

# EXAMINATION

September 2006

## Subject SA2 — Life Insurance Specialist Applications

### EXAMINERS' REPORT

#### Introduction

The attached subject report has been written by the Principal Examiner with the aim of helping candidates. 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.

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Chairman of the Board of Examiners

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#### Comments

Individual comments are shown after each part question.

#### General comments

*A disappointing number of candidates showed some surprising lack of basic “bookwork” knowledge. In addition, a large number of candidates began with sound arguments but failed to carry them through to their conclusion. A significant number of basic marks were missed on questions where candidates seemed to suspect that the question was seeking less obvious answers than was actually the case.*

**1 (i) OVERALL**

The action taken by the company will depend on the credibility it attaches to the survey

The choice will depend on the balance the company believes it can strike between accepting lower unit profitability in return for potentially higher sales and hence profits overall.

It may need to re-price some or all of its product range if it expects its experience assumptions to change.

It should consider the level of capital that it may need to participate. Capital would be needed for higher new business strain and the costs of making any infrastructure changes

The timing of any move by the company is important, it must weigh up: The potential gain from “first mover advantage” relative to potential investment losses if the multi-tie does not work and losses relative to being able to further develop the existing profitable IFA channel.

The company should consider the proposal in light of the market opportunities presented, which may comprise;

- Writing business in new market segments (if the company is a “niche” provider operating in only certain segments),
- withdrawal from unprofitable product segments if they are offered by other participating members.
- as a defensive measure — if the company believes its traditional distribution may be materially reduced.

Whether increased new business volumes could arise will partly depend on the company’s product range and that of the other providers in the multi-tie. If all participants essentially offer the same products then issues apart from commission may still decide which company benefits most, e.g. customer service, fund performance

A key consideration would be the terms of the proposed arrangement. If, for example, it is open-ended and with onerous exit provisions then this increases the risk to success. If however, it is renegotiable in a relatively short time-span, then this may act as a disincentive to infrastructure investment.

**NEW CHANNEL PROFITABILITY**

Incentives may be offered in order to attract advisers to join the multi-tie. For example, on-line services, improved/preferential service standards for accepting and servicing business.

This could clearly impact the company's operating model. Unit costs may increase, or alternatively significant investment in technology may be required. The company should consider the costs of setting up a second distribution channel (systems, literature)

The company therefore will need to consider whether to adopt as an alternative a different operating model for the 2 channels. This may involve putting administration in different locations or even an outsourcing strategy.

### **IMPACT ON EXISTING NEW BUSINESS CHANNEL**

The effect of the multi-tie on the whole of market advisers cannot be ignored.

The company is still expecting to receive the majority of its business from this channel. Any perception that it is less committed to the sector may have an adverse impact on business levels. They are unlikely to simply accept continuing to place business if they feel they are being offered an inferior service standard as well as lower commission.

Ultimately one might expect them to negotiate at least as high commission. Therefore, all that is achieved is an increase in commission across the market.

Whether or not the company joins the multi-tie arrangement, it is likely to be forced to seek cost reductions. This may be easier to achieve if the company is relatively small and can therefore benefit to a greater extent from increases in new business volume.

It may be possible to use the multi-tie to force non-participating companies out of certain market segments in the longer term. After which it may be possible to increase price.

### **EXISTING BOOK**

The company should consider whether there may be re-writing of its existing business.

For example, an adviser moving from a whole of market to a multi-tie status might be regarded as a point at which to revisit advice made to existing clients.

If existing business is not protected by exit penalties, then the company may observe its persistency deteriorating whilst its new business increases.

### **FUNDING/CAPITAL**

The company would have to consider how to fund any required investment. It may have to convince shareholders — who may be sceptical or unwilling to commit capital over a long timeframe. On the other hand a mutual might be heavily constrained if significant investment in systems and processes is required.

## OTHER ALTERNATIVES

The company may wish to consider alternative distribution models.

Ultimately, if the economics do not support the decision, then it should not join. However, the company then accepts the risk that if such arrangements have a greater impact on the whole of market segment, it faces declining new business in the longer term.

Ultimately this could force closure to new business in the UK

*Despite being quite broad in nature, this question was generally well answered — it was a variant of a question that has been asked in different forms before and seeks to test candidates' basic grasp of profit dynamics in an insurance company. Some candidates interpreted the question as the company would enter a different market segment and talked about differences in lots of market characteristics (e.g. underwriting) rather than being about changing distribution dynamics. There was only limited credit given for this as the question explicitly stated that future business would be that which was "currently sold" — hence the better solutions correctly focussed on the distribution economics.*

- (ii) The company will need to undertake a series of model office projections.

The critical variables are likely to be, new business levels and mix, expenses and persistency.

Sensitivity analyses will be required around key assumptions such as channel mix, expenses and persistency.

Information on other participants, the intended product offerings from each participant and current market share data would be useful in order to form a view as to possible new business potential in a central scenario.

An analysis of current new business by source would be necessary in order to arrive at a plausible range of proportions of future new business that might arise in a multi-tie arrangement.

A recent full expense analysis will be required in order to understand the company's current unit costs — ideally by product. Expenses should include current and proposed commission arrangements.

The projections should allow for the spreading of fixed overhead costs over existing and projected new business. The company should consider possible differences in administration costs for the 2 channels in projecting expenses.

In order to investigate possible alternative expense scenarios the company could consider getting some quotations from outsourcing specialists. A view would be required as to the likely costs of managing such an arrangement in order to arrive at a fair comparison.

Consideration should be given to any possible future impacts on persistency, including the possibility of churning. Special consideration should be given to persistency of multi-tie business beyond the end of any agreement term. The company's most recent analysis by product should be available.

It would be difficult to be too definite on future persistency trends — FSA reports show persistency by distribution channel. However, multi-tie advisers may come from previous IFA or tied agent firms and so may be expected to exhibit characteristics somewhere between the two.

Projections would be made of expected IFRS earnings and embedded values to demonstrate potential value added from such a deal.

Projections of regulatory solvency would also be made in order to ensure that the company can continue to meet its regulatory obligations.

In scenarios where unit costs might be expected to increase, consideration would need to be given to any possible increases to regulatory reserves that might arise in future.

The future new business contribution would be computed in each scenario. The profitability would be compared to the company's targets for e.g. return on capital and to the costs of setting up the arrangement.

The company may allow for the impact of assumed management actions in its projections, for example, exit from product segments in the event that new business profitability falls below a certain threshold.

The company should consider whether it believes the multi-tie presents increased risks and address those through its individual capital assessment (ICA). The costs of providing any additional capital should be allowed for in making its decision.

The company may wish to investigate further the survey findings by seeking an independent opinion.

*Answers were not as good to this part as to the first. The main reason was a lack of precision about what question the modelling was trying to answer and therefore how they would undertake the exercise. There was generally not enough discussion around developing the important assumptions, which was where most of the marks were.*

- 2 (i) The company should look to see if there are ways to use its excess capital to generate sufficient returns.

If it cannot do this it should look to return the capital to its owners, the company shareholders. If it decides to repay capital to shareholders the simplest way would be by a transfer of profits from the non profit fund to the shareholder fund.

The company could look to use the excess capital to fund an increase new business. This could be through new product launches or more competitive pricing and charging structures, for example it may introduce marketable options or guarantees.

It could also use the capital to invest in other new ventures e.g new distribution channels, buying closed book of business.

In addition the company may use the excess capital to increase the level of risk it operates with in order to enhance returns.

It may change its investment strategy by increasing the credit risk taken its fixed interest portfolio backing the term assurance business and may invest its surplus assets more aggressively than before, for example into equities.

Life Offices commonly use reinsurance to reduce the mortality risks in its term assurance portfolio. With a high level of solvency the company may look to reduce its use of reinsurance in order to retain a higher proportion of the total profits emerging from the business.

*This part was generally well answered. No marks were awarded to candidates who mentioned deploying the capital in the with-profits fund.*

- (ii) (a) The company should project balance sheets on a realistic basis.

With modern computer power it may be able to perform a policy by policy projection or alternatively it may develop model points to represent the total portfolio.

Assumptions would need to be made covering the economic experience including investment returns and inflation. Assumptions will also be required for future bonuses. The company's current and past practice is relevant. If assumptions are made regarding varying future bonuses regard must be had to the company's PPFM as well as its obligations under TCF and FAS principle 6.

For those policies that contain an option to convert the policy proceeds to a pension on guaranteed terms, the assumption about the interest rate at retirement will be very important. The value of this options will also depend on assumptions for the future demographic experience including death and surrender rates.

Future expenses should be projected allowing for emerging diseconomies of scale as the closed book runs off.

The company would need to consider whether to perform deterministic or stochastic projections.

Deterministic modelling uses point estimates of investment returns to give a single projection. These are normally constant throughout the projection period but may vary over time. With deterministic modelling the company may do sensitivity tests with changes made in key assumptions.

Stochastic modelling may be important to investigate the impact and possibility of guaranteed benefits under the policy exceeding the asset share. Stochastic modelling will be particularly important for the modelling of the value of the guaranteed annuity options.

With stochastic modelling a number of simulations are performed. A distribution function is developed to define future asset returns and parameters are set for investment return expectation and volatility. It would also want to make assumptions about how bonus rates would vary in different market conditions.

The company would use the projection model to project the future solvency of the fund. It should project both realistic and regulatory balance sheets. As it is very difficult to project realistic balance sheets, approximate solutions for projected calculations of the cost of guarantees may be required.

It may use the model to project its likely future position using a range of possible asset mixes or if using stochastic modelling develop dynamic rules to change the asset mix at certain defined trigger points.

It should use sensitivity tests to investigate the impact of different approaches for the distribution of the surplus assets

*This part was reasonably well answered. A number of candidates made some of the points under part (iii) but were awarded the marks as though they had answered this part.*

- (b) As it is interested in modelling cashflows it would need to split the investment return assumption into capital growth and income returns to estimate tax payable. It would need to do this separately for different asset classes so that it can model the impact of different asset mixes. The overall return will then depend on the assumed asset mix.

To generate the assumptions it is likely to use the past returns from the different asset classes together with expectations of future returns in light of economic conditions. It is likely to do this in terms of the risk

premium achieved for the asset class, i.e. the level of returns in excess of a risk free rate.

The company would need to consider a suitable time period to assess past returns. This would need to be long enough so the sample is not unduly distorted by short term fluctuations but not so long that data used is obsolete due to fundamental changes in economic or market conditions.

If stochastic modelling is being used the company would also need to consider volatility assumptions for the asset categories modelled. Again this is likely to be based on backtesting against historic observations with allowance for views on future changes. In addition the company may consider volatilities implied by option market pricing though the market for this is limited over longer durations.

Fixed interest rate volatility will be an important assumption for the policies that contain guaranteed annuity options.

The company will also need to consider the correlation in returns between asset classes. This is likely to be determined using historic data with allowance for any known factors that may influence future experience.

For the policies that contain the guaranteed annuity rates, the correlation between equity returns and fixed interest returns will be particularly important.

*This part was poorly answered. A lot of candidates answered the question as though it were asking for the investment strategy that should be followed, not the more obvious “how should you set an assumption”. It was also disappointing that some of those candidates who had discussed both deterministic and stochastic modelling in part a) then did not develop answers to both of those approaches in part b)*

- (c) The company will need to assess whether the closed fund has assets in excess of the asset shares of the policyholders and if so who this should be distributed to.

The company will need to consider how to be equitable between the different groups of policyholders and will need to consider the needs of shareholders who may have injected capital into the fund in the past.

It may wish to distribute any excess in proportion to the size of premium paid or asset shares or the period of time a policy has been in force.

The company would need to consider how often it intends to review its policy.



The company should consider the relative complexities of alternative approaches.

It would need to think about the form of any additional payments made. It could be made via enhanced regular bonuses, or one off enhancements at the point of claim which might also consider how to reattribute the inherited estate.

It must comply with requirements documented in the PPFM

It would need to think about the timing of any distribution of the excess. The more rapid the distribution of the surplus, the lower the realistic solvency position of the fund in future, and the greater the risk that shareholders will have to inject further capital.

If it distributed any extra payments now via reversionary bonus it would increase the guarantee costs in the fund which may impact on its ability to meet reserving requirements in future. It will want to ensure that sufficient surplus remains in the fund to be able to meet the guaranteed annuity rate liabilities.

The company would need to bear in mind its investment policy and the volatility of its capital values which will impact on the likelihood a downturn in values could impact on the fund's solvency. The more volatile the assets held, the more it may need to defer the distribution of surplus. Holding more volatile assets may increase overall returns. A balance needs to be struck.

It would also need to be aware that deferring making any payments would mean that those leaving the fund now would miss out and ultimately the last remaining policyholders would receive a disproportionate windfall.

If these guaranteed annuities remain within the with-profits fund then the longevity risk may remain after all wp business has gone off the books. Assets will have to remain in the wp fund to cover this risk, meaning that they cannot be distributed to wp policyholders, which may not be considered equitable. Potential solutions are to reinsure the annuities or to write them within the NP Fund.

The company would also need to think about how it should communicate to policyholders during the run-off period.

*In this part, most candidates talked about investment and expense issues, but only the best candidates addressed the main points about how the company should distribute an estate and what should be done about the annuity book that has longer term liabilities than the with-profits. This was disappointing, as this question has been asked before (albeit in a slightly different form).*

- (iii) The company is regulated on a “realistic” basis as opposed to a “regulatory basis” since its with profits liabilities exceed £500m. It is therefore subject to the “twin peaks” test in its pillar 1 assessment. In both bases, best estimate assumptions will be needed for option take-up rates and for annuitant mortality.

In Peak 1, the options would be valued using stochastic techniques.

The value of the option will depend not only on future bonuses but also on interest rates prevailing at the time the option is exercised. The company does not HAVE to assume future bonuses in the simulations.

Allowance may be made for some of the options to lapse. Historical lapse rates can be used as a guide, with appropriate margins for prudence.

In Peak 2 the options must be valued using a “market consistent” valuation approach. Since the options are complex and do not resemble market traded instruments, again a stochastic simulation approach will be required.

On this peak, the key difference is that the stochastic model must be calibrated to a set of assets whose market price is consistent with prices that can be observed at the valuation date.

The cost of providing the options may have been deducted from the asset shares which comprise the “base reserves”. Similarly, future option costs may be deducted as charges within the projected asset shares and shown separately in Form 19.

The treatment of charges for option costs within the asset share calculations must be consistent with the documentation in the PPFM.

A realistic lapse rate may be assumed in valuing the options. Management actions may be assumed (as long as they are consistent with PPFM) that may affect the value of the options.

In the regulatory returns, the option liability under peak 1 will be included in the liabilities of each product class in Form 51.

Additional risk capital equal to 4% of the option liability would then arise in the calculation of the LTICR in forms 60.

The valuation of the option liabilities would also be explicitly identified in the realistic balance sheet on Form 19.

*This part was poorly answered. Most candidates recognised this was a “realistic basis” life company but then failed to demonstrate good knowledge of the difference in the two peaks. Common errors were to assume that the annuity options were not required to be valued stochastically in Peak 1 and not to discuss the credits that may be taken in Peak 2 for management actions and future option costs. Very few candidates were able to place the liabilities in the correct place in the FSA returns.*

- (iv) The Actuarial Function Holder (AFH)'s main responsibilities are the subject of GN 40.

In particular, he must advise the company if any proposed course of action may lead to it having inadequate financial resources to meet liabilities to policyholders. The AFH will therefore be concerned if the cash offer is materially more generous than the reserves held for the option — this would then be likely to deplete the financial resources of the company.

Either or both of the AFH and WPA may be concerned about potential anti-selection effects arising from the policyholder reaction to the offer.

The AFH may also want to consider the impact of the proposed offer on the company's ICA. He will also be concerned if the offer may have collateral impacts on other groups of policyholders and the company's obligation to treat all customers fairly (Principle 6). For example, if the intention was to claw back the costs of a generous offer by increasing charges for unit linked policyholders.

The AFH will also be concerned if new contracts are being effected with the option, although this is unlikely.

The With-Profits Actuary (WPA) advises the company on the use of discretion in the course of its management of with profits business. The main duties are detailed in GN41.

Advice has to be given formally in writing under SUP 4.3.16AR on key aspects, of which this may be one.

He will be concerned if the proposed course of action conflicts with the Principles and Practices of Financial Management for the fund.

The WPA has to report annually to the with profits policyholders on the way that the company has addressed the rights and competing interests of groups of policyholders, and policyholders vs. shareholders. He will therefore be concerned that the terms of the offer have considered those policyholders who do not have the option.

He will also be concerned as to whether the proposal may give rise to a change in the way that the firm allocates surplus between the various groups of policyholders.

The With-Profits Actuary may advise the company to make a special communication to all policyholders detailing the reasons for the proposed course of action.

*This part was a relatively simple bookwork question. Given this, it was disappointing to note the relatively high proportion of candidates who were unable to clearly articulate the duties of the two reserved functions. Many answers suggested that only the With-Profit Actuary was responsible for Treating Customers Fairly issues.*

- 3 (i) They both try to give a more true and fair treatment than the usual profit and loss account.

The statutory profit (or cash flow) arising from this policy would typically be negative in the first year and positive in subsequent years. This is true even if all the assumptions are borne out in practice and the policy is profitable under those assumptions.

So, without modification, a company selling profitable new business would see its profits reduced due to that new business. This would not be true and fair.

What these (MSB and AP) methods do is change the timing of the reported profits, but (if the assumptions are borne out) they do not change the total amount of profit over the lifetime of the policy.

The main feature in the MSB method is the use of “deferred acquisition costs” DAC. This method effectively recognises margins in future years that are intended to recoup the set up costs.

The DAC in MSB therefore reduces, or eliminates, the initial strain, thus increasing profit in the first year. However it reduces profit in subsequent years.

The Achieved Profits Method APM takes the expected profits, discounts them and adds them to the net assets. For profitable new business this will lead to a positive value being reported in the year the policy is written.

In subsequent years, if all assumptions are borne out, the only item in the APM account will be unwinding of the discount rate used in discounting the profits together with earnings on the net worth. So APM will tend to give a higher profit than MSB in the year the policy is written and lower profits subsequently.

The differences in profit recognition will largely depend upon the risk discount rate used in APM and the DAC accounting policy.

*Whilst some candidates answered this well, many candidates failed to observe the question asked specifically for “describe briefly” and put far too much detail on the construction of MSB technical accounts, balance sheets and components of achieved profits. As a result few candidates scored well in this part.*

- (ii) Possible reasons:

The market place has changed and the current contract design looks out of place compared to other products in the market in terms of price or other contract features. IFAs will regularly review their clients products and switch them if another product or provider looks more attractive (in terms of product price or relative investment performance).

Some disreputable IFAs will move client's business regularly merely to generate more commission income.

The policy has been sold by the company for over six years. The first policies sold will have gone beyond the surrender penalty period. The withdrawal assumptions will probably have anticipated an increase in withdrawals at this point, but it may have been inadequate.

All the withdrawal assumptions may simply have been inadequate.

A feature of the product was to have reasonable surrender values. However, during the time that the policy has been sold the world stock markets have risen dramatically and then collapsed. Policies purchased when the product was launched will have seen a sharp fall in their fund values which may have resulted in cancellation by the policyholder.

Or the relative performance of their fund manager may be poor

There may have been service issues leading to unhappy customers.

There may have been negative publicity about the company, product type or industry that has lead to the withdrawals.

Economic pressures may mean policyholders have not been able to maintain premiums.

Possible actions:

Change the contract design to reflect the current market place. This will help the persistency of new policies sold but not existing ones.

It may be possible to improve the benefits of existing policies in order to encourage better persistency by e.g. offering guarantees or loyalty bonuses. This only makes sense only if the value of the extra benefits is less than the value of business lost through withdrawal. However, if the persistency issue is serious enough, so that policy count is falling fast so that there are insufficient policies to support the overhead, then this may be easier to achieve than a cut in overhead costs.

Identify IFA's who are acting out of self-interest and either reduce the commission payable to them, review commission payment terms or cease trading with them.

Consider alternative distribution channels.

Little can be done with regard to general stock market performance, with the possible exception of product enhancements mentioned above. However, it would be possible to attempt to address the issue of poor relative fund performance by, for example, hiring an external fund manager.

Invest in improving customer service.

Carry out a PR campaign with the customers to improve brand loyalty.

Carry out some research to identify why people are leaving and address the issues raised. This may result in the development of a retention strategy containing elements such as regular management information, dedicated retention unit, management incentivisation to improve persistency

Engage an external company to carry out industry benchmarking to see whether the issue is specific to the company or whether other companies have the same problem. It may not be possible to identify a single cause.

*This part was also relatively poorly answered by the majority of candidates. Common mistakes were to talk exclusively about the risks of the contract design not recovering expenses and propose many alternatives (e.g. nil allocation periods) rather than answer the actual question which was solely about identifying causes and taking action to improve persistency.*

- (iii) The assumptions used should reflect what is expected to happen in the future.

It will be necessary to identify the reasons for the poor persistency and decide on appropriate action.

Where actions are taken on new policies but not existing ones, it will be reasonable to have different assumptions for new business to existing business.

If the reason is due to the stock market performance, it would be reasonable to assume that policies written in the last couple of years will not show the same effect as their policy values will not have suffered. It would therefore be sensible to apply different assumptions to the different cohorts of business. This would reduce the current year cost to the APM profits of the assumption change relative to changing for the whole book.

If it is down to poor service or bad publicity, then if that is rectified then no assumption change may be needed.

However, if the original assumptions were inadequate, then there is an unequivocal argument for changing the assumptions.

Any adverse change in assumptions will reduce the EV and hence be a negative impact on the APM profit.

Any action to improve persistency will also have a cost that will hit profit.

The company directors are responsible for setting the APM assumptions. They will therefore need to decide whether to accept poor experience and adjust assumptions accordingly or invest in taking action to improve experience

It may be that the cost of any assumption change could be mitigated by weakening other assumptions in the EV basis that have proved to be too conservative.

*Again, this part was relatively poorly answered by the majority of candidates. The main reason for this was the inadequate development of ideas that were meant to have been generated in part (ii). In particular, there was little evidence of candidates systematically considering the ideas to improve persistency that had been generated in part (ii) and structuring an answer around these.*

## **END OF EXAMINERS' REPORT**