

**EXAMINATIONS**

September 2000

**Subject 402 — UK Fellowship Life Insurance**

**Paper One**

**EXAMINERS' REPORT**

- 1** Prior to any transfer taking place, the courts must sanction the planned transfer. This means the respective High Courts of Justice for England, Wales and Northern Ireland and the Court of Session in Scotland. i.e. depending where the company has its registration or head office.

A scheme setting out the terms of the transfer must be provided with the application.

The petition to the Court must include a report on the scheme of transfer from an Independent Actuary. Guidance is given to the Independent Actuary in GN15, which covers the factors influencing acceptance of appointment, the extent of their involvement and details the information that must be supplied.

In particular the Independent Actuary's report must include a summary that is sufficient to indicate his or her opinion on the effect of the transfer on the interests of the policyholders involved (both from the transferring company and the receiving company).

Before giving its sanction, the Court must be satisfied that the companies concerned have adequately publicised the scheme (specific rules are given) and that all policyholders involved (and shareholders where appropriate) have been given copies of the scheme (at least the key terms of the scheme). The pack must also include the Independent Actuary's summary.

In addition, for a fee set by the Courts, the companies must supply a copy of the petition, the scheme and the Independent Actuary's report to any person who asks for it, prior to the scheme being sanctioned in court.

The court must also be satisfied that the company who is receiving the transfer is authorised to carry on the type of business being transferred and is able to cover the solvency margin of the business.

Any person who feels the proposals will adversely affect them (including employees of the companies concerned) has the right to be heard by the court.

*This question was generally well answered.*

- 2** The Appointed Actuary's Certificate certifies that:

- The appointed actuary is satisfied that proper records have been kept to carry out a valuation of the liabilities of the long term business.
- The mathematical reserves constitute proper provisions at the end of the period being investigated including any surplus being distributed as a result of the investigations being carried out.
- The assets and liabilities have been determined according to the regulations (Ins Comp Regs 1994).

- Guidance notes GN1 and GN8 have been complied with.
- The premium bases being used currently are appropriate.
- The required minimum margin must be stated.
- If necessary the A.A should add any qualification, amplification or explanation as may be necessary

*This question was generally well answered.*

**3** (i) Terminal bonus

The company will retain a high free asset ratio because terminal bonus does not need to be included in the solvency reserves.

This allows it investment freedom (and therefore the prospect of higher returns) as well as greater capital to finance further new business.

If the economic changes are reversed in future, the company can reduce terminal bonuses accordingly.

Surrender values may not fully reflect Terminal Bonuses, in which case they may not increase in line with asset values.

A high level of surrender surplus may arise, which might be inconsistent with the company's interpretation of equity between policyholders.

Policyholders may be dissatisfied with the surrender terms and their expectations may not be met.

The company's competitiveness might be reduced in terms of its reversionary bonus rates, levels of guaranteed benefit, and surrender values. However, this may not matter too much as its total payout including terminal bonus should still be competitive.

And at least no unreasonable policyholder expectations are created.

The company's shareholders will not receive as much short-term benefit from the exceptional surplus.

The company's share price may therefore be undervalued.

(ii) Reversionary bonuses

The principles of smoothing for with profit business normally mean that any significant change in bonus rates may need to be made gradually over a number of years. This may be inconsistent with the timing of the changes giving rise to the surplus.

The company will retain a high free asset ratio for some years, until the exceptional surplus has all been distributed.

This will confer the same advantages as in (i) but only while it lasts.

If the economic changes are reversed in the near future, the company can return to the previous levels of bonus.

The company's profits will be increased for several years.

This may be a continuing benefit for the share price.

In a lower interest and lower inflation economy, sustainable bonuses are lower, not higher.

The company might therefore be going against the market trend. This might give it a competitive advantage, but it might also cause a problem of credibility.

Because long-term sustainable bonus rates will be lower, the company's bonus rates may not be any higher than they were before the economic changes.

Policyholders and shareholders may come to expect that the higher bonuses and profits will continue indefinitely.

They may be dissatisfied with the fall in bonus rates, when the exceptional surplus has all been distributed. This may come at a time when competitors are not making bonus reductions.

(iii) Special reversionary bonus

By identifying the bonus as special, the company would avoid unrealistic expectations being generated.

The special bonus could coincide with a reduction in normal annual bonuses, allowing the company to combine good news with bad.

Maturity values and surrender values would both benefit immediately from the revaluation of assets.

Shareholders would be entitled to a substantial one-off surplus.

This could support a special dividend, or could be used for example to invest in new activities.

The company bears the risk of the economic changes being reversed, which would probably force it to declare reduced normal bonuses for several years.

The benefits of a high free asset ratio will not be achieved. However, the free asset ratio may not be any lower than had the economic circumstances not changed.

*Very few candidates considered the impact on surrender values or share price.*

**4** (i) Subdivision of claims data

Age at inception

Sex

Smoker status

Current age (or elapsed duration of policy)

Duration of claim

Policy term

Deferred period

Occupational group

Ratio of benefit to income

Type of sickness/injury

Date of termination of claim

Reason for termination of claim

Sales Channel

Geographic location

(ii) Reasons for deficits

The company's claims experience may be worse than the industry average.

There are a number of possible causes:

The product's price may be too high to attract many people. In that case, buyers of the product might tend to be those people who believe they are likely to claim and who might be rated by other offices with lower premium rates.

Underwriting standards may be different (lighter) than average. This would naturally lead to a higher claims rate.

Claims admission rules may be more generous than average. This would lead to higher claims inception rates.

Claims management may be less active than average. This would mean that claims termination rates are worse.

The replacement ratio (benefit relative to income) may be higher than average. (Industry statistics are available that show that there is a correlation between replacement ratio and cost of claims.)

The company may have a higher than average share, in its business, of those policies/policyholders whose claims experience is poor. This might be due to random fluctuations in experience or selective withdrawals of 'good' lives or the target market including sales in a region suffering localised economic recession.

This could come about through features of the policy design that encourage anti-selection.

Anti-selection is a particularly high risk for business sold through IFAs.

Features of the product which might encourage anti-selection are:

The high replacement ratio (70%).

Inclusion of 4 week deferred period class.

Own occupation definition of incapacity, for all occupational groups.

Fixed relationship between female and male rates (+50%).

Inflation may be higher than allowed for in the premium rates. This will affect both the current claim amounts and the reserve for claims in payment.

(iii) Changes to design and pricing

Review the sensitivity of sales to price. This would show whether a lower priced product would attract more people to buy or an increased price would be sustainable.

Review underwriting standards, including proposal form questions and medical evidence limits, against market practice.

Review claims admission procedures, including requirements for medical certification and tests.

Review occupational classifications. Especially in respect of target market.

Review maximum age at entry &/or termination age.

Develop new claims management techniques, such as rehabilitation counselling.

Reduce the maximum benefit relative to income.

Introduce an offset from the benefit in respect of State incapacity benefits payable.

Introduce a waiting period before first claim on a new policy permitted.

Remove 4 week deferred period business if this has higher claims deficit than other business. Consider restricting the product's availability to certain occupation groups only.

Change the definition of incapacity, for some or all occupation groups, to be more restrictive, e.g. an "all work" or functional assessment test.

Review the relationship between female and male rates. (+50% may not be sufficient.)

Remove premium rate Guarantee

Change to a Unit linked product with variable morbidity charges.

Limit the price indexation of benefits and premiums, e.g. a maximum increase of 6% per annum.

(iv) Problems and actions

Reducing the price may lead to lapse and re-entry, causing a loss to the company.

This might be reduced if some of the benefits of the revised contract were less generous, e.g. limited price indexation, lower maximum benefit.

Raising underwriting standards may require recruitment or training of more medical underwriters. This will take time and increase costs. It will also reduce sales but hopefully exclude unprofitable ones.

Use of a standard underwriting manual such as a reinsurer's manual would reduce the need for senior underwriting skills.

Changing claims admission and management procedures would need to apply to in force business, as well as new business, in order to have any short term benefit for the company.

The extent of such changes would therefore be constrained by contract terms and PRE.

However some possible changes such as rehabilitation counselling are a benefit to the claimant, as well as being a claims control tool.

In practice claims management will need to be flexible, as the right approach to help one claimant back to work may be wrong for another.

A lower maximum benefit, or a State benefit offset, would probably reduce IFA sales sharply as replacement ratio is a competitive factor in the IFA market.

However the company may still achieve similar sales volumes through its own distribution channels.

Restricting the definition of incapacity may add to complexity and the cost of the claims function, as two different sets of rules will be in operation.

A definition based on testing may be unpopular with claimants.

A compromise might be for example "own occupation" definition for the first year of claim, followed by "all work" if a claim is to continue.

Unit linked product development will incur costs but the product may be more Capital efficient

Reinsurer's data may be available to assist in the development

Lower sales volumes could result in expense overruns.

- 5** (i) A company will want to analyse the change in the surplus for the following reasons:
- It shows the financial effect, on either the supervisory or realistic profit, of divergences between actual experience and that assumed in the valuation, and of writing new business.
  - If the analysis is carried out independently of the valuation data, it can provide a check on those data and the valuation process.
  - The analysis may assist in the distribution of surplus to with profit policyholders by identifying items of surplus that are unlikely to recur.
  - The trends in the items of surplus may give useful information on trends in the experience of the company.
- (ii)
- |                    |                             |                   |
|--------------------|-----------------------------|-------------------|
| Fund at Start      |                             | 1,100,000.00      |
| Liability at Start | 100k x 9.454 x 1.01         | <u>954,854.00</u> |
|                    | Opening Surplus             | <u>145,146.00</u> |
| Fund at End        |                             | 1,100,000.00      |
| Liability at End   | 95k x 10.422 x 1.01         | <u>999,990.90</u> |
|                    | Closing Surplus             | <u>100,009.10</u> |
|                    | Surplus Arising During Year | (45,136.90)       |



- (iii) Change in valuation assumptions  
 actual v expected investment return  
 actual v expected expenses  
 actual v expected mortality  
 interest on surplus brought forward
- (iv) *The analysis could be done in a different order but one approach is shown below. Many candidates failed to exercise care in looking up the various factors from the tables and in approaching the analysis in a logical way.*

Liability at End on Opening Basis	
95k x 9.171x 1.01	<u>879,957.45</u>
Surplus from Change in Basis	(120,033.45)

Fund at end on Actual Deaths & Actual Expenses but Valuation Interest	
(1,000,000 – 600) (1.06)-300(1.03)	1,059,055.00
	C/f 1,100,000.00
So Interest Surplus	<u>40,945.00</u>

Fund at end on Actual Deaths & Val Expenses and Val Interest	
(1,000,000 – 1000) (1.06)	1,058,940.00
So Expense Surplus	<u>115.00</u>

#### Mortality Surplus

Liability at end on actual experience (as above)	879,957.45
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Liability at end on expected experience	
9.171 x 1.01 x 100,000 x (1-0.02297)	<u>904,994.55</u>
Mortality Surplus	25,037.10

Interest on Surplus b/f	
145,146 x 0.6	<u>8,708.76</u>

Valuation basis	(120,033)
Investment return	40,945
Expenses	115
Mortality	25,037
Interest on surplus brought forward	8,709
Total Analysed	(45,227)
Total Surplus	<u>(45,137)</u>
Rounding	90

**6** (i) Guaranteed Sums Assured

The higher the guaranteed sum assured per unit of premium the more the unit fund will be used up by mortality charges.

The upper limit on the GSA is therefore that which is just, and no more, supported by the unit fund. ie on anticipated unit growth and risk charges the unit fund will be run down to nil after ten years for the maximum sum assured, and at an advanced age (90 to 100) for the standard sum assured

The danger is that the unit fund may run out during the term of the guarantee. (The initial period with no unit fund is not primarily a consideration concerning the level of guaranteed benefit.

This could arise from poor unit performance or because mortality risk charges are increased from the level initially anticipated.

To allow for this a margin could be taken in the unit growth rate assumption in the product costing. A balance needs to be struck between marketability and prudence.

The premium rate should be sensible compared to any non-linked alternative.

Within these extremes the company is likely to wish to issue qualifying policies. The qualification rules may provide additional restrictions on the sum assured.

For standard sum assured cases the greater the age at which the unit fund is targeted to expire the more protection provided to the company. It could even be targeted to reach the level of the sum assured at an advanced age. However, too much in the way of margins will make the contract uncompetitive.

It is important that policy literature on the guarantees reflects the assumptions made in giving them.

Otherwise there could be PRE implications if significant increases in premiums are required at a later date.

(ii) Profit Criteria

A return on the capital is needed to finance not only the expense and valuation strains relating to an individual policy but also on other capital locked up in the business, such as the solvency margin and development costs.

This return should be based on that available on risk-free investments, increased to reflect the risks involved in the business to a level acceptable to the Shareholders, the providers of capital.

The risks here include the mortality guarantee implicit in guaranteeing premiums for a period and the inclusion of critical illness.

A RDR of 9% to 11% net of tax may be appropriate.

A profit margin is required on the ongoing production costs in addition to the return on capital employed, or else there is no point in the production effort.

Greatest production effort is expended in new business generation so the profit criteria should be related to sales incentives, normally initial commissions.

Competitive position will be important. Need to set the profit criterion such that overall profit for the product i.e. (profit per unit) times (volumes generated at that profit margin) is maximised.

Suitable profit objectives might be 50% of initial commission paid at a 10% RDR, for a commission based system.

(iii) Charging Structure

**Expenses**

Initial expenses and commission. Assuming commission is on indemnity terms, all initial expenses are "day 1" costs and to satisfy the financing requirements these costs must be recovered as soon as possible.

This implies no allocation to units for a period of months, ie a "nil-allocation" period. Any other recovery method must involve some element of deferral.

If commission is on non-indemnity terms, it may be possible to have some form of reduced, but positive, allocation to units.

However, it is not practical to have different charging structures depending on the commission spread chosen by particular agents.

Nil-allocation periods should be used, although this may mean that sterling reserves are required to finance "drip-feed" commission due after the nil-allocation period has expired.

As initial commission rates will normally depend on age at entry, the nil allocation period should reflect this.

Nil-allocation periods avoid the need to have surrender penalties to recover the balance of initial charges.

Other expenses. Should be recovered by using indexed policy charges taken by cancellation of units, plus the fund management charge. However, the latter may never be very significant, particularly if the maximum sum assured is chosen, as the investment element is low.

After the nil-allocation period, premiums should be allocated to units at or near 100%, with the bid/offer spread being available to cover renewal commission and expenses.

Depending on the level of the policy fee, it may be possible to allocate more than 100%, thus improving the competitive position for larger cases.

### Mortality

#### **Standard sum assured**

Should be recovered by non-guaranteed monthly charges taken by cancellation of units. Charge varying by age and sum at risk.

This allows charges to be increased if experience deteriorates, although there will be a delay before the adverse experience is recognised and the charges increased.

The risk is, in some part, passed to the policyholder.

These charges should include a loading to cover the claims expenses.

Because of the nil-allocation period, no units will have been allocated from which to take any early charges.

The number of units could be allowed to go negative, but this creates a debt on the policy expressed in unit terms with the debt repayment period depending on unit performance.

It may then be necessary to set up non-unit reserves to eliminate negative unit reserves, including a mismatching provision.

A simpler method may be to defer taking charges until units are created, this deferral being financed at the RDR.

The charging structure should aim to accelerate recoveries, and hence profits, with the limiting factor being the need to set up expense deficiency reserves if long term charges are set too low.

For standard sums assured there is a lifetime guarantee and unit funds will be more significant.

A conservative estimate for unit growth should therefore be used in this assessment of the Standard Sum Assured.

The current risk charges will reflect recent experience and will not be guaranteed. Experience will depend on the underlying underwriting stance and may be the office's own or provided by a reinsurer.

Allowance should be made for possible deterioration in mortality by assuming heavier mortality for risk charges plus margin required for expenses and profit.

### **Maximum sum assured**

For maximum sum assured cases investment performance is not critical as unit funds will be small and it is only the first ten year period that needs to be considered - but this will then increase the initial premium and reduce competitiveness.

For maximum sum assured cases additional protection for the company is provided if it targets for a positive unit fund at the review date.

This fund can also help to reduce any additional increase in premiums at the review date due to increased risk charges, thus reducing to some extent the effect of selective non-renewals on future mortality experience.

Long-term profits from fund charges will be low or negligible.

A reasonable profit margin should therefore be added to the mortality charges to ensure that long-term profits are not too dependent on the level of cover chosen.

This margin would apply more to the max sum assured case and so would also contribute to the expenses of undertaking 10 year reviews

Prudent bases for mortality charges and unit growth rates as discussed above (under standard sum assured) are only relevant in determining the levels of standard and maximum sums assured, not in determining the level of charges for which the bases in (ii) should be used.

A further constraint is that the higher the GSA per unit premium, the more non-unit reserves will be required to cover future deficiencies arising on prudent valuation assumptions, locking up capital for potentially lengthy periods.

Ideally the charging structure should be set so that the desired level of profit is made assuming non-renewal after the first ten years. If not, a realistic non-renewal decrement needs to be included in the profit test.

*Few candidates managed to understand the underlying structure of the proposed product.*