INSTITUTE AND FACULTY OF ACTUARIES

EXAMINER'S REPORT

September 2014 examinations

Subject ST4 – Pensions and other Benefits Specialist Technical

Introduction

The Examiners' Report is written by the Principal Examiner with the aim of helping candidates, both those who are sitting the examination for the first time and using past papers as a revision aid and also those who have previously failed the subject.

The Examiners are charged by Council with examining the published syllabus. The Examiners have access to the Core Reading, which is designed to interpret the syllabus, and will generally base questions around it but are not required to examine the content of Core Reading specifically or exclusively.

For numerical questions the Examiners' preferred approach to the solution is reproduced in this report; other valid approaches are given appropriate credit. For essay-style questions, particularly the open-ended questions in the later subjects, the report may contain more points than the Examiners will expect from a solution that scores full marks.

The report is written based on the legislative and regulatory context at the date the examination was set. Candidates should take into account the possibility that circumstances may have changed if using these reports for revision.

F Layton
Chairman of the Board of Examiners

December 2014

General comments on Subject ST4

This subject examines the ability of candidates to apply core actuarial techniques and concepts, together with specific knowledge of pensions and other benefit arrangements to simple, but practical situations.

The examiners therefore look for candidates to apply their knowledge of the core reading to the specific situation that the examiners asked, having read the question carefully. Too many candidates write around the subject matter of the question in more general fashion, or focus on one aspect of the issue at great length, in either case gaining few of the marks available.

Good candidates demonstrate that they have used the planning time well – an attempt to get a logical flow is a big advantage in making points clearly and without repetition. This also enables candidates to use the latter parts of questions to generate ideas for answers to the early parts (or use their solutions to earlier parts of questions to create a structure for latter parts). Time management is important so that candidates give answers to all questions that are roughly proportionate to the number of marks available.

Comments on the September 2014 paper

The overall standard of scripts was broadly as expected, with a slightly higher pass rate to the previous sitting.

There was significant variation in marks, demonstrating quite clearly to the examiners who were the best prepared candidates who had sufficient depth to their knowledge to be able to secure a pass. It is very important that candidates consider all aspects of the question, and read the preamble fully. There is never superfluous information in the question, and by using all of the information available, candidates can ensure they give a full answer.

The questions are set so that it should take approximately twice as long to answer a 10 mark question as a 5 mark one. Answers should therefore be similarly proportionate, as mentioned in the general comments above.

In addition, candidates should carefully consider the instruction – for example an instruction to list points should be answered with a list without attaching discussion. Similarly, a question asking for a discussion cannot be answered with a list of undeveloped points.

More detailed feedback is provided on each question below.

1 (i) Data Risks

- Quality & accuracy of data
- e.g. Financial & scheme records
- Missing data / Gaps in data / out of date data
- e.g. missing spouses' date of birth
- Security of data records
- e.g. Storage , access restrictions and data protection
- Reliance on third parties / data transmission to third parties

Operational risk

- Failed internal processes / people / systems
- e.g. ineffective peer review / checking processes
- insufficient resourcing levels
- lack of appropriate knowledge / experience
- admin processes & procedures poorly documented
- poor cash management / accounting
- lack of effective audit trails
- Dominance of a single individual
- e.g. dominant chair of trustees
- Reliance on third parties
- e.g. advisers
- Failure of plans to recover from external events
- e.g. lack of disaster recovery plans

[8]

(ii)

- Set Objectives
- e.g. minimising risk
- Identify risks
- e.g. from a risk register
- Use professionalism
- To assess risks involved
- Produce and implement action plan to remediate risk issues
- Monitor and review against the chosen risk objective

[2]
[Total 10]

Relatively straightforward bookwork question and well answered. Important to cover both aspects in part (i) equally.

2 (i)

- A scheme in which benefits accrue in relation to an individual's earnings in a given year
- indexed from the year of receipt to the year when the benefits become due
- The indexation could be a fixed rate or linked to average price or salary inflation
- This offsets the eroding effect of inflation
- Provides a link to career earnings (average rates of pay) rather than final earnings

[2]

(ii) Employer

- Schemes linked to average earnings generally have a lower cost than final salary schemes
- as final salary schemes include allowance for promotional pay increases
- This reduces the exposure to the members' increasing salary growth
- so is useful as part of a risk mitigation plan
- for future service only so the risk mitigation will take some time to be realised
- All benefits are increased by the same amount
- So this reduces the cross subsidies that occur from some employees receiving higher pay increases than others
- Provides a more targeted scheme to certain groups of employees
- e.g. part timers, flexible workers who tend to have a flatter pay progression
- More difficult to reward "high flyers" / executives with higher pay expectations
- Other risks such as investment and mortality are unchanged
- The revalued average earnings scheme is more complicated to explain to members
- and involves greater administration complexities (e.g. recording the indexation each year rather than simple the salary at retirement)
- May have adverse impact on recruitment / retention , manpower planning, industrial relations

Members

- Generally less attractive to employees than final salary schemes
- However, different groups of employees are affected differently
- The "losers" would be "high flyers" who receive large pay increases throughout their careers
- Conversely those with low pay increases gain compared to a final salary scheme
- However if the revaluation is based on national average earnings on average there would be very little difference between the average earnings scheme and a final salary scheme
- If the revaluation is linked to price inflation lower benefits result as average earnings generally increase faster than prices

- Average earnings scheme are better suited to part timers and flexible workers who tend to have a flatter pay progression
- More difficult for members to understand
- More difficult for members to plan for retirement given the change

[7]

(iii)

- A type of hybrid scheme
- in which a percentage of salary is set aside each year for each member
- The employer undertakes to ensure that the annual contribution will grow at a specified amount
- linked to prevailing interest rates or some other index
- At retirement the member's minimum accumulated fund will be determined by the specified minimum rate of growth for each contribution
- The accumulated fund value is used to purchase the required form of benefits when those benefits become due
- Cash Plan are similar to DC plans in that they target a lump sum benefit

[2]

(iv) Employer

(a) Relative to Final Salary

Advantages

- More stable cost as a proportion of salary
- Risk exposure controlled for mortality & post retirement investment risk
- Pre-retirement investment risk reduced
- May be easier to explain to members

Disadvantages

- A final salary type valuation is still needed
- May be difficult to explain to members on early exit
- Not as valued by employees as a Defined Benefit scheme might be

(b) Relative to Defined Contribution

Advantages

- Employer can vary the pace of funding
- Any surpluses are retained by the employer (e.g. on early retirement)
- More attractive to members

Disadvantages

- Employer retains pre-retirement risk

- Higher compliance / admin costs
- More volatile cost than defined contribution

<u>Employees</u>

(a) Relative to Final Salary

<u>Advantages</u>

- Gives a choice of the shape of benefits at retirement

<u>Disadvantages</u>

- Loss of mortality and post retirement investment guarantee
- More difficult to understand
- Cannot predict / plan for retirement as easily

(b) Relative to Defined Contribution

<u>Advantages</u>

- Some pre-retirement investment guarantee

<u>Disadvantages</u>

- Less pre-retirement investment choice

[6]
[Total 17]

Again, relatively straightforward and quite well answered. It is important for candidates to consider the instruction in the question – for parts (ii) and (iv) a more detailed answer is required to meet the "describe" instruction. Again, need to cover both aspects of the question in part (iv) to similar levels.

3 (i)

- Employer covenant is a measure of the scheme sponsors ability and willingness to fund the pension scheme

A strong covenant means:

- Less prudence is required in the valuation assumptions
- A lower funding target
- A greater ability to withstand fluctuation in scheme assets & liabilities
- so a riskier investment strategy may be followed
- e.g. with an equity / growth element in the asset allocation
- Generally greater security for member's benefits
- Greater flexibility on eliminating a funding deficit
- An employer can afford to pay more into the scheme

- Or they may choose to do so to increase security and / or future funding flexibility

A weak covenant means:

- A higher funding target may be adopted
- e.g. a solvency funding basis
- A more cautious investment strategy may be adopted
- With a more matched investment policy
- De-risking strategies / buying out liabilities may be considered
- Generally less security for member's benefits
- A longer period may be needed to eliminate a funding deficit
- As available cash flow is likely to be limited
- Alternative funding or additional security may be needed to guard against sponsor default
- e.g. use of contingent assets
- More frequent monitoring of the covenant will be needed

[7]

(ii)

- The scheme will require increased employer support
- in the form of increased contributions
- This should be feasible given the sponsors recent positive generation of cash
- and therefore would achieve a more equal treatment of the scheme relative to shareholders
- who have received increasing dividends
- An extension to the current recovery plan may be appropriate
  if it is mitigated by the property assets the employer holds
- The Trustees may wish the employer to mitigate the downside risks of the weak investment performance
- with planned extra contributions based on pre-determined triggers
- or extra contingent assets if the covenant weakens in the future
- There should be no weakening of the valuation assumptions
- or of the funding target
- However if the covenant improves this may be possible
- Further analysis of the investment performance / monitoring may be appropriate
- with perhaps greater matching of assets and liabilities going forward
- More frequent monitoring of the employer covenant may be needed
- perhaps with ratchets in contributions if the employer's financial position / profitability improves
- More frequent monitoring of the scheme's funding level
- with contingent contributions if the funding level deteriorates
- Risk reduction strategies e.g. buy-out, reduce benefits etc.

- Review of scheme design / member options / discretionary practices

[7]
[Total 14]

Relatively well answered – in part (ii) better candidates gave a fuller discussion and not just a list of points without any expansion.

4 (i)

- Consider the level of benefits to be provided
- subject to any cost constraints
- Level of employer contributions
- Level of employee contributions
- Any employer matching employee contributions
- Targeted population e.g. different scales for different parts of the workforce or categories of membership
- Range of investment funds to be offered
- Default Investment funds
- Employee profile, new hires etc
- Death in service benefits
- Any payroll constraints
- Eligibility requirements
- Availability of other benefits e.g. state benefits
- Employee needs / expectations
- Competitors provision
- Tax efficiency

[4]

(ii) <u>Governance framework</u>

- A comprehensive scheme governance framework needs to be established with clear accountabilities and responsibilities
- Key personnel (trustees / managers) need to understand their duties
- And have sufficient time & resources available to do so
- Train trustees
- Establish and maintain adequate internal controls to mitigate risks
- And ensure the effectiveness and performance offered by scheme advisers & service providers
- Act in the best interests of all beneficiaries
- Manage any conflict of interest
- Trust or contract based

<u>Investment Strategy</u>

- Members will be offered a choice of investment funds
- With a variety of risk tolerances
- These need to be appropriate to the membership

- And take account members' needs throughout their lifetime with the scheme
- The investment objectives for each investment option should be identified and documented
- The principles governing how decisions about fund selection are made should also be documented
- The potential benefits and risks of each of the funds should be clearly communicated
- Ensure that any default strategy is provided which is suitable for the members

Monitoring requirements

- Investment objectives are documented to allow them to be regularly monitored
- Use documented investment information to monitor fund performance against the stated investment objectives
- and ensure the strategy continues to remain suitable for members
- Monitor the on-going suitability of the default investment strategy
- Trustees and managers review their skills & competencies
- to demonstrate they understand their duties
- And are fit and proper to carry them out
- Ensure that any delegated responsibilities (e.g. administration) are documented, understood and reviewed regularly
- Monitor Investment manager performance to ensure the funds chosen are still appropriate
- Monitor value for money in terms of conversion of funds to benefits on retirement
- Monitor the performance of the admin function

[8]

(iii) Likely to be related to the following key reasons:

- Materiality
- e.g. size of the scheme
- Proportionality and cost of the governance process
- Complexity
- Practicalities
- e.g. available management / trustee time
- Much of the work involved with a governance framework is a "fixed cost"
- as such for large scheme the cost per member may be significantly lower
- Some activities such as reviewing the appropriateness of investment objectives and investment performance may be viewed as a prohibitively expensive exercise to carry out in a detailed and structured fashion for a small or medium sized scheme
- A very large scheme may have greater access to specialist advisers & resources to assist them

- Smaller schemes may have smaller employers hence the availability of management time might be lower
- Economies of scale are greater for a larger scheme (with fixed costs spread across a larger number of members resulting in a smaller "cost per member")

[2]
[Total 14]

Candidates showed good knowledge in this question, but it is important to have regard to the number of marks available and to focus on the key points where there may be a longer list of possible answers as, for example, in part (i).

5 (i)

- Cost savings from running 1 scheme rather than 2 schemes
- e.g. one set of advisers, one trustee board
- Particularly as some of the scheme management overhead cost of running a DB scheme are not correlated with the size of the scheme
- May result in a reduction in management time
- e.g. for any funding discussions
- Improved governance – easier to apply 1 policy than 2
- Possible harmonisation of future scheme benefits
- Increased investment opportunities for the smaller scheme
- Decreased investment costs for the smaller scheme
- Only one set of pension accounting disclosures for the company accounts will be needed
- The joint funding position may allow more flexibility for the small scheme
- The small scheme may benefit from no longer requiring the use of insurance

[3]

(ii)

- Must act in accordance with the scheme's trust deed & rules
- The trustees should consider legal and actuarial advice
- Need to determine which scheme will transfer into which
- Or if a brand new scheme will be set up which is less likely
- Trustees need to ensure they act in the best interests of their membership
- Need to ensure that the rules of the transferring scheme permit a transfer
- and the rules of the receiving scheme permit it to receive one
- Past service benefits would need be transferred
- This may require member consent
- What are the respective funding levels of the 2 schemes
- Is the security of benefits for one set of member's diminished as a result of the merger
- Trustees should not accept a deterioration in the funding level
- A cash injection may be needed to "level up" the funding positions on merger
- Covenant considerations

- What future service benefits will be provided by the new merged scheme
- Considerations of any past practice of discretionary benefits
- Or other member options such as early retirement or commutation
- How does the balance of powers in the receiving scheme compare with that of the transferring scheme
- Investment considerations e.g. what assets will be transferred
- The views of interested parties e.g. employers
- Tax considerations

[8]

(iii)

- Trust Deed & Rules for both schemes
- Asset statement / trustee report and accounts
- Member's handbooks
- And any recent member communication
- Most recent actuarial valuations for both schemes
- History of any discretionary increases
- Summary of assets and investments
- Employer covenant assessments
- Details of any special benefit arrangements for individuals

[3]
[Total 14]

This question was less well answered. Better candidates were able to address part (ii) in some more detail, giving a discussion of the points rather than a simple list without commentary. To score well in these points, candidates need to demonstrate understanding as well as knowledge.

6 (i)

- The aim of an accrued benefits method is to target a given level of cover of benefits accrued to date
- The Actuarial Liability for members is based on pensionable service accrued up to the valuation date
- or the end of the control period as appropriate

[1]

(ii) <u>Entry Age</u>

SCR

- Found by dividing the present value of all future benefits by reference to projected final earnings for a member entering at a "normal age" by the present value of their total earnings throughout their expected future membership

AL

- Found by deducting from the present value of total benefits on projected final earnings for all members the value of the SCR multiplied by the present value if total projected earnings for all members throughout their expected future membership

Key Features

- Prospective method
- Targets a stable contribution rate
- Normal entry age is either estimated from actual membership or assumed
- The contribution rate for a new entrant is generally insufficient to meet the costs of the future service for the membership as a whole
- Therefore the AL is greater than the present value of accrued benefits on projected final earnings
- Hence provides greater security than the PU or AA methods
- For stability it is necessary that the new entrants, if there are any, should have an entry age equal to the "normal age" which has been assumed
- Therefore it is possible for the contribution rate to be stable even if closed to new entrants

<u>Projected Unit</u>

SCR

- Found by dividing the present value of all benefits that accrue in the year following the valuation date, by reference to service in that year and projected final earnings by the present value of members earnings in that year

AL

- Present value of all benefits accrued at the valuation date by reference to projected final earnings

Key Features

- Accrued benefits method
- Funds for a target level of the AL
- Contribution rate will be stable if the age & sex distribution remains constant
- This implies a flow of new entrants
- The value of the assets will equal the AL assuming the SCR has been paid and all the assumptions are borne out in practice
- As such all the benefits are fully secured by the assets held

Attained age

- SCR is found by dividing the present value of all benefits which will accrue after the valuation date, by reference to service after the valuation date and projected final earnings, by the present value of total projected earnings for all members throughout their expected future membership

AL

- Present value of all benefits accrued at the valuation date by reference to projected final earnings

- i.e. the same as under PU method

Key features

- Prospective method
- Targets a stable contribution rate
- SCR exceeds that under the entry age method
- if the average age is greater than the assumed for entry
- SCR exceeds that under PU method
- if average period to retirement is greater than 1 year
- No account is taken of new entrants
- so if the scheme is closed to new entrants contribution rate required will be stable
- If the scheme is open to new entrants the AA method tends to overstate the standard contribution rate required

[12]

(iii) Entry Age

SCR = 24 / (10 × 20) = 12%
AL = 170 +380 +800 – 12% (300 ×20) = 630

PU

SCR = 50 / (20 × 20) = 12.5%
AL = 170 + 380 = 550

AA

SCR = 800 / (300 × 20) = 13.3%
AL = 170 + 380 = 550 (same as PU)
Or 170 + 380 + 800 – 13.3% × 300 × 20 = 550

[3]
[Total 16]

As is often the case with questions with a numerical aspect to them, candidates tend to either do well, or rather poorly. In part (ii) those candidates who approached the question *methodically, breaking it down into its constituent parts, gave themselves a better opportunity to score well.*

7 (i)

- The liability profile of membership
- In particular the duration of liabilities
- Nature of benefits - are pension benefits fixed or increasing?
- Expected future cashflows
- E.g. amount of current pension payments
- Forthcoming retirements etc.
- The scheme's funding target / position
- Overall funding strategy
- The amount of assets currently held by the scheme
- The assessment of the employer covenant
- A strong covenant will allow greater investment flexibility
- The trustees / employers attitude to risk
- Currency of liabilities

[5]

(ii)

- ALM may help in assessing the risks & rewards
- and in achieving an appropriate balance between the different asset classes
- Helps value options & guarantees
- Establishes a replicating portfolio of assets to "hedge" the liabilities
- ALM looks at the possible impact on the financial strength of the scheme under differing investment strategies
- Will give an indication of future funding levels on various investment strategies
- Can model future cash injections from the employer
- Derives the highest potential return for an agreed level of risk
- Relative risks of different investment strategies can be modelled
- Provides information on future cash flow requirements
- Can assess the probability of funds being sufficient to meet funding targets

[5]

(iii)

- Need to set the objectives of the ALM study
- Indicating the acceptable level of risk and the funding target
- The time period over which the probabilities apply
- e.g. the acceptable level of risk may be set as a 90% probability of meeting the funding target over the next 15 years
- Need to use the data from the regular funding valuation
- in respect of the assets & liabilities
- Needs to include details of all options & guarantees
- Funding method adopted
- Assumptions used to determine the funding target
- Assumptions with prudence margins removed

- Together with other demographic assumptions e.g. new entrants, conversion terms which may have been ignored in the funding valuation
- Rate of anticipated employer contributions
- Stochastic investment model or economic model

[5]
[Total 15]

As for question 5, better candidates were able to address part (ii) in some more detail, giving a discussion of the points rather than a simple list without commentary. To score well in outline and discuss questions, candidates need to demonstrate understanding as well as knowledge.

END OF EXAMINERS' REPORT