Actuarial Society of South Africa

EXAMINATION

17 May 2019

Subject F204 - Pensions and Other Benefits Specialist Applications

MARKING SCHEDULE

QUESTION 1

Generally poorly answered. The question required candidates to be able to interpret a defined contribution fund in the context of an accrual of benefits. Most candidates did not understand the mechanics of an accrual rate, and the factors that influence these.

i. List the data items that are required for a typical benefit statement. [4]

This was a straightforward question and was reasonably well answered. Few candidates mentioned the fund or member identifiers.

- Fund name or fund identifier
- Member number or other identifier
- Surname and initials
- Date of birth
- Date joined fund
- Gender
- Membership category
- Normal retirement age
- Pensionable salary at benefit statement date
- Contribution rates – member and employer
- Member account at benefit statement date
- Build-up of member account from previous benefit statement date, showing:
    - Member contributions
    - Employer contributions
    - Investment returns
    - AVCs
    - Transfers received
    - Deductions for risk benefits and expenses
    - Divorce / maintenance deduction
- Current investment portfolio

ii. Comment on the merits of the trustee's request. [2]

This question asked candidates to comment on the Trustee's request to calculate each member's accrual rate implied by their net replacement ratio. The key issue is that the accrual rate provides an indication of the level of benefits being provided by the fund, stripping out the effects of past service, which the fund can't control. Poorly answered.

- Request makes sense to see if fund is providing a decent benefit
- As it strips out the impact of past service on the NRR
- Which the fund cannot control
- However, it is not a number that would readily make sense to most members
- Without a significant amount of education by the fund
- All results, whether NRR or accrual rates, are based on assumptions about the future, so both estimates only

iii. Provide possible explanations for the range of accrual rates. [11]

Candidates were required to explain the factors that impact accrual rates and provide reasons for those above the average of 2% and those below. Most candidates converted the question to what impacts net replacement ratios, instead of accrual rates, which then did not answer what was asked. Very poorly answered.

Low accrual rate could be due to:

- Recent, large salary increases
- Investment option chosen by member not having kept ahead of salary increases and hence relatively low member account (e.g. young member in money market)
- Similarly, if projected returns are based on the current investment option selected by the member, future member account build-up also relatively low compared to future salary
- Relatively low member account could be due to poor timing of investment switches
- Reduction in member account due to divorce payment. Unlikely service would be reduced in defined contribution fund.
- Would not apply if NRR annuity allows for actual marital status (unless subsequently remarried)
- Older member with short service. Cost of accrual much higher than younger member and no significant member account to earn returns
- Member could have elected lowest contribution option in the past (lower member account) or recently (lower value of future member account)
- Member might have had a non-contributory service period (maternity leave, sabbatical etc)
- Younger members may be subject to longer mortality improvements – increasing the cost of annuitisation at retirement

Higher accrual rate could be due to:

- Transfer in
- AVCs or picking higher contribution rate
- Recent reduction in salary (e.g. reduced working hours)
- Recent reduction in pensionable salary (e.g. due to SARS limits)
- Good investment performance / switches
- Younger members where cost of accrual relatively low compared to contribution rate.

Average rate 2%

- Could indicate that fund provides equivalent benefits to old DB fund
- But could be just coincidental
- With past good investment performance offsetting higher annuitisation costs whilst overall contribution rate is roughly the same

iv. Comment on this suggestion. [8]

The key issue is that the trustees should not be providing individual advice and the appropriate advice would differ for different cohorts of members with different individual characteristics and circumstances. Poorly answered by most candidates.

- Trustees should be very hesitant to provide individual members with investment advice
- Member could hold trustees responsible/liable if advice does not work out
- Better approach would be to provide members with the information regarding the accrual rate and how to interpret it – leave members to make their own decision
- Care must be taken to understand why the accrual rate is 3% plus (see ii) above). If due to a recent salary reduction for example, then lower risk strategy is definitely not appropriate
- For a member close to retirement, a more conservative strategy might make sense
- But member might be targeting a different post retirement strategy (e.g. living annuity) and be happy with riskier investment
- Member might also be deferring retirement
- 3% plus accrual rate is based on pensionable salary. Actual salary may be higher with lower effective accrual i.e. member cannot afford to reduce risk
- For a member further from retirement makes less sense to reduce risk.
- Would almost mean member is locked into retirement glide path toward fund annuitisation basis from very early age
- Would presumably be based on assumption of working and contributing up until NRA, which may not occur
- For a young member, an accrual rate above 3% is extremely unlikely unless due to a salary reduction or similar – would not implement for young members

QUESTION 2

i. Outline what the hospital group would need to consider in the possible provision of retirement and risk benefits to this potential group of employees. [27]

Fair attempt by most candidates but all candidates failed to generate sufficient points to score well in the question.

- Provide benefits at all?
- Decide whether to offer benefits at all or not
- Short-term contractors - would benefits be considered meaningful/be valued?
- What would you want to achieve through the design and provision of benefits to this group?
- Could offer no benefits
- Potentially compensate in salaries/packages paid
- Would be the simplest from an administrative/legal perspective but not help to attract the staff from abroad
- If provide, under what structure will this be provided?
- Existing arrangements?
  - Maybe easier as already in place
  - Allowed in the existing rules or policies?
- Start new arrangements – increased cost and complexity
  - Possibly more appropriate given the difference in the nature or the employees
- If provide – who pays for the benefit?
- Employer or employee?
- Current structure for existing staff might be a good starting point but might not be appropriate
- If provide benefits – what benefits to provide?
- Same as current staff – i.e. death, disability and retirement
- Or some but not all – eg. risk benefits only
- If providing – what level of benefits to provide
- Aiming to be meaningful in the local context of the hospital
- or the country from where the nurses come?
- Possible for them to continue to receive benefit in home country if ER contributes?
- Same level of benefits as existing staff?
- If the same level – considered fair across all staff
- But possibly not at the level appropriate for the incoming staff
- Could be too high or too low
- If too high, would have to pay more for it than they would want to
- Or increase the cost of hiring to the hospital unnecessarily
- If too low – staff under protected

Implications for retirement benefits

- Retirement benefits may fall within a tax regime to encourage savings
- How would this apply to these foreign temporary employees?
- Would these staff be accommodated within the existing fund or a new arrangement designed specifically for them?
- New fund may be more appropriate given the distinct nature of the cohort
- But if a new fund is designed, it will add to costs, through increased:

- Governance (whole board of trustees and governance structure needed)
- Although could consider an umbrella fund to reduce costs of governance, reporting and administration
- What level of contributions would be made? Same as for existing staff?
- What is the portability of any savings towards retirement benefits? Can these 'go with' the contract worker when he/she returns to home country?
- What are the rules of the fund regarding withdrawal?
- What happens to accumulated fund credits? Can these be taken in cash?
- What are the tax implications of withdrawal?
- with current regulations allowing members to retain benefits in fund, could further increase "paid-up" benefits and potentially missing member details (member moves around in foreign country and don't update fund with contact details)
- Contribute for between 12 and 24 months – possibility that the staff will not claim if very complicated – left with lots of small unclaimed amounts in the fund?
- What is the legislation around withdrawal?
- This is a pension fund – it is possible that a nurse close to retirement age might be due a retirement benefit
- Implications of a benefit payable for life to a foreign country
- Possible to manage via eligibility criteria – both in terms of who is hired and in the fund

Death benefit

- Provided through the fund
    - Same tax implications?
- If no retirement benefits are provided, can still be provided separately.
- Not clear if this is a lump sum or pension payable on death
- Lump sum may be more appropriate for this group
    - Pension would have the same limitations as retirement pension benefit
    - Pension a long-term benefit – possibly not appropriate for the short term nature of the employment contract
- Would possibly look at providing the benefit on an 'unapproved' tax basis – no tax deductibility on contributions and benefits paid tax free
- How will you manage death benefit beneficiaries?
    - Tracing and paying will be challenging
    - Keeping a record of who the beneficiaries are will also be complicated
    - If the death benefit is done through the fund and the beneficiaries are paid via the fund, there may be requirements on the fund's trustees to distribute the death benefit, which will lead to complications across borders

Disability benefit

- Provided through a policy directly with the employer
- Different tax implications to the fund – contributions not tax deductible and benefits paid tax free
- Levels of benefits of disability income – income as a percentage of salary payable till NRA
- May not be appropriate for a short term contract
- Waiting period of current benefits may be longer than the contract – therefore may be inappropriate to provide existing
- Possibly consider a temporary disability benefit
- Or a lump sum benefit on disability

- Again permanent disability benefit may not be appropriate to the temporary nature of the contract
- Would not be able to assess continued disability in home country
- Pricing of risk benefits important – how does the risk profile of the new staff compare to that of the existing staff members
- Specifically with respect to
    - Age
    - Gender
    - salary
- If the risk profile is such that the risk rates go up, how will this be dealt with?
- Existing members pay more?
- Employer subsidise?
- Separate out the members?

ii. Set out, with reasons, your response. [6]

Very poor attempt. Candidates struggled to make a definitive recommendation.

- Would not provide retirement benefits through the fund.
- The risk of the unclaimed benefit legacy would be too high
- Unlikely to gain economies of scale as already a large group
- Offer increased cost to company and encouraged private savings
- Do not offer death benefits through the retirement fund
- Offer lump sum death benefits on an unapproved basis with a separate policy
- Not feasible for the trustees to be allocating death benefits
- May offer none if the tracing of benefits too onerous
- Offer disability benefits on an unapproved basis
- But potentially via a separate policy
- Consider offering only lump sum disability benefits
- Offered only on permanent disability
- Minimum of 6 month waiting period

iii. Outline other benefits that the employer could consider providing to this group of short-term contractors. [6]

Reasonable attempt by most candidates.

- Leave
- May be statutory minimums in the country
    - Annual and sick leave
- Staff will be travelling far from home and the form of these benefits might take this into account
    - Bulk leave as opposed to shorted periods of leave
    - Cost of travel say 1 or 2 times per annum or air ticket for spouse to visit
- Training
- Likely that the medical training the staff have received in their home country would need to be supplemented for the current environment
- Possibly language course might also need to be provided

- And cultural training
- Housing – may provide some assistance in locating temporary housing
- Might be difficult if nothing is done for existing staff
- Lump sum bonus at end of contract?

QUESTION 3

i. Explain what each item under the "Amounts recognised in the Balance Sheet" in the above table represents. [6]

Generally well answered.

Market value of assets

- In terms of IAS19 the market value must be used to value the assets
- Other form of market related valuation permitted where no direct market value exists (e.g. direct property)

Value of obligations in respect of employees

- Determined using PUC method
- Based on service up to the valuation date
- And expected salary increases until assumed date of exit

Value of obligations in respect of pensioners employees

- Present value of future pension payments
- Must allow for discretionary pension increases in line with pension increase policy

Surplus

- The assets less the liabilities above

Amount not recognised due to asset ceiling limitation

- This is the part of the surplus that the company has no direct claim
- The Fund's rules would either be silent on this part of the surplus which means the Trustees need to allocate it
- Or the rules allocate this surplus to another stakeholder (members or pensioners).

Pension fund asset recognised at end of year

- That part of the surplus to which the Company has an economic entitlement
- Equal to the Employer Surplus Account; or the present value of the IAS19 determined contributions in excess of the required company contributions

ii. Explain what each item under the "Profit or Loss" in the above table represents. [4]

Generally well answered.

<u>Current service cost (14% of salaries)</u>

- The cost of benefits accruing with service over the next year under the PUC method; plus
- Any risk premiums and expenses but less the member contribution rate

<u>Past service cost</u>

- The cost of any benefit improvement that applies retrospectively
- Must be recognised in full in P&L in the year it is granted
- Could also include benefit reductions (resulting in negative past service cost (past service credit)

<u>Interest cost</u>

- The unwinding of the discount rate used in the previous valuation

<u>Interest income on fund assets</u>

- The income derived by applying the discount rate at the previous valuation date
- To the assets, allowing for cashflows.

<u>Interest income on asset ceiling</u>

- Interest, based on discount rate at previous valuation date, earned on surplus not belonging to the Employer must be excluded from P&L

<u>Net loss</u>

- Accumulation of above income statement items

iii. Set out what your response to the team leader would cover. [6]

Poorly answered by most candidates with candidates missing the key points around the impact of fund investments on the ultimate cost of benefit provision in the defined benefit fund.

- The Fund is a separate legal entity from the Company. The Trustees will set the investment strategy taking into account the liabilities of the Fund
- a requirement for IAS19 to use Corporate Bond Yield or if not available, Conventional Bond Yield at valuation date – without consideration of investments held by the fund.
- Being a defined benefit fund, it would be common for the Company to also have some input on the investment strategy as the employer bears the risk of sustained poor investment performance.
- Local and foreign equity are expected to outperform bonds / fixed interest over the longer term.
- Cash exposure is probably retained to pay benefits and provide liquidity.

- Hence asset allocation is typical of a pension fund
- Could move to more conservative bond-based investment strategy but this will increase the expected long-term cost of the fund.
- Depending on the allowance of an equity risk premium in the current statutory valuation basis, it may result in an increase in both liabilities and required employer contributions
- Probably not worth it to match IAS19 interest rate risk, but
- The trustees may consider this as an investment risk mitigation if the Fund has sufficient surplus / reserves to adopt a bond based / cashflow matched strategy
- However, care would need to be taken in allowing for discretionary benefits like pension increases
- Also consider how material is fund in overall Company financial statements
- Statutory valuation has long-term assumptions, aimed at meeting liabilities when then fall due
    - different purposes to IAS19 basis which aims to be closer to the market – expected to be more volatile
    - Assumptions will allow for investments in long-term real assets like equities to match liability profile
    - Assets more likely to be invested in line with this

iv. Estimate what the "Amounts recognised in the Balance Sheet" would look like as at 31 December 2018 and what the "Profit or Loss" would look like for the 6 months to 31 December 2018. State any assumptions or simplifications that you make. [20]

Candidates provided very simplified calculations, given the information provided and the mark allocation. Candidates also failed to sufficiently detail the assumptions made in the projections, despite these being specifically asked for in the question. Poorly answered by most candidates.

Credit was given for calculations done using reasonable assumptions

	Result
Return for 6 months to 31 Dec 2018	
a1 - assume asset composition remain stable	
a2 - investments in each asset class in line with index	
Local equities: 35% x -2%	-0.700%
Foreign equities: 25% x 0%	0.000%
Local fixed interest: 30% x 4%	1.200%
Local cash: 10% x 4.5%	0.450%
Total return	**0.950%**
Salary roll	
Avg salary roll for YE 30 June 2018 = R34m / 0.14 =	242.86
a3 - Assume 1 increase in line with assumption: R242.86m * 1.07	259.86
a4 - Assume 30% reduction to employees applies pro-rata = 70% x R259.86m	181.90
a5 - Assume exited employees were replaced on same salary	
Salary roll for 6 months: R181.90m /2 =	90.95
EE Conts: 6% x R90.95m=	5.46
ER conts	0
Pension payments	
a6 - Assume new retirees and exits cancel	
Pension payment for 6 months R7m x 6 /1.04	40.38
Expected assets 31 Dec 2018	
Full asset	4 027.00
30% of ee, assume is 30% of liability	815.10
Revised asset at start	3 211.90
Benefits paid	**(855.48)**
- active TV	(815.10)
- pensions	(40.38)
Contributions	5.46

Actual asset: R3 211.90m *1.0095 +(R5.46m-R40.38m)*1.0095^.5 =	3 207.32
Investment return: R3 207.32m-R5.46m+R40.38m-R3211.90m =	30.35
Expected interest return on assets (1.092)^.5-1=	4.50%
Interest income on assets: R30.35m / 0.95% * 4.50%=	143.71
Liability as at 31 Dec 2018	
Opening at 1 July 2018 after TV out	
- Active: 70% * R2 717m	1 901.90
- Pensioner	1 010.00
	2 911.90
<u>Pensioner liability</u>	
Pensioner liability: R1 010m*1.092^.5-R40.38m*1.092^.25=	1 014.15
Remove 6% pension increase assumption for 1 year 1014.15/1.06	956.75
Allow for 4% pinc: R956.75m*1.04	995.02
a7 - assume 1% interest change = 8% liability change	
Final liability: R995.02*(1-8%*.8)=	**931.34**
<u>Active liability</u>	
a8 - assume not further benefit payments. Unlikely but if payment close to PMB / reserve then asset and liability equally overstated	
a9 - assume service cost remains at 14%	
Service cost: R90.95m*14% =	12.73
Active liability: R1 901.90m *1.092^.5+(R12.73m+R5.46m)*1.092^.25 =	2 006.06
Allow for salary increase - assume in line with assumption of 7% per annum	
Allow for 0.8% increase in yield, say 1% = 10%	
Final liability R2 006.06m*(1-10%*.8)	**1 845.57**
Total liability R931.34m + R1 845.57m	**2 776.91**
Interest cost: R2 911.90m*((1.092)^.5-1)+(R12.73m+R5.46m-R40.38m)*((1.092)^.25-1)=	130.51
Employer asset	
a10- assume equals ESA and Service cost is about ER cont	
Est ESA: R164m*(1.0095) -R12.73m*(1.0095)^.5	152.76
Value of obligations	
- Assets	3 207.32
- Actives	-1 845.57

- Pensioners	-931.34
Surplus	430.41
Not recognised	-277.65
Recognised	152.76
Profit or Loss	
Current service cost (14% of salaries)	-12.73
Past service cost	0.00
Interest cost	-127.74
Interest income on fund assets	143.71
Interest income on asset ceiling -R136m *((1.092^.5)-1) =	-6.12
	-2.88