

EXAMINATION

September 2005

Subject SA4 — Pensions and other Benefits Specialist Applications

EXAMINERS' REPORT

Introduction

The attached subject report has been written by the Principal Examiner with the aim of helping candidates. The questions and comments are based around Core Reading as the interpretation of the syllabus to which the examiners are working. They have however given credit for any alternative approach or interpretation which they consider to be reasonable.

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Chairman of the Board of Examiners

29 November 2005

Examiners' Comments

Question 1

Part (i)

Generally well answered. For the change in mortality age rating, only around half of the candidates used the annuity tables given, the rest used “rules of thumb”; however some of those “rules of thumb” were too far off the mark to be given credit. The annuity interest rate change “rules of thumb” were generally OK, however some candidates tried to derive the effect of the basis change by using pensioner life expectations and produced results that were inappropriate by using too long an expectation.

A significant number of candidates lost marks by not stating their assumptions.

Part (ii)

Reasonable answers, but candidates lost marks by not explaining how the ongoing basis might have been set.

Part (iii) (a)

The amortisation of the past service deficit was answered well.

With regards to the accruing cost; some candidates ignored this altogether, most forgot that a PU SCR would increase over time for a closed scheme (although the better candidates recognised this) and few allowed for the falling membership numbers and hence payroll declining.

Part (iii)(b)

Candidates found this part challenging, and many ignored it altogether. This report shows one approach to a solution, but others were accepted.

Many candidates could not derive the 90% deficit correctly, often taking $[\text{Liabilities} - \text{Assets}/0.9]$ or $90\% \times \text{Deficit}$, and trying to derive what liability to remove, rather than calculating what additional assets are required to cover 90% of the liabilities. Some tried to project one or other side of the equation for 10 years rather than considering present values. A very small minority thought to add back salary increases for the 10 years.

On the accruing cost, the majority of candidates did realise that they had to adjust the ongoing PU SCR, although many uprated the net Company PU SCR rather than the total SCR, and hence got the wrong resultant Company rate.

Part (iv)

Mixed answers. Scattergun much in evidence. Most candidates did not make enough points for a 25 mark question.

Part (v)

Again a bit of a scattergun effect, with few candidates really dealing with the specifics of the question. Instead many talked generally about matching, targeting buy-out funding etc. Very few candidates appeared to understand the workings of the transition programme.

Question 2

Part (i)

Generally well answered.

Part (ii)

Fairly well answered, although many candidates did not distinguish between pensioners pre and post NRA, or those in ill-health.

A minority of candidates mentioned the cash option, and many got the spouse's pensions wrong – thinking the scheme proportion still applied.

Most mentioned the Cap of £25,000 without stating it is reduced for earlier retirements. Almost all candidates got the pre/post 97 pension increase distinction.

Part (iii)

No particular comments. Other than some repetition between member/company/trustee aspects and overlap with part (ii).

Part (iv)

Well answered on the whole on the main points of funding level/employer strength/total levy requirement. Better candidates also got the ideas of fairness and simplicity.

Part (v)

There was some evidence of candidates running out of time, so this section was not answered well with many candidates only covering buy-out options.

1 (i) Estimated debt on employer

Need to switch liabilities from ongoing basis to discontinuance basis.

Ongoing basis

Net pre-retirement yield (actives) = $6.75\% - 4.50\% = 2.25\%$ p.a.
(or $1.0675/1.0450 - 1 = 2.15\%$ p.a.)

Net pre-retirement yield (deferreds) = $6.75\% - 2.75\% = 4.00\%$ p.a.
(or $1.0675/1.275 - 1 = 3.89\%$ p.a.)

Net post-retirement yield (all) = $5.00\% - 2.75\% = 2.25\%$
(or $1.0500/1.0275 - 1 = 2.19\%$ p.a.)

Discontinuance basis

Net pre- & post-retirement yield = $4.50\% - 3.00\% = 1.50\%$ p.a.
(or $1.045/1.030 - 1 = 1.46\%$ p.a.)

Impact of mortality changes

“Formulae and Tables..” only has annuity values at 4% p.a. — assume impact of lighter mortality can be assessed at this rate and applied to liabilities at other net rates.

Also assume impact of mortality changes pre-retirement is not significant.

Assume OK to use single-life annuities to estimate impact.
(this may overstate liabilities as reversionary element may reduce in value)

Actives & deferreds: $\ddot{a}_{56} / \ddot{a}_{58} = 17.04 / 16.36$,
i.e. adds ~ 4% to ongoing liability

Pensioners: Wtd Avg Age is 63, so use $\ddot{a}_{59} / \ddot{a}_{63} = 16.00 / 14.48$
i.e. adds ~ 10% to ongoing liability

Appropriate credit was given for other rules of thumb, providing a clear and convincing explanation was given.

Estimated liabilities on discontinuance basis

Rule of thumb for post-retirement yield changes:

Assume each 1% fall in yield increases liabilities by 12%
for Pensioners effect of reduction in yield not as dramatic but could use same percentage for simplicity

	<i>Ongoing Liability</i>	<i>Pre-Retirement</i>	<i>Mortality Difference</i>	<i>Post-Retirement</i>	<i>Discontinuance Liability</i>
Actives	£35m	$(1.0225/1.0150)^{19} = 1.15$	1.04	$1 + (.75 \times .12) = 1.09$	£46m
Defs	£35m	$(1.0400/1.0150)^{16} = 1.48$	1.04	$1 + (.75 \times .12) = 1.09$	£59m
Pens	£15m	N/A	1.10	1.09	£18m

Use of 19 and 16 years for pre-retirement switches effectively ignores all pre-retirement decrements

Total Liabilities before expenses = $46 + 59 + 18 = £123\text{m}$

Expenses therefore ~ £1m

Total Discontinuance Liabilities ~ £124m

For solvent employer, discontinuance debt is calculated on full buy-out basis

Hence debt on employer is $(124 - 75) = £49\text{m}$, say £50m

(ii) Outline why liabilities are different.

Benefits provided (actives)

- Accrued pensions based on service to date of discontinuance
- Based on (final pensionable) salary calculated at date of discontinuance
- Broadly inflation linked to date of retirement
- Assuming inflation lower than expected future salary increases
- ...offsets impact of more conservative discount rates / inflation
- Any discretionary benefits/options likely to be unavailable

Benefits provided (deferreds)

- Unchanged unless any discretionary benefits e.g. increases in payment
- No reduction to offset more conservative financial assumptions
- Which is why liabilities for defs increase in value by more than actives

Benefits provided (pensioners)

- Unchanged unless any discretionary benefits e.g. increases in payment

Options for securing members' entitlements (in the UK)

- Immediate annuity purchase for pensioners
- Deferred annuity purchase for non-pensioners
- Transfer to another scheme for non-pensioners
- Continue to operate scheme on "closed" basis

Assumptions

Ongoing

- Assumptions set on long-term basis, with reference to market yields
- Allowing for return on gilts + advance credit for higher expected return on equities (over the long-term) in respect of pre-retirement period
- Post-retirement, allowing for return on gilts plus appears to be some allowance for extra return, perhaps assuming investment in corporate bonds
- Inflation (and hence revaluation in deferment / LPI increases) based on that implied by conventional and index-linked gilt yields
- Salary increases for actives set as inflation + 2% p.a.

Discontinuance

- Looking at cost of securing benefits with an insurance company
- GN9 guidance for actuaries requires this approach
- In particular, yields set either
- W.r.t. market terms for financial instruments of high credit quality (that would be held by annuity providers to meet liabilities)
- Or long-term gilt yields – 0.5%
- ..together with a prudent allowance for improvement in mortality, hence stronger mortality than currently using for ongoing funding
- Must include a realistic allowance for expenses
- Insurance company may not be able to directly match scheme benefits
- Insurance company terms more expensive due to reserving requirements

Limitations to estimates

- Calculations are only estimates
- True buy-out costs can only be determined by going to the market
- Short-term lack of capacity in the market can push up buy-out costs
- Any estimates will be out of date by the time they are calculated

(iii) Contributions required

(a) 100% ongoing in 10 years

Regular contribution rate for future accrual is 25% of pensionable salaries.

This is on the Projected Unit Method and the scheme is closed, so the rate will increase steadily over the next 10 years.

Year 1 rate is 25%

Estimated year 10 rate is $25\% \times (1.0675/1.045)^9 = 30\%$

(ignoring impact of withdrawals)

Average rate is ~ 27.5% of pensionable salaries

Employer cost = $27.5 - 5.0 \sim 22.5\%$ of pensionable salaries

assuming falling membership broadly offset by increasing salaries – total payroll broadly flat

so average cost is around $22.5\% \times £18m = £4.0m$ per annum

[Equivalent credit was given for other approaches that take into account increasing rate due to scheme closure e.g. if allow for ~2% p.a. withdrawals, £3.6m p.a. is sufficient.]

Deficit spread

Deficit on ongoing basis is £10m

Amortisation factor = annuity @ 6.75% for 10 years

i.e. Assuming flat deficit payments annual in advance annuity is 7.59

i.e. $10 / 7.59 = £1.3m$ per annum

(in arrears £1.4m per annum)

Summary (100% ongoing after 10 years)

20% of pensionable salaries, rising to 25% over 10 years for future accrual

plus

£1.3m to £1.4m per annum to fund deficit (depending on payment frequency)

average cost ~ £5m to £5.5m in total

(b) *90% discontinuance in 10 years*

Regular contribution rate for future accrual on ongoing basis is 25% of pensionable salaries, rising to 30% after 10 years (from iii(a)), including member contributions.

But cost of each year's accrual on the discontinuance basis is higher. For simplicity, assume increase in accrued liability for actives is suitable for estimating the cost of future accrual on the discontinuance basis i.e.

Estimated year 1 rate is $25\% \times (46\text{m}/35\text{m})$, say 33% pen. salaries

Estimated year 10 rate is $30\% \times (46 / 35)$, say 40% pen. salaries

Average rate of future accrual is $\sim 36.5\%$,

We need to fund 90% of this, i.e. 33% p.a.

Employer share is 28% p.a. on average or 25% in yr 1, rising to 31% in yr 10, some £5.0 p.a.

Deficit spread

Deficit on this basis is $(90\% \times 124) - 75 = £37\text{m}$

Also need to allow for the impact of salary increases (rather than revaluation in deferment) on the accrued liabilities

Assuming real salary growth of 1.75% per annum (using gap on ongoing assumptions), average additional amount to be funded is approximately

$$£46\text{m} \times (1.0175^5 - 1) \times 90\% \sim £4\text{m}$$

Credit was given for any reasonable estimate of impact of paying 100% benefits over 10 year period

say £1 million

Amortisation factor = annuity @ 4.5% for 10 years

i.e. Assuming flat deficit payments annual in advance annuity is 8.27

i.e. $(37 + 4 + 1) / 8.27 = £5.1 \text{ m per annum}$
(or, in arrears £5.3m per annum)

Summary (90% discontinuance after 10 years)

25% of pensionable salaries, rising to 31% over 10 years for future accrual

plus

£5.1m to £5.3m per annum to fund deficit (depending on payment frequency)

average cost $\sim £10.1\text{m}$ to $£10.3\text{m}$ in total

(iv) **Issues for Trustees to consider**

Trustees must act within

- Principles of trust law
- TD&R
- Legislation

Basic duties of trustees (that are relevant here)

- Act prudently
- Act in best interest of beneficiaries
- Strike a fair balance between interests of different classes of beneficiary
- Obtain specialist advice e.g. from the actuary, lawyer

Some trustees may need to be aware of potential conflicts of interest e.g. senior employees of the sponsoring employer.

Trustees need to decide how to interpret “Contributions that are necessary to provide the benefits...”

- “Provide” doesn’t specify how this measured i.e. ongoing or solvency
- Actual cost depends on actual benefits paid, not known in advance
- Pace of funding is the issue
- Employer pays more now, less later or vice versa

Relevance of ongoing and solvency targets depends on strength and commitment of employer

If the employer is committed to the scheme, financially strong, and will remain so for the next 30+ years, ongoing funding basis is probably acceptable.

But could argue that strong employer should pay now whilst times are good.

If there is doubt about the employer’s commitment, or its strength (now or in the future), then solvency targets are more relevant.

The Trustees need to seek some information from/about the employer

- What is their attitude to the scheme?
- .. now it is closed to new members, may no longer be seen as a key part of the remuneration strategy, rather a “legacy” problem to be managed, so emphasis may well be on minimising costs?
- Do they understand the funding position on ongoing & solvency bases?
- What is their expectation on contributions over the next few years?
- Are they getting independent advice?

- If so, what is it? Does it differ significantly from your advice to the Trustees?
- What's the most they can afford to pay?
- Do they have any counter-proposals?
- E.g. benefit changes for future service
- ..or alternative assumptions/deficit spread period etc.
- What costs are being disclosed under relevant accounting standards for pensions?
- Is a credit rating available / what is it?
- Level of borrowing — what creditors would rank ahead of the scheme on wind-up.
- Would the employer be able to meet the debt? Would triggering the debt make the company insolvent?
- Corporate structure — if several participating employers, are they all able to meet their share of any deficit funding?
- What would happen if business was taken over and level of gearing increased?
- Is the current strength significantly based on a small number of limited term contracts?

Is there any agreed Statement of Funding Principles in place?

Trustees need to fully understand their powers under the Trust Deed & Rules

- Legal advice needed
- What/who can trigger a wind-up?
- What happens if any participating employers withdraw from the scheme or are sold off — what are the powers to recover any debt (and on what basis)?
- What happens if the employer refuses to pay the level of contributions requested by the trustees?
- Get legal advice on the contribution and wind-up rules
-In particular, on the interpretation of “Contributions that are necessary to provide the benefits...”

Even if the conclusion is that the Trustees hold the balance of power, would taking a hard line and demanding a high level of contributions really be in the best interest of all beneficiaries?

- how much additional funding would it secure?
- what if it made the employer fundamentally uncompetitive
- so leading to loss of employment for active members
- and ultimately to a wind-up in a few years time with little prospect of recovering any debt
- and not having given the employer the opportunity to put the funding position right over the longer term

The Trustees should seek further advice from the actuary

- What are your recommendations?
- What would the starting point be for your negotiations?
- ...probably solvency based? e.g. £10m
- ...but why target 90%?
- ...why 10 years?
- If the employer is seeking to minimise contributions, what's the lowest you would recommend the Trustees accept?
- What would the funding level be in, say, 3 years on various scenarios?
- Professional constraints may be relevant e.g. GN9
-Disclosure of solvency and priority orders
-Implications for stability of contributions of any given approach
-Consistency of recommended contributions with funding objectives
-Any changes to funding objectives since last valuation?
-Minimum level of contributions under MFR?

The Trustees will need to consider forthcoming legislation

In particular the PPF may influence the Trustees' & Employer's thinking

- what protection will it offer in practice?
- what are the likely size of risk-based levies?
-will the employer regard the levies as "a good deal" (and a way of reducing short-term funding to the scheme) or "money down the drain"?

Introduction of 2.5% LPI may reduce the cost of future accrual to some extent

Up to the Employer to request that it's implemented as soon as possible, however

What is likely to be the impact of the Statutory Funding Objective?

(v) **Investment strategy**

- the current strategy assumes the scheme is 80% funded on a buyout basis
- which is presumably the situation which prevailed at the time of the last valuation
- but is no longer the funding position following the current valuation
- the transition programme wording in the SIP suggests that the scheme was 60% UK equities and 40% UK gilts invested at the time of the last valuation
- because it implies that 4 transfers of 15% UK equity holdings are necessary to achieve a 100% UK gilt position (i.e. every time the funding position improves by 5% from the 80% start position)
- and this is still the investment asset allocation at the current time
- which suggests that even the first 'trigger point' in the programme was never reached

- i.e. the scheme never achieved 85% funded on a buyout basis during the intervaluation period
- or alternatively the “monitoring” stated in the SIP was never undertaken
- as such the current strategy is not sufficiently robust because it essentially assumes the buyout funding position will improve
- whereas it might not, in which case the high UK equity content will remain fixed
- against a background of a deteriorating buyout funding position
- so that the trustees are running increasing risks
- with no effective controls in place
- the strategy is however inherently sensible in a situation where the anticipated improvement to the buyout funding position does actually arise
- since it “captures” the UK equity outperformance in stages and locks in to an asset class which is more closely matched to the liabilities
- so that once the outperformance has been captured in this way, the security of members’ benefits is considerably improved
- but would be expected to increase employer contributions to the scheme
- an improvement to the programme might be to put fixed trigger points into place so that the equity/gilt switches occur at a fixed point in time, or when the funding position improves as previously
- so that the trustees limit the time period that UK equities have to outperform
- although the difficulty here is that the switch from UK equities might occur when the equity market has fallen
- so that underperformance, rather than outperformance, is captured
- a further possibility is to align the funding plan to the investment strategy
- so that, for example, contributions increase if the buyout funding position deteriorates
- ideally maintaining the 80% starting position (as a minimum) for all but very short periods of time
- this would provide the trustees with some comfort that their strategy wouldn’t cause a risk of the funding position deteriorating
- as long as the employer was agreeable to this type of funding plan
- which would have the risk of very volatile contributions for the employer
- and was able to pay if the need arose
- other points which could be made about the strategy include:
 - not very diversified — no overseas assets, property etc
 - to protect the buyout funding position more accurately, it would be sensible to retain a proportion of corporate bonds
 - UK equities are a poor match to (fixed) deferred and pensioner liabilities
 - though gilts are a better match
 - particularly if they are of the right duration (i.e. long)
 - and of the appropriate balance between index-linked and fixed interest to reflect the pension increases payable under the scheme
- Other general points
 - consider switching costs
 - increase bond exposure through investing future contributions in bonds

2 (i) Main aim

to provide a minimum level of benefit
for the members of underfunded defined benefit schemes
where the sponsor is insolvent or at serious risk of becoming insolvent

(ii) Pension benefits

- Members who have reached normal pension age (NPA) or have retired early on ill health grounds will receive 100% of their pension benefits
- other members will receive 90% of their accrued pension benefits
- accrued benefits will be subject to a cap initially £25,000 for NRA 65 (£22,000 for NPA 60)
- The cap will increase in line with earnings
- 25% of the value can be taken as a lump sum
- Pensions in payment in respect of pensionable service after 5 April 1997 will be increased by the lower of RPI and 2.5% regardless of the scheme rules
- No pension increases for earlier accruals
- Pensions in deferment and those of active members below NPA will be revalued in line with RPI (with a 5% p.a cap)
- Widow(ers) will be entitled to 50% of the amount that would have been due to the member from the PPF, regardless of the scheme rules
- Benefits can be reduced

(iii) Members

Provides a minimum level of benefit for members of underfunded defined benefit schemes where the sponsor is insolvent or at serious risk of becoming insolvent.

Hence provides a “guarantee” for members that wasn’t there before the PPF

However this benefit may be significantly below the scheme’s benefit basis, for example:

- the accrued benefit is subject to a cap,
- there is a 10% reduction for some members,
- increases to pension in payment pensions limited to the lower of RPI and 2.5% and the increase only applies in respect of pensionable service after 5 April 1997

The levy is payable by the trustees but the employer may choose to reduce future benefits or cease accrual as a result of the increased cost
or part of the cost of the levy may be “passed onto” the members in the future

No protection for future service benefits

Scheme Sponsors

The levy ultimately falls on the scheme sponsor (as balance of cost)
hence increases the overall cost of running the Scheme
In the early years (or first year) the level will be a flat rate hence penalises schemes with a lower risk of employer insolvency
In subsequent years the risk based levy will reflect the funding position of the scheme hence may encourage employers to make cash injection to reduce deficits and reduce the amount of levy payable
The increased security for members may enhance the profile of the scheme and be valued more by members
There may be a possible increased demand for defined benefit schemes which may be useful to attract new employees
Possible “moral hazard” of passing liabilities to the PPF
with some employers with weak businesses may seek to minimise the funding of PPF protected benefits

Trustees

Greater security for members
from the start date of PPF
PPF is not an ultimate guarantee for members
May influence future funding objective
and future investment policy
Discontinuance funding level less important
But not all pensions will be covered by the PPF (i.e. 90% for non pensioners, limited pension increases)

(iv) Factors

Approach needs to be accepted as fair
and simple to administer
The PPF is effectively an insurance scheme with contributions based on risk but without the associated solvency regulations
The scope of PPF benefits are different from scheme benefits
The long term cost of the PPF will be dependent on future claims which is extremely difficult to predict
The aim is for consistent levy costs over time , regardless of the economic cycle
The total levy will include a flat rate component e.g. 20% of the total
But it will be predominantly risk related e.g. the 80% part
Over time charging a risk related levy should help encourage the right funding behaviours
Hence the risk profile may change
The company's financial strength should be key
as strong employers are less likely to become insolvent
but financial strength is more difficult to assess than the scheme funding level
and even the choice of basis to measure a funding “deficit” is ill defined e.g. it could be on “buy out” proxy basis
Some company credit ratings are available for some listed companies

Poorly funded schemes represent a greater risk than well funded schemes
With extra risks related to the scheme's investment strategy
could allow for external guarantees or funding arrangements (eg escrow accounts)
Approach for multi-employer schemes needed

The PPF faces the same risks of failure as those Schemes which give rise to the need in the first place
Investment of PPF assets is an important factor
Claims will be made with reference to annuity buy out costs
The PPF may contain certain "safety valves" e.g. the PPF board can reduce the rate of revaluation and / or the rate of increase in payment

(v) The methods include

- A minimum funding standard e.g. funding for "buy-out" costs
- A "debt on the employer" for pension fund deficits for solvent employers together with pension deficits ranking as a priority creditor for insolvent employers

or any other sensible method fully described, eg transfer to another arrangement if employer not insolvent.

END OF EXAMINERS' REPORT