Actuarial Society of South Africa

EXAMINATION

19 May 2023

Subject F204 - Pensions and Other Benefits Specialist Applications

EXAMINER'S REPORT

Overall this exam gave sufficient opportunity for candidates to demonstrate mastery of the subject matter, and there were many marks available, allowing for candidates to score well.

QUESTION 1

This question was reasonably well answered, as expected, given the number of marks available. It was surprising that part (i) was the most poorly answered of the four parts of the question with candidates struggling to generate enough individual points to gain the marks, and there were many possible points.

i) Discuss the various ways in which retirement funds and their sponsoring employers have been able to mitigate risk with respect to their employee benefits arrangements. **[17]**

- *The move from defined benefit to defined contribution arrangements*
  - Over late 1990's early 2000's many defined benefit funds were closed or converted to defined contribution
  - The aim was to reduce the risk of needing to meet an open ended cost of benefits provision carried by the fund and sponsoring employer
  - *More recently default regulation in respect of choices*

- *Lump sum versus annuity type benefits*
  - Lump sum benefits result in a settlement of the liability at the time of exit
  - Reduces future risks associated with continuing to provide the benefits on an ongoing basis
  - The lump sum could potentially be higher than the actual cost of benefits that would be payable under the annuity stream but this would be considered the price for securing the liability and removing future risk
  - Examples would include lump sum payments on retirement that would either be taken as cash or transferred to an annuity provider
  - Historic ill-health or disability pensions converted to lump sum benefit often in form of an accelerated death benefit
  - Death in service spouse or dependants pension/annuity replaced with lump sum multiple of salary

- *Annuity outsourcing*
  - To reduce the risks associated with payment of pensions including
    - Longevity,
    - Investment risk
    - Inflationary risk
  - Funds transferred their historic in fund pensions to an annuity provider either as a policy in the name of the Fund or as policies in the name of pensioners
  - Rules changed to purchase annuities for future pensions on retirement

- *Funds who retained in-fund pensioners have implemented a range of matching strategies through various structured products and government bonds portfolios*
  - to reduce investment, inflation and valuation risk
  - But retaining longevity risk
  - This has brought about the potential additional risk with new products like living annuities
  - Mitigated to some extent through default regulations

- *Insurance of risk benefits:*
  - Lump sum death and disability benefits purchase through insurance products
  - Income protection (PHI) benefits introduced to replace lump sum disability and in fund ill-health pensions
    - Allows for managing the disability costs and return to service of those who recover
    - Has potential to reduce costs of guarantee lump sum or pension which are fixed once granted
    - Allows members to remain in fund, remain access to death lump sum and continue saving for retirement
  - allows for smoothing of the cost of these benefits in form of monthly premium rather than potentially volatile random death and disability claims

- *Umbrella retirement funds*
  - Move to umbrella retirement arrangements especially for smaller companies and funds
  - Potential saving in cost through pooling and economies of scale
  - Reduced governance and management resources

- *General increase in the range of reserves being set aside*
  - Historically many funds simply had investment reserves
  - Now find solvency reserves to cover risk of underperforming investments in long term and margins to protect against longevity risk
  - Expense reserves to manage expenses and buffer against unforeseen expenses
  - Processing Error Reserves within Defined Contribution Funds to provide for risk of mismatches in investment returns and pricing
  - Data reserves to protect against errors in data that might cause financial strain
  - Contribution reserves for hybrid funds where benefits are defined while contributions are fixed

Additional points

- *Lack of retirement savings remains a risk to most arrangements*
  - Tax incentives encourage savings
  - Disincentive for early exit lump sums
  - Preservations funds and default preservation legislation
  - Removal of differences between pension and provident funds
  - Retain risk benefit premium (and implement death cover purchase – age related cover)

- *Investments*
  - pooled versus segregated funds:
  - Smaller funds able to access wider range of investment opportunity through pooled arrangements
  - Direct property investment through pooled funds rather than historic case of owning an illiquid company property
  - Local and international assets across range of asset classes
  - Increasing foreign investment limits allowing funds to mitigate local risk
  - The risk was essentially transferred to members
  - There were some advantages to members including the ability to access higher early exit benefits and an increase in transparency
  - This eventually brought about investment choice
- *Allowing members some control to manage their own risk*

ii) Briefly outline the two most common forms of disability benefit available to retirement fund members and describe the factors that would affect the cost of these benefits. [9]

- Aim is to provide protection against loss of income due to disability or ill health.
    - Design of benefit should meet the need in relation to the income that has been lost
- There may also be a desire to have a consistency between the benefits payable on disability and those payable on normal health retirement or death
- Benefits typically lump sum or income benefit

- *Lump sum often called Capital Disability*
- Considered an accelerated death benefit as the defn of disability is usually total and permanent disability
- Death benefit falls away on payment of the lump sum

- *Income continuation insurance is often insured with a life office, in which case it is often known as PHI.*
    - The individual's employment and membership of the pension fund continues.
    - Life cover often also continues, and
    - the employer may also insure future contributions to the pension fund during the period of illness when membership continues.
    - A typical level of PHI cover is 75% of a member's salary, which then reduces as the salary gets higher, plus there is often a maximum rand benefit.
    - Disability definition can be temporary or permanent
    - Waiting period before benefits start being paid – longer waiting period results in lower cost.

- Cost factors – costs impacted by likelihood of claim and severity in terms of claim amount
- *Likelihood affected by:*
- o Membership demographics
- ▪ age profile, income profile, HIV, occupational specific risks, gender
- o Definition of disability determines the likelihood of claims
- o Wider definition might include more than necessary while narrow definition might not provide the level of cover required
- o Anti-selection by members
- o Abuse by the Employer, easier to off board than, for example, disciplinary process
- o Nature of the industry and level of exposure to work related illness or accidents
- o Range of employee classes within a fund, blue vs white collar
- o Nature of any programmes in place to reduce the incidents of disability
- *Severity affected by:*
- o The level and form of benefit
- o Lump sums once paid cannot be recovered if the member recovers from ill-health condition
- o Income benefits may turn out more costly than expected if the member survives longer than expected given the disability
- ▪ However potentially capped at retirement age for PHI type benefits
- ▪ Size of fund membership and ability to pool costs

iii.) Compare self-insurance to insurance in this context, setting out the advantages and disadvantages of self-insurance. [6]

- Funds can either purchase a policy from an insurance company that provides cover in the event of a death of a member; or
- Funds can choose to carry this risk inside the fund, i.e. to self-insure
- Overriding principle is the ability to fund benefits from within the Fund with the aim of improving the cost effectiveness of the death

Advantages of self-insurance over insurance

- Potential Cost savings assuming the Fund has sufficient scale
- Profits from better than expected experience can be passed back to members
- Flexibility in design and underwriting
- Remove reliance on 3rd party insurers and their internal processes
- Retain the premiums and reserves within fund assets achieving some level of additional interest or investment return which would otherwise be earned by insurer
- Ability to access re-insurance directly for certain catastrophes

Disadvantages

- Exposure to worse than expected claims experience and
- And need for large reserves to be set aside
- Internal administration could increase
  - Could increase costs
- Cannot draw on experience or pooling arrangements of insurer
- Can often gain a selection/competitive advantage playing insurers off each other for price

No or limited access to profit sharing arrangements

iv) List the points you would include in your response [6]

- Requirements
- Rules
  - Scheme structure
  - Benefits
- Financial
  - Reserves
  - Solvency measures
  - Affordability
  - Pricing policy
  - Catastrophe cover
- Administration
  - Additional processes
  - Costs
  - Specialist resources
- Process to implement within Fund
- Design
  - Design the desired benefit structure
  - Consider variations that may be required
  - Ability to take advantage of determining own structure
- Rules
  - Develop rules required for benefits, reserves

    - Financial soundness
    - Regulator engagement
- Employer engagement
- Develop administration process
    - Systems
    - Reporting
    - Assessment
    - Member engagement
- Pricing
    - Risks
    - Contribution allocations
    - Catastrophe cover
- Time frames
    - Rules and approval – 60 - 90 days
    - Administration system / specialist providers – 90 - 120 days (concurrent)
    - Internal reserving and pricing
        - Assets available
            - Within the above timeframes
        - Assets not available would then require period to build up reserves – unknown
            - Profit share arrangements
            - Additional allocations from contributions into reserves

QUESTION 2

This question focused on both the calculation aspects of the IAS19 valuation process, as well as examining the interpretation of the results from the client's perspective. The calculations were poorly done by most candidates. The question also included a professionalism element in part iii. which was poorly answered. Overall this question was poorly handled.

i. Outline the points you would make in your response to the FD. [4]

- 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 R100 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 R20 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 R20m surplus shown in the IAS19 valuation.
- Under the active member section, solvency and risk reserve may also be held but when these reserves 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 R100m 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 2022.

b) The amounts to recognise in Profit and Loss and Other Comprehensive Income for the year.

c) Reconcile the balance sheet asset of Company X over the year. [18]

Fund and balance sheet surplus

- Estimated active member asset as at 31 Dec 2022:

  R1 000m x 1.00 + (R22.5m-R60m-R40m) x (1.00)^.5 = R922.5m

  {Estimated investment proceeds = R0.0 m} – (A)

  R1 000m x 1.12 + (R22.5m-R60m-R40m) x (1.12)^.5 = R1 038.0m

  {Discount rate expected proceeds = R115.5 m} – (AA)

- Estimated pensioner asset as at 31 Dec 2022:

  R800m x 0.95 + (R40m – R58m) x (0.95)^.5 = R742.5m

  {Estimated investment proceeds = -R39.5 m} – (B)

  R800m x 1.12 + (R40m – R58m) x (1.12)^.5 = R877.0m

  {Discount rate expected proceeds = R95.0 m} – (BB)

- Estimated active member liability as at 31 Dec 2022:

  EE cont of 7.5% = R22.5m. Implies ER service cost of 15% about R45m (assuming service cost % constant). Total cost of 1 year service is R67.5m

  Expected liability assuming IAS19 assumptions as at 31.12.2021 hold true:

  R900m x 1.12 + (R67.5m-R40m-R60m) x (1.12)^.5 = R973.6m

  {Interest cost = R106.1m} – (C)

  Allow for lower salary increase as at 31 Dec 2022:

  Estimated active member liability = R973.6m / (1.085) x (1.06) = R951.2m

  {Actuarial gain due to salary increase = R973.6m –R951.2m = R22.4m} – (D)

- Estimated pensioner liability as at 31 Dec 2022:

  Expected liability assuming assumption hold true:

  R780m x 1.12 + (R40m-R58m) x (1.12)^.5 = R854.6m

  {Interest cost = R92.6m} – (E)

  Allow for lower pension increase as at 31 Dec 2022:

  Estimated pensioner liability = R854.6m / (1.075) x (1.00) = R795.0m

{Actuarial gain due to pension increase = R854.6m –R795.0m = R59.6m} – (F)

- Estimated surplus as at 31 Dec 2022:
  - Active member section: R922.5m less R951.2m = -R28.7m
  - Pensioner section: R742.5m less R795.0m = -R52.5m
  - Total surplus = - R81.2m
  - Deficit to recognised in balance sheet = R81.2m
- 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 2022
  - Salary increase as at 31 December 2022 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 2022 the same as 31 Dec 2021 (no change in corporate and government bond yields)

P&L for 2022

- Discount rate return on assets (AA plus BB above) = R210.5m
- Adjust for expected return on restricted asset: R20m x 0.12 = R2.4m
- Net expected return on assets: R208.1m

<u>P&L</u>

• Service cost (net of member conts.):	R 45.0m
• Interest cost (C plus E above):	R198.7m
• Discount rate expected return:	<u>-R208.1m</u>
Recognised in P&L	R 35.6m

OCI for 2022

- Excess investment return above discount rate = R208.1m less (A) less (B) = R247.6m (i.e. lower than expected)

OCI

- Actuarial gain on liabilities (D plus F above): -R 82.0m
- Excess investment return: R247.6m
- Change in asset limit: -R 20.0m

Recognised in OCI R145.6m

Reconciliation of asset recognised on the Company balance sheet

- Asset recognised 31 Dec 2021: -R100.0m
- Recognised in P&L: R 35.6m
- Company contributions: R 0.0m
- Recognised in OCI: R 145,6m
- Asset recognised 31 Dec 2022: R 81.2m

iii. Outline the points you would make in your response to the FD. [3]

- The fund's valuator is generally best placed to perform the largely technical IAS19 valuation of the fund.
- The valuators 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
- Amending fund benefits will change the situation for past accrued benefits
    - Can only be amended going forward
- If this company is in financial difficulty, it can potentially amend benefits
    - Change to terms of employment
    - Would have to be negotiated with the employer and staff
- If a change to benefit structure is approved, it can only be implemented once the new rules of the fund have been approved
    - This will then filter through to future valuations

iv. Comment on the FD's request. [3]

- In terms of IAS19, the company is responsible for selecting the valuation assumptions to be used.
- However, the assumptions must still comply with the requirements of IAS19
- And reflect the actual cost of benefits that are likely to be paid
- The discount rate is prescribed in IAS19 and in South Africa is based on government bond yields. There is therefore little scope for using a higher discount rate.
- Salary increases are under the control of the company. Given that the company is in financial difficulty, a salary increase in line with inflation is plausible but the company must be able to justify this assumption to its auditors.
- Pension increases are set based on the fund's pension increase policy. Unless this policy changes to state that pension increases are based on 75% of inflation (which would require the agreement of the Trustees) it would be difficult to justify using a different assumption for IAS19 purposes.

QUESTION 3

This question was poorly answered overall, with the candidates not being able to address the trustees' proposals in parts iii. and iv. which combined technical and professionalism issues.

i. Calculate the surplus that accrued in the fund as a result of investment returns being higher than expected. [3]

Expected asset value at this valuation
= 124 500 000*(1.085) – 3 900 000*(1.085)^0.5
= 131 020 130
Actual asset value at this valuation = 136 400 000
Surplus from investments = 136 400 000 – 131 020 130
= 5 379 870

ii. Discuss the general factors that affect how surplus might be used. [10]

- Legislation:
  - May require surplus to be used to increase benefits
  - May indicate which categories of member should have priority for such increases
- Beneficial tax treatment:
  - Surplus may be excluded from beneficial tax treatment
  - Sponsor will probably have to pay tax if receiving a return of surplus funds
- Scheme rules:
  - In setting up the scheme, the sponsor may have placed restrictions on the use of surplus
  - May prevent disputes if surpluses arise
- Discretion of sponsor / managers:
  - May have the right to choose how surplus is used (if no legislation / rules)
  - Risk exposure – those exposed to the risk benefit from the surplus?
- Would be an argument that the surplus should be allocated to the employer via an employer surplus account
- The source of surplus:
  - Taken into consideration – may apply in a way consistent with how it arose
  - If volatile, may reserve the surplus
- Speed of corrective action:
  - Decide how quickly to use up the surplus – could potentially leave it in the fund to increase security

  Industrial relations: consider the effect on industrial relations
- The trustees, in conjunction with the employer, may decide to retain surplus to provide for future increases, despite holding solvency and risk reserves iso distributing the surplus to both pensioners and employer.

iii. Discuss your response to the trustee. [5]

- The liability in respect of pensioners is 80% of the asset value (ignoring surplus) which is around R104.8m.
- A 5% increase in pensions would result in this liability increasing by R5.24m.

- This represents 97.4% of the surplus.
- Thus a fair distribution to other stakeholders is clearly not possible
    - To active members or employer
- The distribution of surplus would need to follow proper process – per fund rules, regulation etc.
- The trustees have a fiduciary duty to act fairly and in the best interests of all members of the fund
    - This would include active members, even if their total fund liability is small relative to the pension liabilities
    - Trustees can be held personally liable for negligence in respect of their duties
- The trustee may be conflicted, given his direct potential to benefit from the distribution of the majority of surplus to the pensioners
- Should possibly recuse himself when such decisions are taken

iv. Evaluate the suggestion made by the trustee with reference to the pension liability and suggest an alternative. [12]

- There is a process to follow when deciding which assets to invest the pension portfolio in
- The fund would need to amend its Investment Policy statement
- and take into account the pension increase policy
- which will drive strategic asset allocations
- Would not be appropriate to make long term decisions based on possible short term market movements
- The trustee is not wrong, the allocation is likely to include bonds
  • Long term bonds can be a good match to pensioner liabilities because pensioner liabilities are generally long term
- Bonds provide the requisite liquidity for pension payments
    - via regular coupons and redemptions.
- Bonds are also likely to be a good match to pensioner liabilities since both behave similarly with respect to interest rate changes.
- Bonds are likely to be cost efficient
- The suggested investment strategy may however not be regulation compliant
  o If there are concentration limits on individual securities and asset classes
  o There is a very high level of foreign investment that may not be allowed in a retirement fund.
  o Although the compliance issues would relate to the investment strategy of the entire fund, not just the pensioner assets.
- The trustees may want to consider investing in bonds of varying terms (not only long term bonds)
  o To protect the fund against changes in the shape of the yield curve.
- Most of the pension payments are likely to be made in local currency
  • It may not be appropriate to have a large portion of foreign investment due to the introduction of currency risk.
- The pensioner liability is real in nature due to the inflation linked increases
  o Nominal bonds would not be a good match
  o A portion of the assets should be invested in real investments such as index linked bonds or equities.
- If the tax regime allows for taxation on investment return, the tax implications of these investment changes should be considered before any implementation.

- Given the proportion of pensioners to active members, monthly contributions will not provide sufficient liquidity to finance pension payments (although will partially fund) – so need to consider liquidity requirements carefully.
- Although bonds are a good match it is not always necessary (or possible) to have a perfectly matched portfolio
  • The trustees may be comfortable taking some risk
  o Depending on various factors such as their risk appetite
- and the overall funding level.
- Additional expertise would be required if a large portion of the portfolio were held in foreign investments
  • The trustee is speculating which is high risk for a pension fund
  • Sponsor covenant should be considered in case bond prices fall if the strategy is implemented

v. Describe briefly how you would set the investment return assumption for the assets and the discount rate for the liabilities with specific reference to the reliance you would place on the asset allocation as at the valuation date. [4]

- The two rates would need to be consistent
- Liabilities can either be valued using the fund's strategic asset allocation
- If there are any equities due to excess assets this may be equivalent to adding a risk premium above a matched discount rate
- This might be rejected as not conservative enough as there are no surplus assets (assuming the distribution occurs)
- So either a risk-free rate/return on a matched portfolio should be adopted
- Or could use the same basis as what the insurers will use to price the annuities.
- To model the assets the future return on investments would be required
- Should probably base this on strategic asset allocation, not current allocation
- Due to market movements and the need to rebalance.
  Alternatively, a risk premium basis can be used. This would result in a solvency reserve as the surplus indicated in the last valuation could only have been released if assets were in excess of the bond basis valuation (which is stronger than the risk based best estimate basis).
- This is within the guidance as provided by the regulator.