Actuarial Society of South Africa

EXAMINATION

November 2017

Subject F204 - Pensions and Other Benefits Specialist Applications

EXAMINERS' REPORT

QUESTION 1

i) Set out what your report to the Trustees would include. [11]

Most of the answers provided did not make enough points given the marks available. Few candidates considered the facts pertaining to the fund that were set out in the question. Poor attempt by most candidates.

<u>Annuity type at retirement</u>

- The strategy should take into account the type of annuity to be secured at retirement.

- Currently the Fund might not know what type of annuities members buy. It should try to find out and if there is a clear preference amongst members then it makes sense to target this.
- Alternatively target the annuity type the Trustees deem most appropriate.
- If a default annuity is introduced, it would make sense to target this.
- Important point is to communicate what type of annuity the default investment strategy is targeting
- Further, communicate what investment options a member should elect if they plan to secure a different type of annuity.
- And when this election should be implemented (especially as can defer to age 70)

- Current strategy of moving to cash targets annuities with stable market values. This would be traditional with-profit type annuities.
- For inflation linked, guaranteed annuities and newer type with-profit annuities, an inflation linked bond portfolio or a nominal bond portfolio would be a more appropriate end portfolio.
- If living annuity is target, then remaining in the balanced fund is probably best.

<u>Portfolio composition</u>

- Given the default investment strategy and the average age, one would not expect the cash portfolio to make up more than 10% of the assets. R180m with a single investment manager in a pooled cash portfolio is probably in order (give mark for any sensible comment).

- The bulk of assets, R1 620m are in the balanced portfolio.
- A single pooled portfolio of this size may not be cost effective as pooled portfolio fees tend to be fixed and non-negotiable
- And does expose the Fund to single manager risk
- Could possible consider segregated portfolios with Fund specific asset allocation (subject to Reg 28).
- And diversifying manager risk by using more than 1 manager

Bonus

- To comply with National Treasury default investment guidelines:
  - Consider appropriateness of performance fees if any
  - Consider passive investment portfolios as an alternative

Other

- There must be communication that the default strategy will most likely not be appropriate if a member intends deferring the receipt of retirement benefits beyond NRA 65.

ii) Set out the advantages and disadvantages of using an in-Fund living annuity, as opposed to an external living annuity, as the default annuity option. [6]

Reasonable attempt by most candidates.

Advantages Fund

- Potentially seamless transition at retirement, less paperwork and potentially no need to convert assets to cash for transfer to insurer
- No commission payable
- Lower administrations fees as Fund has no profit motive
- Probably lower investment fees given the economies of scale the Fund is likely to enjoy
- Lower cost option in Fund will give members some bargaining power with external providers / brokers
- Familiarity. Members know the Fund and are likely to have more faith in it than an external provider

Disadvantages Fund

- Less investment choice than what a typical living annuity provider would offer. But this may also be an advantage as retirees may not be able to cope with too much choice
- Members who still require financial advice would now need to pay for this directly as no commission / advice fee is payable.
- Might mean that members don't get advice
- No other products that pensioner can subsequently transfer into (e.g. with-profit annuities). Would then need to source this from an insurer
- Large insurer providing living annuities might be seen as more financially secure than the fund

iii) Discuss how the in-fund living annuity could be designed to address the Trustees' concern. [19]

No candidate considered what "sustainable" could mean. Further, while most candidates mentioned key issues like drawdown rates, investments and communication, none fleshed these issues out enough given the marks available for the question. Very poor attempt by all candidates.

Define sustainable

- The Trustees will need to consider how to define "sustainable". National Treasury might define this in future.
- Minimum would probably be an income that does not decline over the lifetime of the annuitant pensioner.
- A maximum would probably be an income that increases with inflation over the lifetime of the annuitant.
- Annuitants (especially those with a bequest motive) might view sustainable as not reducing their capital.
- It is important that if the Trustees want to convey the in-fund option as sustainable, it needs to be very clearly communicated what the Trustee view is.

Initial capital

- Annuity income is proportional to the capital and in theory the amount of capital should not impact on sustainability.

- In practice, smaller initial capital often results in the election of too high a drawdown percentage in order to obtain a required level of income.

- A minimum initial capital requirement e.g. R1.5m might therefore assist in the provision of sustainable living annuities in the longer term, but:

  - This does not take into account external savings members might have
  - Smaller capital amounts might not be able to secure outside pensions at competitive rates.
- Probably more effective to manage sustainability through drawdown percentage than through initial capital.

- De facto minimum should be the full commutation amount the Income Tax Act allows (currently R247 500).

Investment return

- The investment return earned on the living annuity assets is crucial to their sustainability

- The return needs to be in excess of inflation (real of 4% or 5% per annum)

- Investment fees should also be competitive

- Could only offer 1 investment option to limit “poor” investment choices.

- But this may make the in-Fund option unattractive to members who want flexibility

- Alternatively, can offer a default investment option with some limited choice with the focus of the default being on sustainability.

- The return should ideally also not be too volatile (risk of negative returns), especially in the first few years of retirement.

- Can consider a more stable portfolio for the first few years’ annuity payments to try avoid drawdowns after negative market movements, with remainder invested in the balanced fund.

- Could then also consider an automatic transfer each year / month from the balanced fund to the stable portfolio

{Give marks for any other reasonable strategies}

Drawdown limits

- The statutory minimum and maximum drawdown limits are 2.5% and 17.5% respectively.

- The 17.5% is very unlikely to provide a sustainable income, with the possible exception of much older ages

- The Fund should therefore limit the maximum drawdown in some way:

  A) Ignoring mortality, if the definition of sustainable is a level income then the maximum drawdown would be roughly equal to the expected nominal investment return (about 10% per annum say if targeting CPI plus 4%)

  B) If sustainable is defined as an income increasing with inflation, then the maximum drawdown is roughly equal to the real return (e.g 4%). This again ignores mortality.

- Too low a maximum drawdown may however encourage members to secure living annuities outside the Fund where no restriction applies (even if it is considerably more expensive).

- Could look at a maximum drawdown of A) with a recommended drawdown of B).

- A) (and possibly B)) can be adjusted further to allow for mortality which will result in an increasing drawdown percentage with increasing age until the 17.5% statutory maximum applies.

{Give credit for any sensible alternative suggestions}

Communication and advice

- Regular communication regarding the investment performance of the living annuity portfolios.

- Some customisation based on term since retirement should be considered to allow retirees to assess how they are doing relative to benchmark (CPI+4% say)

- An annual benefit statement showing the revised maximum (and possibly recommended) annuity drawdown levels.

- A projection (say 5 years) under the min, max, current and recommended (if applicable) drawdown rates under a different investment return scenarios could be provided.

- The Fund could consider appointing a financial advisor to assist living annuitants in making decisions regarding drawdown levels and investment portfolios

- The advisor can also assist retiring members in assessing whether the living annuity is appropriate for them or remains appropriate in the case of an existing living annuitant

Other

- The rules should allow for a living annuitant to transfer out of the Fund to secure an external annuity, which may be better suited to their future needs.

iv) Describe two other in-Fund annuity options that can be considered and whether they are suitable for the Fund. [6]

Reasonable attempt by most candidates.

Traditional pooled pensions

- Member's fund credit is converted into a pension using annuity factor at retirement. Pension is payable for life and cannot be reduced. Pension increases may or may not be guaranteed. Can also have certain contingent benefits (spouse pension etc.)

- Employer would have to underwrite the guarantee that pensions (plus increases granted) cannot be reduced.

- Employer will be unlikely to want to do this.

- Fund is also relatively small, with the number of pensioners likely to remain small for many years. Demographic experience will therefore be volatile (and make it difficult to price pensions at retirement).

- Pensioners will probably like the guarantee but might not like the pooling of their retirement capital

- Overall, not suitable for the Fund unless the employer provides the guarantee.

- Compared to an insurer offering a similar annuity, no capital charge will apply in the Fund.

Non-guaranteed pooled pensions

- Same as the above traditional pension except that the pension can be reduced. No Employer guarantee required.
- Due to likely small number of pensioners the pricing and volatile experience problems above remain. These will however now have to be managed financially through future pension increases / reductions
- Overall, not suitable for the Fund unless potential pensioner pool increases (i.e. substantially more members join fund).

QUESTION 2

i) Set out the various ways a defined benefit fund can typically allow for late retirement and discuss the other benefits that may still apply during late retirement. [10]

Very poorly answered.

A) Contributions continue and service still accrues

- Pensions benefits depend on salary increases after NRA. If low, then relatively poor value compared to other options below.
- If benefit is to be valuation neutral, then can compensate for this by also applying a late retirement adjustment to reflect the fact that pension will be payable for shorter term.
- Typical adjustment would be about 0.25% to 0.3% per month after age 65 years

B) Fix pension at NRA, adjust going forward

- Pension benefits is fixed as if retiring at NRA. Pension is then adjusted for investment return (typically the valuation discount rate) and the shorter payment term.

- Adjustment is often a simplified basis that aims for valuation neutral costing e.g.
- Somewhere between 0.75% to 1.0% per month for each month after age 65
- Or the 0.25% to 0.30% per month increase set out above plus the annual pension increase.
- Latter approach can be unfair to members who retire and take their benefits out of the Fund as pension increase typically only given annually.

Death and ill-health benefits

- Post NRA, rules typically state that in the event of ill-health or death, the benefit is determined on the assumption that the member retired the date before
- In the case of the Fund, one would also need to state what option the deceased member is deemed to have elected on retirement (Fund pension or transfer out).
- And what portion of the benefit the member is deemed to have commuted
- The value of the two benefit retirement benefit options can vary significantly depending on the member's marital status and the spouse's benefits offered under the Fund pensions.

Resignation

- Not permitted after NRA.
- If member resigns / retrenched, will be treated as a retirement.

ii) Discuss the possible options that the Fund could consider. [10]

Very poorly answered by all candidates.

- In terms of the Fund's current rules, a retiring employee must take a pension benefit
- A retiree taking up contract employment may not want to receive any pension benefits during the contract period
- The Income Tax Act permits a member who retires from service to defer the receipt of their retirement benefits

- The rules of the Fund will however have to be amended to allow for this
- This option would however then be available to all retiring members, and cannot be limited only to members who go on to work on contract with the employer

Similar to late retirement, would need to decide on how to adjust benefits in the deferment period and what benefits apply during deferment

<u>Retirement benefits</u>

- Might want to consider a maximum age by which a member must retire from the Fund e.g. 70 years. Don't want to sit with unclaimed retirees
- Benefits in deferment can be increased as set out in B) in part i above (A) would not be possible as can no longer contribute after retirement from service)
- This however does expose the Employer to defined benefit risk (primarily investment risk) in respect of deferred retirees that may no longer work for it.
- Can also consider a DC type deferment benefit based on the capitalised value of the pension benefits increased with actual investment returns during deferment

- The investment risk is then passed onto the deferred retiree:
    - Would mean the Fund would need to offer appropriate investment options, which will add complexity to a pure DB fund
    - Deferred retirees may be unhappy to move to a DC structure after having been in a DB structure up until retirement
    - Fund must make every effort to ensure members understand the risk
    - In particular, in order to "break even" when compared to taking a pension on retirement, a deferred retiree will need to earn a return of around 0.75% to 1.0% per month (see answer to part i) above).
- On actual retirement, would then convert the capital value back into a Fund pension or transfer the capital value out.
- Death and disability benefits will be as per part i). Resignation does not apply.

QUESTION 3

i) **Provide a broad overview of why and how disability benefits can be provided by employers who already provide a retirement fund, as well as the main features of each type of disability benefit. [15]**

Some reasonable attempts but poorly answered overall. Most candidates did not tailor their answer to the marks available.

- Acts as a further form of financial protection that may be provided through an occupational pension fund is against loss of income due to ill health.

- The considerations in determining the level and form of the benefit to be provided are similar to those for flexible retirement ages and death benefits.

- There may also be a desire to have a consistency between the benefits payable on ill health and those payable on normal health retirement or death.

- A more generous approach may be taken towards retirement on ill health than with normal health, particularly if the illness is expected to severely restrict life expectancy.

- The individual must satisfy the criteria required for receipt of this benefit. This may vary from fund to fund (or insurer to insurer) and may be related to the generosity of the level of the benefit.

- Medical evidence is usually required, and payment of the benefit is subject to the consent of the sponsoring employer or the fund's trustees.

- Alternatively, the fund may provide no specific ill-health benefits, with protection being provided instead through a separate insured income continuation arrangement, provided through a company-owned policy via an arrangement outside of the fund.

- As for death in service, the benefits from a DC fund may be based on the accumulated fund, or be of DB form, or both. PHI is a common alternative.

<u>Disability pension:</u>

- Member will receive a pension paid by the fund or purchased from an insurer

- Pension may be based on service and salary

- Typically will allow for an enhancement to service being the period between the actual age at exit and the members normal retirement age

- Pension would be payable for life and would not be a temporary arrangement
- Likely to include spouse's pension benefits
- May retain link to the fund
- Generally no further assessment of health is undertaken so the member may recover and continue to receive benefits
- Would require more stringent assessment of level of total disability or ill-health

<u>Lump Sum:</u>

- Lump sum would typically be either similar to the lump sum payable on death
- Can be used to purchase a pension from the fund or an insurer
- Once granted the member would cease to be a member or qualify for further benefits
- Depending on use of the lump sum may retain some link to the Fund
- If member recovers there is no ability to recover the lump sum paid

<u>PHI benefit</u>

- Typically insured benefit through policy owned by employer
- 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.
- The benefit is a replacement of salary for the period between disability and normal retirement age
- Member remains a member of the fund
- If recover the benefit will cease and member would return to work
- If death during disability typically the death benefits would still apply
- Employer contributions to the retirement fund may also be covered.
- Member continues to save for retirement and assuming survives to retirement age would then draw pension from that date based on savings or benefit conditions applicable to the fund

- The definition of salary that PHI benefits are based on may be different to the definition of salary for other benefits. This is due to the PHI benefits being provided through a company-owned policy via an arrangement outside of the fund.

- Also, the definition of salary that PHI benefits are based on may be less than total income from employment.

ii) Suggest, with reasons, a table of age-related multiples that meets the company's wish. You should show the multiple for ages 25, 30, 35 etc. through to age 65. State all assumptions made, highlighting those that are crucial to the benefit design. [15]

> Some good answers and some poor answers. Not unusual given that this was a calculation question.

- First determine the expected pension at each age as a multiple of salary

- Crucially, need some assumptions about the average service at each age.

- Could assume fixed starting age or use average service at each age from the fund data, results used a fixed starting age for these purposes to allow design to target theoretical full service member, although chosen fixed entry age showed pension by age band in case they wish to use other assumptions:

Age	**Past Service**	**Future service**	**DB pension**	**Capitalisation factor**	**Capital value of DB pension**
25	0	40	0.8	27.4	21.92
30	5	35	0.8	26.4	21.12
35	10	30	0.8	25.3	20.24
40	15	25	0.8	23.7	18.96
45	20	20	0.8	22.2	17.76
50	25	15	0.8	20.5	16.4
55	30	10	0.8	18.6	14.88
60	35	5	0.8	16.2	12.96
65	40	0	0.8	14.5	11.6

- Crucially, need assumption with regards to the level of fund credit.
- Could use the average based on fund's own data, some range of the funds actual data or make an assumption based on starting age of the expected retirement savings at each age, assumed fixed starting age for these purposes
- Investment returns and apply to the 15% contributions, 11% (inflation +5%)
- Make reasonable assumption about salary increases and inflation, inflation +1% = 7% (inflation 6%)
- Net real then of 4% for simplicity

Age	**Accumulation**	**Savings**
25	0.000	0.000
30	5.416	0.812
35	12.006	1.801
40	20.024	3.004
45	29.778	4.467
50	41.646	6.247
55	56.085	8.413
60	73.652	11.048
65	95.026	14.254

Multiple required

Age	**Accumulation**	**Savings**	**Multiple of salary**
25	21.92	0.000	21.9
30	21.12	0.812	20.3
35	20.24	1.801	18.4
40	18.96	3.004	16.0
45	17.76	4.467	13.3

50	16.4	6.247	10.2
55	14.88	8.413	6.5
60	12.96	11.048	1.9
65	11.6	14.254	0.0

- Set to nil at age 65 as negative result. Reasonable comment needed here but depending on annuity factor this may or may not come through

  If they have not included accumulated savings can still continue marking without the bonus but then need to specifically look for the potential issue being noted in their response below

iii) Set out the potential issues in relation to determining an equivalent lump sum benefit. [3]

Very poorly answered.

- Death whilst in receipt of a disability pension may result in lower overall cost assuming that the Fund did not fully underwrite for the specific conditions
- Lump sum would be equal for each age irrespective of the nature of the disability
- No ability to reduce costs for early death or recovery
- May underestimate the required lump sum if overly optimistic in determining the impact of the disability on mortality and vice-versa, getting the mortality assumption or capitalisation factor accurate for each case
- Do you use actual average service or theoretical service, will irrespective still not apply 100% to each individual
- Need to allow for accumulated retirement savings, which would be lower at younger ages and higher at older ages further affecting the lump sum multiple required

iv) Explain why the lump sum may differ if you were trying to target a lump sum that was equivalent to a typical PHI benefit structure aimed at replacing 75% of pensionable salary and estimate the likely PHI equivalent lump sum multiple using the ages in part (ii) above. [5]

Very poorly answered. Most candidates failed to take into account that a PHI benefit ceases at normal retirement age.

- Using the above previous calculations
- The main difference under PHI is the intention for this to provide income for the period to NRA only
- And to not make use of the retirement savings but rather to continue those savings in the Fund
- Annuity capitalisation factors would therefore be capped at NRA
- Estimated by adjusting the above factors for the PV of pensions after NRA using the NRA factor before.

Age	PHI %	Capitalisation factor	PV NRA factor	Adjusted factor	Capital value of PHI = Lump Sum
25	0.75	27.4	3.020191	24.37981	18.28
30	0.75	26.4	3.674524	22.72548	17.04
35	0.75	25.3	4.470621	20.82938	15.62
40	0.75	23.7	5.439194	18.26081	13.70
45	0.75	22.2	6.617611	15.58239	11.69
50	0.75	20.5	8.051335	12.44866	9.34
55	0.75	18.6	9.79568	8.80432	6.60
60	0.75	16.2	11.91794	4.282057	3.21
65	0.75	14.5	14.5	0	0.00

- *Comparing*

Age	LS 1	LS 2
25	21.9	18.28
30	20.3	17.04
35	18.4	15.62
40	16.0	13.70
45	13.3	11.69
50	10.2	9.34
55	6.5	6.60
60	1.9	3.21
65	0.0	0.00