

Actuarial Society of South Africa

EXAMINATION

1 November 2011 (pm)

**Subject F204 - Pensions and Other Benefits
Specialist Applications**

EXAMINERS' REPORT

QUESTION 1

- (i) **Discuss what you would consider in determining the transfer values including the legal framework, basis, method and other factors that might be used to calculate.**

Rules and legislation

- the transferor funds rules must be consulted
- though there are unlikely to be set rules for determining TVs on acquisition
- the trustees must decide/agree on a method and set of assumptions
- check for past practice (previous bulk transfers)
- and pension increase policy
- the TV must be a fair and reasonable reflection of the benefits accrued
- including discretionary benefits and ones that have become established practice
- (reasonable benefit expectations)
- the security of remaining members must not be prejudiced
- Section 14 of the PFA and PF Circular 120 are relevant
- the FSB's approval will be needed
- legislation prescribes the minimum benefit that must apply
- consider PMB discount rate decided on by Trustees (ILG or EY basis)
- consider P&S agreement
- which is the greater of (i) the prescribed value of a deferred pension or (ii) a return, with interest, of the member's contributions and the "vested" portion of the employer's contributions

Basis

- Start with last valuation basis (should not contain elements of prudence)
- But economic assumptions may have to be revised given the drop in equity values
- And actual underlying investment strategy
- Allow for any changes in inflation and salary increase expectations
- Make appropriate allowance for pre- and post-retirement mortality
- Withdrawals, expenses, (possibly) marital status and (possibly) existence of children
- The assumptions should reflect the characteristics of the transferring members
- e.g. higher withdrawal rate, salary increases
- The FSB will want to know why a different basis has been used
- Seller might argue that their IAS19 basis is more relevant as it more realistic
- And avoids possible over-funding due to some implicit conservatism in the statutory valuation basis
- Although the purposes are quite different: accounting disclosure vs. benefit security
- Consider valuation assumptions used by transferee fund so that transferee fund does not acquire deficit or more assets than required to secure transferring members' benefits

Various Methods

1 Value of Accrued benefits

- Recognise full value of entitlement in respect of past service
- Allowing for future salary increases
- This is the ARV on the AAM or PU methods of funding

2 Share of Fund

- This would reflect the state of funding of the seller's scheme
- Specific consideration should be given to the Employer Surplus Account in this calculation (which in SA belongs to the employer)
- Seller would want to avoid making good any deficits
- Buyer would want greater of accrued benefits and SoF to get share of any surplus transferred
- But trustees are unlikely to be able to transfer more than SoF, so seller may have to fund part of deficit (if there is one) by way of a lower sale price

Regardless of the method chosen, the final transfer value is subject to the legislated minimum benefit as above

Contingency reserves and surplus/deficit

Share of the solvency reserve:

- Less need for the full solvency reserve after bulk transfer
- part of this can justifiably be transferred
- the surplus scheme/rules should clarify this

Share of employer's surplus:

- Decision to be taken by employer trustees only
- Employer unlikely to give up part of its surplus account
- And does not have to because the entire company is not being sold
- The Sale agreement may specify otherwise.

What if there is an asset shortfall?

- if the trustees doubt the employer's ability to make good the deficit, they should include the level of under-funding in the TVs
- in which case the buyer may offer to secure shortfall
- or if Sale agreement specifies full value (and Seller pays in shortfall)
- or, depending on employer's covenant, they are prepared to make good the shortfall in TVs, which is their ultimate responsibility
- employer can use the employer surplus to fund or partially fund deficit

Sale and Purchase agreement

- The trustees are not obliged to abide by any aspect of the Sale and Purchase agreement's in terms of the amount transferred
- unless any shortfalls are paid by the seller or buyer
- The rules may need to be amended to comply with the agreement.
- Or the agreement may be amended to comply with the fund rules and the trustees' fiduciary duties

Other/general

- Need to factor in fund interest (and amendments to investment strategy, if any) until actual payment

- Confirm financial position of remaining members (for PF120)

QUESTION 2

i) The FD has asked you to explain why only R200 million of the R380 million surplus as at 31 December 2009 was recognised on the Company X balance sheet. Outline the points you would make in your response to the FD.

- In terms of IAS19, a company can only recognise surplus in a pension fund if it has an unequivocal right to benefit from the surplus either through means of a refund or through future contribution reductions
- In terms of the pension fund's rules, Company X has an unequivocal right to the R200 million surplus in the active member section (the Employer Surplus Account).
- The rules are silent regarding the surplus in the pensioner section of the fund. This means that the trustees must decide on how this surplus is allocated.
- Until such time as the trustees decide to make an allocation to the Employer Surplus Account, Company X has no unequivocal right to any portion of the R180 million surplus in the pensioner section of the Fund.
- In deciding on the allocation of surplus, the trustees will do so on the financial soundness valuation basis i.e. after allowing for any solvency and risk reserves in respect of pensioners. This is likely to be lower than the R180m surplus shown in the IAS19 valuation.
- When, as expected in terms of a best estimate valuation, these reserve are released (i.e. added to surplus), the trustee will need to decide how to allocate this surplus.
- Under the active member section, solvency and risk reserve may also be held but when these reserve are released (as expected under a best estimate valuation), they are automatically allocated to the ESA in terms of the rules. The Company can therefore recognise the full R200m surplus in the active section of the fund on its balance sheet

ii) Based on the above information, estimate the following:

(a) The overall surplus in the fund and the surplus recognised in the balance sheet of Company X as at 31 December 2010.

(b) The components of the actuarial gain / loss for the year to 31 December 2010.

(c) The Net Periodic Pension Cost for the year – show reconciliation with the balance sheet asset.

Fund and balance sheet surplus

- Estimated active member asset as at 31 Dec 2010:

$$R800m \times 1.14 + (R15m - R25m - R30m) \times (1.14)^{.5} = R869.3m$$

{Estimated investment proceeds = R109.3} – (A)

- Estimated pensioner asset as at 31 Dec 2010:

$$R750m \times 1.20 + (R30m - R45m) \times (1.20)^{.5} = R883.6m$$

{Estimated investment proceeds = R148.6 m} – (B)

- Estimated active member liability as at 31 Dec 2010:

EE cont of 7.5% = R15m. Implies ER service cost of 15% about R30m (assuming service cost % constant – ok as open fund). Total cost of 1 year service is R45m
Expected liability assuming IAS19 assumptions as at 31.12.2009 hold true:

$$R600m \times 1.09 + (R45m - R30m - R25m) \times (1.09)^{.5} = R643.6m$$

{Interest cost = R53.6m} – (C)

Allow for higher salary increase as at 31 Dec 2010:

$$\text{Estimated active member liability} = R643.6m / (1.07) \times (1.09) = R655.6m$$

$$\{\text{Actuarial loss due to salary increase} = R655.6m - R643.6m = R12.0m\} - (D)$$

- Estimated pensioner liability as at 31 Dec 2010:

Expected liability assuming assumption hold true:

$$R570m \times 1.09 + (R30m - R45m) \times (1.09)^{.5} = R605.6m$$

$$\{\text{Interest cost} = R50.6m\} - (E)$$

Allow for higher pension increase as at 31 Dec 2010:

$$\text{Estimated pensioner liability} = R605.6m / (1.055) \times (1.07) = R614.2m$$

$$\{\text{Actuarial loss due to salary increase} = R614.2m - R605.6m = R8.6m\} - (F)$$

- Estimated surplus as at 31 Dec 2010:

- Active member section: R869.3m less R655.6m = R213.7m

- Pensioner section: R883.6m less R614.2m = R269.4m (X)

- Total surplus = R483.1m

- Surplus recognised in balance sheet = R213.7m

- Key assumptions (valid alternatives may apply):

- Contributions, benefit outgo, pensions paid and capital in respect of retirees spread evenly throughout the year
- New pensioner during the year receive a full pension increase as at 31 December 2010
- Salary increase as at 31 December 2010 is the same for all members
- Benefit outgo value is on average equal to the IAS19 liability held for a member i.e. not profits or losses arise on exit.
- Expenses are met directly by the Company
- Valuation assumptions as at 31 Dec 2010 the same as 31 Dec 2009 (no change in corporate and government bond yields)

Actuarial gains and losses components

- Actuarial loss due to higher than expected salary increases (D above): R12.0m
- Actuarial loss due to higher than expected pension increases (F above): R8.6m
- Expected active member asset as at 31 Dec 2010:
 $R800m \times 1.12 + (R15m - R25m - R30m) \times (1.12)^{.5} = R853.7m$
{Expected investment proceeds = R93.7m} – (G)
- Actuarial gain due to excess return on active member assets: R869.3m – R853.7m = R15.6m
- Expected pensioner asset as at 31 Dec 2010:
 $R750m \times 1.10 + (R30m - R45) \times (1.10)^{.5} = R809.3m$
{Expected investment proceeds = R74.3m} – (H)
- Actuarial gain due to excess return on pensioner assets: R883.6m – R809.3m = R74.3m
- Actuarial gain due to excess returns: R74.3m + R15.6m = R89.9m
- Total actuarial gain R89.9m – R8.6m – R12.0m = R69.3m

Net periodic pension cost

- Service cost (net of member conts.): R 30.0m
- Interest cost (C plus E above): R104.2m
- Expected return (G plus H above): -R168.0m

- Recognised actuarial gain: -R 69.3m
-R103.1m

Reconciliation of asset recognised on the Company balance sheet

- Asset recognised 31 Dec 2009: -R200.0m
- Net period pension cost: -R103.1m
- Company contributions: R 0.0m
- Change in Par 58 limit (R269.4m less R180.0m): R 89.4m
- Asset recognised 31 Dec 2010: -R213.7m

iii) The FD had indicated that Company X is in financial difficulty. The FD has requested your advice on how Company X can recognise a larger portion of the surplus in the fund. Outline the points you would make in your response to the FD.

- The fund’s valuator is generally best placed to perform the largely technical IAS19 valuation of the fund.
- The valuator’s has a professional duty to act in the interests of the fund.
- FD’s request extends beyond the mere technical IAS19 valuation and may place the valuator in a conflicted position as the fund’s interests and Company X’s interests may differ
- Company X should therefore look at obtaining advice from another actuary
- The IAS19 valuation results are “best estimate” results and as such no margin exists in the liabilities or assets which could potentially increase the surplus
- In order to recognise a greater asset on the balance sheet, the trustees of the fund would need to agree to allocate some (or all) of the surplus in the pensioner section to the Employer Surplus Account.
- Trustees may want to utilise entire surplus for pension increases. However, Company X can veto any increase above inflation, hence trustee ability to utilise surplus is restricted (and may in fact never be utilised in full if future investment returns on pensioner assets are reasonable). There is thus scope for compromise (Company X

agrees to higher pension increase in return for a part of the surplus being allocated to the ESA).

iv) Based on the revised information above, re-estimate the following:

- (a) The overall surplus in the fund and the surplus recognised in the balance sheet of Company X as at 31 December 2010.**
- (b) The components of the actuarial gain / loss for the year to 31 December 2010.**
- (c) The Net Periodic Pension Cost for the year – show reconciliation with the balance sheet asset.**

Fund and balance sheet surplus

- No change in respect of active members:
 - Assets: R869.3m
 - Liabilities: R655.6m
 - Surplus: R213.7m
- Pensioner section:
 - Assets: R883.6m less R800m = R83.6m
 - Liabilities: R614.2m less R614.2m = R0m (since all outsourced must be zero)
- R800.0m paid can be split as a R614.2m curtailment cost and a R185.8m settlement cost (note – can make this point below as well)
- Fund surplus = R83.6m plus R213.7m = R297.3m
- Balance sheet surplus = R297.3m (since surplus in pensioner section goes to ESA)

Actuarial gains and losses components

- No change from above as pensioner outsourcing occurs as at 31 Dec 2010

Net periodic pension cost

- Service cost (net of member conts.): R 30.0m – No change
- Interest cost (C plus E above): R104.2m – No change
- Expected return (G plus H above): -R168.0m - No change
- Recognised actuarial gain: -R 69.3m – No Change
- Settlement cost: R185.8m – No Change

R 82.7m

Reconciliation of asset recognised on the Company balance sheet

• Asset recognised 31 Dec 2009:	-R200.0m
• Net period pension cost:	R 82.7m
• Company contributions:	R 0.0m
• Change in Par 58 limit (R0.0m less R180.0m):	<u>-R180.0m</u>
• Asset recognised 31 Dec 2010:	-R297.3m

v) Comment on the change in the fund surplus and the surplus recognised in Company X’s balance sheet above.

- The overall fund surplus as at 31 Dec 2010 has decreased from R483.1m to R297.3m
- This is due to the settlement cost of R185.8m incurred as part of the pensioner outsourcing
- The asset recognised on the Company X balance sheet increased from R213.7m to R297.3m
- In effect the R269.4m surplus in the pensioner section was allocated as follows by the trustees:
 - R185.8m to pensioners
 - R83.6m to the ESA (Company X).
- In future all deficits and surplus in the fund will directly reflect in Company X’s balance sheet.

QUESTION 3

i) Discuss the main issues that an investment strategy document should cover

- The trustees are responsible for specifying overall guidelines of investment strategy. The investment strategy document (ISD) sets out how the investment strategy is implemented in practice.
- The investment strategy document must comply with the fund's rules and any relevant legislation.
- The ISD will consider the liability profile of the fund and the risk tolerance of the members.
- The ISD will cover overall investment structure available to members:
 - Types of investment options will be made available to members.
 - How and when members can transfer switch between investment options.
 - The default investment option.
 - The overall target benefit that the fund aims to provide to a typical new entrant (typically expressed as a bet replacement ratio or similar).
 - Whether to make use of pooled portfolios (likely given the fund's size) or whether to use segregated portfolios.
- For each investment option made available to members, the ISD will:
 - Specify a target return and risk tolerance:
 - Relative to other similar portfolios; or
 - Relative to an index
 - The ISD may also detail the following in respect of each portfolio:
 - The minimum and maximum holdings in different asset classes
 - The maximum investment in any one share
 - The maximum investment in illiquid assets
 - The use of derivatives
 - Self investment

- Foreign currency exposure
- Allocation to Socially Responsible Investments
- The ISD will cover the frequency and measurement of investment performance of the various portfolios.
- The ISD will also cover the following in respect of investment managers:
 - Minimum requirements to be appointed as an investment managers (size, staff etc)
 - Events that would trigger an reassessment of the appointment
 - Fees and expenses
 - Appointment and termination procedures
- The ISD will also specify the frequency and type of communication that will be provided to members regarding the fund's investment performance.
- The ISD will specify what type of event would lead to a review of the ISD.

ii) Discuss the concept of a life stage investment model and how you would recommend that the fund implement such a model.

Life stage model concept

- A life stage model (LSM) is an investment strategy that targets an asset allocation at retirement that matches the asset allocation of a specific post retirement product. The aim is to ensure a smooth pricing transition at retirement.
- At younger ages a higher growth / risk tolerance investment portfolio will apply (typical balanced fund).
- As the member approaches normal retirement age the LSM investment portfolio will change to reflect the asset allocation of the targeted retirement product.
- The LSM will invariably be used as the default investment option in cases where a fund allows member investment choice.
- The switch in the LSM investment portfolios can be done in a number of ways:
 - Gradual change through a number of investment portfolios; or
 - A once-off switch to the pre-retirement portfolio; or

- A gradual blending to the pre-retirement portfolio over a fixed time period.
- The portfolio switch is usually triggered on the attainment of a certain age or on the age attained on a fixed date (e.g. the fund anniversary)
- Members are usually given the option of not following the LSM model. This would be appropriate for instance where a member is planning to secure a different retirement product from that which underlies the LSM.

Fund LSM

- Members of the fund either elect a living annuity or a with profit annuity. In theory they could elect something else. Past evidence suggests one of these two options.
- For a living annuity at a normal retirement age of 60, a balanced fund with relatively high growth asset exposure would be appropriate (*give credit for any other sensible strategy – note youngish retirement age and that asset allocation applies at NRA – can still change subsequently*). Unless the income drawdown percentage in the living annuity is very low, a low growth asset exposure will not maintain a real income over the expected future lifetime of a retiree aged 60.
- If the living annuity retirement product is used as the base for the LSM, then a member should remain in a typical balanced fund portfolio until NRA
- Insurers generally invest their with-profit annuity portfolios in a mixture of growth assets and fixed interest assets. Generally, the lower the post retirement interest rate, the higher the proportion allocated to growth assets.
- Insurers smooth (or hedge) the with-profit annuity returns. As such, with-profit annuity pricing is actually very stable over time. As such, the appropriate investment strategy for an LSM targeting a with-profit annuity at retirement is to move towards a cash portfolio at NRA (and not an asset allocation similar to with-profits portfolio).
- To base the LSM on a living annuity on retirement:
 - This could be justified if most retiring members elect a living annuity at retirement.
 - LSM would only require 1 balanced fund portfolio.
 - Would probably need an investment option for members to elect a cash portfolio close to retirement instead of LSM.

- Communication to members would then need to focus on the action that members considering a with-profit annuity at retirement need to take.
- To base the LSM on a with-profit annuity:
 - This could be justified if most retiring members elect a with-profit annuity at retirement. It can also be justified on the grounds that members with smaller retirement savings (<R500 000) will end up in this product at retirement
 - LSM would only require a balanced fund portfolio and a cash portfolio. A mechanism for switching into the cash portfolio will also be required.
 - Communication to members would then need to focus on the action that members considering a living annuity at retirement need to take
- To base the LSM on a combination of a living annuity and a with-profit annuity at retirement:
 - This would result in a portfolio at retirement with an asset allocation somewhere between a cash portfolio and a balanced fund
 - Would be a compromise – would not meet either of the 2 retirement options 100%
 - Could also be justified as members will invariable commute some retirement pension for cash.
- Key is to communicate what the LSM is targeting and what other investment options are available.
- Members should be given, or be encouraged to seek, financial advice when LSM is introduced.

iii) Outline any other implications for the fund of introducing a life stage investment model

- Fund is relatively small with R50m in assets so likely to be paying maximum pooled portfolio investment fees already.
- Fee implications of introducing a further cash portfolio likely to be negligible.
- Administration is more complicated, especially is a phasing in period is used for switches between portfolios.

- Can expect an increase in administration fees.
- Can also expect extra fees for:
 - Communication
 - Member advice / education
- Will need to monitor administration carefully initially
- Regular matching of assets to liabilities by portfolio (should be part of admin process)

- Switching process for members who opt out of the default LSM will need to be clearly defined (switching date(s), submission of forms, confirmation of switch etc)

- More communication required with members:
 - Explaining the life stage model and who it is appropriate for
 - How to opt out of the life stage model
- Existing members may have planned for retirement based on existing investment strategy – may need special consideration if LSM is implemented as default

QUESTION 4

(i) **One of the Trustees refers you to a section titled “AOS” and asks you to explain what this is and its purpose.**

- Analysis of surplus or the change in financial position over the reporting period

Monitoring of deviations from expectation enables actuary to:

- Make partly independent check on valuation results by reconciling results, the deviations and results from previous valuations
- Recognise the reasons for any unexpected results and consider likelihood of future such deviations and provide advice accordingly
- Recognise potential financial significance of chosen assumptions and required adjustments
- Assess the stability and appropriateness of funding method chosen
- Meet the requirements of PGN201

(ii) **Appreciating that you are the newly appointed actuary and did not complete this report but having noted the deterioration in the financial position of the Fund you are asked to describe the factors which may lead to this change in the reported financial position over the 3 year inter-valuation period.**

- The benefits provided by the scheme may have increased
- For all members, a category or individuals
- Any special adjustments or augmentations
- The investment returns may have been lower than assumptions
- May have been changes in strategy since the previous valuation resulting in assumptions that need revision
- Contributions paid may have been less than those recommended
- Any significant changes in membership might affect funding position
- Large transfers (in or out)
- and the basis used for these transfers

- surplus transferred out
- changes in new entrant characteristics, closure of fund to new entrants
- any large retrenchment or recruitment exercises changing fund profile
- or costing additional benefits
- Funding levels will change if experience different to assumptions
- pension increases greater than funding allowance
- other exit payments greater than basis
- In service mortality may affect funding depending on benefit relative to reserves (too few or too many deaths)
- Or effect/increase the cost of reinsurance arrangements

Other items which will have changed financial position are:

- Reduction in general market conditions
- leading to a different valuation basis now being used
- In particular reductions in bond yields or net yields
- Improvements in pensioner mortality
- Additional legislative constraints
- Expenses deducted from the fund being greater than allowance
- any surplus apportionment exercises that have been completed
- strains as result of minimum pension increase provisions
- increases in minimum benefit provisions
- or increases in other recommended contingency reserves