Assignment X3 Solutions

Solution X3.1

Comment

The topic of treating customers fairly is covered in Chapter 14. Professional guidance is covered in Chapter 13. The role of the With-Profits Actuary is covered in Chapter 9 and the topic of investment is covered in Chapter 16.

(i) ***Treating the with-profits policyholders fairly***

With-profits policyholders may reasonably expect the company to behave fairly and responsibly in *exercising the discretion* that is available to it. [½]

They may also expect a reasonable degree of *continuity* in the company's approach to exercising this discretion. [½]

In the normal day-to-day management of with-profits business, treating customers fairly (TCF) is virtually synonymous with *equity* and so the company should consider whether its decisions have been equitable. [½]

For with-profits contracts, the almost universal method for assessing equity is asset share calculations. [½]

This is not to say that to meet TCF requirements, 100% of asset share must be paid out in all circumstances. [½]

In particular, the Conduct of Business Sourcebook (COBS) requires that companies specify in their Principles and Practices of Financial Management (PPFMs) target ranges around 100% of unsmoothed asset share, within which 90% of payouts must lie. [½]

The Principles and Practices of Financial Management of with-profits business are a specific requirement of the FCA that expands on what it means to treat customers fairly and describe how the company will exercise its discretion in various areas. [½]

The firm should check that its actions have been in line with its PPFM (and consumer-friendly PPFM). [½]

More generally, the contents of any sales literature, advertisements, promotional material, illustrations, quotations, policy projections, bonus notices and policy documents will all act in a similar way in building policyholder expectations and so the company should also consider its management of with-profits policies in the light of these documents. [1]

Particular areas where the company exercises discretion and so where it should consider TCF, and its compliance with the approach specified in its PPFM and other literature, include:

- Its choice of regular and terminal bonus rates relative to its past record and the whole industry. [½]

- The operation of any market value reduction (MVR) relative to its past record and the whole industry. [½]

- Maturity values relative to its past record and the whole industry. [½]

- Smoothing policy including the limits (if any) applied to the total cost of smoothing and the limits applied to any changes in the level of maturity payments between one period and another. [½]

- Asset share methodology and whether the various elements of the asset share calculations are reasonable given past practice and communications to policyholders and the practice of the whole industry. [½]

  For example, this might include the approach to making charge and expense deductions from asset shares and how overheads are apportioned between policies. [½]

  It also covers business risks run by the company and, in particular, how the company decides on whether a particular business risk is acceptable, arrangements for limiting the scale of such risks, and how the resulting profit or loss is reflected in with-profits payouts. [½]

- Investment strategy including the degree of matching and the approach to assets of different liquidity and volatility. [½]

- Attaching sufficient importance to expectations relating, for example, to surrender values, early retirement values, and options to extend or convert a policy. [½]

- Policy guarantees. [½]

- Specific situations where policyholder expectations might have been created, such as endowment policies maturing with sufficient value to repay a mortgage. [½]

- Whether any proposed course of action is sound and prudent by the normal standards of the industry, and fair to different classes of policyholder, as well as to policyholders relative to shareholders, *ie* consider equity between groups of with-profits policyholders as well as for the with-profits policyholders as a whole. [½]

The With-Profits Actuary is required to produce a publicly available annual report for policyholders which must confirm whether or not, in his or her opinion, the firm has properly taken policyholders' interests into account in exercising its discretion and whether the firm has treated its customers fairly. [½]

Regulation requires firms to treat their customers fairly and makes clear that the responsibility for satisfying the TCF requirements rests with the Board and senior management of the company. [½]

The FCA has published six consumer outcomes which explain what it wants TCF to achieve for consumers. [½]

In assessing the extent to which it is meeting TCF obligations, the Board and senior management of the company should consider the extent to which TCF is incorporated in the corporate strategy. [½]

They should also consider whether an appropriate framework of controls is in place to support delivery of the strategy. [½]

This should incorporate all stages of the product lifecycle, including product design, advice (including remuneration of advisers) and complaints as well as the areas considered above. [½]

[Maximum 11]

(ii) ***TAS R and the Insurance TAS***

The purpose of TAS R is to ensure that the reporting of actuarial work includes sufficient information to enable users to judge the relevance and implications of a report's contents ... [1]

... and that the information is presented in a clear and comprehensible manner. [½]

The Insurance TAS applies to all reserved work (*ie* where there is a regulatory or legal obligation that this work be performed by a qualified actuary) concerning insurance business, and any work concerning insurance business which is used in reports. [1]

The scope includes work relating to the exercise of discretion in relation to premiums or benefits. [½]

Its purpose is to ensure that management and governing bodies of insurers can understand and rely on the information supplied by their actuaries ... [½]

... and appreciate its limitations. [½]

It also requires that information provided to policyholders is relevant, comprehensible and sufficient for their needs. [½]

Key principles include the determination and use of appropriate and relevant assumptions and ... [½]

... the allowance for, and explanation of, future trends in assumptions. [½]

In relation to discretion (which includes the management of with-profits business):

- Ensuring that any management actions modelled are consistent with the fair treatment of policyholders. [½]
- Providing indication in reports of the effects of the proposed action on the policyholders and on any estate. [½]

[Maximum 5]

(iii) ***Possible management actions and their TCF considerations***

Communication

Depending on the extent of its concern about the capital position, the company may need to inform the PRA and discuss and agree a plan of actions that will be taken. [1]

The insurer should consider whether any other third parties should be advised about the current impact and any planned actions. This could include:

- rating agencies
- any securitisation investors or subordinated debt holders
- financial advisers, tied agents *etc*
- the media in general. [½ each, maximum 1]

The purpose of these communications would be to attempt to provide reassurance and demonstrate good management of the situation. [½]

The company should consider whether, and how, to communicate to policyholders. [½]

This might include explaining the impact on them of the recent equity falls and the reasoning behind any intended management actions to be taken as a result, and providing reassurance, if appropriate, that their investments remain secure. [1]

In particular, three months' notice must be given if the insurer decides to change any principles in its PPFM, ... [½]

... although changes to practices can be communicated retrospectively. [½]

Determining payouts (regular and terminal bonuses, smoothing)

The company may decide to cut regular and terminal bonuses. [1]

Cutting terminal bonus rates for maturing and surrendering policies would reduce the strain caused by having payouts in excess of asset share. [½]

Cutting regular bonus rates would slow the build-up of guarantees and so reduce the liabilities. [½]

The management might consider reducing the amount of smoothing of with-profits payouts to preserve capital. [½]

TCF considerations relating to these actions include:

- Considering what has been specified in the PPFM, in particular in response to market falls ... [½]
- ... for example, the PPFM may specify limits on changes to payouts or to bonus rates from one declaration to the next. [½]
- Considering whether terminal bonus rates be cut more for surrenders than for maturities, due to the anti-selection effect, in order to protect remaining policyholders. [½]
- What actions the company has previously taken in similar situations. [½]
- What expectations policyholders have, based on past bonus rates and past communications. [½]
- Past or current actions taken by competitors in this situation. [½]

Investment strategy

The company may change the asset mix in the fund. [½]

This could entail rebalancing holdings after the fall in equity markets in order to restore its original stated investment objectives ... [½]

... or choosing to move to a more matched position in order to reduce the risk from future adverse market conditions. [½]

However, this is also likely to mean moving to safer, lower return assets, which might not meet policyholders' reasonable expectations. [½]

Since the PPFM describes the investment strategy of the fund, the insurer should take that into account, ... [½]

... together with any other past communications, *eg* marketing literature and policy illustrations, before proceeding with any of the above changes. [½]

The solvency position could also potentially be improved by starting to use derivatives to protect the fund in future, *eg* against the stresses that need to be considered in the SCR. [1]

For example, equity put options would protect against further equity falls, ... [½]

... however they might currently be expensive if market volatility has increased. [½]

The insurer should first check that the PPFM doesn't prohibit the use of derivatives in the management of the fund. [½]

Other risk management tools

Other risk management tools, *eg* more reinsurance, could be used to reduce the risks to the fund. [½]

Consideration should be given to the terms available and the possible impact on future surpluses. [½]

Capital raising

The company may consider raising additional capital in order to protect its ongoing solvency. [1]

If the company is proprietary, then capital might be injected from the shareholder fund. [½]

More generally, it would have to consider the cost of any capital raised (which may be high in the current position) ... [½]

... and any future profits it was potentially giving up to capital providers. [½]

Charges

The insurer might introduce or increase charges for the cost of capital, guarantees and smoothing, *eg* to make sure its deductions from asset shares are appropriate. [1]

Consideration should be given to what is said regarding this in the PPFM. [½]

Governance

Since the insurer's governance of with-profits business must involve an independent assessment of whether the fund has been run in compliance with the PPFM, the insurer may wish to seek advice from, *eg* the WPA or the With-Profits Committee. [1]

[Maximum 16]

(iv) ***Implications for the company, including possible actions***

Implementing the change in asset mix

The change that has been decided on must now be implemented. [½]

The views of the investment managers should be sought with regard to timing. Forcing them to switch on a particular date might lead to losses that could have been avoided, given more flexibility. [½]

It might be better to give a time period over which the new asset allocation is to be achieved. [½]

New investment mandates should be drawn up, giving new acceptable ranges around these new central percentages. [½]

The equity managers might decide to remove the equity exposure via derivatives (*eg* buy suitable put options) and then unwind the actual positions more slowly over time. [½]

However, not being a large company means its equity sales are unlikely to distort market prices. [½]

The property managers will need to decide which properties to sell. [½]

If 10% of the fund is not large enough to achieve sufficient diversification within the property portfolio, they might consider other ways of achieving this, *eg* through investment in property unit trusts or shares in property companies. [1]

If the increase in bond holdings is for matching reasons, the company should investigate what spread of durations is needed for a matched position. [½]

The company should consider whether its mix of investment expertise is still appropriate after this change. For example, fewer equity managers may be needed, depending on the range of equity-based unit-linked funds on offer to unit-linked policyholders. [½]

Communication

This is a significant change to the asset backing of with-profits liabilities and so must be communicated to relevant parties. [½]

With-profits policyholders should be informed of the new asset mix, … [½]

… why this change has been deemed necessary, … [½]

… and the implications for their future expected bonuses. [½]

The company's PPFM and CFPPFM should be updated if appropriate. [1]

Without-profits policyholders might hear about this change and so the company might want to tell them whether if affects them – probably not. [½]

If unit-linked policyholders have the option of switching into a unitised with-profits fund link, then they should be informed of the change to the with-profits fund. [½]

A statement could be issued to shareholders, explaining the rationale of this change and the resulting benefits to them. [½]

Illustrations

When projecting possible benefits, the company must use FCA growth rates and its own charges. [½]

This new asset mix is likely to produce returns at around the lowest FCA growth rate (or even lower), so the company might consider highlighting this on its illustration documents … [½]

… or even produce projections at even lower growth rates (*eg* 0.5%/3.5%/6.5% instead of 1.5%/4.5%/7.5% for life business). [½]

This might lead to lower volumes of new business and/or larger volumes of withdrawals. [½]

If so, per-policy expenses are likely to increase for affected business … [½]

… and so the company should allow for this expected increase in its projections. [½]

Surplus distribution

The change in asset mix will affect future surplus distribution. [½]

Overall investment returns are expected to be lower in future and so payouts on with-profits policies will also have to be lower in future … [½]

… although smoothing might act to reduce the impact of this over the next few years. [½]

Assuming that the need to improve the ongoing capital position is due to recent poor investment returns, bonus rates are already likely to be at reduced levels … [½]

… and MVRs are likely to be in place (for unitised with-profits business). [½]

If current with-profits asset shares are close to (or even below) the value of guaranteed benefits, there might not be much scope for any further bonus for policies due to mature over the next few years. [½]

The prospects for younger policies will depend on future asset returns and therefore also on any future changes in asset mix over the longer term. [½]

With more stable returns expected in future, there is less need to use terminal bonus to defer surplus distribution in order to protect against volatile asset values, … [½]

… however in view of the likely weak capital position, the company is unlikely to move away from terminal bonus towards a greater emphasis on regular bonus, since this will likely increase the technical provisions and depress the Solvency II own funds. [1]

Discretionary benefits will still need to be allowed for in the technical provisions but they will be less onerous due to the ability to take credit for future management actions and policyholder behaviour.

Since the company is probably quite weak, it might have less scope for smoothing payouts compared with previous years, although this problem will be mitigated to some extent by the new asset mix. [½]

Retention of without-profits and unit-linked business

If the move is seen as a sign of weakness, withdrawals on without-profits and unit-linked business might also increase. [½]

If so, per-policy expenses might increase for these policies, necessitating either a reprice or an increase in unit charges. [½]

Increased withdrawals on unit-linked policies might lead to a switch from pricing on an offer basis to a bid basis, reducing unit prices (to the extent of market spreads and dealing costs) and possibly causing further withdrawals. [½]

[Maximum 18]

Solution X3.2

Comment

The topics of capital and investment are covered in Chapters 15 and 16 respectively. The topics of risk, underwriting and reinsurance were covered in Subject ST2 (although we will return to these topics later in the course).

This question is based on a past exam question. The Examiners' Report stated that whilst parts (i), (ii) and (iii) were in general answered reasonably well, most solutions to part (iv) were somewhat superficial.

(i) ***Risks of the proposal***

The content of the report should cover the following:

- Diversification into new markets may not work, as the company has no prior track record or reputation for these product types. [½]

- There is a risk of low volumes of annuity sales given the retirement freedoms in the UK. [½]

- The salesforce will need to be trained on the new products and may initially lack confidence. [1]

- Difficult to sell via financial advisers when the company has no track record. [½]

- New support systems must be established for the financial advisers. This might have a negative impact on the existing distribution channel. [½]

- Penetration of the financial adviser market might be less than expected. So risk of low volumes, meaning that profitability is much lower than expected. [1]

- There's a lack of data and technical experience in pricing and underwriting the business, especially term assurances. [1]

  This is particularly a problem due to potential anti-selection by financial advisers. [½]

  Reinsurers could help in this area. [½]

- Margins on without-profits business are very thin. [½]

  This is potentially a very high volume, price-sensitive market, so you must get the premium right … [½]

  … in particular the allowance for future mortality improvements for the annuities. [½]

- There's a lack of data for other aspects of the pricing basis, such as expenses and withdrawals. [½]

- There will be significant development costs. These may be under-estimated. [½]

- There are risks associated with the timing of profits. For without-profits business, the profit emerges later than for unit-linked business. This needs to be explained to shareholders. [1]

[Maximum 6]

(ii) ***Capital requirements***

Try to break your answer down with a few headings, to avoid scatter-gunning. The key ideas are shown below.

The capital requirements come from:

Development costs

- setting up new IT and administration systems (*eg* underwriting) [1]
- design and pricing of the products [½]
- advertising and marketing costs (during the initial development) [½]
- setting up broker-based sales offices [½]
- recruiting, training and locating the salesforce [½]

Costs of selling and managing the business

- commission (for the term assurance) [½]
- new business processing [½]
- underwriting [½]
- advertising and marketing costs [½]
- policy admin functions, *eg* claims handling, servicing annuity payments [1]
- investment and valuation [1]

Capital to write the business

- best estimate liabilities [½]
- risk margin [½]
- Solvency Capital Requirement (SCR) [½]

Sources of capital

- existing free surplus (likely to be small) [1]
- retained profits from the unit-linked business [½]
- rights issue (*ie* raise capital from existing shareholders) [½]
- offering new shareholders the chance to invest (*eg* takeover or merger) [½]
- subordinated loan stock. [½]

[Maximum 8]

(iii) ***Investment strategy***

Annuities

For the annuity portfolio the company should aim to match the annuity outgo by term and nature (*ie* fixed-interest gilts for level annuities and index-linked gilts for RPI-annuities). [1]

There might be practical problems finding stocks of a sufficiently long term. [½]

The company may use corporate bonds to obtain a slightly higher yield, especially if they hold the stock to maturity – so that lack of marketability is not important. [1]

The use of such corporate bonds might enable the company to apply for use of a matching adjustment, reducing the capital requirements in respect of the annuity portfolio. [½]

Term assurances

Fixed-interest stock will also be used to back the best estimate liabilities (BEL) for the term assurances. [½]

The BEL will be small (possibly negative) anyway. [½]

The company must also decide where to invest the company's free surplus. The appropriate choice of assets will depend upon:

- the size of free surplus, in absolute terms and as a percentage of liabilities
- the shareholders' attitude to risk. [1]

Free surplus will typically be invested in a range of domestic equities, overseas equities and property … [½]

… the aim being to maximise the shareholders' long-term returns. [½]
[Maximum 4]

(iv) ***Underwriting and reinsurance***

Underwriting

No underwriting is required for standard *annuities*, but would be required for any impaired life annuities. [1]

For the *term assurances*, the lives will be underwritten. [½]

Underwriting will be a new function for the company. [½]

The underwriting will look at medical history and other factors such as occupation, leisure pursuits, smoker status, normal country of residence and so on. [1]

The company must decide on limits of the size of sum assured before doctor's reports and medical examinations are sought. [½]

These limits should in theory be related to the size of the portfolio. [½]

However, in the financial adviser market, there may be pressure for relatively high limits. [½]

Higher limits are likely to lead to higher claims volatility and so reinsurance would become more important. [½]

The medical limits would take into account the results of a cost-benefit analysis. [½]

If the underwriting indicates that standard terms are not appropriate for a particular policy, then special terms should be offered if the company is prepared to proceed. [1]

Special terms might include charging an increased premium, offering a reduced term and/or imposing an exclusion clause (although the latter might be hard to enforce). [1]

Other issues to consider are:

- what use to make of genetic test results, if any [½]
- compliance with:
  - the Equality Act
  - the Data Protection Act
  - the EU Gender Directive
  - the Consumer Rights Act 2015 [1]
- the impact on reinsurance terms [½]
- medical limits of competitors, to avoid the "Sentinel" effect of attracting a disproportionate share of the anti-selective risks. [1]

The term assurances would also be financially underwritten. [½]

The aim is to ensure that the sum assured is reasonable compared with the proposer's salary and lifestyle. [½]

This should reduce the company's exposure to fraudulent claims. [½]

Also, if the premiums are checked for affordability, the withdrawal risk is reduced. [½]

Limited claims underwriting is needed. [½]

The company should monitor claims by number, size, policy duration and cause, to check the effectiveness of the underwriting. [1]

The expenses of underwriting should be allowed for when pricing. [½]

[Maximum 11]

Reinsurance

If available, quota share reinsurance could be used to help to protect against longevity risk on the *annuity portfolio*. [1]

This would also provide finance to reduce new business strain and also on-going capital strain should mortality improve faster than expected. [1]

Reinsurance is likely to be used for the *term assurances*, since the resulting regulatory arbitrage would allow lower premium rates to be charged. [1]

Individual surplus would limit the claim outgo in respect of any single claim, thus protecting solvency and the stability of profits. [½]

Quota share might be useful to reduce new business strain. [½]

If available for an acceptable cost, catastrophe excess of loss would protect against many claims from one event if group business is sold. [1]

Reinsurance introduces some new risks to the company:

- *counterparty risk* – the credit rating of and exposure to reinsurers should be monitored [1]
- *legal risk* – treaties should be worded very carefully and always be signed [1]
- *systems risk* – processes should be checked periodically. [1]

[Maximum 6]

Solution X3.3

Comment

The topic of asset-liability management, and the process of determining an investment strategy, is covered in Chapter 16 (and in Subjects CA1 and ST2).

Cashflow projections to investigate investment mix

Aim

Before recommending an investment mix, the aim of the investment strategy must have been specified. [½]

The basic investment principle for a life insurer is to maximise investment returns, subject to meeting all its obligations (contractual and TCF/PRE) and recognising the uncertainties involved and the overall risk that the shareholders (of proprietary companies), regulators and policyholders are prepared to tolerate. [1½]

The lowest risk position will be to choose assets that match the liabilities by amount, nature, term and currency. [½]

The company will have decided the extent that it is prepared to mismatch, for example it may have determined a "risk budget" *ie* how much risk to accept and how much capital to expose in doing this. [1]

The cashflow projections will examine alternative investment strategies so that they can be assessed as to their suitability and level of risk. [½]

These alternative strategies could incorporate both physical asset and derivative strategies. [½]

The investigation will have entailed building a model of the policies in the fund and projecting cashflows into the future under different investment strategies to see the effect on the financial position. [½]

For example, this could be assessed as the capital position on a realistic and/or statutory basis. [½]

Choice of model

The projection model could be either deterministic or stochastic. [½]

The most relevant factor affecting the company's future financial position is the volatility of the assets relative to the liabilities and so, a stochastic model might be preferable, with investment returns being modelled as random variables. [1]

A stochastic approach would involve projections under both the asset and liability models being based on the output from an economic scenario generator (ESG). [½]

The liability projection system models all relevant cashflows on a year by year basis for a number of future years. Allowance would have to be made for future bonuses and management actions. [½]

The company would have set a time horizon over which the assets and liabilities were projected. This is likely to have been until the last policy goes off the books. [1]

A real-world calibration of the model would have been used in order to project future cashflows. [½]

If time and cost constraints had resulted in a deterministic model being chosen, sensitivity testing would have been used to look at deviations in experience from best estimate. [½]

If it was felt that the liability projection model was too complex, the company may have decided to use a proxy model with the aim of performing much quicker and more frequent model runs for the purposes of high level decision-making or analysis such as this. [½]

Model inputs – liabilities

The starting liabilities could have been represented either by model points or using actual policy data. [½]

The choice would have depended on the number of in-force policies and the complexity and variability of the products and the model, *eg* a complex stochastic approach may be best suited to the use of model points. [1]

Model inputs – assets

There would also have been a choice as to what level of detail to use for modelling the assets. [½]

The minimum level of detail necessary would have been to divide up the assets into the three groups given in the question, but further division is likely *eg* equities and property might have been modelled separately, as might gilts and corporate debt and UK and overseas assets. [1]

The starting point for the assets could reflect either the actual make-up of the assets held, or, if this is different from the current long-term strategy for short-term tactical reasons, assets consistent with the current strategy. [1]

Model inputs – assumptions

In order to project future cashflows, best estimate assumptions would have been used. [½]

Assumptions are needed about:

- Investment returns – with separate assumptions for income and capital gains on each asset class. Correlations between asset classes are also important. [1]

- Future decrement rates (*eg* mortality, withdrawal, alteration), in order to project future premium income and benefit outgo. [1]

- Expenses – broken down into initial, renewal, claims and investment expenses, allowing for inflation. [1]

  The allowance for expenses should recognise the fact that the fund is recently closed, *eg* all future overheads must be covered by the current policies in the fund with none allocated to future sales. [1]

- Tax – allowing for BLAGAB and non-BLAGAB business separately. For BLAGAB tax, the timing of payments depends on the turnover rate of equities and timings of property sales. [½]

- Bonus declarations – these could be dynamically linked to investment returns and take into account the financial position at the time. They would also need to take into account PRE and TCF requirements. [1]

- Management actions – as well as relating to bonus declarations, these could include actions on such items as investment weightings, new business volumes, surrender values and MVRs. [1]

A projection period would have been chosen, probably until the fund has run off. [½]

Results

The output from the model would have shown the future financial position of the fund, *eg* the Chief Actuary may have looked at

- the likelihood of insolvency in each of the years of the fund's projected run off
- the ability to continue to pay regular bonuses in line with PRE and the company's PPFM
- the ability to pay terminal bonuses in line with a smoothing policy that is in line with PRE and the company's PPFM. [½ per example, maximum 1]

The results of this strategy would have been compared with the results of other investment strategies, by re-running the model for each different strategy under consideration. [½]

[Maximum 15]