EXAMINATION

September 2005

Subject ST4 — Pensions and other Benefits Specialist Technical

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.

M Flaherty
Chairman of the Board of Examiners

29 November 2005

Examiners' comments

Question 1

Generally well answered. Some candidates did not mention the need to link the characteristics of the assets with those of the liabilities.

Question 2

Generally well answered. Few candidates mentioned how to treat different types of pension increases. A surprising number of candidates extended their answers to cover demographic assumptions.

Question 3

Generally well answered, although some candidates restricted their ability to gain marks by only considering the position of only one of the parties.

Question 4

Candidates found this question stretching, although they should have been familiar with the underlying principles, and only a few scored well. Common errors were to ignore the accrual for active members, to adjust values between the two valuations at the wrong rate of interest (or make no allowance at all for interest), or to assume that because there were no contributions during the inter-valuation period, there was no contribution loss.

Question 5

Generally well answered.

Question 6

Poorly answered. Some candidates mentioned death benefits which went beyond the scope of the question. In part (ii), many candidates failed to link the characteristics of the membership with the scheme design. Very few candidates recognised the potential role of the employer in the scheme.

Question 7

Generally well answered

Question 8

Although many of the themes of this question are standard, the unfamiliar context caught most candidates off guard.

Part (i)
Only a small number of candidates developed their answer by mentioning the different accrual rates that might be offered.

Part (ii)
Many candidates mentioned benefits such as holidays which went beyond the scope of the question. Most candidates failed to pick up the marks available for discussing selection issues.

Question 9

Reasonably well answered, although most candidates failed to assume that 'member expectations' should be considered to be realistic

Part (ii)
Few candidates mentioned the difficulties of monitoring compliance.

Part (iv)
Some candidates failed to realise that the scheme actuary would not be responsible for the basis underlying the immediate annuity cost.

1 Fixed interest bonds

Lack of suitable range of stocks to match liabilities
E.g. to match salary increases
Or term of liabilities
May give poor return compared to other investments over the longer term
Possible default risk on corporate bonds
Currency risk if overseas bonds

Index linked bonds

Similar to fixed interest but better if real pension increases etc.

Property

May not readily match liabilities
Not readily marketable
'Lumpy' investments
Need to allow for voids

Equity

Potentially volatile income and capital value
May not appreciate sufficiently to match increase in salary related liabilities
Shares may become valueless if company hits poor trading/goes into liquidation
Overseas investments have potential currency risk
May not be a satisfactory match for pensioner liabilities
Or other liabilities fixed in monetary terms

Cash

A poor match for most scheme liabilities
Likely to give a poor return compared to other investments over the longer term

2 Price inflation

Two key figures available from market conditions at valn. date:

- Yields on FI/IL gilts

- Market expectation of inflation

- Expected inflation can be measured by difference in yields on fixed interest and IL gilts — say 3% p.a.

Salary increases

- Discuss with employer their plans for salary increases — usually be in the range of ½%–3% p.a. real.

- Consider also include an allowance for merit/promotion — perhaps a separate scale.

Pension increases

- Guaranteed pension increases. Apply appropriate rate if fixed

- if RPI use around price inflation as derived earlier

- if LPI could use price inflation less a small margin e.g. 0.25% lower

- In the event there are no guaranteed increases check for history of discretionary increases. Apply appropriate rate depending on history and current market conditions — if say 70% of RPI then use 2.25% p.a.

Investment return/discount rate

- Consider asset strategy

- The least risk approach for pension funds is to invest in fixed interest gilts or index linked gilts.

- The discount rate could therefore be based on FI/IL Gilts — say around 5% p.a.

- If part of the assets are invested in equities then allowance can be made for higher expected returns — around 2%–3% p.a. (the equity risk premium)

- resulting in a discount rate of 7%–8% for pre retirement and 5% for post retirement.

- Review liability profile…. If mature scheme then allowance for equity risk premium likely to be limited.

Overall

- The assumptions have to be reasonable, prudent and consistent with each other.

- Assumptions will have to be discussed with Trustees and most likely employer.

- Consider any statutory constraints.

- Consider last times basis/approach.

- Results will be provided using higher/lower discount rated and salary increases to provide sensitivity analysis.

3 (i) Owners and potential owners of capital to be aware of financial significance of benefit obligations
So that readers of accounts/analysts can form a realistic opinion of the company's current financial position
And likely future financial position
To give realistic cost of benefit accrual
Which may not be apparent from the contributions actually paid
Which may be irregular
E.g. due to temporary reduction in contributions or special payments
Consistency in accounting from year to year

(ii) The actuarial method
The key assumptions
E.g. salary increases, investment return,
Value of liabilities accruing over the year
Change in value of past service liabilities
How assets invested
Investment return on assets
Surplus/deficit over the year
The change in surplus/deficit over the year
The pension cost for directors
The impact of any changes in the basis of benefits
E.g. review of pension in payment
Other augmentations, e.g. for directors
Or augmentations granted on early retirement
The contributions paid (employer/employee)
And whether these were in accordance with an actuarial recommendation

4 (i) PUC rate for active members $\frac{1}{60} \text{ x} \left(\frac{1.04}{1.055}\right)^{20} \text{ x } 18 = 22.5\%$

No membership change so average age and hence PU rate will have increased since last valuation.

Expected Active Liability

$= 40 \times (1.055)^3 + .0.225 \times 10 \times (1.055)^3 \times 3$

$= £47.0 + £7.9 = £54.9$ million

Actual Actives Liability = £57 million

Active Loss = £2.1 million

(ii) Expected Pensioners Liability

$= 12 \times (1.055)^3 - 3 \times 1 \times (1.03)^{1.5} \times (1.055)^{1.5}$

= £14.1 – £3.4 = £10.7 million

Actual Pensioners Liability = £11 million

Loss = £0.3 million

(iii) Contribution Loss

$= 22.5\% \times 10 \times (1.04)^{1½} \times (1.055)^{1½} \times 3$

= £7.8 million

(iv) Expected Assets

$= 80 \times (1.055)^3 - 1 \times 3 \times (1.03)^{1.5} \times (1.055)^{1.5}$

= £93.9 – £3.4 = £90.5 million

Actual Assets = £75 million

Asset Loss = £15.5 million

5 Issues to be discussed:

- Why are you opting for a DC Scheme?
- Past History e.g. design, cost of DB scheme
- Are you considering the proposed scheme as part of your total remuneration package or in isolation?
- Comparison with benefits for current employees
- Comparison with package offered by competitors
- Any Global pension policy?
- Employee Profile, likely no. of new hires, take-up rate etc.
- Targeted population, eg different scales for different elements of the workforce (dealers/clerical, execs/junior).
- Range of Income Replacement Ratio targeted.
- or possibly target DB benefits
- to avoid different remuneration packages for 2 people doing same job.
- Any cost constraints?
- Sophistication of payroll system. Can it handle age and service related contribution rates?
- Range of Investment options required.
- Any higher risk options required? In particular, would investment professionals expect access to higher risk options?
- Frequency of review of investment options for members

- Internet access for members and/or Bank
- Bundled or Unbundled approach to administration/investment/insurance
- Facility of on-line projections for members.
- Death in service benefits
- Incapacity benefits
- Part of Flexible benefits package?
- Initial and ongoing communication
- Union agreements/ contractual issues/employee expectations
- Salary definition on which contributions based (include bonuses?)
- Will members contribute?
- Flat rates or a company "matching" approach to contributions
- annuity purchase at retirement or pension through scheme?
- Options available if through scheme
- Member expectations
- Member understanding of investment and pension issues
- Note not all employees will be investment experts
- Offer default investment option?
- Impact of proposed Scheme benefits on means tested State benefits

6 (i) The benefits to be offered might include:

- medical assistance on injury
- loss of earnings cover to the individual
- possibly payable to the players club — as compensation for loss of services
- lump sum on specified accidents (e.g. broken leg)
- long term medical care, if career is terminated through injury
- rehabilitation treatment
- physiotherapy treatment courses
- continuation option if temporarily out of work
- continuation option if employed abroad

(ii) Sportsmen and sportswomen have the following characteristics:

- a short expected working lifetime
- a huge variation of earnings between successful and average players
- a high level of injury during a playing career
- increasing international mobility
- a high incidence of transfers between playing clubs
- a possibility of continued employment within the sport as a coach or manager
- a low level of job security particularly as a coach or manager
- a "value" to their employer which is often very different to their current level of earnings
- a "glamorous" lifestyle which can have an adverse health impact
- but an occupation where selection will mean that the population is fundamentally "healthy" in the first place

This could impact on the scheme design as follows:

- Choose type of cover — i.e. injuries sustained during playing/training included, exclude general health problems perhaps, exclude self inflicted health problems.

- Industry wide good to ensure minimum level of cover if employed by member club but unlikely to meet full requirements of high earning individuals needing specialist treatment.

- "Loss" to the club in terms of value of services foregone — may be variable at clubs option with player simply getting continued earnings.

- Potentially very high level of protection cover required to meet loss of earnings through career terminating events.

- Self financed continuation options desirable whilst not in employment of member club.

7 (i) Demographic shift

Too few contributors supporting too many pensioners.

In particular increased longevity and lower birth rates or changing working patterns leading to shorter working lives.

Contributions set at an inappropriate level, either at start, or have become inappropriate.

High inflation — if price inflation higher than wage inflation then benefit will be rising quicker than contribution input (Pay as you go).

If Scheme Funded:

High investment return on contributions could outweigh some of high inflation problem, but if poor investment returns i.e. lower than price inflation, then funding will not work.

Fraud, non-payment of contributions, multiple benefit claims etc.

(ii)

- Cap the price inflation link to a fixed percentage maximum.
  - but reduced retirement income could lead to a falling standard of living.
  - benefit might appear mean.

- Adjust the 40% target to something lower. Or rebase to 40% of current national average wages, if the price inflation original target is now too high (>40% of current).

  - possible difficulties with citizens close to retirement — phase in the change?

- Increase minimum 10 year eligibility criterion.
  - consider how to transition with potential working life between 10 and new period — phase in?

- Increase contribution rate
  - likely to be unpopular, reduced standard of living etc.

- Raise retirement age
  - again transitional problems.

- Means test the benefit, so only those in need get the full benefit.
  - complex to administer
  - disincentive to save

- Introduce an employer contribution based on workforce numbers.
  - may be seen as an extra tax.

- Fundamental review could lead to switch to money purchase system
  - admin issues
  - citizen understanding
  - investment choices

8 (a) **Retirement Benefits**

- these will consist of pension, cash and contingent benefits

Pension

- the scheme is defined benefit and so will probably offer a pension expressed for example as *n*/60ths
- the "fully flexible" criteria means the member could presumably choose any rate of accrual from nil (i.e. full opt-out) to the highest available if the entirety of the flexible benefits "pot" is applied to pension
- this would cause huge administrative challenges, and options such as *n*/100ths, *n*/80ths, *n*/60ths, *n*/50ths might be set in advance
- legislative restrictions
- a selection risk exists again where healthier members or those with high salary potential might choose to maximise benefits
- or otherwise seek to take advantage of the conversion terms offered
- particularly if these were fixed rather than being "market related"
- maximum tax approval limits might restrict the members ability to increase their accrual rate
- and some guidance might need to be offered to help individuals take an informed decision

Cash

- similar points apply in relation to cash as for pension
- except there may be a financial benefit to the company if tax concessions apply to the cash benefits
- so if members choose to maximise the cash option, it reduces the cost of the scheme

Contingent benefits

- similar points re moral risks for separated members as under protection benefits

(b) **Other Benefits**

- these will include lump sum on death
- and dependants pension on death
- and pension on permanent ill-health
- the individual will have a high level of knowledge in relation to their state of health
- and the possibility of higher mortality as a result
- including their exposure to high risk pursuits
- and could use this information to select an appropriate level of cover accordingly
- as such, the scheme and/or any external insurers will probably want to increase underwriting activity
- or might seek to restrict short term changes to levels of cover
- which could potentially leave the scheme exposed if the scheme benefit/insurance protection were not fully matched
- unmarried members might seek to eliminate dependents cover
- which could cause issues generally e.g. in the case of a married, but separated, member
- the arrangements could accommodate a core component
- although this doesn't necessarily meet the HR directors "fully flexible" criteria

9 (i) Should the transfer value should be no less than the expected cost of providing the benefits within the original scheme
so the member is no worse off because the same level of benefits can be provided from an alternative scheme

Other issues include:

- allowance for changing market conditions
- allowance for any discretionary benefits
- consistency between different classes of beneficiaries
- reducing transfer value to reflect a funding level below 100%

- value for money for previously transferred in from another scheme
- expenses of calculation and payment
- legislative requirements
- underpin of member contributions

(ii) **Prescribed Basis**

A single definitive basis would be used
The transfer value amount would be the same for all members (with the same benefits etc.) with consistency across all schemes
Therefore it would appear equitable for all members
Trustees do not have the responsibility for the basis used
The actuary does not have the responsibility for the basis used
Hence no professional judgement can be used

Independent monitoring may be needed to ensure compliance
Who determines the definitive basis?
And when will it be updated/revised?
There may not be a single appropriate basis for all schemes
Easy to administer
Selection issues

Scheme specifics and actuarial judgement

Can allow explicitly for scheme specifics

For example:

Any discretionary benefits, funding level, life expectancy, early retirement options etc.

Allows flexibility and application of professional judgement
to ensure the overall objective is met
but there may be pressure from the scheme sponsor to reduce transfer payments to reduce costs
Should be able to allow for changing market conditions
There may be significant difference across different schemes
Hence difficult to monitor compliance

Members expectations and requirements

Expectations and requirements may include:

The member may view the transfer value as a "replacement cost"
i.e. the amount a new scheme may require to provide the same number of years service in their scheme (assuming same benefits etc) or
an amount to secure/guarantee the expected pension benefit at retirement
Likely to lead to higher transfer values
Hence more expensive to provide

Allowance for individual circumstances (e.g. state of health, marital status)
Value for money for previous transfer payments into the scheme
Ensuring comparability for length of service in new scheme
Independent of the scheme funding level
and current market value of the assets
No allowance for expenses

It is very difficult for any one method to satisfy all the expectations and requirements of members all of the time

(iii) **Narrow range**

Advantages

Consistency across schemes
May enhances the reputation of Pension Schemes
Appears equitable to members
The transfer payment can be used for other purposes (e.g. pensions on divorce)

Disadvantages

Will not allow for scheme specifics

For example:

Security of the benefits — strength of the employer covenant,
current funding level of Scheme
Inclusive/exclusive of discretionary benefits
Life expectancy of membership

(iv) The early retirement terms may be different to the terms for transfer
i.e. different methods and assumptions may have been used to determine the amount of the transfer value and the early retirement pension
In particular, early retirement terms can be generous, particularly if retiring on account of redundancy
The transfer value does not guarantee to provide the expected pension benefit at normal retirement date
The early retirement cost is based on current immediate annuity rates and not the actuary's assumptions regarding interest rates, life expectancy etc.
+ loading for expenses, profit etc in annuity quote
The assumptions underlying the transfer value may differ from the members actual experience
For example, the early retirement pension will allow for the actual age of the spouse and the amount of pension commuted for cash
The transfer value may exclude any allowance for discretionary pension increases
The transfer value may have been reduced to allow for the scheme's funding position or to allow for the expenses of the calculation

END OF EXAMINERS' REPORT