

EXAMINATIONS

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Subject 402 — UK Fellowship Life Insurance

Paper One

EXAMINERS REPORT

1 Investment income

Investment surplus will increase as reserves increase, and bonus loadings will emerge either level (if via reduced net premium) or increasing (if via margin in interest rate). Therefore compound Reversionary Bonus, RB, can cope well provided the bonus loading has been suitably calculated and an appropriate method of valuation is used.

Capital appreciation

This is likely to be large and volatile on the equity and property assets backing the with profits business. It is best distributed via Terminal Bonus, TB.

Expense surplus

This will be large and negative in the first year, thereafter smaller and positive. It may even become negative as expenses inflate. It is not suited to the RB method therefore should try to minimise, or allow for in TB.

Mortality surplus

This is likely to be small and reducing over the term of the contract, but could fluctuate significantly from year to year particularly for any annuities. It is not suited to the RB method therefore should try to minimise or allow for in TB.

Withdrawal surplus

This will depend on the surrender basis. It will be small if surrender values are close to asset shares. It is not suited to the RB method therefore should try to minimise or allow for in TB.

Mismatching surplus

This arises if the company has not adopted a fully matched investment policy, e.g. partly backed with equities or if any pensions annuities in payment are backed with fixed interest securities with a different mean term. It is likely to be large and volatile and so is best distributed via TB.

This question was generally answered well.

- 2** Using the prospective method at later durations allows the surrender value to run smoothly into the maturity value. If a realistic basis is used with the method then it will produce a surrender value that represents the contract's worth to the company. In particular it enables the company to quantify how much profit to retain, and hence maintain equity with continuing policyholders and shareholders.

It also has the advantage that it is only necessary to value future benefits, premiums and expenses rather than utilising detailed records of the past. The method could however produce surrender values at early durations that look distinctly unreasonable from the surrendering policyholder's point of view.

The approach is in any event difficult to apply at short durations because even very small changes in the rate of interest will have a significant effect on the surrender value scale, and so the retrospective method is useful for early durations. This is because at early durations it should produce results that do not look too unreasonable compared with the premiums paid.

At very early durations the actual initial expenses of writing the policy are the most important factor and may mean that the surrender value is quite small - the surrender value under this method effectively represents a proportion of the earned asset share.

The method is likely to produce comparable surrender values to the values available at auction although such an auction would be rare for without profit non linked contracts. This approach might also have been to ensure surrender values are in line with those offered by competitors.

Most candidates had no problem with this question.

3 Distribution of the estate via existing participation rules

The shareholder value of the company will be enhanced if shareholder transfers (a proportion of bonus declarations/payments) are increased and/or emerge more rapidly.

The free estate may be used to augment maturity payouts on the existing portfolio, which will increase transfers to shareholders in respect of terminal bonus payments. Alternatively the estate could be used to support higher reversionary bonuses than are currently sustainable, which would accelerate its release to shareholders and therefore increase the value further or a special bonus could be paid. For example the company could launch a new series of with profits bonds with a competitive initial bonus rate.

The estate can be used to absorb expense over-runs and exceptional costs such as mis-selling compensation, which would otherwise reduce bonus declarations.

Enhancement of shareholder profits without distribution of the estate

The free estate permits increased investment freedom ie greater investment in riskier assets such as equities. This should result in higher investment returns, higher bonuses and consequently higher shareholder transfers. It also supports smoothing of bonuses which reduces the volatility of shareholder transfers and hence enhances their value.

The free estate can be used to support greater rates of new business growth than would otherwise be possible, hence greater future shareholder transfers. It demonstrates additional financial strength which may encourage higher new business sales (e.g. through independent intermediaries) and hence greater future shareholder transfers.

Having a free estate reduces the need to purchase reinsurance, either risk and financing, which reduces costs and therefore increases potential bonus rates and shareholder transfers.

The free estate could be used to purchase or develop a direct salesforce or purchase another life insurance company or other operation, all of which have the potential to create higher future shareholder transfers and hence enhance shareholder value.

Attribution of the estate to shareholders

Alternatively, the company could approach the supervisory authorities to secure a formal attribution of the free estate in favour of the shareholders. However, the supervisor is concerned with maintaining PRE and the shareholders are unlikely to achieve full attribution. Further, the proportion of the estate which is attributed to them is likely to be “locked in” for a reasonable period of time to provide ongoing capital support to the with profits fund.

Many candidates failed to consider how the free estate could be distributed to shareholders through the normal bonus system or how shareholder value could be increased through its attribution.

- 4 The supervisory reserves comprise a unit reserve and a sterling reserve. The unit reserve is equal to the market value of the assets underlying the units allocated to policies. The sterling reserve calculated on an individual policy basis may be required for future administration expenses. This involves projecting each policy to maturity, initially with no allowance for voluntary discontinuance.

Prudent assumptions are made for items such as the future investment return and unit costs. Then projected cashflows are calculated and discounted at the valuation rate of interest back to the valuation date.

Each policy is assumed to discontinue at whichever point in the term gives the highest reserve. If future cashflows are positive, it may be possible to hold a negative sterling reserve to help reduce new business financing strains, provided that the total reserve held in respect of any policy is at least equal to the surrender value payable were the policy to discontinue. This would require the office to levy a surrender penalty.

In addition, there need to be sufficient positive sterling reserves elsewhere against which to offset the negative reserve.

The reserve for the annuity guarantee is obtained using a stochastic method. This projects the business forward under a large number of randomly generated

investment scenarios, calculating the cost for each policy of purchasing an annuity at retirement on the guaranteed rates with an allowance would be made for future improvements in mortality. The cost depends on the size of the fund and on the fixed interest yields available at retirement. No allowance would normally be made for any tax-free cash. Where the cost exceeds the retirement fund, the excess is discounted back to the valuation date and accumulated across all policies.

The results are arranged in decreasing order of size and the reserve set to the amount giving the chosen probability of ruin.

Few candidates considered negative sterling reserves.

- 5** There are various roles undertaken by UK actuaries under which specific guidance is provided - GN1, 2, 8 and 22 are relevant to Appointed Actuaries and GN15 is applicable to an independent actuary advising under a Section 2C Scheme of Transfer.

GN1:

GN1 requires Appointed Actuaries to have due regard to the current and likely future level of expenses when certifying the solvency of the long term insurance fund of a company at a point in time. GN1 also advises that the Appointed Actuary should take all reasonable steps to be satisfied that he could provide such certification at any point in time.

When placing an actuarial value on the liabilities of the existing business, the appointed actuary should ensure provision is made for future expenses at a level at least as great as the level required if the company ceases to write new business 1 year after the date of the investigation. Due regard would have to be paid to the potential termination of any favourable service agreements.

The Appointed Actuary is also required to have regard to the need to make adequate provision for expenses when certifying the adequacy of premium rates.

GN2:

GN2 advises that it would be expected that variations in future expense assumptions would be a scenario tested when preparing a Financial Condition Report.

GN8:

GN8 provides additional guidance on interpretation of the liability valuation regulations for Appointed Actuaries. Specific guidance is provided on interpretation of Regulation 71, including inter-alia:

- When making provision for likely increases in expenses for existing business based on prudent assumptions of increases in prices and earnings, the margins elsewhere in the valuation for which it is reasonable for the Appointed Actuary to have regard.
- When making provision for the likely level of future expenses, the credit that may be taken for disclosed margins in the valuation (i.e. difference between gross and valuation net premium, and disclosed margins of interest for single premium contracts).
- The requirement to make additional provision for any expense overrun in respect of new business to be written in the following year.
- Any additional provision which may be required if the company closes to new business 12 months after the valuation date, while the transition of the expense base to the lower level assumed for a closed fund continues beyond that period.

GN15:

The Independent Actuary is expected to consider the impact on expense levels of the proposed scheme of transfer.

GN22:

The Appointed Actuary is expected to advise PIA/FSA member companies over the apportionment of costs and services across different policy groups for the purposes of own charge projections of future policy benefits. Guidance is provided on adjustments that may be reasonable to make to reported expense levels in order to derive expenses to apportion across contract groups. Guidance is also given on appropriate methods by which the costs may then be apportioned in a consistent manner across policy groups.

The principal GNs, GN1, GN8 and GN22 were covered but few candidates mention GN2 or GN15. However, few candidates scored well on this question as in most cases only a general overview of the guidance was provided.

- 6** (i) The director's proposal would increase the current shareholder transfer. It is likely that the calculated embedded value of the company would also increase as shareholder earnings are accelerated and therefore have greater value. However, any changes must be justifiable.

The recommendation to reduce rates was made because the previous level is not sustainable on current assumptions of future investment returns and the present investment mix. Insurance companies have been gradually reducing bonus rates from the higher rates sustainable during times of higher inflation, to levels supportable on the lower nominal investment returns now expected. Increasing the rates now would create

unreasonable expectations for both existing and future policyholders. A higher accumulation rate is not supportable in the long term and would therefore have to be reduced at some future point.

Alternatively it would have to be subsidised by free assets. The financial strength of the company would be weakened which would make the company less attractive and reduce new business, which could reduce the share price and would constrain the rate at which the company could grow its new business due to requiring temporary capital to support new business strain.

A higher accumulation rate would also constrain the investment philosophy of the with profits fund, which would reduce future investment returns and therefore bonuses and shareholder transfers, and which could therefore also have a negative impact on share price.

Overall, the proposal is a short term measure that is unlikely to have any significant positive impact on share price and in fact could be damaging. However, we should investigate the reasons for the relative under-performance of the share price and address any issues which arise.

Few candidates considered the impact of using the free estate to maintain bonus levels.

- (ii) If the UK stock market fell by 25%, the effect on the with profits fund will probably be less than this because assets other than UK equities are held (fixed interest, property, overseas equities). Also, the fund may not have the same sector weighting as the stock market index (for example, the fund may be relatively underweight in technology stocks which may have been the predominant reason for the fall).

The most likely reasons for the stock market fall would be a lower expectations of future dividends, a correction from unjustified levels driven perhaps by demand pressures or a temporary blip.

If lower dividends are expected then future income on the existing assets will be lower, so could consider reducing the annual accumulation rate further.

The expected yield on future investments may be unchanged, so the recommended accumulation rate could be sustainable on new business and future premiums on existing business. It is likely that the accumulation rate recommendation would remain unchanged, but would keep the position under review.

However, it is likely to be appropriate to reduce terminal bonus rates and would need to take into account the company's smoothing philosophy. It should be borne in mind that current proposed TB rates will have already been smoothed.

How rapidly the change should be made will depend on:

- PRE
- admin and claims systems
- availability of free assets to smooth or augment temporarily
- actions of competitors: new business would be damaged unless competitors also cut payouts
- ability to adjust surrender values through a market value adjuster

Also, need to consider the effect of the change in asset values and any change in dividend yields on the supervisory valuation result, including the cost of bonus. It is probable that the fall would reduce the free assets. Depending on the extent of the reduction, this may require a review of investment strategy and/or a reduction to the accumulation rate. This would have to be investigated using projections of the future solvency position under the recommended bonus structures.

Finally, if it were thought that this were a temporary blip, no action would be taken except perhaps to adjust surrender values.

Few candidates considered the asset mix of the fund or the factors which would influence the speed of change.

7 (i)

The surplus is analysed to help identify the principal sources of surplus and their relative size, in order to improve the company's understanding of the business. In particular, to separate recurrent items from one-off items, in order to assist with surplus distribution.

The analysis on the realistic basis will provide information about the experience emerging under the policies. This can be fed back through the control cycle into the pricing assumptions. It may also indicate that a change is required to the investment policy for the assets backing the annuities.

The analysis on the supervisory basis will act as a useful check on the valuation result. It will also help forecast future profits.

(ii) The principal sources of surplus are:

- The investment income generated by the assets backing the reserves, compared to the valuation interest rate.
- The difference between the reserves actually released through deaths and the release expected by the mortality basis used for the valuation.
- The costs incurred by the company when writing new policies, compared to the expense loading included in the premium basis.

- The costs incurred administering the policies once they are in force, compared to the loading included in the valuation basis.
- The financing strain generated when a policy is written, due to differences between the premium and valuation bases.
- Differences a given change in financial conditions has on the assets backing the reserves and on the reserves themselves.

The supervisory reserves will be calculated on a more prudent basis than the realistic reserves. Hence, the initial level of the reserves will be higher. This will increase the strain caused by item 5. However, the amount required to roll the reserves on from one year to the next will be lower. This will increase the surplus released by items 1, 2 and 4.

The valuation basis may be more passive for the supervisory reserves. This potentially will produce larger surpluses and strains from item 6.

Most candidates answered this question well.

- 8 (i) Shareholder value is the net asset value in respect of the shareholders' fund, plus any net asset value within the without profits fund, plus the present value of future profits from the long term business fund, plus value of the shareholder interest in any free estate in the with profits fund.

From the point of view of analysing the progress of the life insurance business from the shareholders' perspective, it is not necessary to consider the net asset value part. Transfers between the two funds do need to be taken into account, however.

The main components into which the change in shareholder value would be analysed are:

- The change in value of free assets / free estate.
- The unwinding of the risk discount rate.
- The difference between the actual and the expected transfer to/from the long term business fund to the shareholders' fund.
- Any change in basis for calculating the present value of future profits.
- The value of new business written during the year.
- Any change in the model used (e.g. model points).

This part of the question was answered well.

- (ii) It is difficult to predict accurately what the transfer will be the next year. This transfer will reflect both the cash flows relating to existing business and those relating to new business.

With Profits Business

For with profits business the transfer represents the shareholders' share of the cost of bonus. The cost of bonus is on the supervisory valuation basis which may have changed from that assumed at the year start.

The actual bonus rates may have differed from those assumed at the year start. The actual mortality or withdrawal experience may have differed from that assumed in estimating the cost of bonus. The % of surplus distributed to shareholders may be different from that assumed at the year start.

Unit-Linked Business

In calculating the embedded value it will have been assumed that all emerging profit is immediately transferred to shareholders. The expected cash flow is therefore the net cash flow at the year end on assumptions made at the beginning of the year. The difference could therefore be due to experience differing from that expected. For example, expenses, lapses, mortality, or investment returns could have differed from those expected.

The expected cash flow will also reflect an assumption about the reserves which are required to be held at the end of the year. The actual valuation basis may differ from that assumed at the year start.

New Business

New business tends to have a negative cash flow in the first year. Thus, although if this business is profitable it will increase the shareholder value, it will reduce the transfer to shareholders in the year in which it is written. So, if actual new business volumes differ from those expected, the transfer to shareholders will differ from that expected.

Possible Ways to Reduce the Variations

Reversionary bonus rates will tend to reflect the company's expectations of long term future investment returns more than the actual return earned in the last year. So, barring exceptional investment years, it is unlikely that reversionary bonus will differ significantly from that assumed at the year start. The company can therefore control variations from this source in normal circumstances.

Terminal bonus will, however, reflect more closely the investment return earned in the year and it is likely that a significant % of the assets are held in equities which tend to produce volatile returns from year to year.

The extent to which these can be controlled by the company will depend on the smoothing policy of the company. Since the supervisory minimum valuation basis in the UK is based on the yields on the underlying assets, the extent to which the company can reduce variations resulting from changes in this basis is also limited.

If the company holds reserves greater than the supervisory minimum, however, it can attempt to adopt a passive rather than an active valuation basis so as to limit variations from this source.

Other than restrictions on the maximum change in the % of surplus distributed to shareholders in respect of with profits business from that in the previous year, and any restrictions in the company's constitution, the % distributed to shareholders is at the company's discretion. The company can, therefore, control the extent to which variations arise from this source. Most companies are likely to distribute the maximum permissible to shareholders.

The company can minimise its exposure to variations in mortality experience through the use of reinsurance. The company has limited control over variations in withdrawal experience although keeping service levels constant should help. The company can obviously control, to an extent, expense levels and therefore reduce variations from this source.

For unit-linked business, the company can reduce fluctuations in profits due to investment return volatility by setting sterling rather than fund related charges, although this is likely only to be possible for future new business. Other than reducing premiums, which might not be viable from a profitability point of view, the company has little control over variations arising from lower volumes of new business than expected due to competitive pressures.

It could restrict variations due to selling more new business than expected by setting a maximum volume of business for the year. But, assuming that business can be written on profitable terms, an increase in shareholder value might be preferable to reduced volatility of the transfer to the shareholders' fund, subject to capital constraints.

Candidates scored well on the causes of the differences but not so well on the ways to reduce the variations.

(iii) **Risk Discount Rate**

The risk discount rate is based on the return on risk-free assets, increased to reflect the extra risk involved in writing the particular business. Thus a reduction in expected long term gilt returns may lead to a lower risk discount rate. This will act to increase the present value of future profits.

However, the shareholders may adopt a passive basis for calculating shareholder value and leave the risk discount rate unaltered, even though the returns available on assets has changed. If the risk discount rate is

changed, this is likely to be the most significant impact of the change in investment conditions.

Value of With Profits

The reduction in yields and inflation is likely to lead to lower long term returns on the policies. This is likely to lead to a reduction in future reversionary bonus levels. In itself, if this is allowed for in the calculation of the present value of future profits, it will act to reduce shareholder value.

However, lower yields are also likely to lead to a reduction in the interest rates assumed in the reserves and hence an increase in the reserves. Since these reserves are used in calculating the cost of this bonus it will tend to increase the present value of future profits of the business.

It will also tend to increase the transfer to shareholders during the year above that assumed at the year start since the value of the reversionary bonus declared during the year will be higher. Lower total returns are also likely to lead to lower terminal bonus in the future which, as it is costed at face value, will tend to reduce the present value of future profits.

The reduction in yields over the last year is likely to have led to an increase in asset value which may lead to terminal bonus during the year exceeding that predicted at the start of the year. This would cause the transfer to shareholders for the year to exceed that expected.

Value of Unit Linked

The assumption about future expected investment returns will tend to be reduced. This will reduce the monetary value of the fund management charge which will tend to reduce the present value of future profits.

It will also reduce the rate earned on the non-unit reserves which will tend to reduce the present value of future profits. However, the assumption about future renewal expense inflation will also be reduced which will tend to increase the present value of future profits.

The assumption for the future rate of increase of any discretionary policy fees will also be reduced which will tend to reduce the present value of future profits. These investment return and expense inflation assumptions will also be changed in the calculation of the non-unit reserves assumed at each year end. If this results in an increase in these reserves it will reduce the transfer to shareholders' funds during the year from that expected at the year start (and vice versa).

Change in Value of Free Assets

As the yields have fallen over the year, capital values will have increased so the actual investment return in the year is likely to have exceeded that predicted at the year start. Thus, the increase in shareholder value

relating to the investment return earned on the free assets is likely to have been greater than what it would otherwise have been.

Most candidates had a reasonable attempt at this part of the question – few considered the change in value of the free assets.