

Asset Liability Management

Exam Semester 1 2025





Subject Title: Asset Liability Management

Date: Thursday, 24 April 2025

Time: 15 minutes
(Planning Time)
3 hours
(Examination)

Instructions:

You will have 3 hours and 15 minutes to complete your examination with an additional 10 minutes for submission.

You may commence typing during the planning time and remember to save your work regularly.

Type your answers using Microsoft Word and ensure that there are no links to spreadsheets.

Candidates are required to answer all questions.

Include your member ID in the header and footer on each page of the Microsoft Word document.

Question	Marks
1	20
2	20
3	20
4	20
Total	80

This paper has **EIGHT (8)** pages (including the title page).



QUESTION 1

(20 Marks)

The board of a not-for-profit health insurance fund which is managed by a major charity is considering meeting the aged care needs of its members by offering long-term insurance policies that will cover their future aged care costs in two categories:

- a) The cost of their aged care accommodation;
- b) The cost of their daily care such as health care and food.

The board has asked you to advise on setting appropriate investment objectives for the asset portfolios that would meet these policy liabilities.

- a) List four characteristics that the investment objectives for a portfolio of assets should have. **(2 marks)**
- b) Explain the two types of liabilities that are being provided for. **(6 marks)**
- c) Propose investment objectives for each of the asset portfolios that will provide for the liabilities. **(6 marks)**
- d) Summarise an investment strategy for each of the asset portfolios showing indicative asset allocation percentages. **(6 marks)**

END OF QUESTION 1



QUESTION 2

(20 Marks)

A financial advice firm provides advice on investment objectives and strategy to clients who are in the retirement income or drawdown phase of their lives. It has noted that investors in the drawdown phase need to hold more income generating assets such as fixed interest and cash to meet medium and short-term cash flow needs without the need to sell equity assets during equity market downturns. Therefore in addition to diversifying across asset classes, it believes that they should also diversify or spread their portfolio across different time frames to allow for their cash flow needs in different periods. This is achieved by allocation the portfolio to different timeframes, or buckets. These include:

- Timeframe 1: providing cash flow needed for expenses in the next 3 years;
- Timeframe 2: providing cash flow needed for expenses in the period between 3 and 8 years into the future;
- Timeframe 3: providing cash flow needed for expenses in the period beyond 8 years, such as aged care, major health expenditures and providing for inheritance of descendants.

The structure of the investment portfolio results in diversification across asset classes as well as over different time periods with a differential focus on income versus growth in different time frames. The overall aim is to maintain the capacity to generate income for different periods while still investing as much in long term growth assets as is consistent with the client's overall risk profile, in a way that protects the portfolio from having to sell growth assets to meet short to medium term cash flow needs at times when equity or growth assets are going through one of their periodic downturns.

- a) List up to ten assumptions that you may need to make in assessing the liabilities and the different cash flows that may occur for each of the three time frames. (5 marks)
- b) Describe a set of investment objectives for each of the three time frames having regard to the risks relating to inflation for various types of planned expenditure (6 marks)
- c) Explain an investment strategy for each of the three time frames (9 marks)

END OF QUESTION 2



QUESTION 3

(20 Marks)

A defined benefit retirement fund provides for a lump sum benefit payable on retirement at age 65 which is 15% of final salary at age 65 for each year of membership of the fund. Members may join the fund from age 18 onwards. Members pay contributions to the fund of 5% of their current salary while employers pay a percentage of salary that is needed to meet the projected liability, as recommended by the fund's actuary. Over most of the last 20 years:

- salary inflation has been running at 4% p.a. compared with an average of 2% p.a. for consumer price inflation.
- the fund has been invested in a multi-asset class portfolio comprising an average of 60% listed equities, 30% government bonds and 10% cash, and has had a return averaging 6% p.a.

In the last two years:

- consumer price inflation increased to 9% p.a. due to the outbreak of war that has affected supplies of oil and other commodities;
- in response, central banks have sharply increased short term interest rates by 6% p.a.;
- bond yields have risen sharply by 4% p.a.;
- listed equity markets have fallen in price by 40%;
- salary inflation has accelerated to 10% p.a.;
- a review of the fund's financial position using current market prices would likely reveal a significant deficit of assets versus liabilities.

The actuary of the fund has proposed that the assessment of the financial position and the recommendation of the employers' contribution rate should be based on:

1. the current reduced market price of the assets;
2. a change in the long term assumptions from 6% p.a. investment returns and 4% p.a. salary increase to 7% p.a. investment returns and 6% p.a. salary increase; and
3. a short term addition to the rate of salary increase to 10% p.a. for a period of three years, at which time the financial position of the fund and the employers' contribution rate should be reviewed.

- a) Explain the factors that the actuary may have considered in making this proposal.

(8 marks)

- b) Explain two potential scenarios for the principal economic influences that may affect the valuation of the fund's assets and liabilities in three years' time.

(6 marks)



- c) Propose changes in the asset allocation of the fund which may reduce the uncertainty of its asset valuation in three years' time. **(6 marks)**

END OF QUESTION 3



QUESTION 4

(20 Marks)

A defined contribution retirement fund has a single investment fund in which its members can invest their contributions, and from which, after retirement, they can draw pension incomes expressed as a percentage of their account balance. Member transactions can occur on any business day, so there is a requirement for daily unit prices of the fund. The fund is invested in a multi-asset class portfolio which has an investment return objective of exceeding consumer price inflation by 3% p.a. The asset allocation of the fund is described in the table below:

	Long term strategic asset allocation target (% of total)	Allowable asset allocation range (% of total)	Current asset allocation (% of total)
Public listed equities	50	40 to 60	55
Property (Unlisted commercial real estate)	20	10 to 30	15
Tradeable government bonds	20	15 to 25	25
Cash and short term fixed interest	10	5 to 35	5
Total	100		

- a) Discuss potential differences in the nature of the liabilities arising from the needs of members making contributions and members who are receiving pension payments, with reference to an investment strategy that meets their needs. (4 marks)
- b) Explain the main drivers of the:
- i. return of tradeable government bonds; (4 marks)
 - ii. risk of tradeable government bonds. (4 marks)
- c) Explain:
- i. why a regular valuation of the unlisted property is required; (2 marks)
- and



- ii. how the need to have daily unit prices can be accommodated. **(2 marks)**
- d) Propose a change in investment strategy that may better meet the needs of members making contributions and members who are receiving pension payments. **(4 marks)**

END OF QUESTION 4

END OF EXAMINATION