

EXAMINATIONS

September 2003

Subject 402 — U.K. Fellowship Life Insurance

Paper One

EXAMINERS' REPORT

Introduction

The attached subject report has been written by the Principal Examiner with the aim of helping candidates. The examiners are mindful that a number of interpretations may be drawn from the syllabus and Core Reading. The questions and comments are based around Core Reading as the interpretation of the syllabus to which the examiners are working. They have however given credit for any alternative approach or interpretation which they consider to be reasonable.

The report does not attempt to offer a specimen solution for each question — that is, a solution that a well prepared candidate might have produced in the time allowed. For most questions substantially more detail is given than would normally be necessary to obtain a clear pass. There can also be valid alternatives which would gain equal marks.

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Chairman of the Board of Examiners

25 November 2003

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- 1** Shadow units may be created when units are allocated to an accumulating with profits contract. These units are allocated in the background and not seen by the policyholder.

The value of a shadow unit is increased or decreased in line with the value of assets in the underlying fund, or by movements in appropriate indices, usually on a daily basis.

The value of a shadow unit is also adjusted to allow for charges or expenses depending on the method used.

Shadow units are not used to set regular bonus rates which are set according to long term investment return expectations, PRE and competitor rates.

Shadow units can however be used to calculate the asset share of an accumulating with profits contract as equal to the number of shadow units times a shadow unit price.

Being able to define asset share in this way can be used to set terminal bonus rates that more accurately reflect the experience of a contract.

For example, each year's contributions could be tracked separately, which would easily enable more complicated contract features such as varying premium levels and premium holidays to be treated equitably for the purposes of terminal bonus.

Terminal bonus rates would not necessarily be calculated only by strict mathematical formula but would be adjusted to build in smoothing as appropriate.

Terminal bonus rates would also be adjusted to allow for non-investment sources of surplus (including any excess of charges over expenses if charges rather than expenses underlie the shadow unit price) if policyholders are entitled to such surpluses.

- 2** Group contracts are usually renewable each year with premiums paid annually

And the method assumes premium sufficient to meet claims

So a basic reserve is set as a proportion of premium equal to proportion of year remaining at valuation date.

Where premiums are payable monthly then the reserve will be the proportion of the month remaining at the valuation date.

The risk of the premium being insufficient (e.g. due to any renewal guarantees) may be covered by an additional deficiency reserve.

May also hold reserve for claims incurred but not reported if reporting delays experienced in the past.

Depending on contract design may also hold reserve in respect of any experience refunds expected to be paid.

Individual policies however last many years, until the death of the policyholder, and premiums are usually fixed throughout the lifetime of the contract so valuation method is based on cashflows throughout the policy lifetime.

Reserve based on the present value of the expected cost of claims and expenses, less the present value of future premiums due.

This may be calculated on a gross or net premium basis with a zillmer adjustment to the net premium basis to allow for recovery of initial expenses.

This question was generally well answered.

3 (i) Listed Shares — mid market value, subject to admissibility limits.

Unlisted Shares — market value, although this is more difficult to ascertain, again subject to any admissibility limits.

Gilts — mid market value — no inadmissibility issues.

Debts — face value if o/s term < 12 months (and it is reasonable to assume that the amount can be recovered) else amount that would be paid for immediate assignment of the debt.

Property — value ascertained by a qualified valuer on an open market basis within the last three years.

Computer equipment — purchase price is written down evenly over four years.

Other equipment — purchase price is written down evenly over two years.

Art — is inadmissible.

(ii) There are rules that limit the extent to which a particular asset is deemed admissible.

The purpose of these rules is to restrict concentration of risk.

The fact that the shares are concentrated in a small number of particular stocks suggests that some of the equity holding may fall outside the admissibility rules.

The portfolio needs to be diversified to a wider range of stocks so that the whole market value can be taken into account.

Although the FSA may grant a waiver of the limits if this is applied for.

In a rising property market valuations more than, say, a year old could be revisited to benefit from recent increases.

As the art is inadmissible, the company should look to sell this and transfer the value into admissible assets.

The valuation basis cannot be weakened on the current asset holding, but the changes to the assets described above may mean a higher valuation rate of interest is possible if the proportion of fixed interest rate stocks has increased.

The company could look to switch from equities to fixed interest, which should enable a higher valuation rate of interest to be used.

The company could match gilt assets to liabilities to reduce the level of any mismatching reserves required.

With profit bonus rates could be cut.

And new business volumes could be reduced to reduce the strain.

The company could look to take out subordinated loan capital.

Or take out a suitable reinsurance policy, possibly financial reinsurance, to reduce liabilities

The company could bring implicit items into the calculation.

Such implicit items are:

- Future profits
- Maximising the Zillmer adjustment
- Hidden reserves, (however this is unlikely in the UK)

Or raise further capital by issuing shares (if proprietary).

Or issue a convertible loan.

Or, with a smaller impact, cut the dividend payable (in the extreme to zero).

While a mutual could demutualise to raise capital.

This question was generally answered very well.

- 4 (i) SSB — to demonstrate solvency and to control the amount transferred from the fund to shareholders.

MSB — to provide true and fair accounts under the Companies Act 1989.

APM was developed to address the desire to inform shareholders of the true value of their interest in the business.

This has defensive benefits for quoted companies as it shows the real underlying value of the business.

It also enables companies to raise capital, as it is then possible to borrow against those future profits via securitisation.

- (ii) The SSB surplus is the excess of admissible assets over the value of liabilities.

The effect of new business will be to increase the liabilities.

Although a Zillmer adjustment may be used to defer some acquisition costs under the SSB (which will reduce the net premium valuation reserve to some extent.

New business will “increase” the admissible assets by the premium received less the costs of distribution and set up.

In the majority of cases this will in fact decrease the admissible assets.

The effect will therefore be that the SSB will be reduced by new business.

This will be irrespective of the underlying profitability of the new business.

Many insurance contracts are designed so that future margins exist that are greater than the renewal costs then being incurred. The margins are used to recover the new business costs incurred at issue.

In MSB reporting there is a desire to stabilise financial progress and to remove (within limits) the impact of new business strain found in SSB reporting.

In MSB reporting acquisition costs are deferred so that they are not allowed to depress profits unduly at the time of sale.

Instead they are used to reduce margins in the future, where these margins are not needed to cover the ongoing renewal costs of the company.

To a certain extent acquisition costs may be naturally deferred by the valuation method (e.g. Actuarial Funding or the use of a bonus reserve valuation for with profits business).

Otherwise, a Deferred Acquisition Cost (DAC) asset is set up on the balance sheet.

This asset is set up at issue, and then written down during the life of the policy.

Better candidates might also give detail of the limits imposed by MSB regulations, that:

- (a) Acquisition cost should be deferred by one of the following:
- creating an asset on the balance sheet
 - an explicit actuarial method (e.g. Zillmer) that allows deferred costs to be identified as an asset on the balance sheet
 - an implicit actuarial method which does not permit identification of costs deferred (e.g. gross premium valuation)
- (b) Deferred acquisition costs carried forward as an asset on the balance sheet should be amortised over the period which they are expected to be recovered out of margins.

The rate of amortisation should be commensurate with the pattern of those margins

- (c) Acquisition costs should not be deferred to the extent that:
- the costs have already been recovered
 - the contracts are not expected to generate enough margins over their lifetime to cover the acquisition costs after meeting other costs
 - the receipt of future premiums or margins is insufficiently certain, based on prudent estimates of future decrement rates.

The APM will estimate the future transfers to shareholders arising from the new business written in the period.

The shareholder transfer in the current year will be depressed due to the new business strain in the year.

But this will be added to the discounted value of the future transfers from the new business.

As a result the new business will show a positive value if that business is profitable on the APM basis.

However, this could still be a negative value if the APM basis is significantly more prudent than the pricing basis.

If the APM is reported as supplementary information in the published accounts, it is unlikely that the company would choose such a prudent basis.

- 5** (i) The shareholder value of a proprietary life insurance company consists of the net asset value of the shareholders' fund.

Plus the net assets of the long term fund to the extent that it is all attributable to shareholders.

Together with the present value of the future profits from the long term business fund that will be transferred to shareholders.

The change in value would be analysed as part of the control cycle:

- to assist in checking the calculations themselves and provide further information to assist auditors
- to compare actual experience against expected
- and thus to enable bases to be revised
- to value new business during the year
- to identify individual sources of profit and loss so that remedial action can be taken
- to identify unprofitable contracts so that action can be taken
- to provide data for any management incentive scheme
- and provide information for commentaries in report and Accounts or information for briefings to analysts

- (ii) Business with a rate of return of 11% will show a positive profit when discounted at a risk rate of return of 10%, while business with a rate of return of 5% will show a loss.

It may be that overall new business is profitable depending on the relative volumes of new business from each sales channel.

If this is the case then it will imply that the direct salesforce business is a very minor part of the overall new business, and it may therefore be less necessary to take any immediate action.

But a rate of return of 5% is similar to what the shareholders could earn on a risk-free investment such as a gilt, so there is very little reason why they

should continue to invest in direct sales business, however small the sales force is.

Unless the direct sales force is also selling other business for the company.

It may be that there is a one off or short-term effect that has generated the result for 2002 only.

The detailed analysis might show that a particular product was responsible for the losses and this could be redesigned or even withdrawn.

If not, it will be necessary to take some action to increase the profitability of the direct sales business, or to close the sales channel altogether.

There are two possible ways of doing this: increase charges or reduce expenses

Increasing charges essentially means making the products more expensive.

This might make them more difficult to sell and business volumes would fall, leaving fewer new policies to cover overheads and making the business no more profitable.

Alternatively if the market isn't price sensitive, this might do the trick.

Increasing the average production per salesperson or increasing the number of salespeople operating from each branch office could reduce expenses per policy, as could cutting management overheads.

Reducing salespeople's remuneration would reduce expenses but might also reduce business volumes.

Reducing the product prices or introducing sales incentives might increase sales volumes, but if the idea doesn't work the losses will be even greater.

So these are high-risk strategies.

While part (i) was generally answered well, discussions of the implications and actions in part (ii) were generally weak.

- 6** (i) As with all questions, but particularly so here, please could assistant examiners be alert to relevant points made in any part of the answer.

RDR is the rate used to discount uncertain future cashflows to give their present value

It represents the risk-free rate of return that the providers of capital demand plus an amount to allow for the risk that the profits may not emerge from the contract as expected.

It is used in profit testing to discount policy cashflows to give the present value of profits e.g. as percentage of premiums.

A different rate may be used for different parts of the basis — in particular a higher rate for uncertain items of cashflow — although this level of sophistication is unusual.

It may also be used to calculate the payback period for initial capital strains

- (ii) Consider a suitable risk free rate based on long term gilt yields (currently around 4.5%)

Then consider a suitable margin for risk.

Considering the variability of profit in this particular product design and sensitivity to withdrawals, expense variations etc.

The unit linked design may suggest a lower risk discount rate than on conventional products

...since investment risk is passed predominantly to policyholders

...and other items of cashflow may be matched by charges.

Can also consider risks compared to other uses for capital such as equity investment. (It is usually more risky so a higher rate is appropriate.)

May however simply use the same risk discount rate as for existing products (perhaps following Board instructions).

If it is felt that the new market is riskier (or lack of experience brings risk) then may use a higher rate although may just allow for this with margins elsewhere in the basis.

- (iii) Reducing risk discount rate, RDR, would increase reported profit for a given premium....

....or could give the same reported profit (as a percentage of premium) with a lower premium rate. Although in this latter case there would be a reduction in

the actual monetary amount of profit unless increased business volumes result from the premium reduction.

Similarly, reducing the RDR will not, for a given premium, change the underlying profit emerging as this will always depend on experience. All we are doing is reducing the risk margin we are using above the risk free rate in placing a present value on future profits.

Reducing the RDR means less margin to allow for the actual risks in writing the business.

The RDR should only be reduced if we consider it to be too cautious based on current risk free rates (e.g. gilt yields) and an appropriate risk margin for the particular product.

If we are considering reasons to justify reducing rates it is better to understand the true impact on underlying profitability.

We can then make an informed decision balancing the impact on competitiveness (business volumes, average expenses) and profitability.

Few candidates focused on the unit-linked product in their answer to part (ii).

- 7** (i) PHI is taxed on a profits basis, using the approach adopted in the companies act accounts rather than in the regulatory returns. This means that acquisition costs are deferred as in the accounts.

The contract pricing basis would allow for investment income and expenses included gross, with deferral of acquisition costs and an allowance made for tax on the profits generated.

The allowance for tax on the PHI profits will be at the basic income tax rate. Term assurance is taxed on an I minus E basis.

The company is currently in an excess I position. However term insurance has low reserves and thus expenses exceed investment income.

On a stand-alone basis, the business currently being written would be excess E.

If expenses are not allowed tax relief in the pricing basis, the premium rates are unlikely to be competitive.

Depending on the price sensitivity of the sales channel, this may have a significant impact on the volumes of business that can be written.

However if expenses are not allowed relief in the pricing basis then profits will be made as long as the company remains excess I, because the expenses will be relieved.

Alternatively if the contract is priced net, competitive terms can be offered.

It is however possible that the company's tax position will move to excess E during the life of the new business. Relief on expenses will then not occur and losses will then be incurred.

The company will need to project its tax position into the future to determine whether net pricing of the term assurances can be justified, and for how long this can continue.

If it were decided to treat the term assurance as taxable business a rate of 20% would be used for investment income although these may be offset by the presence of any guarantees in the product design

There would be no backing equities for this business so gains tax rates are not relevant.

If pricing is by a cash flow method the seven-year spread of acquisition expenses can be allowed explicitly, and the full 20% rate used for tax relief.

If a formula method is used a reduced rate of relief on expenses, say 15% could be used.

If the market will bear a semi-gross tax basis, then this would extend the period before fully gross rates need to be used.

- (ii) The costs of closing the general insurance subsidiary would be borne by the subsidiary and would not affect the taxation of the long term business fund. Losses from the general insurance business cannot be offset against profits of the life insurance business except in the same year.

The long term fund owns the office premises, which will now be partially vacant. In the past the general insurance company would have paid a contribution to premises costs, based on space occupied. This contribution will have ceased.

Similarly it may not have been possible to shed an equitable proportion of the shared corporate management, and the life insurance company may have increased management expenses for this reason.

The increased expenses will move the tax position more towards an excess E basis, or possibly make it excess E immediately. Losses will be incurred earlier on all the business that has been costed on a net basis.

If it is practical to let the redundant office space then this aspect may only be a temporary effect.

- (iii) The company will need to re-project its future tax position and reconsider the pricing basis for the term assurance business.

If it has moved into an Excess E position there is little alternative but to reprice on a gross basis.

In the extreme the company could cease writing term assurance business.

The company could try to market profitable investment business with investment returns that can be costed gross because of the excess E position.

A good example would be a single premium guaranteed return bond. Because the terms of these are guaranteed, these are sold entirely on price. If you can achieve a top return, business will be written.

The company could take steps to let the vacant space or, if the design of the building makes this difficult, sell the building and move to a smaller office.

This question was generally answered poorly.

- 8** (i) Regular bonus will generally be used to distribute investment income surplus.

Terminal bonus will be used to distribute expense, mortality and withdrawal surplus.

As well as any mismatching surplus from other business.

General surplus on other business will probably be distributed through terminal bonus although as a regular stream of profits is likely it may be used to support regular bonuses to a small extent.

Finally, capital appreciation, which can be very volatile, will generally be distributed by terminal bonus although part may be used to finance regular bonus if it is considered prudent to do so.

- (ii) There are likely to be at least four factors influencing the level of regular bonus declared.

Most important is the company's long term view of the rate of return expected to be achieved on the with profit fund mix of assets. This mix of assets will be influenced by the level of free assets in the fund.

For life products this will be reduced to allow for tax.

It will be further reduced to allow for the proportion of this return that the company wishes to distribute by terminal bonus.

This proportion may vary by the term of the policy

For example the company might aim to distribute $2N\%$ of the proceeds of an endowment as terminal bonus (where N is the term of the policy)

This theoretical level of distribution will then be refined by reference to:
Any guarantees on the policies.

Any comments in policy literature, or the with profit guide, influencing the expectation of policyholders.

And, probably most influential, the level of bonus offered by the company's competitors since regular bonus will be a major factor for Independent Intermediaries in their choice of placing business.

- (iii) The company is likely to have considered the fall in the first year as a temporary feature or market correction, which would be followed by further growth.

Assuming that some terminal bonus cushion had been built up and the rate being declared was not greater than the long term rate considered in (ii) then the company would probably not have hurried to reduce regular bonus rates...

... unless they considered the change due to a fundamental realignment of the likely long term rate of return.

As mentioned above, any reduction in regular bonus would have taken particular note of moves, or likely moves, by competitors.

With continued falls in equity values the scope for terminal bonus would be declining and so the pressure for a reduction in regular bonus would increase in order to at least slow the fall in terminal bonus capacity. Policyholder expectations would be an important consideration here.

In particular for recent business where theoretical terminal bonus would be negative the pressure would be greater to the extent that a new regular bonus series might be considered for new business after a certain date in order to realign policyholder's expectations.

However this would again raise competition issues and it is more likely that a new series might be introduced at the end of the period of equity falls (if and when that is considered to have occurred).

This is so that a higher rate of regular bonus might be paid to new policyholders to aid marketing since the rate available for older policies might be blighted for some time by the level of previous declarations leaving notional fund levels ahead of asset shares.

A further issue likely to have been considered over this period will have been the frequency of bonus declarations and it is likely that the falls in the level of regular bonus will have been announced more frequently than annually.

This would have allowed rates to be reduced more quickly while also making each individual reduction smaller.

The size of any Bonus Smoothing Account or Free Estate might also have a bearing on how fast the necessary reductions were implemented.

- (iv) Management of payouts is likely to have been by reduction in terminal bonus to start with.

Followed by further reductions in terminal bonus and the introduction of a Market Value Adjustment (MVA) where permitted as the scope for terminal bonus reached zero for some policies.

Possibly with the introduction of the MVA before terminal bonus reached zero, as it is possible that systems would allow this to be introduced more quickly.

And allows contractual payouts to continue to benefit from positive smoothing

Without also passing too much of this benefit to non contractual payouts.

Which might be particularly relevant if there had been a significant increase in surrender and transfer requests.

As terminal bonus disappears the regular bonus will also have been reduced to avoid exacerbating the situation further.

Although scope for this might be limited by policyholders reasonable expectations.

This question was generally answered well.