
- Reduce staff costs
- Identify more efficient processes for handling claims/ policies

Reinsurance

Consider the allocation of costs for arrangements that cover more than 1 class

consideration of existing arrangements — retention levels
Changes that could be made
- Potential new arrangements
- Retention levels / different treaties

Consider the use of simple models to ensure that appropriate levels of reinsurance are being bought given the amount of capital available and the volatility of each of the classes of business.
Consider any potential benefits of diversification from having 5 different classes of business.
Analyse the past experience – re the impact of large losses

Possible actions buy at a different retention level

Financial Monitoring

By class of business
Monthly
On a YTD and a rolling year basis
Compared with the plan — deviations

Loss ratios for each main rating segment
Claim frequency
Average claims cost
Information on large losses
Volume of business / written premium
Monitor run-off
ROCE
Commission
Expenses

Few candidates managed to score well on a question designed to test the ability to think clearly about the risks involved in a new product.

(i) The majority of candidates picked up some marks, but most failed to consider the full range of terms that needed to be finalised.

(ii) Few candidates scored well, missing easy marks on such points as the need to decide on mortality rates, or to assess house price movements.

(iii) Many candidates scored well, clearly showing that they are more comfortable with numbers than words.

(iv) A number of candidates scored almost no marks, failing to suggest insurance as a mitigation to the risks they had successfully highlighted earlier in the question.

(v) Again candidates scored poorly. Marks were easily available for common sense (decide on HPI definition, look at historic HPI values, adjust for economic changes...)

2 (i) Terms to be finalised

- fixed or variable interest rate
- joint or single life
- paybale on 1st or 2nd death?
- will the loan be paid as a lump sum or as regular payments
- will current mortgages have to be redeemed
- will the mortgage be portable, i.e. transferable if move
- what will happen if borrower moves into Residential Care.
- How will the house be valued at inception
- Who will pay for this valuation
- Will there be a minimum term for voluntary redemption
- will there be requirements for house maintenance
- what is sale procedure on death
- what happens if house sale proceeds insufficient to repay loan
- what is max loan available
- is this a fixed amount or a fixed loan to value
- will all ltypes of properties / locations be covered?
- Does the property have to be 100% owned?
- Do all owners have to be over 65
- vary by sex, age and joint/single life?

(ii) Underwriting considerations/ data

Consideration

- We need to decide on an appropriate mortality table, and how to allow for improving mortality over time.

Data

- We could use external or internal mortality tables. We could also get help or advice from a life company. We should consider the impacts of Genome research.

Consideration

- We need to determine a realistic assessment of the house price on sale. We will need to consider house price inflation. Also, the impact of the maintenance provisions (or lack thereof), i.e. do we need a new kitchen, bathroom, redecorating, etc.
- Cconsider the current position of the housing market in each region

Data

- We could obtain house price statistics by area or region. We would also like data on the differentials between a "normal" sale, and one following old age death.

Consideration

- We will be concerned about potential claims for mis-selling, and bad PR from relatives.

Data

- We would confer with relevant agencies re-structure, e.g. Age Concern.

Consideration

- We would need to determine/define our control over house sale, and the time allowed for relatives to sell.
- Geograp[hical mix of business, as want to avoid accumulations of risk
- Ensure that Buildings Cover is compulsory

(iii) Risks to Lender

- in 20 years loan grows to 140% of house value (.3*1.08^20)
- risk of low house price inflation
- or the differential between the HPI and the interst rate charged is not as large as expected
- e.g. you have a variable rate and rates are higher than expected with HPI as expected

HPI	*Value at 20 years*	*Loss Ignoring Costs*
0%	100%	40%
1%	122%	18%
2%	149%	0%

- risk of longevity of pensioner
- assume HPI 2% p.a.

Survival time	*Value house*	*Value loan*	*Loss to lender*
20	149%	140%	0%
25	164%	205%	41%

Early surrender – interest is not sufficent to cover the expenses of setting up the product.
This is not very likely, unless it is a fixed rate with no penalty and interest rates fall suddenly. Also terminally ill people are unlikely to take out the product.

(iv) Mitigation

- low HPI
  buy insurance against low HPI increases
  Either general index and keep basis risk,
  or specific to loans issued

  find a suitable hedge for the risk i.e. an asset
  that increases when HPI is low
  e.g. buy an equity put option?

- longevity
  insure against longevit
  i.e. insurer pays additional loan interest if
  borrower lives longer than expected
- early surrender
  introduce a surrender penalty

(v) Pricing of Insurance

need to decide how HPI measured
- countrywide or specific area?
- pick a particular index? e.g. Halifax

look at historic HPI
look at historic 10 year periods
fit distribution to observed values
Is it relevant to exposure period?
Consider changes in economy over period

or, build economic model
look at correlation of economic variables to HPI,
e.g. wages, RPI, equity prices,….
build stochastic model of HPI in future

premium payment frequency

expected volumes / expense loadings
profit load – return on capital
expected investment income