

# **EXAMINATIONS**

April 2000

**Subject 402 — UK Fellowship Life Insurance**

**Paper Two**

**EXAMINERS' REPORT**

1 (i) The areas covered might include

A recap of history: what brought about the closure of direct sales. In particular quantification of the key expense ratios immediately before closure for the different sales channels.

The main ratio would be sales costs as a proportion of business volume written. This is probably best split into direct volume related costs which would be loaded into the premium rate for each policy and other costs.

An indication of the same ratios at the present time for the remaining two sales channels.

Details of how other elements of the business from the remaining sales channels have altered over the last three years. For example

- average policy size
- persistency
- mortality

An indication of the profitability of the business from each sales channel both three years ago and at the present time.

Quantification of one-off costs of closure

If it is believed that the new structure is not yet stable, an indication of what further changes are expected and the ultimate effect on profitability.

(ii) Expense analysis

If the sales divisions operate independently, then the divisional costs should be readily available.

Where premises are shared with other sales divisions, or with the administrative functions, then apportionments will be needed using, for example, floor space.

Similarly if support services are shared apportionment will be needed using time sheets or some other method

Costs of pan-divisional sales management, general company management and other overheads will need to be allocated. This could be in proportion to business volumes written or direct costs allocated.

Care needs to be taken if the same level of administrative tasks are not carried out within each sales division. For example some compliance checking or underwriting might be carried out within one sales division while the same tasks are carried out in the head office new business processing area for another division.

Care needs to be taken with one off costs for example branch office refurbishment or new equipment. This need to be spread over the intended life when bought (not the actual life)

Care needs to be taken with closure expenses which still persist - for example rent and rates for closed premises that haven't been disposed of. These could be excluded from the analysis or spread as a general overhead.

Identification of the costs loaded directly into the premium rates should be readily available.

#### Persistency analysis

It is only short term persistency which will be relevant. As the direct sales division was closed three years ago, the longest post-change persistency available will be for 36 months.

Even the 36 month figure will be based on little data and will be highly distorted by the effects of the closure.

The sort of analysis which would be useful is to determine the percentage of policies effected before and after the closure which pay their 6th, 12th, 18th and 24th monthly premiums (or second and third annual premiums).

Under the current regulatory regime companies are required to monitor the persistency of their tied salespeople. The analysis should be readily available, and may only need totalling.

If there is no current analysis, the biggest difficulty will be tracking policies which have already gone off the books. These may not be on the main policy database and are needed for the denominator of the ratio.

The data needs to identify contracts by sales channel, policy type, premium size and frequency to provide a good analysis. Depending on the size of office, there may not be adequate data in all cells for this.

Analysis both by premiums and numbers of contracts may be helpful.

Interpretation problems arise if salesmen switch from one division to another other than at the point of closure.

#### Mortality

For the same reason as under persistency, only an analysis of deaths within the first two or three years of the policy will be very useful. It is unlikely that there will be sufficient deaths during this period to enable any statistically significant conclusions to be drawn.

- (iii) Analysis of experience is a key part of the control cycle of the company, without which it is difficult to interpret the impact of past decisions.

The work outlined above will enable the company to

- refine the assumptions used in its product pricing bases
  - profit test existing premium rates against revised assumption to determine current profitability
  - analyse the surplus arising between valuations in order to
  - identify areas of experience with poor trends
  - take action to reprice or withdraw from certain markets
  - project profits arising in the future in various scenarios.
  - review the assumptions used in the supervisory valuation basis
  - set assumptions for and calculate the embedded value of the company
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- the embedded value calculation enables a value to be placed on each year's new business
  - which can be used to provide incentives for management

- (iv) As 40% of business originally came from direct sales but volumes initially dropped only 20%, a first assumption would be that 20% of the original business came from salespeople who transferred to the appointed representative division.

On this assumption independent intermediaries share would become 25/80, or 31%. As the current proportion is 35%, this indicates that the first assumption is not unreasonable.

Tied agents, whether direct salespeople or appointed representatives generally target the same market of the middle socio-economic groups who have to be sold to.

As the closure was due principally to expenses, it would be expected that these would reduce. As appointed representatives have to provide their own premises and ancillary support, they will be entitled to greater commission than an employed salesforce receives. However the outgo will be much more closely related to volumes written.

Closure would have resulted in termination of the less productive salespeople. These would have taken a disproportionate share of training and supervision costs.

For the same reason it is likely that both average policy size and persistency will improve. Salesforce turnover is also likely to reduce which will be a contributory factor to improve persistency.

It is unlikely that any factors for the independent intermediary division will change markedly. However that fact that this area generates a greater proportion of overall business will lead to a greater weighting when the whole office experience is considered.

Independent intermediaries generally attract a higher socio-economic group with larger average policy sizes and better persistency than tied agents.

- (v) Even if all of expense ratios, average policy size and persistency have improved, this does not necessarily mean that the decision to close a sales channel was beneficial.

The different sales channel would certainly have had different remuneration packages and may well have had access to different, or differently priced products. This would have affected the profitability of the business sold.

Overall business has grown by 10% in three years, so may have just kept pace with price inflation. It will have fallen behind earnings inflation, which means fixed costs on a per policy basis would be greater.

10% growth in three years is much less than the market growth, so market share will have fallen

What make a sales channel profitable is whether it can operate within the expense, mortality and persistency margins loaded into the products it sells.

Consequently an analysis of profitability is needed, both before and after the change.

A full analysis might look at the change in embedded value from year to year, to give an analysis of the value of each year's new business. It should be possible to consider each sales channel separately

An alternative would be to calculate the rate of return on each sales channel's new business each year, using model points and a profit test.

#### *Comment on Question 1*

*Parts (i) and (iii) were reasonably well answered by a majority of candidates. Solutions to the remainder of the question were in general of a rather superficial nature.*

- 2** (i) The question of asset allocation depends on whether you consider investment policy from a policy perspective or a fund perspective.

Viewed from a policy perspective, at the start of the policy investment in equities are likely to be very high to maximise the overall return.

As the maturity approaches and the guaranteed benefits increase, investment policy will gradually switch towards a matched position.

It could be argued that investment in gilts is high to begin with due to high guaranteed proportion of the reserve.

But, the reserve for the policy is, to certain extent, irrelevant as far as the asset share calculation is concerned. Its impact on the calculation is limited to a cost of capital charge.

As the asset share calculation is primarily about best modelling the individual's position, policy level asset allocation could be considered to be necessary.

If this was done it would be difficult to reconcile the theoretical asset mix with the actual asset mix.

However, whilst equity investment followed by a shift to a matched position is a sensible personal investment plan, this would not be how the policy would have been marketed.

With profit investment is usually marketed in a similar way to managed funds in terms of investment allocation. Typically, the percentage of the fund in each of the major assets categories is given in marketing literature, and the with profit guide.

Policyholders will therefore expect that they will be invested in a mixed fund throughout the duration of their policy.

This also ties in with the "pooled fund" concept of a with profits fund, all the policyholders' funds are invested together for the benefit of all.

Certain assets will be held to improve the matched position of the fund, but these will not be ear-marked to the corresponding policies.

In reality it is much easier for the Appointed Actuary to advise on broad asset allocation, highlighting the degree of matching required, than to build up an asset mix from an individual policy level.

If the asset share is to be calculated regularly, possibly daily, then policy level asset mixes are too hypothetical as the investment strategy will not vary daily - as well as making the calculations much more complex

- (ii) In theory, this is the ultimate of the with profit model.

The policyholder's actual stake in the company is recorded, and a published smoothing policy can be overlaid to give the actual return.

Old arguments of insufficient computing power no longer holds. If in-house systems cannot be adapted, then a proprietary package could be bought.

It is unlikely that the sophistication of the current model could not be extended to an individual model.

Essentially, the same model as currently used could be used but on an individual basis.

No more basis information would be required, only more data.

Should not under estimate the resource required to implement such a move if the current computer program cannot be easily modified to process data on an individual basis. Especially if this involves the setting up (or buying of new systems).

The difficulty in getting regular reliable data on investment returns, and other element of the experience will be the biggest problem

In practice it is likely that estimates will be used, with "truing up" occurring, say, once a month.

Reconciliation with existing model would be required to ensure there are no discrete jumps in benefits.

Differences may be smoothed in to avoid this – so the smoothing policy would need to be clearly defined.

- (iii) The normal asset share approach makes no allowance for the capital set aside by the company by way of reserves and solvency margins.

Capital is required at the outset of the policy. Later, as asset share exceeds published reserve, the policy becomes a source of capital.

One could argue that a mutual should not charge for capital to its own members.

However, equity suggests that early exits should be charged for the capital support they have received.

Policyholders who stay for the full duration should not be penalised for those that leave early. Policyholders that stay for the full duration should be treated neutrally with regard to capital. They have used capital, but have also been a source of capital.

For a proprietary company, policyholders that stay for the full term would be charged for the use of shareholders' capital.

The capital used by a policy at any point in time would be the reserves plus required margins less the asset share.

The asset share could be reduced by an amount equal to the capital multiplied by an appropriate rate.

Clearly if the policy is a supplier of capital (asset share is greater than reserves) then the asset share is increased.

A charge on the capital employed could be set so that this charge is neutral to policies that mature.

- (iv) All policy benefits are set with reference to asset share calculations at present.

It is just how closely they match that is the issue.

Maturity benefits are probably reasonably close to their individual asset share currently.

The main source of error will be for policies that are not reasonably represented by the model points. Those policies that are not well represented by the modelled data will now make more of an impact on the final payments.

The impact of this will depend on the quality of the modelling at present.

However, the ultimate benefits will be set according to the reversionary and terminal bonus scales. These may now be set by reference to individual asset share calculations rather than modelled data, so there is still averaging over the cohort.

For surrender benefits, there is a further degree of removal from the individual asset share. Typically a simple calculation method (either a net or gross premium formula) will be used to derive the surrender benefit.

This simple method will be tested against asset share calculations for modelled data.

If the administration systems can cope with input from the individual asset share calculation programs, and the smoothing policy can be suitably codified, then the company should be reasonably happy to move to this approach as it will remove much of the approximation.



However, there are issues that will need to be addressed:

- The smoothing part of the calculation will have to be sufficiently robust to cope with extreme situations.
- The surrender value must blend in to the maturity value which, because of the averaging of bonuses described above, may not tie in exactly with smoothed asset share.

(v) This really depends on what is published and what is actually paid.

If it is intended to publish the unsmoothed asset share and pay a smoothed asset share, then there could be problems.

Very clear marketing would be required to explain how benefits will be related to the asset share.

There will be few complaints whilst benefits are higher than the published figure.

But there will be complaints when benefits are below. Policyholders' reasonable expectations must be managed.

If the surrender value is above asset share and this is clearly seen in the market, then there is the possibility of anti-selection.

This could be compounded by sophisticated IFA's.

However, this is only likely to be an issue for single premium contracts.

Producing asset share information in a regular and consistent fashion, should help promote the with profit concept

#### *Comment on Question 2*

*Solutions in general were somewhat disappointing. Few candidates seemed able to go much beyond the reproduction of standard bookwork material.*