Actuarial Society of South Africa

EXAMINATION

28 May 2012

Subject F204 - Pensions and Other Benefits Specialist Applications

EXAMINERS' REPORT

QUESTION 1

(i) Set out the legislative requirements in relation to pension increase policies.

- The trustees need to establish and implement a policy with regard to increases to be granted to pensioners and deferred pensioners
- This policy must aim to award a percentage of the consumer price index
- Or some other measure of price inflation which is deemed suitable by the board
- The policy must set the frequency with which increases will be considered in line with the policy
- Increases should be considered each year
- Comparison to the minimum pension increase should be done at least once every three years
- A notional pensioner account would be calculated
- To determine the minimum pension increase
- Or an approximation of the notional pensioner account that preserves the broad principles therein
- The policy must be communicated to pensioners and deferred pensioners when it is established
- Any changes in the policy must also be communicated

(ii) Describe how the valuator would have calculated the compulsory component of the additional pension increase in order to make the recommendation.

- The determination of the minimum pensioner increase is set out in section 14B of the Pension Funds Act
- The increases granted to date (i.e. 90% of inflation over the last three years) cannot be reduced

  The extra increase is the lesser of:
- A pension that has enjoyed full CPI increases since date of retirement; AND
- That afforded by a notional pensioners' account (NPA), i.e. the pensioner-related assets
- NPA = actuarial reserves at retirement adjusted to fair value (mentioned below)
- Plus fund interest (after expenses) less pensions and related expenses for those alive
- Plus the value of any special pension increases not based on investment returns
- Divided the NPA by the pensioners' current actuarial liability (allowing for discounting, increases, expenses, longevity, contingent pensions, etc.)
- To assess the increase that it can afford
- Adjust to an equivalent fair value of assets, where applicable
- A simpler more practical approach, preserving the intention, may be used

- Dependants of deceased members and deferred pensioners are to be included in the definition of pensioner for this purpose

(iii) Discuss the additional considerations that the valuator would have had to make in order to arrive at the discretionary component of the recommended additional pension increase.

- History of increases and the expectations it raises
- Past inflation and thus pensioners' needs
- The valuation basis, which identifies the provision made for pension increases
- The (4 week) lag in the CPI index's publication; if the proposal is made before the index is published, consider anecdotal inflation information to date
- The surplus available after contingency reserves, especially the solvency reserve, and after allowing for the effect of the minimum pension increase
- To whom does the surplus belong?
- Do rules automatically allocate surplus?
- Source of the surplus i.e. if excess returns on pensioner assets then stronger case for increase
- If it is part member/pensioner-owned, then pensioners would have a claim to a further increase (i.e. in excess of the above calculation)
- If it is employer owned, then the increase might be limited to that calculated above
- Or any additional amounts that the employer trustees may decide to allocate to the pensioners
- Pro rata increases for those that retired during the year

(iv) Discuss what the valuator should consider in evaluating the pensioners' request

- Understandable, given that inflation has eroded their purchasing power
- The valuator's calculations would have shown that the fund could not afford an increase in July 2011
- Check whether markets have recovered their losses yet. If not, the answer is still the same as in July 2011
- Check whether the fund rules allow for an interim increase and whether there is a past practice of granting interim increases
- The fund is unlikely to be able to afford an increase 6 months later [it is possible that asset values could have improved sufficiently, but the issue is also that asset values can be quite volatile and the improvement may only be temporary]
- Need to consider change in the value of the liabilities (if expected future returns have fallen, higher asset values may not lead to an improvement in the funding position)

- The trustees have to consider the interests of all the stakeholders - should a special increase be granted now and the fund become financially unsound, it will not be in the interest of active members or the employer.
- In addition the security of future pensioner benefits is also affected (not only members).
- Ultimately if there is a deficit and the employer is liquidated, all fund beneficiaries will receive reduced benefits..
- The employer could be asked to fund the increase (either by increased contributions or a cash injection), but they may be struggling financially themselves. If this was a possibility, it would have been considered at the actual pension increase date.
- Perhaps best to wait for the July 2012 assessment and pension increase
- Pensioners may have to wait a while (could be longer depending on the financial soundness issue) until the June 2013 statutory valuation before getting back to real (or 90% policy increase levels) pension levels
- Granting unaffordable enhanced pensions would further prejudice the fund's financial position, and the employer's commitment to the DB fund
- Not only pensioners have been affected - there have been long-term implications of the economic crisis for in service members by way of reduced salary increases and hence reduced pensions

QUESTION 2

i) Comment on the above benefit and contribution structure.

Coverage

- Benefit would only cover employed people. Unemployed have no benefit so there would still be a gap in the SS
- People with frequent breaks in service (e.g. females on maternity leave) are also likely to have lower benefits
- Older people entering the scheme now will also have lower benefits (buy-back options?)
- How does existing retirement provision integrate into the proposed SS benefit (if at all)?
- Unusual not to have a basic flat benefit that applies to all irrespective of service or contributions
- By revaluing contribution salary at price inflation, means benefit likely to be lower than service x 1% x salary at retirement.
- 1% of total contributory salary per year of service is low, but contributions are also reasonably low.
- Will result in relatively small pensions - not cost effective to administer
- Expected pension after 40 years of service probably 30% to 35% of Z$3 000 in current terms (if salary cap increases with price inflation). Somewhere around 20% of current average salary of Z$5 000. Additional retirement provision will therefore be required.

- Does not appear to offer the ability to secure additional benefits? Private savings.
- Death benefits for single members (no return of contributions or LS mentioned)
- Any information on assumptions used in determining the 5% member and employer contributions? How sustainable is this level on contributions in future?
- Ability to only access benefits at NRA is consistent with retirement benefits. What happens on unemployment? If no separate unemployment insurance / benefit then may end up with people in poverty during the period to normal retirement.
- Typically benefits social security benefits are also provided on sickness, unemployment, maternity. Usually these, together with a flat rate pension benefit, would be addressed before a contributory retirement benefit arrangement is implemented.

ii) Company X has approached you and asked for your advice on how the proposed social security scheme will impact on Company X's pension fund and its members. Set out the points you would make to Company X.

<u>Grade A employees</u>

- The full salary will be pensionable under the SSS.
- This may change though if SSS salary cap increases more slowly than Grade A salaries.
- Likely that Grade A employees will not want "double" benefits (retirement conts roughly the same) and therefore only contribute to SSS if compulsory to do so.
- Especially if no tax benefit on future member contributions to the Fund.
- Accrued Member Account to remain in Fund. Will receive benefits from 2 sources at retirement.
- May want to remain active on Fund for death and disability lump sum benefits if possible. Won't affect ER as 4% contribution is additional in any event

<u>Grade B employees</u>

- Only 25% of salary will be pensionable under the SSS.
- This may change though if SSS salary cap increases more slowly than Grade B salaries.
- Grade B employees may want to retain full benefit in Fund as SS will only add about 20% to benefits but overall member contribution of 6.25% is not tax efficient.
- Most likely will therefore only want to contribute on salary above Z$3 000 i.e. define pensionable salary as salary in excess of Z$3 000 or SSS salary cap.
- May want to adjust the Fund death and disability lump sum benefits to reflect the reduction in pensionable salary to 5 x pensionable salary.

<u>Other</u>

- More administration for Company X as employees now potentially contribute to 2 retirement arrangements (Company X's Fund and the social security scheme (SSS)).
- Relook at investment strategy if younger members no longer join and contribute. Will probably require a shift over time to more conservative, less volatile assets (if not currently using member choice or risk profiled portfolios).
- Reduced membership could impact on cost of administering the Fund? May prove cost ineffective?
- If employees currently have no other retirement arrangements, then perhaps increase Employer contribution toward retirement benefit in the Fund to provide some additional provision? May require an adjustment to salary structure if ER does not agree to meet cost.

- Significant rule amendments are likely to be required to alter future contributions and benefits

iii) Based on Company X's pension fund set out your comments in response to this request

<u>Exemption form SSS</u>

- Could grant exemption from the SSS if the Fund can demonstrate that it provides benefits of at least equivalent value
- Integrating a DB SSS with a DC Fund will be difficult:
- DB underpin:
  - o The Fund will need to provide a guarantee that the Fund benefits will not be less than the SSS;
  - o ER may not be willing to accept this additional DB liability;
  - o Or the risk that benefits are changed by the SSS
  - o Complicates administration
    a) Difficult for members to understand
    b) Increase in administration and actuarial cost
- DC contribution equivalence:
  - o If Fund contributions >= SSS contributions then accept that Fund provides adequate benefits.
  - o Legislator / members may not like removal of DB benefits
  - o Would need to specify minimum Fund contribution toward retirement
  - o Perhaps minimum investment return?
  - o Problematic if SSS contributions increase in future

QUESTION 3

i) Set out the advantages and disadvantages to the employer of merging the two retirement funds?

Advantages

- Reduced administration costs
- and professional fees
- Future pension benefits harmonised
- Which may help corporate identity
- Increased funds may give greater flexibility
- Eliminate any weak funding but at expense of others strong funding
- provided, this not seen as reduction in either's expectations
- and if not, then employer could apply to Registrar for permission to transfer employer surplus from one to another without going through merger
- Possibly more purchasing power for insurance contracts or other services
- Potential reduced investment manager charges
- Less company management time
- Only one set of trustees
- Some employees may be happier if better off or in better funded arrangement

Disadvantages

- Professional costs of the merger
- and communication exercise
- Each set of trustees will want independent advice
- Employees may be suspicious and not want change
- Some employees may be worse off and therefore unhappy
- Risk of legal challenge or disputes
- Rule amendments may be required
- If separate divisions more difficult to separate later
- Potentially an increase in cost of changes
- Future service benefit/contribution structure may not suit one or other workforce
- May need benefit improvements to get trustees to agree
- Surplus apportionment in terms of Act could pose problems
- or prevent merger before apportionment exercise completed
- Members of either may want their share of surplus reserved
- or distributed to them before any merger despite all surplus employer's

ii) Using the valuation results and other information available for both funds:

a) Derive an annuity factor for Fund A as at NRA

b) Estimate Fund A's assets and liabilities as at 30 June 2010

Using information given candidate will need an annuity factor at NRA. In this respect Fund A and B have the same demographic assumptions and post retirement benefits, therefore can be derived from information on Fund B with adjustment for net post i		
Annuity =	Liability / (Number of members x average accrued pension x pre retirement discount factor)	
Annuity Males age 65:		
Liability =	R103 248 000	
Average Accrued Pension =	=Average Service x Monthly salary x 12 x accrual (1/40)	
	=15*12*12000*(1/40) = R54 000	
Pre retirement Discount =	=((1 + (inflation +2%))/(1 + discount))^(65-average age)	
	=((1+(8%+2%))/(1.12))^(65-40)	
	=0.637333	
Annuity =	=103248000/(300*54000*.637333)	
	= 10.00	
Above annuities at post I for Fund B =	=(1+discount (12%))/(1+ inflation (8%)x75%)-1 = 5.7%	
Annuity discount rate:	Pre i = 3% and Pre i is approx = gross discount – (inflation +1%). Post i is approx = gross discount - inflation. Therefore Post i for Fund A = Pre i + 1% = 4%	
Annuity Male A is estimated	=10 x (1-8*(4%-5.7%)=11.36 (11.4)	
SUB TOTAL		
Derive Fund A liabilities:		
Males:		
Average Accrued pension	=15*12*10000*(1/50) = R36000	
Average Accrued Gratuity	=15*12*10000*5%=R90000	
Capital value of average pension	=11.4*36000=R410400	
Pre retirement discount =	=(1+3%)^(45-65)=0.553676	
Male Liability =	=100*(410400+90000)*0.553676 =R27 705 947	
Financial Position as at 30 June 2010		
Liabilities:	= R27 705 947	
Actives	=R27 705 947	
Pensioners	=R0	
Funding level provided at 125%		
Assets:	**R34 632 434**	

iii) Estimate the financial position of both funds as at 1 January 2012. State any other assumptions or approximations made

Valuation basis:

- Gross discount rate is equal to 9% as per government bond yield;
- Yield on inflation linked government bonds is 3%;
- Inflation assumed to be 6%
- Future salary increases 6% + 1% = 7%
- Pension increase = inflation = 6%
- Post i = 3%

Annuity:

- Annuity Male = 10*(1-8*(3%-5.7%))=12.2

Membership Data

	FUND A		**FUND B**		
Data:					
Number (adjusted for withdrawals and retirements)	=100-10-10=80		=300-30-10=260		
Liability weight average age (assume average age not distorted by exits and simply ages by period since last valuation)	=45+1.5=46.5		=40+1=41		
Liability weighted average service (same assumption as above)	16.5		16		
Un-weighted average monthly salary before valuation (Fund A needs 9% 31/12/2010 increase not Fund B)	=R10000*1.09 =R10900		=R12000		
Un-weighted average monthly salary at valuation (after 7% increase for both A and B)	=R10900*1.07 =R11663		=R12840		
Liabilities:	**FUND A**		**FUND B**		
Actives:					
discount term	=65-46.5 =18.5		24		
discount factors	=((1+7%)/(1+9%))^18.5 =0.70992		=0.641172		
Accrued Pension	=(1/50)*16.5*11663*12 =R46185		=(1/40)*16* 12840*12 =R61632		
Capital value	=46185*12.2 =R563457		=R751910		
Accrued Gratuity	=5%*16.5*11663*12 =R115464		=0		
Liability	=80*(563457+115464) *0.70992 =R38558368		=260*751910 *0.641172 =R125346946		

Pensioners:					
Number	10		10		
Ages (year end retirements at NRA must be equal to NRA)	65		65		
Ave Pensions p.a. (same service at year end but no salary increase)	=(1/50)*16.5*10900*12 =R43164		=(1/40)*16 *12000*12 =R57600		
Gratuities paid (used for asset build up as cash outflow)	=10*5%*16.5*10900*12 =R1079100		0		
Pension liabilities	=10*43164*12.2 =R5266008		=R7027200		
Also assumed only gratuities paid out of assets and no pensions paid as yet					
Pension exit cash outflow	=1079100				
Withdrawals:	Assumed mid way between valuations (0.75yrs Fund A; 0.5yrs Fund B)				
Number	10		30		
Ages	45.75		40.5		
Service	15.75		15.5		
Salary (only Fund A needs increase as mid point after increase date)	10 900		12 000		
Discount periods	19.25		24.5		
Discount factors (using their last basis)	=(1+3%)^-19.25 =0.566087		=((1+10%) /(1+12%))^24.5 =0.643101		
Average Accrued Pension	=1/50*15.75*10900*12 =R41202		=1/40*15.5* 12000*12 =R55800		
Ave Capital Value	=11.4*41202 =R469703		=10*55800 =R558000		
Ave Gratuity	=5%*15.75*10900*12 =103005				
Actuarial reserve = withdrawal benefit	=10*(469703+103005)* 0.566087 =R3242026		=30*558000* 0.643101 =10765511		
Assets reduction due to withdrawals, accumulate to year end at actual returns					
Withdrawal outflow at year end	=3242026*1.14^0.75 =R3576804		=10765511* 1.10^0.5 =11290963		
Member Contributions:					
Rates	6.00%		7.50%		
Members to year end (incl retirees)	90		270		
Monthly returns	1.09789%		0.79741%		
Last 12 months after increase	FV 12 mthly annuity certain =12.751789		12.540537		
Contributions accumulated	=90*6%*10900* 12.751789 =750570		=7.5%*270* 12000*12.5405 =3047350		
Fund A needs extra 6 months accumulated to year end					
FV annuity certain 6mths	7.030509				

Extra 6 mths	=6%*90*10000* 7.030509 =379647				
Exits contributed for their first 0.75 and 0.5 years respectively, Fund A needs to separate to last 3 months after increase and first 6 mths before increase					
FV annuity certain after increase	=((1-(1+i12)^-3)/i12)* (1.14)^1 =3.346256		=((1-(1+i12)^-6)/i12)* (1.10)^1 =6.419645		
Acc contributions after increase	=10*6%*10900 *3.346256 =21885		=30*7.5%*6.41 *12000 =173330		
FV annuity certain before increase	=((1-(1+i12)^-6)/i12)* (1.14)^1.5 =7.030509				
Acc contributions before increase	=10*6%*10000*7.03 =42183				
Total for exits	=64068		=173330		
Total contributions at year end	=750570+379647 +64068 =1194285		=3220680		
Roll forward the assets:	Fund A		Fund B		
Asset at start	**R34 632 434**		**R139 384 800**		
Investment returns	= R34 632 434*1.14^1.5 =R42154146		=139384800* 1.10 =R153323280		
Less exit benefits taken from above:					
Withdrawals	=R3576804		=R11290963		
Gratuities	=R1079100		=0		
Plus contributions	=1194285		=3220680		
Asset at Year End	=R38 692 527		=R145 252 997		
Liabilities	=R38558368 +R5266008 =R43 824 376		= R125346946 + R7027200 =R132 374 146		
Surplus:	=-R5 131 849		=R12 878 851		
FL %	=88.3%		=109.7%		

iv) Outline the issues that need to be addressed by the Trustees of the two funds when considering the request by the employer for the merger?

Both sets of trustees:

- Will require independent legal advice
- and will need to consider their scheme rules
- any legislative requirements, and
- labour/employment condition issues (albeit mainly employer's concern)
- They will need to act in the interests of all categories of members
- and not discriminate between them
- Generally not as concerned with future benefit accrual
- as in protecting past service benefits
- and the security of those benefits
- They will need to consider whether they can say no to the merger
- and whether they can get benefit improvements for members
- Section 14 issues and reasonable benefit expectations
- Surplus apportionment issues (both must consider)
- Can employer's accounts be ring fenced for own members or for their security
- What is the power in the rules of either fund to receive bulk transfer
- Who can amend scheme rules
- Who determines benefits in respect of bulk transfer
- Are sufficient assets being transferred to support benefits
- What will happen to current surplus in Fund B— how to manage member and employer accounts
- Will discretionary pension increases still be granted
- Who determines that a bulk transfer will take place
- Will the trustees carry it out without member consent
- Can the actuary give necessary certification if no consent
- Will members get future discretionary increases
- What are the differences in powers in the two schemes

v) Demonstrate how this could be achieved so as to preserve the accrued benefits of the weaker fund. Show the funding level of the subsequent merged arrangement

- To preserve the accrued benefits you need the accrued service liabilities under the new arrangement to meet those under the previous and given the defined benefit nature of the funds this can be achieved through an adjustment to the pensionable service of the members of Fund A under the benefits of Fund B
- Assume that the adjustment can be determined on the basis of the averages (age and service) applicable
- Cannot affect the pensioners
- Funding position is simply adding both funds previous results as the point is to maintain the accrued service liabilities.

Average actuarial liabilities (from above/no of members)	481980
Discount factors (from above)	0.7099200
Annuity factors (from above)	12.2
Capitalised Accrued benefits (stripping out discount)	678921
Average accrued benefits (no gratuity)	55649
Reduced average service (benefits / salary for valuation/(1/40))	15.90
Average reduction %	-3.6%
Can also be derived through ratio of benefits for 1 years' service	

	Fund A	Fund B	Total
Assets	38 692 527	145 252 997	183 945 524
Liabilities:	43 824 376	132 374 146	176 198 522
Actives	38 558 368	125 346 946	163 905 314
Pensioners	5 266 008	7 027 200	12 293 208
Surplus	-5 131 849	12 878 851	7 747 002
Funding level	88.3%	109.7%	104.4%

vi) What are the likely consequences for members of the weaker fund in relation to the merger of the funds on the above basis?

- Expected level of total benefits from the Scheme will change (future accrual)
- but in respect of service up to merger there is no change
- Funding level following merger - more security for Fund A, less for B
- Fund A will pay higher percentage of pensionable salary to scheme
- Higher accrual rate of 1/40ths not 1/50ths
- But without gratuity - 1/50th x annuity factor + 5% is greater than or equal to the 1/40th at end depends on value of annuity. Annuity depends on amongst others pension increase
- Will pension increase stay at target of 100% as used in merger calculation or reduce to current scheme 75%

- Members of B better off with stronger actuarial reserves – withdrawal and pension increase
- Death benefits in service differ, good or bad depending on age and service
- So may need additional personal insurance
- Will require communication to explain reason for change
- and individual benefit implications
- May not be happy about being transferred without consent
- Can do nothing and will just transfer especially if power with employer
- but should consider any possible angles under labour/employment issues