EXAMINERS' REPORT

November 2020 examinations

Subject F104 — *Pension and Other Benefits*
Fellowship Principles

INTRODUCTION

The attached report has been prepared by the subject's Principal Examiner. General comments are provided on the performance of candidates on each question. The solutions provided are an indication of the points sought by the examiners and should not be taken as model solutions.

QUESTION 1

i.

- ✓ Identify purpose and users
- ✓ Consider previous valuations
- ✓ Gather information
- ✓ Gather fund data and check data
- ✓ Set a basis
- ✓ Choose the actuarial funding method
- ✓ Perform valuation
- ✓ Review and report

ii. Process based projections and extrapolative methods.

iii.

- ✓ The actuarial liability under the CUM is the present value of all benefits accrued at the valuation date, based on current earnings for members in service.
- ✓ This would accurately reflect the liability under discontinuance but not in a going concern where salaries are expected to increase
- ✓ Can modify by adding a revaluation percentage to the salary to allow for salary growth in deferment
- ✓ If this equals expected salary growth, this is the PUAL.

Examiner comment: This was a straightforward book work question. Candidates probably should have done better. Most seem to be confused by part (ii) and mentioned adjustments to mortality tables rather than mortality projections.

QUESTION 2

- ✓ Manufacturing sector so most workers are unlikely to be financially sophisticated.
- ✓ Will want to have a default investment choice,
- ✓ And relatively few choices
- ✓ To stop members from feeling overwhelmed.
- ✓ Offering a range of balanced funds to suit most risk appetites would be sensible
- ✓ With a lifestage strategy using these as building blocks as the default
- ✓ Would want to have penalties for excessive switching to stop herding in volatile markets
- ✓ And also for a fairer charging structure as typically the lowest-income earners are the least likely to switch.
- ✓ Some of the senior executives may want choice down to asset class and individual stocks,
- ✓ Particularly if they are ex-pats and this was offered in their home country
- ✓ May need to create a separate category for these members with more detailed choices,
- ✓ To avoid confusion
- ✓ And limit cross subsidies
- ✓ Medium-size so too many choices may not be efficient from an economies of scale perspective.

- ✓ Asset managers may require minimum balances which may require all the choices to be provided by the same asset manager
- ✓ Or have very careful management of the choices over time
- ✓ However, it may prove difficult to move a member's funds from a fund they have chosen just because they are the only investor.
- ✓ Given the size of the parent company, self-investment is a concern.
- ✓ Particularly if a passive investment vehicle is chosen.
- ✓ May want to offer member education around this topic
- ✓ Or offer free financial advice
- ✓ Any options made available should take into account tax implications for members

Examiner comments: This question was reasonably well answered. Most candidates managed to pick up on the obvious points but lost marks by not considering the specifics in the question.

QUESTION 3

i.

Risks associated with absenteeism

- ✓ Wages to absent employees
- ✓ High cost of replacement workers
- ✓ Administrative costs of managing absenteeism
- ✓ Reduced productivity
- ✓ Excess manager time

Risks associated with long-term or permanent disability

- ✓ Employer may be legally or morally liable for lost earnings
- ✓ For work-based injuries, may be associated legal claims.
- ✓ Even if insured, employer may be responsible for the cost of insurance
- ✓ Recruitment costs
- ✓ Training costs

ii.

- ✓ DC fund - where will the insurance premium be funded from ER or MR?
- ✓ If a balance of cost scheme, larger premiums mean lower retirement savings
- ✓ So, need to consider overall balance between risk and retirement benefits
- ✓ If ER bears cost, how much variation in cost is tolerable.
- ✓ Value employees likely to place on this benefit versus other benefits
- ✓ Does regulation allow for this to be offered in-fund?
- ✓ Different categories – for different types of occupations, perhaps?
- ✓ Need to balance with risk that distinctions are viewed as discriminatory.
- ✓ Will receipt of disability income affect eligibility for other employee benefits
- ✓ Typically set a maximum age to control costs
- ✓ Level of benefit: don't want too high to discourage return to work
- ✓ But want it sufficiently high that employer not obliged to top it up.
- ✓ Add a waiver to cover employer contribution to retirement fund and other risk benefits if still eligible.
- ✓ Salary definition: simple to use pensionable salary but does it reflect need?
- ✓ Waiting/deferred period: longer reduces costs

- ✓ But average claimant should have enough sick leave to bridge this period
- ✓ Might consider a backpay period
- ✓ Definition of disability
- ✓ In the initial and extended period
- ✓ Form of benefits: any other services e.g. managed care
- ✓ Partial benefits for partial disability
- ✓ Any offsets/Integration
- ✓ Unlikely to have any choices due to anti-selection

iii.

- ✓ Large employer but no info given as to eligibility criteria
- ✓ Self-insurance only makes sense if the fund is very large
- ✓ As this will provide smoother claims experience
- ✓ And spread the administrative costs over more members to minimise expense risks
- ✓ Self-insuring means fund is exposed to:
    - ✓ Mortality risk: more deaths than anticipated
    - ✓ Which may ultimately lead to solvency risks
    - ✓ However, this is reduced to some degree by the small benefit size
    - ✓ Losses can be recovered by, for example, reducing fund credits of surviving members
    - ✓ But this is likely to be extremely unpopular
    - ✓ Operational risk: risk of fraudulent claims or processing errors
    - ✓ Reputational risk: families may get upset if the benefit is not paid quickly.
    - ✓ Expense and expense inflation risk
    - ✓ Underwriting risk: no real data to calculate what the contribution towards this benefit should be/how big the risk reserve should be
    - ✓ If a single risk premium is charged to all members, there will be cross subsidies between groups of members
    - ✓ E.g. young to old
    - ✓ Risk mix may change unfavourably.
    - ✓ Or cross-subsidies may be viewed as unfair
    - ✓ Investment risk on risk reserve

Examiner comment: There was evidence of time pressure on this question which suggested that candidates found it more difficult than the examiners anticipated. I also found that many candidates retyped the question at the top of their answers. This was often missing key words and candidates often answered a very different question. In general candidates lost marks because they did not address the question asked. Many candidates missed the fact that the fund was DC, that the disability benefit was a disability income product and that it was insured.

QUESTION 4

i.

- ✓Pillar 0 – The top-up benefit is non-contributory.
  - Although retirees need to illustrate that they have made some effort toward saving
  - They don't have to contribute to the top-up benefit itself.
- ✓Pillar 3 – The private savings are not compulsory
  - Even though they are commonly facilitated by employers
- ✓Pillar 4 – Citizens who don't save enough rely on social networks for support

ii.

- The state top-up offering is defined benefit and presumably financed by tax income
  - This can become onerous in later years if the population is ageing
  - And the level of tax payers reduces relative to the level of retirees
- However, the benefit can be very low
  - With earnings averaged over 40 years
  - And dependent upon the number of years employed
  - Retirees with the lowest savings levels are likely to have worked fewer years
  - And will be entitled to a smaller top-up
- Not all retiring citizens will be able to qualify for the top-up benefit
  - Which may reduce the cost of provision faced by the state
  - However, citizens need to only show that they have saved for 10 years of their working life
  - So, the qualifying criteria is not a huge hurdle
  - If the rate of unemployment is low.
- The top-up benefit will likely exclude people who are self-employed
  - Or have casual type employment
  - And mothers who choose not to be formally employed and rather to care for their children
  - There is no indication that the top-up benefit applies on more than one life (e.g. married couple)
  - This may be politically unpopular
  - And the government may lose some democratic votes.
- The private savings mechanism is voluntary
  - Which introduces moral hazard
  - In that people save just enough to qualify for the top up
  - And then stop saving and become dependent on the state anyway
  - The extent of moral hazard will depend on how the top-up benefit compares to consumption needs in retirement.
- Some citizens could become destitute in retirement
  - If their circumstances during years of employment did not allow for savings
  - This induces a poverty trap

    - ✓ Where people unable to save prior to retirement become dependent on family after retirement
    - ✓ And as a result, younger family members are also unable to save, repeating the cycle.

Examiner comment: Candidates did well on part i although a few missed that the top-up benefit required no contributions made to it and hence was Pillar 0. Very few candidates achieved an appropriate degree of breadth in their answers to ii.

QUESTION 5

i.

- ✓ Regular actuarial valuations
    - ✓ Will help to monitor the fund's financial position
    - ✓ identify and correct operational risks and errors
    - ✓ And asset-liability mismatches
- ✓ Contingency reserves can be established
    - ✓ To protect members against negative impact of data errors
    - ✓ And increasing expenses
- ✓ Members can be given some control to manage their own risk
    - ✓ For example, investment choice
    - ✓ Insured benefits
- ✓ Informed default investment and annuity strategies could be developed
    - ✓ To assist pensioners who are unable to make financial decisions
- ✓ A low defined minimum benefit could be introduced
    - ✓ To protect members against very poor economic conditions
- ✓ Members could be provided with professional advice and communication
    - ✓ To help them better understand their benefits
    - ✓ And take action if savings are too low.

ii.

- ✓ A cash balance plan is a type of hybrid scheme
- ✓ In which a percentage of salary is contributed each year per member
- ✓ Benefits are set at the member and employer contributions
- ✓ Accumulated at a rate of interest
- ✓ That may be predefined or linked to prevailing rates or an index.
- ✓ A pool of assets does not need to exist in a cash balance plan.

iii.

- ✓ In a cash balance plan, the risk of investment returns is retained by the sponsor
- ✓ However, members are at risk that the pre-defined rate of accumulation is low
- ✓ And the benefits they end up with are too low
- ✓ Even if the accumulation rate is reasonable, members retain the risk that the rate doesn't keep up with their increases in salary.
- ✓ As long as expenses are deducted from defined contributions

- ✓ Members are exposed to the risk that expenses increase at unexpected rates
- ✓ And expenses erode their retirement benefits
- ✓ Members will have to convert their balances to income at retirement
- ✓ And will be subjected to the vagaries of the annuity market
- ✓ And may not have enough money to keep up with inflation after retirement.

iv.

- ✓ If pre-funded, the investment plan should take account of the annual accumulation required on contributions
  - ✓ Whilst at the same time taking account of members needs
  - ✓ In terms of return from the defined contribution fund
  - ✓ And risk appetite.
  - ✓ There should be a minimum level of investments that matches the nature and term of the underpin
- ✓ One would need to consider regulations that apply
  - ✓ And any tax implications of different investment strategies
- ✓ The cost associated with an investment strategy will need to be considered
  - ✓ Especially because expenses will erode member benefits
- ✓ The sponsor strength should be considered
  - ✓ Such that if the investment level falls below the aggregate minimum liability
  - ✓ The members have comfort they will at least receive their minimum benefits
  - ✓ If sponsor covenant is poor, members may forgo some return in the DC fund
  - ✓ to limit downside risk related to the minimum benefits.
- ✓ Benefit conversion at retirement should be considered
  - ✓ Together with the number of members close to retirement
  - ✓ There will be a need for some degree of matching
  - ✓ And possibly liquidity if large lump sums need to be transferred.
- ✓ The need for liquidity will also be affected by the impact of other types of exits and the benefits payable.

Examiner comments: Performance on this question was poor, particularly part (iii). Candidates do not seem to have a good understanding of cash-balance principles and appropriate investing for a cash-balance plan. Often candidates did not answer what was being asked.

QUESTION 6

i. Advantages

- ✓ Multi-employer schemes do benefit from economies of scale
  - ✓ Which may reduce expenses related to administration
  - ✓ And investment management
  - ✓ And allow for more accurate pricing of insured benefits
  - ✓ Especially if the employers are all from a similar industry

- ✓ Members could benefit from better scheme management
  - ✓ Since the multi-employer scheme will have a management team
  - ✓ That are unlikely to be distracted by employment related issues
- ✓ The size of a multi-employer scheme may allow for more diversity
  - ✓ In benefits offered
  - ✓ And investment alternatives
- ✓ Multi-employer schemes could benefit from higher levels of expertise
  - ✓ Such a administrators and consultants with high levels of experience
- ✓ Transferring the pensioners to an insurer will increase their level of benefit security
  - ✓ They could benefit from competitive pricing
  - ✓ And economies of scale related to a larger group
  - ✓ They may also get more certainty with respect to future pension increases
  - ✓ And a guarantee that their pension will never decrease.

ii. Disadvantages

- ✓ The employer will lose some control over the fund
  - ✓ In which case members lose relevance to an extent
  - ✓ And need to communicate with trustees they are not familiar with.
- ✓ Benefit flexibility may be reduced in a multi-employer scheme
  - ✓ Since a standard benefit structure lends itself to reduced costs
  - ✓ And insurance premiums could increase if the multi-employer scheme
  - ✓ Experiences mortality that is on average worse than the transferring group
- ✓ There could be tighter regulation around multi-employer schemes
  - ✓ That will limit investment and benefit strategies
- ✓ The members will lose the opportunity to purchase a pension inside the employer's fund
  - ✓ Which may have been more familiar
  - ✓ And cost effective because there are no additional capital requirements.
- ✓ Pensioners will be required to use actuarially calculated capital values to purchase an annuity
  - ✓ The calculations will cost money and could reduce their capital values
  - ✓ Unless the employer absorbs this cost
  - ✓ Pensioners will be exposed to the annuities market
  - ✓ Which is volatile
  - ✓ And can be expensive because of capital requirements
  - ✓ If given choice of what type of annuity to buy
  - ✓ They may have to trade certainty around future increases for reduced immediate pension
  - ✓ Or accept lower future increases to keep current pension levels
  - ✓ It may be difficult to communicate the change to older pensioners

Examiner comments: Both parts of this question were not done well. Although credit was given for mentioning advantages to the employer in part (i), in part (ii) candidates failed to connect with what is important to member trustees. Even obvious points about economies of scale, volatile annuity markets and regulation were missed.

QUESTION 7

i.

- ✓ Because members make a contribution to the SGPF, this fund would always be at least partially funded in advance.
- ✓ Regular contribution funding by the employer as well would be consistent.
- ✓ Regular contribution funding provides the employees with far more security than pay as you go.
- ✓ This security is important as the benefit promise is likely to be fixed over a long time horizon
- ✓ (unlike the Pillar 0 benefit which is likely to change annually).
- ✓ And on a per person basis, the benefits are likely to be far larger.
- ✓ The larger benefit size may make the benefit outgo less stable which would make PAYG more problematic.
- ✓ As the government could face liquidity constraints
- ✓ The flexibility that regular funding provides may also be useful for the government as an employer.
- ✓ Because there is also greater certainty over the number of recipients, it becomes mathematically much easier to calculate the regular premiums for the SGPF than the Pillar 0 pension.
- ✓ As an employer, the government may also be bound by regulations relating to pension funding, which may require regular contributions
- ✓ Which may also be useful from a tax point of view.
- ✓ On the other hand, most governments use a modified cash flow approach to accounting
- ✓ PAYG is useful for redistributing wealth within a society at a given time
- ✓ Which may be a goal of the Pillar 0 benefit
- ✓ PAYG also minimises the opportunity cost to the government.
- ✓ And society may expect them to spend money now on other infrastructure projects rather than put money aside for social security benefits
- ✓ Whereas reallocating budget from the payroll to infrastructure spend might not be fiscally possible.

ii. SLP

- ✓ Recession implies tax revenue down
- ✓ Unemployment up
- ✓ Wages down
- ✓ Also, investment markets down
- ✓ Which means the balances from people's DC accounts might be lower than anticipated for people retiring now.
- ✓ Expect more people to qualify for the SLP
- ✓ The more protracted the recession, the greater this effect.
- ✓ Higher coverage and lower tax revenue will place pressure on the system

SGPF

- ✓ Lower tax revenue may create a budget constraint on the government
- ✓ Lower salary increases than anticipated

- ✓ Would mean a surplus for the fund
- ✓ However, unless the decline in the markets was anticipated
- ✓ And Assets and Liabilities are fully matched
- ✓ Will make an investment loss
- ✓ If the government needs to retrench then the fund may be paying out more withdrawal benefits than anticipated
- ✓ Which may lead to a surplus, strain or no effect depending on the actuarial neutrality of the withdrawal benefits.
- ✓ Overall, would probably expect a strain
- ✓ If there is sufficient capital to cover the strain, may have little impact on the employer in the short-term.
- ✓ However, as this is a DB fund, the employer would need to make good any deficit if the funding level is not sufficient to cover the strain.

iii.

- ✓ Assets should match liabilities in terms of nature, term, currency and amount.
- ✓ So would want assets in local currency
- ✓ Active member liability expected to be fairly long term
- ✓ Linked to salary inflation.
- ✓ At retirement, need cash for the commutation benefit, otherwise need assets to match pensioner liability
- ✓ Pensioner liability duration likely to be shorter
- ✓ Also, real, linked to price inflation
- ✓ Given fund is open to new members, contributions may help to ease liquidity
- ✓ But because fund is likely to be mature, expect outgo to exceed income.
- ✓ Large fund so may be able to invest in direct property or similar
- ✓ So, 35% local index-linked bonds of appropriate duration to match pensioner liability
- ✓ 35% equity
- ✓ 15% property
- ✓ 10% cash
- ✓ Balance offshore for diversification.

Examiner comment: The answers for part i. were vague at times with little reference to the actual details provided in the question. A few candidates remarked how funding in advance reduces costs. This is wrong. Most candidates did well on part ii. Part iii was easy and many candidates did very well, often writing too much resulting in time pressure in other areas of the paper.