INSTITUTE AND FACULTY OF ACTUARIES

EXAMINERS' REPORT

September 2010 examinations

Subject ST4 — Pensions and other Benefits Specialist Technical

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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The examiners were pleased to note a general improvement in standards. In particular there was less (but still some) evidence of candidates not reading questions carefully enough. Comments on specific questions:

Q1 *This straightforward question was not answered that well. There was too much evidence that candidates could not identify whether events were down to the employer or trustees. For example blaming the trustees for non payment of employer contributions or blaming the employer for the poor performance of the investments. Some offered suggestions that would not be practical; other resorted to repetition and listed every possible crime a director could be convicted of.*

Q2 *This was reasonably well answered but some candidates had not read the question carefully and got side tracked by considering irrelevant issues for a money purchase scheme e.g. means testing.*

Q3 *Too many candidates chose to ignore the word 'distinct' in part (i) and just wrote about different types of investment guarantee. The better candidates demonstrated their understanding by noting whether the protection was pre or post retirement (or both).*

Given this, answers to part (ii) were limited.

Q4 *Part (i) was well answered, part (ii) less so. For part (ii) those candidates who demonstrated that they had planned their solution and followed a systematic approach scored well.*

Q5 *Parts (i) and (ii) were generally answered well although too many candidates did not mention the sponsor's covenant or the scheme's investment strategy in their solutions and many did not appear to appreciate which assumptions are key and which are minor.*

Part (iii) was not well answered with most candidates writing about volatility and its effect on the valuation results rather than the valuation process in volatile times.

Q6 *Candidates found this question challenging and did not write enough given the marks available. Again candidates struggled when asked to look at things from both the company's and trustees' perspective.*

Q7 *The better candidates planned and structured their solutions. The poorer candidates either wrote too little given the marks available or wrote at length on suggestions that would not be practical, e.g. suggesting detailed membership data is provided showing actual costs associated with each redundancy.*

1 (i)

- A change in corporate structure that reduces the priority of the benefit obligation in the event of insolvency
- Breach of banking covenants
- A significant change in the employer's credit rating
- Significant changes in board of Directors / Chief Executive
- Employer ceasing to trade in the country
- Or entering administration/receivership
- Dishonesty conviction of any Director
- Corporate transactions e.g. Merger / acquisition
- Non payment of contributions
- Late submission of accounts
- Not disclosing conflicts

(ii)

- Granting "additional" benefits to members without securing additional funding
- or without actuarial advice
- Significant changes in the scheme's advisers e.g. actuary / auditor
- Significant changes in trustees
- Change in authorisation of investment managers appointed by the trustees
- Occurrence of mal administration or suspect investment practices
- Significant transfers out or transfers in representing a large proportion of the scheme's assets
- Breaches of restrictions on types of investments
- Breaches of any disclosure requirements to members or required checks on adequacy of funds e.g. benefit statements etc
- Trustee bankruptcy/conviction
- Not disclosing conflicts.

2 *Membership*

- Determine the rules of eligibility e.g. in employment
- Members would have one account for the whole of their membership period
- For example if the member moves employer they still have the same account in place
- The member will always be an active member of the Scheme whilst not in receipt of a pension
- It would be compulsory
- Unless the member can prove the benefits earned in an alternative Scheme are at least as good
- Consider auto enrolment

Contributions

- Minimum contributions would need to be specified
- Could be age or salary related
- Payable by employee and / or employer
- Unless a suitable alternative pension vehicle is being used
- May be possible to contribute even if not in employment
- but who would contribute on behalf of the member when they are not in employment
- Consider integration with tax system

Administration Costs

- The scale of the scheme should result in significant economies of scale
- However there will set up costs which need to be met
- Will all members have the same ongoing costs
- Charges need to be fair and transparent
- Consider whether totally financed by the members or partially financed by the Government
- There would be costs associated with ensuring the adequacy of members private arrangements
- Types of charges – annual management charge, admin fee, bid/offer spread
- Who will do administration? Government body or outsourced?

Advantages for members

- Will provide a minimum contribution hence a minimum pension provision
- Charges should be competitive given economies of scale and no profit margin for the government
- Will be available to all
- Independent of employer so not relying on their employer's covenant
- Portable, facilitates job changes
- Flexibility over options
- Secure, ie backed by government, 100% funded
- Simple in design

Disadvantages for the members or government

- May be seen as political interfering
- Minimum benefits may not be at a sufficiently high level
- Existing pension schemes may switch to providing a minimum benefit only
- Leading to less pension for some people
- Does not provide an investment guarantee
- Has many of the general disadvantages of defined contribution e.g. unknown final benefits
- Costs will be met by members not their employer
- but in practice there may be a cost for the government, if top ups needed
- Government bears establishment costs and reviewing arrangements

3 (i)

1. A DB underpin so that the pension will never be less than a minimum accrued amount
   E.g. a minimum of $1/100^{th}$ of salary at retirement for each year of service

   Impact of investment market falls

   - Depends on the level of the minimum accrued pension guarantee.
   - If it is relatively low it may not be expected to apply very often
   - The guarantee could be at retirement or leaving service so "short term" falls in investment markets may not be very relevant
   - Will cover investment pre & post retirement
   - Members may choose "risky" funds as they will benefit from the underpin if performance is poor
   - So may be sensible to restrict investment choices

2. Guaranteed annuity conversion rates, so that members are protected against increases in market annuity rates

   - Considers post retirement interest rate only so no protection against low investment returns prior to retirement
   - Annuity terms are based on bond yield rather than equity returns
   - Depends on the guaranteed terms offered with a higher annuity factor meaning there is less chance of the guarantee "biting"
   - Bond yields at retirement are the important factor

3. An explicit investment guarantee

   - based on either a minimum fixed, indexed or real investment return
   - which may be checked each year or over the term to retirement
   - This will provide protection for members if falls in the investment market
   - The actual amount will depend on the length of time over which the guarantee is averaged
   - And the absolute amount of the guarantee
   - Members may choose 'risky' funds as they will benefit from the underpin if performance is poor
   - So may wish to restrict choices

4. Lifestyling investment option

   - Assets switched into bonds as member approaches retirement
   - Idea is to be invested in annuity matching assets for part of pot to be used to buy annuity
   - So protection against falls in equity prices at point of retirement

- Relies on member retiring at chosen retirement date

(ii) *General*

- Could hedge some of the investment risk, eg derivates, insurance products
- Which may reduce or eliminate funding requirements
- Is funding desirable or necessary
- Watch concentration of risks, will sponsor be able to meet costs as they arise

1.
    - Members effectively have a choice between two different types of benefits
    - The scheme funding needs to consider both options
    - Even if the DC fund is currently high enough it does not mean the resources are necessarily adequate in the long term
    - i.e. the DB benefit might bite sometime in the future
    - Could use stochastic modelling models to determine suitable reserves
    - Or fund at retirement (terminal)

2.
    - Need to reserve separately for the annuity rate guarantee
    - Could set the assumptions based on insurance company rates

3.
    - Need to reserve separately for the investment rate guarantee
    - May need to restrict the investment fund choice to control risk
    - Need to determine at what point the guarantee is checked and build a stochastic model accordingly
    - Could add a contingency margin e.g. 5% loading to liabilities

4.
    - Additional funding should not be necessary

4 (i)

- What is cash limit?
- Conversion terms, the higher the factor the more likely that the member will exchange pension for cash
- What is being given up?
    - Dependants pension
    - Escalation
- Immediacy of need for cash e.g. to pay off a mortgage or other loans
- Requirement for a guaranteed income stream
- Financial awareness of the member to manage a large sum of money
- Could lump sum be invested to provide equivalent or higher income
- Desire to gain control over investment strategy of part of pension fund
- Comparison of commutation factors relative to open market annuity rates

- Tax treatment of one option over the other e.g. lump sum and pension taxed at different rates
- Health status, e.g. short life span
- Consider risk of employer, security of pension

(ii) *General points*

- Factors recently reviewed and the trustees are satisfied with their appropriateness
- Factors calculated in line with the requirements of the Trust Deed and Rules/legislation
- Commutation factors may represent the value of a unit of future pension
- Factors may vary from member to member depending on age and sex
- On early retirement the commutation factors will be higher than normal retirement
- May also be different on ill-health early retirement
- Member always has the option to take all benefits in pension form if they wish

Comparison with other schemes

- Commutation factors not directly comparable from scheme to scheme
- Requirement for actuarial neutrality of pension surrendered on a given basis
- Reduction of exposure to longevity and/or investment risk in scheme
- Factors designed to facilitate HR policies
- Different objectives underlying commutation factors, some employers may wish to encourage commutation
- Who sets terms? Trustees/company/both
- Schemes will have different benefit structures
  Such as
  - retirement ages
  - rate of guaranteed pension increases
  - allowance for any discretionary pension increases
  - whether increases provided on pre/post commutation pension
  - whether spouses pension affected by level of member commutation
- Different methodologies of calculation & administrative constraints
  - Factors market related or calculated on long term assumptions
  - Reflection of actual/notional investment strategy
  - Individually calculated or calculated for groups of members and method of grouping
  - Requirements for smoothed tables of factors
  - Frequency at which factors can be reviewed
- Assumptions used to derive commutation factors will vary among schemes such as
  - post retirement mortality
  - post retirement discount rate
  - allowance for discretionary pension increases

- Scheme Documentation/ Legislative Constraints
    - Scheme rules may specify minimum/maximum rates of commutation
    - Use of unisex factors

Other

- Period since last review of commutation factors – e.g. more recently reviewed factors may allow for improvements in longevity

5 (i)

- Assessment of employer covenant
- i.e. the ability and willingness of sponsor to pay sufficient contributions
- Current and future investment strategy
- The current funding objective and last times' valuation assumptions and results
- Funding method
- Profile of liabilities and extent of asset matching
- Historical salary data in the country, industry or company
- Historical mortality data split by category e.g. factory, administration and management
- Historical scheme specific experience e.g. leavers, ill health retirements, proportion married etc split by category
- Information from the sponsor regarding any planned activity e.g. redundancy , withdrawal and early retirement policy
- Current market data and government policy statements / intentions
- Any Legislative requirements e.g. use of standard / fixed assumptions
- Assessment of whether past data / information is relevant for the future
- And is it statistically credible?
- View of future economy
- Allowance for discretionary benefits

(ii) *Financial assumptions*

Prudence

- Degree of prudence should depend on employer's covenant
- Not necessarily in every assumption
- Overall level should be considered

Investment Return

- Based on implied market discount rate on assets matching the liabilities.
- Allowance for future asset outperformance in excess of gilt/ bond yield (risk premium)
- Separate assumptions for pre and post retirement may be used

- Or a combined pre & post assumptions reflecting the weighted average of the individual discount rates based on the proportions invested in each asset class
- Could just look at bond yields

Price inflation

- Use long term view of expected price inflation
- Could compare the yield on fixed interest and index linked Gilts / Bonds
- Or Government projections of price inflation

Pension Increases

- Defined in scheme rules or established practice
- If related to price inflation
- Hence base on price inflation assumption derived above
- Allowing for volatility

Salary growth

- Consider promotional increases
- split by works / staff
- And general inflationary increases in salaries (linked to price inflation)
- Discussions with sponsoring employer

Demographic assumptions

Mortality in retirement

- Look at scheme experience of separate homogenous groups eg manual / office based workers
- Determine a suitable base mortality table
- Probably based on standard tables with an appropriate adjustment
- Most important demographic assumptions
- Allow for future improvements in mortality

Other key assumptions

- Allowance for expenses

(iii)

- Valuation is a snap shot at a point in time
- But a long term view is needed
- The sponsor covenant is important for long term security of members' benefits (i.e strong covenant allows a greater degree of flexibility)
- In volatile market conditions need to show different possible funding plans
- Investigate the sensitivity of results to changes in key assumptions
- And differing market conditions

- Monitoring development becomes more important
- Consider developing triggers for future actions e.g. an updated valuation / extra cash.
- Consider increased explicit margins / prudence
- Discussions between sponsor / trustees are more important to ensure understanding of the impact and sensitivities of the assumptions.
- Consider smoothing the key assumptions (averaging over a period) if market related assumptions are to be used
- Consider if any regulator guidance

6 (i)

- Need to consider position of schemes
- The funding deficits (or surpluses) may be large relative to the purchase price
- There may be disagreements on the actual size of any pension scheme deficits
- Assessment and understanding of the underlying risks in the pension schemes is needed
- e.g. investment strategy, future contribution requirements, legislative changes
- Trustees acting on behalf of members' security
- which may conflict with the employer's objectives
- Will need to be aware of Trustee powers in Trust Deed and Rules
- e.g. power to wind up scheme, power to set contributions
- Covenant strength of new combined employer
- There may be legislative and /or pension regulator involvement to consider
- Impact on future Company share price
- Conditions imposed as part of sale e.g. scheme to be de-risked crystallising a larger deficit
- or extra contribution required to remove deficits in the schemes
- Different benefit structures may complicate matters

(ii)

- Company's primary duty is to its shareholders
- Strategic and business implications are the key drivers
- The pension scheme may act as a deterrent to the purchaser
- Future share prices will factor in the underlying pension position and risk
- May be requests from the Trustees for the schemes to be de-risked
- Or contributions to return to full funding
- Any pension scheme deficits will need to be factored into the price negotiations
- But will be priced differently by different parties perhaps anticipating Trustee reaction / requests
- The size of the deficit may be large in relation to sale price
- Full disclosure of all pension scheme details will be needed
- Including up to date funding positions

- Possible legislative / regulator involvement
- Company should take its own legal and actuarial advice
- Need to understand the future impact on balance sheet and other accounting disclosures
- Company B may explore the possibility of excluding the Company A pension scheme from the transaction
- Need to consider the practical issues regarding any participation periods
- Whether to harmonise benefits (if different)
- Consider employee relations
- Problems exacerbated by scheme a having lots of former employees as members – little interest to Company B?

(iii)

- Primary consideration will be the impact on the covenant
- How future funding shortfalls will be addressed
- Engage with the Company to perhaps request increased contributions and or any additional security offered
- Or seek to reduce investment risk
- Need Information on any possible restructuring resulting in early retirement / redundancies if they affect the finances of the Schemes
- Preserving or enhancing the security of accrued benefits is a key consideration
- Updated funding positions will be needed
- Understanding the details & powers in Trust Deed & Rules e.g. contributions, wind up etc
- Regulator / Legislative considerations
- Managing potential conflict of interest for some of the Trustees
- Seek legal & actuarial advice at an early stage
- Decisions to be made on combining the schemes or keeping them separate
- Consider admin, trustees, investments
- Communication with members etc
- Investment issues, liquidity requirements

7 (i) *Additional information*

- **Main assumptions** used for ongoing and discontinuance valuations: Discount rate, salary increases, revaluation rates, increases in payment, mortality rates (brief description), expenses, brief comment on other significant assumptions such as assumed ages at retirement

- **Membership reconciliation** - table showing development of membership between valuations, categorisation between active / deferred / pensioners at each valuation, with number of new entrants / leavers / retirements / transfers out, also changes in average age / average salary

- **Where further detail can be found**, e.g. valuation reports, investment reports, latest annual report, other recent communications , annual statement **The parties involved** in running or monitoring the scheme and their function, e.g. company, any trustee board, advisers, regulators etc.

- **Analysis of change –** explanation of main sources (expected vs actual return on assets, change in assumptions, experience gains or losses, effect of redundancy exercise, discretionary pension increases

- Value of assets / liabilities at each valuation on each basis
- Investments : Description of how assets invested
- .. summary account showing money flows in / out between valuation
- .. and fund yield over period
- Statement of compliance with legislative and regulatory requirements
- .. commenting on any changes over inter valuation period and how scheme has responded

Actuarial bases

- *Discontinuance:*

    - Insurance cost to guarantee benefits (mortality / interest / costs of paying benefits)
    - State factors that have led to change in % coverage, eg change in market values / interest rates / availability of insurance / improvements in mortality / pricing philosophy used by insurance company (eg to make more profit)
    - Doesn't mean scheme is to be wound up

- *Ongoing:*

    - Funding policy, including method

    - Valuation assumptions, long term best estimate, explain changes

    - .. stating why different from discontinuance basis, giving examples

Contribution rates

- Show amount needed to meet deficit
- Lower payroll means deficit contributions will be higher % of payroll
- Main factors contributing to the increased in contribution rates
- ..e.g. contribution from past poor investment performance
- .. expected future investment performance (link to any changes in assumptions)
- .. expected future mortality (link to any changes in assumptions)
- 100% of benefits still being paid
- .. how decision made to share the increases between employee and employer
- .. what factors will influence whether the employees contributions might increase / reduce after next valuation

- .. e.g. how long it will take to remove deficit
- .. scope of lump sum injections form employer
- options available to employees who can't afford to increase contributions

Other factors

- Employer's covenant (describe)
- Other changes to assumptions
- If company discontinues scheme, details of any payment employer required to make to the scheme to improve solvency of scheme
- Position if company becomes insolvent, e.g. details of any statutory compensation schemes
- Legislative and regulatory requirements, e.g. regular certification of solvency, plan to meet deficits, constraints on investment strategy
- Should be clear to members

END OF EXAMINERS' REPORT