

# ASSET LIABILITY MANAGEMENT

EXAM SEMESTER 2 2023



**Subject Title:** Asset Liability Management

**Date:** Friday, 13 October 2023

**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	14
2	18
3	20
4	28
Total	80

This paper has **NINE** (9) pages (including the title page).



### QUESTION 1

(14 Marks)

#### Background

You are considering two assets for investment, with details below as at 1 July 2023:

##### Government bond

Face Value \$1,000, coupon 5% p.a. fixed, payable annually in arrears at 30 June, for a remaining term of 10 years.

##### Company share

Share listed price \$1,000 with a dividend of 5% p.a. paid for the most recent financial year. Dividends paid annually in arrears at 30 June.

Central bank's long term inflation target is 3% p.a. and current cash rate is 3% p.a.

#### Question

a) For each asset

- i. **Describe** a simple method to value the asset, including the assumptions that are implied by the method

[4 marks]

- ii. **Determine** the values for the input assumptions you will use with this method

[4 marks]

b) **Calculate** a value for each asset.

[2 marks]

c) **Explain** how you have incorporated risk into your valuation methods.

[2 marks]

d) **Identify** elements of uncertainty that you have not addressed in your methods.

[2 marks]



### QUESTION 2

(18 Marks)

#### Background

A **retail investment fund** (the fund) has grown from \$500 million to \$500 billion in assets over the last 10 years, reflecting net new inflows, performance, and a very strong brand awareness. It is projected to reach \$1 trillion within the next 10 years.

A board is responsible for all aspects of the investment strategy of the fund. The board's investment philosophy is summed up as:

*Our primary goal is to create long-term real returns for our investors without undue risk or expense. Short-term fluctuations in markets will not drive our decisions. The fund will hold a diverse global portfolio of assets to minimise the impact of losses in any one company, asset class or country.*

The board is in the process of hiring a General Manager Investments. Two candidates have different theories on successful equity investing.

Candidate 1: *'I believe that the listed markets are very good at capturing all relevant information on a stock, so it's near impossible to consistently beat the index. The equities allocation should be set up to track the domestic and global indices respectively. This saves cost and ensures we are always on benchmark.'*

Candidate 2: *'I believe that the increasing automation of trades is building-in the programmer's behavioural biases and is leaving space for active analysts who know the companies inside out, to spot and exploit mispricing by the market. The equities allocation should be managed by specialist active managers in each country, to maximise access to on the ground knowledge. There's no limit to the potential outperformance.'*

#### Questions

a) **Critique** the two candidates' theories for the benefit of the board.

[6 marks]

b) **Propose** one candidate as the preferred General Manager Investments to the board, giving your reasons drawing on the board's investment philosophy and the candidate's stated views.

[4 marks]



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Currently the fund is invested in equities via listed markets (domestic and global) and fixed interest via unlisted wholesale fixed interest trusts (domestic and global). There are no derivatives employed. The board is open to changing the balance between fixed interest and equities, and potentially adding other asset classes.

**c) Explain** the asset liability management 5-step process to (re)set the investment strategy including comments on each step that are relevant to the board.

**[6 marks]**

**d) Describe** two ways the board could use derivatives in the future.

**[2 marks]**

**END OF QUESTION 2**



### QUESTION 3

(20 Marks)

#### Background

Table 1 Historical returns to 31 May 2023 (% p.a.)

Period	Aust listed equity	Global REITS (Hedged to AUD)	Global Fixed Interest (Hedged to AUD)	Cash (Aust)	CPI (Aust) (March 23)
1 yr	2.9%	-14.1%	-2.6%	1.9%	7.0%
3 yrs	11.4%	5.2%	-3.4%	1.1%	4.4%
30 yrs	9.2%	7.5%	6.3%	4.2%	2.6%

Three major events over the last 3 years have affected economies globally:

- the UK left the EU in February 2020;
- the Covid global pandemic was declared in March 2020 and is ongoing; and
- the Russia/Ukraine conflict escalated in February 2022 and is ongoing.

One consequence for most economies has been unusually high inflation since 2020, and inflation rates have not yet returned to 'normal' levels.

#### Question

- a) **Describe** monetary policy actions that can be taken to address high inflation, and one risk arising from those actions.

[4 marks]

- b) **Explain** the impact of these events and the resulting inflation, on the real and nominal returns from these three asset classes over the last 1 to 3 years.

- Australian listed equity;
- Global REITS; and
- Global Fixed Interest.

[6 marks]

- c) **Calculate** the 1, 3, and 30-year nominal and real returns for an investor that rebalanced every year to 50% AUD equity and 50% Global Fixed Interest (hedged).

[3 marks]

Continued over



An individual aged 40 years old has built up a small portfolio of Australian listed equities over the last three years while working. He has just received a significant inheritance that will enable him to retire now, invest the inheritance and live on the income. He intends to bequest the capital to his children on his death. He has decided to invest all the inheritance into Australian listed equities, as this has been the best performing asset class over the last 1, 3 and 30 years.

**d) Discuss** one bias that may underpin his asset allocation decision.

**[2 marks]**

**e) Assess** his proposed strategy against his liability profile (assuming he does retire now). Incorporate your earlier findings into your answer.

**[5 marks]**

**END OF QUESTION 3**



### QUESTION 4

(28 Marks)

#### Background

**Datasenta** is a US unlisted company with a stake currently for sale to a private investor. The seller has provided the following information - carefully read before answering.

- Datasenta's **primary business** is providing data storage capacity at its 15 data centres spread across five campuses in the US.
- Datasenta had annual **net revenues** of US\$300 million – 10% higher year-on-year – according to its June 2023 full year accounts.
- **Future growth** will come from two sources: a double-digit annual increase expected in data volumes, especially with the proliferation of artificial intelligence-led businesses; and an increasing number of corporates outsourcing their data storage.
- Datasenta's **customer** turnover (churn) rate was almost zero and clients may vary their volumes but almost never leave.
- Datasenta is expected to make an **internal rate of return** in the low double digits, but as yet has not paid a **dividend**.
- Stable, experienced **management** team.
- Datasenta is **valued** (30 June 2023) at US\$10 billion with 10 shareholders.
- One shareholder is selling their **10% stake**, asking US\$1 billion.
- The stake will give the buyer a non-executive **director position** on the board.

#### Question

- a) **Apply** System T to assess the risk and return characteristics of this 10% stake in Datasenta (assume for an Australian investor). Note any other assumptions you make. [14 marks]
- b) **Explain** how one risk would be mitigated if Datasenta was available as a listed equity on the US markets. [2 marks]
- c) You are an asset consultant with two very large Australian clients "Client A" and "Client B", their details follow below.

**Client A** is a superannuation fund balanced investment option:

- Catering to members aged 20 to 65;
- \$250 billion diversified pool (1% cash, 9% unlisted infrastructure, 40% unlisted fi, 50% listed equities); and
- Net cash outflow forecast to be negative \$1 billion each year for the next few years.





**Client B** is a workers' compensation insurer investment reserve account:

- Claim liabilities \$10 billion, total assets \$15 billion;
- Assets split into liability reserve \$10 billion and investment reserves \$5 billion;
- New business is growing at 10% p.a.;
- Average claim size and average claim duration are both increasing;
- Premium rates are highly competitive;
- Profit margins are being squeezed;
- Liability reserve entirely in cash (requirement); and
- Investment reserves currently in diversified fixed interest.

For each client, apply the principles of asset management to

- (i) **summarise** their liability characteristics;
- (ii) **determine** if a \$1 billion unlisted investment in Datasenta would be a suitable additional investment for their portfolio; and
- (iii) **suggest** two actions to mitigate risks, should they decide to pursue the investment.

[12 marks]

**END OF QUESTION 4**

**END OF EXAMINATION**