Faculty of Actuaries **Institute of Actuaries**

EXAMINATIONS

April 1999

Subject 402 — UK Fellowship Life Insurance

Paper Two

EXAMINERS' REPORT

© Faculty of Actuaries
© Institute of Actuaries

Comments on each individual question appear in italics at the end of the relevant solution.

1 (i) The solvency margin for both the non-linked and the RPI annuities will be 4% of the reserve. The annuities amount to 313/2132.9 = 14.7% of the non-linked liabilities so, even if the transfer is by means of reassurance, no additional solvency margin will be generated in total. As the annuity subsidiary (called AnnCo hereafter) will not market any business directly, its excess asset ratio is irrelevant for marketing purposes, and should thus be maintained at a minimum.

A possible split is:

	AnnCo £m	Mutual £m	Total £m
Assets			
Investments	326.0	3281.9	3607.9
Value of Subsidiary		0.5	
	326.0	3282.4	3607.9
Liabilities			
With profit deferred annuities	-	1806.1	
Term assurance	-	12.2	
Waiver of premium	-	1.6	
Unit-linked deferred annuities	-	1230.7	
Non-linked annuity in payment	290.2	-	
RPI-linked annuity in payment	22.8	-	
	313.0	3050.6	3363.6
Solvency margin	12.5	88.8	101.3
Excess assets	0.5	143.0	143.0
As percentage of liabilities	0.16%	4.69%	4.25%

Thus the gearing effect improves the excess asset ratio from 4.25% to 4.69%.

(ii) The reassurance arrangement is open-ended and not restricted to a tranche of business. The policy and relationship with the client remain with the mutual. Hence there is no need to involve or inform the affected clients or other members of the mutual. It can be set up or cancelled speedily, once AnnCo has been formed and authorised to transact business and kept as a low profile transaction, which most IFAs would be unlikely to notice.

However, once the annuity liabilities exceed 15% of the non-linked gross liabilities in the mutual, the 85% restriction on the reassurance deduction in the solvency margin bites. This means the mutual has to hold a solvency margin in respect of the gross line of annuity business, which reduces the benefit of the gearing. This is a likely scenario for the future because the linked business will generate non-linked annuities in payment.

The Schedule 2C transfer can only be effected for a predetermined tranche of business (which is necessarily then closed and diminishing). Further transfers would be necessary for future business. The client has new relationship with a different company and all the mutuals members would need to be informed of the transfer. An Independent Actuary's report would be required and the costs of the court process incurred. Cancellation would require a reverse transfer. Hence the double solvency margin would not be generated.

The advantages of transferring the business by a reassurance agreement are the more persuasive.

(iii) The office systems would need to identify which policies were written in/reassured into AnnCo for the purposes of valuation and accounting. The accounting system would need to cope with a second company and produce accounts for it, the parent company and consolidated accounts for the group. Two sets of statutory returns would be required. AnnCo would need an Appointed Actuary and Board and management structure, probably a subset of the mutual's management and would need to be audited, incurring additional fees. If the transfer was by Schedule 2C then AnnCo would need stationery etc. to communicate with clients.

A pensions-only mutual would pay tax on profits at the policyholders' rate and could reclaim tax deducted at source from unfranked investment income, but not tax credits or overseas tax. A pensions-only proprietary, such as AnnCo, would pay tax on profits at the full Corporation Tax rate.

Hence, more tax is payable if the annuity business is transferred. The extent of this needs to be modelled and factored into the decision process.

Group expenses would need to be apportioned to both the long term fund and the shareholders' fund of AnnCo. This should be easily derived from the existing analysis of expenses.

(iv) The starting point would be the earmarked set of gilts and bonds.

However, these assets will only cover the liabilities at market rates of interest and on realistic mortality assumptions. The valuation basis in context needs to be prudent in every item. A margin of 2½% is built into the statutory maximum valuation rate of interest, and the company may use a greater margin than this. The valuation mortality would probably be lighter than the realistic assumption and expense assumption and expense inflation greater. Hence the statutory reserves to be transferred will be greater than the value of the earmarked assets. There may be a resilience reserve, although this is unlikely, but assets representing the solvency margin would need to be transferred.

Thus we need to determine what assets most appropriately match the solvency margin and the difference between the valuation and realistic bases. The solvency margin is 4% of the valuation liabilities. Thus if the matching assets are increased by 4% the solvency margin will be matched too. The cash flow analysis used to match the liabilities at market rates could be re-run on the valuation assumptions and the matching assets determined. In practice, the available assets of the parent company would be considered and possibly any balance settled in cash, which could be invested appropriately by AnnCo.

Assuming the transfer is effected by reassurance and future annuities are reassured at vesting a reassurance premium will need to be paid for each case. Unit-linked assets will be inappropriate and the with profits liabilities at vesting will be partly matched by equity type assets as the open market option exists funding will be for cash. Thus the premium should be settled in cash. While the size of AnnCo is growing the solvency margin and the valuation strain will also need to be provided. However, in time, if the pricing assumptions are borne out the valuation strain will be released. Similarly the solvency margin could then be recycled to other contracts. AnnCo could charge a higher reassurance premium than the value of the annuity on the pricing basis while liabilities are increasing. Alternatively the mutual could subscribe the capital needed by taking up shares in AnnCo. Tax efficiency will be a key determinant in the method used and tax projections will need to be carried out.

(v) Other actions which might increase market share include:

Add options in the product design.

Particularly for the IFA market, introduce an income drawdown facility allowing funds to remain equity based once income commences.

Widen the range of unit-linked funds.

Reduce charges to improve the position in comparative surveys. For a mutual with limited sources of external capital and the need to maintain equity across contracts and generations, and to meet PRE this needs to be strictly controlled. The use of the free assets, which are limited, for this purpose must be closely monitored.

Concentrate efforts on improving the investment performance of key funds.

Increase the rates of commission paid.

Offer a range of commission choices associated with different benefit levels to appeal to different types of IFA.

Pay more than asset share at vesting to improve past performance results. Again constrained by limited free assets and the need to consider PRE.

Advertise, either particular contracts or general name awareness.

Increase the free assets through, for example, securitisation.

Part (i) was a relatively straightforward numeric question, in general answered well. A large number of candidates assumed that the reinsurance arrangement was with an external company, whereas the question clearly states that it is with a new subsidiary of the mutual. Hence, many of the points made in part (ii), such as access to the reinsurer's expertise, were irrelevant.

Answer to parts (iii) and (iv) tended to be somewhat superficial. Most candidates produced reasonable solutions to part (v), the principal deficiency being a failure to consider items unrelated to financial strength.

2 Outline solution

(i) Diversification into new markets may not work, as the office has no prior track record or reputation for these product types. Also, the direct sales force will require extensive training and may lack confidence with the new products.

Annuities and term assurances may not be profitable business for the company, as it has no experience in underwriting or pricing these product types. However, reinsurers may help. Profit margins on annuities and term assurance are likely to be low, if they are designed and priced for success in the IFA markets – although they may still make an acceptable contribution to overheads. Annuity profitability is also very vulnerable to future improvements in longevity, which have often been underestimated in the past.

Entry into the IFA market may not succeed, or may not be profitable, as IFA business tends to be sold on price. The company also has no track record on UWP business. An IFA sales force will have to be set up from scratch and management of the existing product and distribution could be impaired.

(ii) The requirements for capital arise from:

The expense of selling higher volumes of business, which will not be recouped immediately, including the valuation strain on annuities and term assurances, as well as on pension business if the competitive positioning leads to not having front-end loads.

Setting up and operating the with profits fund, which leads to additional work in finance, investment and actuarial areas, and smoothing the returns through bonuses.

The required minimum margin for all the new product types.

Designing and building the new products, including the marketing costs to create market awareness.

Creating the supporting processes for sales and administration, particularly an underwriting function, including expanding the office space increasing the workforce and training it.

Possible sources of capital include:

Existing shareholders through rights issue.

New shareholders, through a takeover or merger.

Existing free assets, but these may not be substantial.

Financing reinsurance.

(iii) For annuities, closely matched investments are needed for level annuities these will be fixed interest stocks of appropriate term, probably corporate to obtain a higher yield, whilst for RPI–linked annuities and expenses index-linked stocks will be required.However, it may not be possible to have matching assets for all the annuities, due to the long terms.

The reserves for term assurances are likely to be small, particularly if the business is reinsured. Fixed interest stocks will be suitable.

Investment guidelines must be developed for the assets backing the with profits business. The investment philosophy must be explained in the With Profits Guide and to prospective policyholders and it will be a significant factor in framing policyholders' reasonable expectations.
A high weighting of equity investment is likely, to conform to the market norm for with profits companies. It will also be necessary to consider the overseas content. Property investment is a possibility, but the company may have no existing capability in this area. Fixed interest investment will be required to match the guaranteed benefits. The mix of reversionary and terminal bonus is relevant.

The assets backing the required minimum margin should be invested in line with the assets backing the corresponding mathematical reserves. The free assets will probably be invested in equities and property.

(iv) Underwriting

No underwriting is required on the annuities, unless impaired life terms are offered nor on the unitised with profits pensions, unless waiver benefit or life assurance is offered.

Medical and financial underwriting will be required for the term assurances. This will be a new function for the company. The medical underwriting limits should in theory be related to the size of the risk portfolio, which would usually suggest low limits. However, low limits are unacceptable to the IFA market and if higher limits are adopted, the company may require protection through reinsurance from the risk of claims volatility. The expense of underwriting must be allowed for in the pricing.

Financial underwriting is required to check that the cover applied for is not excessive in relation to the policyholder's insurable interest. Also the monitoring of claims by number, size, policy duration, and cause will be needed to check the effectiveness of the underwriting. For life assurance, limited claims underwriting is needed, unless critical illness or other riders are offered.

<u>Reinsurance</u>

It is possible to reinsure the longevity risk on annuities, which this would protect the company against cash and reserving strains, if annuitant mortality improves faster than expected.

The U. With Profits business could be reinsured to another company's with profit fund which would allow the track record of that fund to support the marketing of the product. However, the reinsuring company would require a significant share of the profits, in return for bearing the guarantee risks and cost of capital.

Reinsurance is likely to be used for the term assurances. An excess treaty, with a relatively low excess level, would limit the company's exposure to any single claim. Stop loss and catastrophe reinsurance arrangements may be used to avoid the risk of heavy loss on the whole term assurance portfolio and quota share treaty could be used to reduce the variability of profit. Quota share reinsurance may also reduce the capital requirement for this business, depending on the terms of the treaty. Finally, financing reinsurance may be used as a source of capital.

Parts (i), (ii) and (iii) were in general answered reasonably well. However, most candidates failed to mention several of the risk factors in part (i).

The most common fault in part (ii) was to focus on the financial strains generated by writing the business, without considering items such as the initial development costs.

Some solutions to part (iii) failed to give sufficient detail about the with profits investment mix.

Most solutions to part (iv) were somewhat superficial. Many candidates made little effort to present their solution in the form of a report, beyond including a short introduction.