Actuarial Society of South Africa

EXAMINATION

October 2019

Subject F204 - Pensions and Other Benefits Specialist Applications

MARKING SCHEDULE

QUESTION 1

This was the more poorly answered of the two questions in the paper. Candidates struggled with the fundamentals of funding defined benefits.

i. What are the implications of the current design of the gratuity scheme? [4]

This was a straightforward question and was reasonably well answered. Few candidates mentioned the lack of security caused by the unfunded nature of the arrangement.

- The employee starts with a zero balance when changing jobs
- Could be a meaningful loss if the employee leaves long service
- Or the employee would decide not to move
- Impacts the labour market
- If employer needs to retrench staff, could do so selectively
- and longer serving employees would be more expensive and more vulnerable
- No indication that the benefits are pre-funded
- No security in the case of employer insolvency
- If early retirement requires employer consent, will act as a lock-in mechanism

ii. Outline the arguments in favour and against the proposed method of paying for the state scheme. [5]

This question was largely a book work question on the advantages and disadvantages of funding a state arrangement. Poor attempt by all candidates.

For funding:

- Increases the level of savings
- Develops capital markets
- Creates extra investment that stimulates growth
- Eases the pressure of an ageing population
- Investment returns reduce the long-term cost of benefits
- Forces a realistic recognition of the cost of providing the benefits

Against funding:

- Overall savings may just be redirected
- May not create real investment
- Does not solve the problem of an ageing population
- Transition to funding is difficult
- Fund may be used for political purposes other than pensions
- Open to abuse of employers granting large salary increase just before retirement
- Poor investment returns may increase required funding from the employers

iii. Suggest a reasonable approach the state might take with to existing employers to achieve a fully funded position in respect of their employees' accrued benefits. [3]

This was an application question requiring candidates to suggest how the past service benefits could be fully funded by the time member retired. Most candidates missed the obvious points that the accrued benefits could be funded over member's future working lifetimes, and that regular contributions must still be made towards continually accruing benefits. Poor attempt by all candidates.

- Employers will have to start making regular contributions to the scheme to fund the ongoing accrual of benefits
- There will likely be affordability constraints regarding achieving a fully funded position in respect of past service
- Funding over the longest period possible would be preferable for employers
- Possibly satisfactory as the employee only has to be funded in respect of the service at retirement
- Employer therefore funds over future working lifetime in respect of benefits already accrued
- Full benefit to be accrued by retirement
- May need to standardise NRA for benefit purposes or have separate contribution rates based on NRA

iv. State the key data and assumptions needed in the estimation of this liability in respect of these prior years of service. **[6]**

This was straightforward and reasonably well answered.

Data

- Number of eligible employees
- Must private sector
- Current salaries of eligible employees
- Age of current employees

Assumptions

- Number of years of past service
- (derived from current service with current employer and age, if available, otherwise assume)
- Retirement age – actual or assumed
- Assumptions about future inflation
- Assumptions about salary increases
- Assumed discount rate
- Pre retirement mortality rate
- Assumed rate of any associated expenses

QUESTION 2

i) In relation to benefits payable at retirement, discuss in detail the specific applicable regulation focussing on:

a. the context and intended purpose; [4]

Fair attempt by most candidates.

- The regulation dealing with benefits at retirement is Regulation 39. and relates to the requirement to establish an annuity strategy
- The overall intended purpose of the draft regulations as a whole is to assist members in achieving a better retirement outcome.
- Importantly all regulations in effect were intended to work in harmony to achieve an overall improvement in savings, more efficient use of benefits on exit, savings on resignation and pension purchase on retirement
    - The regulations aim to improve the outcomes for members by ensuring that they get good value for their savings – limit leakage through costs.
- Member defaults should be relatively simple, cost-effective and transparent.
- The regulations require that trustees help members in the accumulation and retirement phases of their membership of a fund.
- Assisting with education and explanation / counselling on choices available;
- Avoiding inappropriate choices or choices made with poor information and understanding;

i.b) the regulatory requirements [11]

Straightforward question and reasonably well answered.

- Pension funds, pension preservation funds and retirement annuity funds are required to establish an annuity strategy.
- For retiring members, with the strategy would contain annuity options, either in-fund or out-of-.
- This means the annuity can be in the name of the fund or the member.
- A life annuity, once chosen or defaulted into, becomes irreversible. To better manage this irreversibility, retiring members can only move into an annuity with their consent.
- This election by the retiring member makes the purchase of an annuity a "soft default" by having the member "opt-in" instead of "opting-out".
- Provident and provident preservation funds must only establish an annuity strategy if the fund enables the member to elect an annuity.
- This does not mean that members of provident funds are compelled by these regulations to purchase an annuity upon retirement.
- The annuitisation of provident funds remains under discussion.
- The annuity should also be appropriate for members, well communicated and offer good value for money.
- Trustees must, as far as reasonable, ascertain:

    - the level of income payable to members;
    - the investment, inflation and other risks in the annuity; and
    - the level of income payable to beneficiaries.
- Members should be given access to retirement benefits counselling not less than 3 months before their normal retirement date.
- Retirement benefit counselling means the disclosure and explanation, in clear and understandable language, of a fund's investment portfolios, annuity strategy and how preserved benefits are handled.
- The risks, costs and charges of these options must be explained.
- Trustees must review the annuity strategy at least annually.
- Living annuities can be provided by the fund or a fund-owned policy or from an external provider.
- The investment choice must be limited to 4 portfolios.
- Where the living annuity is paid by the fund or through a fund-owned policy, the fund must monitor the sustainability of income drawn down.
- FSCA still to provide final guidance on what sustainability means and how this relates to drawdown rates
- Fund rules can allow for the fund itself to pay annuities
- Annuities provided by a long-term insurer can be part of the annuity strategy
- Existing default arrangements must have been fully aligned to the regulations by 1 March 2019
- Exemptions:
    - there have been a number of general exemptions and
    - funds can specifically apply for exemption as long as:
        - the exemption is not contrary to the public interest and
        - should not prejudice the achievement of the general objectives of the default regulations

i.c) the potential pitfalls. **[3]**

Reasonable attempt by most candidates.

- The apparent major pitfall may be the fact that the default is not a true default and in effect requires retirees to opt into the strategy offered by the Fund;
- This reduces to some extent the ability to achieve the intended objectives;
- A true default but where the option was given to opt for an alternative may have more success in this respect;
- Potentially aimed to remove or reduce advice or at least the costs associated with individual advisors that eat into the benefits when transformed into pension benefits at retirement.
- This may not be fully achieved and may lead to increased costs initially as the improved awareness results in uncertainty and need for direct advice;

- The regulation does not apply to Provident Funds where the benefit on retirement can be taken as a lump sum and there is no requirement in rules to consider a pension option.
- This is the majority of retirement funds in SA and as such this aspect will miss application to a large number of funds and by implication a large number of members/retirees

ii) In relation to an in-fund pensioner portfolio describe the risks, uncertainties and general mitigating factors that need to be considered for such an arrangement. [15]

Generally well answered.

- The fund is currently defined contribution but a guaranteed in-fund pension will effectively introduce a defined benefits liability once purchased
- It is important to therefore understand the risks and uncertainties in managing a defined benefit liability
- There is a risk that the promised benefits and in particular for a pensioner pool the targeted increases will not be afforded,
- The Fund could find itself underfunded and require additional resources from the Employer
- The Fund would lose its valuation exemption and require a valuator be appointed
- Which would largely assist in managing these risks
- Who will need to investigate the financial position of the fund at least once every three years and report to the regulator
- The valuator would also be involved in the assessment of the affordability of pension increases;
- and the sustainability of these in line with the pension increase policy
- underfunded funds would need to be restored to 100% within specified time periods although for a pension portfolio this is likely to involve nil increases until such time as the funding level is restored
- Disclosure regulations, whistle blowing, and limits on assets in which funds may invest (in particular, limits on self-investment) also serve to reduce these risks.
- Once a benefit has accrued, i.e. pension purchased and increases granted, they may not be reduced, except where a fund, not in a sound financial condition, is being wound up, after taking into account the recovery of any debt owed by the employer.
- In terms of the Pension Funds Act, any deficit in a fund that is being wound up becomes a debt on the books of the employer.
- The valuator would also need to advise on the appropriate pricing of new pensions;
- A pensioner pool and especially a newly formed pool is at risk from incorrect / low pension purchase pricing;
- New entrants may even face a risk of overpricing in the initial potentially conservative phase;

- [Related to previous point] With few pensioners in the pool, mortality experience may be volatile. Ideally want some reserve to manage this or use conservative pricing
- Especially if the purchase is mandatory and all retirees would be required to purchase in the Fund
- Where it is optional there is a risk to the pensioner pool that new entrants may not wish to buy into a pool in deficit and hence reduce future sustainability,
- Even if required to purchase they may exercise this “option” through resignation before retirement or a change in conditions for active employees;
- the pensioner beneficiaries are exposed to the risk that their standard of living declines to the extent that inflationary increases are not targeted or achievable.
- There is a risk to sponsor that additional funding is required when not anticipated or when there are other calls on those funds within the sponsoring company.
- While it is likely that before the sponsor is called upon there would be cessation of pension increases and the possibility of a change in the pension increase policy targeting lower relative increases
- These uncertainties may relate to some or all of the following factors:
    - The pension increase policy,
    - the profile of the pensioners by age and gender,
    - the number of members retiring in good health and in ill-health and their ages,
    - the numbers and ages of members dying after retirement,
    - the existence and age of a spouse or other dependant on the death of a pensioner,
    - the numbers and ages of qualifying spouses and dependants who die,
    - the rate of price inflation,
    - the levels of investment return achieved relative to the targets.
- There may also be less quantifiable risks resulting from pensioner’s expectations that aren’t automatically met.
- the risks resulting from uncertain timing of cash calls can be reduced by funding.
- At the other end of the funding scale, there is also a risk that the funds move into surplus and the allocation of this surplus to the appropriate beneficiaries;
- Including the impact of new entrants on this surplus, do they contribute towards this in the pricing so as not to reduce the surplus before and after joining or do they not share, how to manage this
- Consideration will have to be given in South African funds for future surpluses to be shared between the employer and pensioners in terms of Section 15C of the Act to the extent that the employer bears any risk
- Ideally the rules should clarify how surplus arising is applied within the Fund. If the rules are silent in this regard, then the trustees should direct how the surplus should be equitably allocated.
- Further uncertainties will also arise in relation to any options that are available to members.

- For example, a member may be able to choose, to an extent, the proportion of the pension benefit commuted for a lump sum at retirement.
- However, most benefit options provide the members with an opportunity to select against the fund by choosing the option that is of greatest value to them either economically or demographically.
- The extent to which such selection will affect the cost of the fund will depend on the financial sophistication of the members and also on other, not necessarily financial, factors that affect a member's preference for certain benefits.
- A pensioner in poor health who commuted a large portion before purchasing versus a pensioner who commutes no benefits based on expected good health.
- If the in-fund option is introduced in addition to the usual options and allows members to select outside providers there is then greater risk of anti-selection against the pool.
- Mitigating strategy would be to match the assets and liabilities closely – e.g. using an LDI strategy
- Could also mitigate by insuring out longevity risks
    - assuming this was available
    - the costs associated were not prohibitive
- Mitigation via dynamic hedges also possible

iii) In relation to setting a default annuity strategy set out a comparison of the various annuity options that could be used in the construction of the default, noting the relative advantages of each in this context. [14]

Reasonable attempt by most candidates.

- It would make sense to start by splitting the types of annuities into Guaranteed or Life Annuities and Living Annuities
- In the context of default regulations the fund could generally offer either of these broad categories in-fund or out of fund, the types may however still have relative advantages for application within or outside of a fund;

  Guaranteed / Life Annuities
- Potentially 4 different types if these are considered in the context of what benefits they offer:
    - Level annuity
    - Fixed increase annuity
    - Inflation linked annuity
    - With-profits annuity
- All of the above offer a guarantee that they will be payable for life
- They all therefore have the advantage that the retiree would receive a pension that would not decrease in absolute terms for as long as they survive;

- They would generally all make provision for a spouse’s pension and as such offer some protection for the beneficiaries on the death of a pensioner;
- All guaranteed annuities purchased from an insurer will come at the disadvantage of needing to cover statutory funding requirements and a level of expense and profit margins;
- The initial pricing and level of benefit escalation would however vary significantly and would be the main consideration when comparing these options:
- Level annuity
    - The annuity will not increase over the life of the pensioner;
    - This has the advantage of a higher starting pension;
    - However, depending on how long the pensioner survived the pension would then reduce in real terms to a point where potentially the pensioner would not be able to maintain their standard of living and “run out” of real income
- Fixed increase annuity
    - The annuity will increase at a fixed pre-determined increase rate as set out in the policy;
    - This has the advantage of allowing pensioner to choose the level of increases and have certainty around the increase level
    - The higher the chosen level of increases the lower the starting pension and vice-versa
    - However, there is a risk that the chosen increases do not keep up with inflation;
    - Or exceed inflation (which implies their initial pension level may have been too low to maintain their initial standard of living)
- Inflation linked annuity
    - The pension will be guaranteed to increase in line with inflation or some measure of inflation;
    - While the actual increase is unknown the fact that it will match inflation is guaranteed;
    - Some will argue that inflation may not be an appropriate measure for pensioner cost of living increases;
    - Any annuity that provides such a guarantee will also come at a cost as the guarantee would need to be priced by the insurer
- The pricing of the above 3 annuities does change with market conditions which means they may become relatively more or less attractive for use in the Annuity Strategy
- With-profits annuity
    - The increases would be determined based on the category of with-profit annuity chosen;
    - The PRI or hurdle rate defines the with-profit category;
    - The lower the PRI the higher the likely increase in future and the more costly the initial pension will be

    - The increase is then driven by a formula taking into account various expenses, the investment returns declared on the product and the chosen PRI;
    - The underlying investment portfolio and how this translates to increases is also a key factor in deciding on a with-profit annuity
    - The increase may also be influenced by the demographic experience of the pool of pensioners
- Once purchased the pensions would be guaranteed but the pensioner would not be able to reverse their decision or change products down the line if they were to discover that they were no longer meeting their needs;

  Living Annuities
- Living annuities provide no guarantees whatsoever;
- Pensioners would choose the investment portfolio that they believe would suit their requirements;
- They would then also choose the level of income that they would wish to draw down over a particular year;
- The level of income that can be chosen would need to fall within the statutory limits or within any other limits prescribed by legislation or the regulators;
- The annuity offers exceptional flexibility to the pensioner but comes with significant risk;
- Poor investment performance directly impacts the individual pensioner's savings pool and would potentially reduce the future income that could be drawn;
- Being required to choose a drawdown rate requires a level of financial advice that would increase costs
- There is a risk that if the draw down rate is too high the pension would need to reduce in future and may not keep pace with inflation or the needs of the pensioner;
- The ability to leave a portion to beneficiaries is an advantage that some retirees would value highly
- However, this ability is also a disadvantage in that it results in a potential inefficient use of the capital that was saved to provide a retirement income that is now instead providing both an income as well as a future death benefit
- The product requires the pensioner to be involved in continuous decision making something that will become more difficult as the pensioner ages;
- The product does offer the flexibility to choose from a range of investment portfolios
- There is an ability to move out of the product and into a guaranteed annuity at any point in time

iv) Comment on the main advantages and disadvantages of a single investment strategy for both membership groups. [5]

Reasonable attempt by most candidates.

- Single investment strategy may be easier for the trustees to manage;

- Simpler appointment of asset managers and mandates;
- May reduce costs through less spreading of assets and greater ability to negotiate bulk discounts;
- Simplify and reduce administration costs
- One return calculation applied to DC member shares and to the pensioner portfolio
- No member choice but could argue member choice is significantly under-utilised and hence inefficient
- Strategy could take rough account of the combined nature of the pensioner and active member pool and hence be appropriate to the overall fund in terms of duration and cash flow
- However, likely that the portfolio for active members would then be too conservative while the portfolio for pensioners may be too aggressive / long term
- Depending on pension purchase factors the portfolio for pre-retirement members may be inappropriate relative to the matching of pension pricing
- Pensioner pool may experience higher volatility of pension increases if the nature of portfolio is too aggressive / long term and hence results in volatile investment returns
- NO ability for members, who ultimately face the DC risk to have some say in their investment strategy;
- Counter argument alongside the under-utilisation is the potential irresponsible or inappropriate investment decisions
- No need to disinvest assets on member transferring from active to pensioner pool.
    - Lower costs and possibly reduced risk of disinvesting when markets are down

v) Briefly set out the legislative framework that needs to be taken into account when setting any investment strategy. [3]

Well answered, although candidates wrote more than was justified by the mark allocation and possibly wasted time unnecessarily. Not all the points below were needed for full credit for this question.

- Pension Funds Act, Pension Fund Circulars, Regulation 28
  - Duties of trustees to act in best interests of members
  - Fiduciary responsibilities to look after the investments
  - Delegate responsibilities appropriately
  - Seek appropriate advice
- Investment strategy document
  - there is a defined process for investment planning and decision making,
  - there are structures for monitoring investment performance,
  - demonstrates due diligence by trustees,
  - guides asset managers on strategies and scheme's risk tolerance
  - Communication with members
- Limits per Regulation 28
  - the maximum amount of the fund’s assets to be invested in a single company,
  - the maximum amount to be held in assets not readily marketable,
  - the use of derivative instruments such as futures and options and structured products,
  - self investment,
  - overall exposure to offshore assets.

vi) Explain to the Trustees what Asset Liability Modelling is and describe in detail how you would use this to assist in determining an appropriate pensioner investment strategy, albeit for a living annuity or a traditional guaranteed pension [5]

Reasonable attempt by most candidates.

- ALM uses a stochastic model to generate economic cash flow elements
- Across all asset classes
- Based on underlying expected distribution of the returns for each class
- On asset side you can generate a range of likely outcomes from a range of investment portfolios with varying combination of asset classes
- This is then compared to a range of generated liabilities
- Liabilities typically generated on deterministic basis

- But can generate based on asset output relative to some target, example level of increases on a with-profits type basis

Use in Pensioner Portfolio / Living Annuity:

- Within the pensioner portfolio the best use is to assist in identifying the portfolios that would give the greatest probability of meeting a desired increase target
- Or level of sustainability for a living annuity portfolio
- This means a maximum or recommended drawdown percentage framework will be required in carrying out a ALM for living annuities.
- Allows for wide range of investment portfolios to be constructed based on varying combinations of asset classes where the expected returns from the various asset classes have been stochastically determined
- Demonstrate to the Trustees how a range of portfolios with different target asset allocations would achieve the desired target and risk accepted
- Shows both the probability of reaching or maintaining the desired target as well as the range of risk that will be accepted in order to achieve the desired targeted increases
- Can be used by Trustees to refine the investment strategy that balances the likelihood of reaching the target subject to acceptable levels of risk
- Can assist in understanding the impact of various factors on the desired target:
    - Retirement ages / life expectancy
    - Drawn down rates and impact on sustainability across the ages
    - Pension increase smoothing and appropriate policies

vii) Discuss the full range of traditional asset classes noting how each of these could be used in developing the living annuity investment portfolio options. [10]

This was a straightforward question and well answered by all candidates.

- The trustees should consider the following asset classes, subject to overall investment objectives and risks
- Each of the asset classes by its underlying nature has a particular purpose in the investment strategy
- An appropriate living annuity portfolio would need to ensure a combination of assets that allow for long term growth, some capital protection in the short to medium terms and sufficient liquidity to meet the draw down needs and reduce the need to liquidate assets at inopportune times
- In theory there should be no difference in the ideal targeted portfolio of a living annuity and an annuity that aimed to match inflationary increase, specifically when it comes to considering the nature of the asset classes and how they would be used in combination

- SA equities including equities with offshore earnings:
    - To provide an element of inflation matching for pensions
    - Level would be determined through ALM to allow sufficient long term growth relative to short term liquidity needs
    - Listed high quality equities preferred due to liquidity for a pension paying portfolio
- Overseas equities:
    - Diversification benefits despite SA liabilities as in more global economy
    - To match inflation linked pension liabilities, but with a currency risk where pensions are local currency
    - Maximum offshore expose of 30%
    - Subject to overall limit together with local of 75% in terms of REG 28
    - but likely that equity portion for any pensioner portfolio will be no greater than 60% (other reasonable comment, i.e. not up to 75%!)
- SA property:
    - Due to liquidity may tend to avoid
    - Listed only due to liquidity constraints
    - Although listed has closer relation to equity
    - Unlisted likely to provide further diversification at a potentially unacceptable liquidity risk given the pensions pool
    - provides match for inflation linked pension liabilities
    - Subject to direct limits

- Fixed interest:
    - Likely to hold more inflation linked bonds for inflation targeting pension increases
    - Adds diversification
    - and importantly the stability from an income source
    - Large portion nominal still appropriate considering the pension liabilities can be considered as two elements in relation to current pensions paid for the remaining lifetime and future increases on those pensions
    - Corporate bonds to sweeten yield subject to small exposure
        - as for RSA bonds, but with a credit risk
        - only highly rated if at all due to liquidity risk of pension paying portfolio
    - Index-linked bonds
        - Assist in matching benefits that increase according to a price index
        - Added diversification with stable potential inflation matching returns
        - Unlikely to be 100% of assets despite the inflation match as the cashflow matching would not be possible and would result in redemptions losing the inflation protection/guarantees
- Cash
    - % as required based on liquidity requirements
    - To meet immediate liabilities, expenses, benefits
    - Could include short dated bills and bonds

viii) Using a combination of the asset classes set out above propose a range of four living annuity portfolios noting the purpose and potential use of each portfolio and its required strategic asset allocation to meet that purpose.
[12]

This question seemed to differentiate between candidates, with some scoring very highly and others very poorly. Credit was given for a range of portfolio names if the purpose and strategic asset allocation were appropriate.

- The Trustees have requested a range of portfolios to cover a variety of needs
- Consideration of these potential needs would lead to a reasonable range of portfolios
- The possible needs and related portfolios could include:
- A high-risk high growth portfolio
  - This may be needed for those members who have not saved sufficiently and wish to minimise their initial drawings hoping to increase their overall long-term savings
  - This may also be appropriate for younger retirees with a very long-time horizon
  - The portfolio might include the following:
    - Total Equity of between 60% and 75%
    - Maximum allocation to foreign equity and assets
    - Equity allocation may include listed property
    - Allocation to inflation linked bonds 20%
    - Cash allocation of less than 5% for short term drawings
- A more typical pensioner portfolio
  - This may be needed for those members who are looking for a more typical pensioner portfolio that provides sufficient growth to meet their need for inflationary increases, they may be prepared to take some short-term risk
  - This may would be appropriate for retirees with an average time horizon
  - The portfolio might include the following:
    - Total Equity of between 40% and 60%
    - Reasonable allocation to foreign equity and assets
    - Equity allocation may include listed property within overall limits above
    - Large allocation to inflation linked bonds 20% to 40%
    - Cash allocation of 5% to 10% for short term drawings and stability
- A conservative portfolio
  - This may be needed for those members who are exceptionally risk averse, may have other assets or pension income but still would like a level of real growth and inflation protection
  - This may would be appropriate for retirees with short time horizon or as a portfolio to transition into at a later age

- Might allow for split investments at retirement with initial annuity payments being made from the conservative portfolio while the balance is invested in the high-risk portfolio. Will reduce drawdown risk in volatile markets.
- The portfolio might include the following:
    - Total Equity of less than 25%
    - Low or nil allocation to foreign equity and assets
    - Large allocation to inflation linked bond portfolio 40% to 60%
    - Some allocation to nominal government bonds, 20% to 40%
    - High cash allocation of 10% to 20% for short term drawings and stability

- A short term or money market portfolio
    - This may be needed for those members who are much older, are looking to transfer from the living annuity to a with profits type annuity, beneficiaries of pensioners who have passed where they are maximising their drawings to access the remains of the benefit, pensioners who have other savings and wish to access the immediate cash over the shortest possible period and as such have immediate liquidity needs
    - This portfolio will provide maximum capital protection but very little real inflationary protection
    - Retiring members who elect this (or the conservative) portfolio as a long-term investment, should ideal buy a guaranteed pension.
    - The portfolio might include the following:
        - no equity
        - nil allocation to any foreign assets
        - Little or no allocation to long term bonds
        - Some allocation to short dated bonds or similar instruments
        - majority cash allocation of 85% to 100%