

# **Investment**

## **Exam Marking Guide Semester 2 2025**





## Marking Guide

This exam represents 80% of the available marks for the Investment subject. The remaining 20% comes from the assignment.

Question	Syllabus Learning Objective	Chapter Reference	Total Marks	SA	A	H
1 a	8.1	9	6	6		
1 b	8.2	9	6		6	
1 c	8.4, 8.5	9	8		8	
1			20	6	14	0
2 a	7.1	8	6			6
2 b	6.1,7.2,7.3,7.4,7.5,7.6	6,7,8	8		8	
2 c	7.3,7.7	6,7,8	6			6
2			20	0	8	12
3 a	2.1,2.2,2.3,2.5,3.1,3.2	3,4	6		6	
3 b	2.1,2.2,2.3,3.1,3.2	3,4	6		6	
3 c	2.2,3.2,5.2	3,4,6	8	8		
3			20	8	12	0
4 a	2.1,2.5,4.1,4.2,4.3,4.5	3,5	4	4		
4 b	2.1,2.5,4.1,4.2,4.3,4.5	3,5	4	4		
4 c	2.1,2.5,4.1,4.2,4.3,4.5	3,5	4	4		
4 d	2.1,2.5,4.1,4.2,4.5	3,5	8			8
4			20	12	0	8
Total Exam			80	26	34	20
Assignment			20	0	12	8
Total subject			100	26	46	28

### Target

– Simple Application 25% **A** – Application 50% **H** – Higher order/ Judgement/Evaluation 25%

**Note to Markers:**

*An overarching principle is that marks should be awarded for necessary work undertaken by a student to arrive at an answer to a question. You may think of this as telling a story to answer the question that is asked. In respect of marking, please award marks for defining terms, describing background and context which is relevant to 'telling a story' to answer the question.*

***We give guidance to students that copying and pasting is allowed but they need to address the specified scenario to pass the examination. The marking guide for each question generally states whether marks can be awarded for generic points or whether the points given must be linked to the given problem context. If the marking guide does not specify otherwise, marks SHOULD be awarded for relevant comments that may appear to have been copy pasted from either the modules or another resource, such as a prudential or professional standard.***

***Marks may also be awarded for any other relevant point not included in the marking guide.***

***Where any such marks are awarded, the relevant point should be reported to the Chief Examiner so that they can confirm the validity, include it into the final version of the marking guide and ensure any other marker(s) for that question are aware of the change and award the mark to all candidates making the additional point.***

***As a rule, a complete sentence should be awarded 1 mark.***

***A complete sentence includes a clause and a connecting clause. An example sentence is 'The insurer pays a benefit on death' (½ mark for the clause) provided the premiums are paid (½ mark for connecting clause)'.***

*The exam questions each start with a 'command verb' that provides information to students and markers about what is expected in an answer to the question. Please watch the following short video for information about the learning levels and command verbs used by the Institute:*

*[https://www.youtube.com/watch?v=g1Oyv\\_RpfU4](https://www.youtube.com/watch?v=g1Oyv_RpfU4). Definitions of each of these command verbs is also provided within this marking guide.*

*Please note that many of the answers in this marking guide go well beyond what is required to gain full marks in the question. This is done deliberately to give students and markers a sense of the wide range of acceptable answers that students might give to a question.*



### QUESTION 1: MARKING GUIDE

(20 marks)

- a) Discuss why an investment policy statement (IPS) is needed for the SWF. (6 marks)

*Command verb: Discuss (Level 2 – Understand): Write about a subject or topic in detail taking into consideration issues and ideas. Provide more than one fact or observation relevant to the topic.*

#### Question solution

An investment policy statement (IPS) sets out an agreed understanding of all of the main steps in the investment management process that the sovereign wealth fund (SWF) uses to manage its investment portfolio to meet its investment objectives. (0.5 mark)

An investment policy statement is needed because it helps define:

- the investment objective which will need to be sufficient to provide cash flow to support spending on infrastructure, health and social welfare programs, and defence over the next 50 years or more, (0.5 mark) and so is likely to be set at a margin above consumer price inflation (0.5 mark) as each of those items may have inflation above the CPI inflation (0.5 mark)
- the investment philosophy which sets out the beliefs about how investment markets, investors, and investment managers work (0.5 mark) which in turn define the investment outcomes that are possible using an investment process (0.5 mark)
- the investment process or how the investment portfolio is managed to meet the investment objectives (0.5 mark) within the market constraints identified in the investment philosophy (0.5 mark) to maximise the probability that the investment objective is met (0.5 mark)
- how the strategic asset allocation is decided, (0.5 mark) as this is usually the most important driver of investment return and risk outcomes (0.5 mark)
- the investment mandates that may be given to investment managers employed to implement parts of the investment process (0.5 mark) and the basis of their performance review and compensation (0.5 mark)
- how the success of the investment process and any investment managers will be monitored and measured via investment performance assessment procedures (0.5 mark) which will also serve to provide public accountability in relation to the management of the fund (0.5 mark) as well as providing feedback into how the investment process can be improved. (0.5 mark)

- b) Explain six components of an IPS for the SWF and what they are intended to achieve

(6 marks)



**Command verb: Explain (Level 4 – Analyse):** Give an account of something with the goal of clarifying it to someone or making something easier to understand. Calls for even more information than describe, showing that you can convey ‘why’ or ‘how’ or ‘so what’. A connection is expected between the item(s) and something else.

### Question solution

The components of an investment policy statement for the SWF and what they are intended to achieve are as follows :

**Note to markers: 0.5 mark for each of the points below which can sourced from the subject course materials, but is not specifically related back to the question context**

An IPS should incorporate the following (derived from the subject course materials):

- purpose and background which should explain the purpose of the IPS, objectives of the portfolio and the legal structure under which the portfolio is regulated. This is to ensure that managing the portfolio does not breach other governing documents or regulations (e.g. fund constitution, disclosure, board policy limits, regulatory standards and so on). It should also set out the size of the portfolio and the likelihood, expected timing and amount of future cash flows to or from the portfolio as necessary context for the portfolio. **(0.5mark)**
- statement of the investment objectives which will include statements about required returns and the level of risk that can be tolerated, the investment term and liquidity requirements all of which will be influenced by the type of investor i.e. a sovereign wealth fund **(0.5 mark)**
- guidelines and investment policy which refer to parameters of the investment strategy that are used to derive the asset allocation such as the investor’s risk tolerance, asset class preferences, time horizon and desired rate of return, rebalancing limits that define points when the portfolio should be reallocated to bring it back into line with the strategic asset allocation. **(0.5 mark)**
- securities guidelines which are limits placed on the selection of assets within each asset class that may be quantitative , such as a maximum percentage in any given asset, or qualitative, such as ESG requirements. **(0.5 mark)**



- selection of money managers which refers to the selection of investment managers to carry out the implementation of the investment portfolio strategy in relation to part or all of the portfolio, clearly setting out the criteria for the selection of investment managers as well as the process for the identification, analysis and selection of a combination of investment managers. **(0.5mark)**

Control procedures such as investment performance measurement as well as monitoring the compliance of investment managers with their investment mandates and what to do if the portfolio goes outside the stated limits of the IPS. **(0.5 mark)**

**An alternative and better way of answering this question part is:**

- statement of purpose, which will set out the nature of the expenditures that it is designed to support (infrastructure, health and social welfare programs, .and defence with some detail about each e.g. a national fast train system), **(0.5 mark)** the timescale (minimum 50 years) **(0.5 mark)**, which is well beyond the political horizon of the government **(0.5 mark)**, how it will reduce pressure on the government's fiscal position by reducing deficits and borrowing **(0.5 mark)**, and /or increase the likelihood that the spending commitments of the designated programs will be met **(0.5 mark)**. The statement of purpose is intended to achieve transparency and clarity of communication to the public (voters) **(0.5 mark)** about why tax revenues are being diverted to and invested in a fund which is likely to become very large. **(0.5mark).**
- statement of investment objective incorporating return and risk which is measurable, achievable, realistic and time bound. **(1 mark)** This is intended to allow transparent monitoring and measurement of success of the investment policy and process that is adopted, **(1 mark)** aiding the development of public confidence in the existence and operation of the SWF. **(0.5 mark)**
- descriptions of the investment philosophy and investment process used by the SWF to achieve the investment objective **(0.5 mark)**, to provide all parties (the government, the public, and the managers of the SWF) **(0.5 mark)** a clear statement of what the investment environment is expected to allow the SWF to earn in terms of returns and the risks that will need to be managed **(0.5 mark)**, and how it will go about earning the returns and managing the risks **(0.5 mark)**. This is intended to require a structured explanation by the managers of the SWF about how they are managing the SWF **(0.5 mark)** as well providing more transparency to the public **(0.5 mark)** and well as a clear framework for the government to judge how well the SWF is being managed **(0.5 mark)**, .



- the strategic asset allocation (SAA) of the SWF, which is likely the main driver of returns of the SWF **(0.5 mark)** and the probability of meeting its investment objective **(0.5 mark)**
  - limits on allocations to particular countries or geographic areas **(0.5 mark)** or industry sectors **(0.5 mark)** or issuers or counterparties **(0.5 mark)** or prohibited products or industries such as tobacco or arms **(0.5 mark)**
  - limits for shifts away from the SAA in pursuit of higher returns or reduced risk i.e. TAA limits **(1 mark)**.
  - asset selection and weighting guidelines within each asset class **(0.5 mark)** which are designed to define risk management limits within the portfolio of the SWF and help define and manage risks within asset classes such as public equities, bonds and private equities **(0.5 mark)**
  - the criteria and process for the selection of investment managers employed to implement the investment strategy, **(0.5 mark)** comprising mandates, **(0.5 mark)** performance measurement time frames and criteria **(0.5 mark)** and remuneration (base and performance related components). **(0.5 mark)** This is designed to provide clarity and transparency **(0.5 mark)** as well as a basis for measuring success in meeting objectives (0.5 mark) and awarding remuneration to investment managers. **(0.5 mark)**
- c) Explain the process that should be used to develop the investment philosophy which will be communicated in the IPS of the SWF **(8 marks)**

**Command verb: Explain (Level 4 – Analyse): Give an account of something with the goal of clarifying it to someone or making something easier to understand. Calls for even more information than describe, showing that you can convey ‘why’ or ‘how’ or ‘so what’. A connection is expected between the item(s) and something else.**

### Question solution

**Note to markers: Some candidates may respond by explaining a process for developing the overall investment policy and its components without setting out a process for developing the investment policy. If they do so they should be given marks for points that are well made but no more than 2 out of 8 marks.**

To develop a statement of the investment philosophy which will be communicated in the IPS, the



government and /or the managers of the SWF ought to set out clearly their beliefs about:

- what investment markets will allow the SWF to earn in terms of returns and the risks **(0.5 mark)** that will need to be managed over the 50 year time frame during which the SWF will be used to support government spending. **(0.5 mark)**;
- the investment processes designed to deliver the desired outcomes. **(0.5 mark)**

This ought to encompass the analysis of relevant evidence about investment markets . **(0.5 mark)** and the documentation of relevant experience relating to investment practices and processes. . **(0.5 mark)**

50 years is a very long time into the future over which forecasts about how investment markets and investors will behave and how investment managers conduct their activities **(1 mark)** both of which may change significantly **(0.5 mark)** as we have witnessed in the last 50 years **(0.5 mark)**

There have been significant shifts in all of these in the last 50 years **(0.5 mark)**, such as the emergence of newly defined asset types and classes **(0.5 mark)**, the emergence of new ways of investing such as passive or index portfolios and exchange traded funds **(0.5 mark)**, shifts in the conduct of monetary and fiscal policy and international trade **(0.5 mark)**, all of which have significantly affected both the returns that are possible and the risks that must be managed **(0.5 mark)**, thereby affecting the investment outcomes that were possible using the investment processes that a sovereign wealth fund and its investment manager may have used **(0.5 mark)** .

Investment management processes have usually been based on models that reflect the evidence available from asset markets , which is normally quantitative **(0.5 mark)**, as well as the experience of investment managers which may be qualitative or anecdotal **(0.5 mark)**. The development of investment processes tends to lag the emergence of evidence and experience **(0.5 mark)** .

It should be expected that over the next 50 years there will be significant changes in asset types and in investment practices as well as in the conduct of policies that affect investment outcomes. **(1 mark)**

The analysis of relevant evidence and experience used to develop an investment philosophy ought to therefore encompass:

- Past trends in market prices of asset types which the SWF may hold in its portfolio and events that have led to significant shifts in market pricing indicators **(1 mark)**





- Identifying investment management processes used by investors similar to the SWF, **(0.5 mark)** such as specific investment approaches used in active management of portfolios of listed equities, **(0.5 mark)** and assessing their efficacy in achieving investment outcomes in line with investment objectives **(1 mark)** Scenario analysis should be conducted regarding changes in the return and risk outcomes in the future of various asset types **(1 mark)** and the emergence of new asset types or investment vehicles **(1 mark)** and new models or methods of investment management **(1 mark)** as has been done by SWFs such as the Future Fund in Australia **(0.5 mark)**

*Note to markers: candidates may quote the following from the subject course materials and they should be given credit as indicated below if it is related to the context of the sovereign wealth fund:*

- For each major asset type, where do investment returns come from and how can they vary over time? **(1 mark)**
- What is the set of beliefs about how investment markets work **(0.5 mark)**
- What evidence or experience are these beliefs based on? **(0.5 mark)**
- How is risk defined for the portfolio **(0.5 mark)**

What are the risk factors for each asset type? **(0.5 mark)**

### END OF QUESTION 1: MARKING GUIDE



**QUESTION 2: MARKING GUIDE**

**(20 marks)**

- a) Consider the possible impacts of any evidence, of which you are aware, of the relative performance of active equity managers on the Board's decision to employ active equity managers for part of the equity allocation of the fund **(6 marks)**

*Command verb: Consider (Level 5 – Evaluate): Think carefully and thoroughly, taking into account the information provided, such as in relation to taking some action.*

**Question solution**

The impacts on the Board's decision to employ active equity managers for part of the equity allocation of the fund that may be expected from a consideration of their performance relative to benchmarks may be:

- The Board may decide that the evidence drawn from the analysis of US active equity managers over that particular 5 year period is sufficient to justify not using any active equity managers for US or non US equities, in the future **(1 mark)**. This would effectively be assuming that the experience in the US equity market for the 5 years ending 2024 can be readily applied to active equity managers outside of the USA **(0.5 mark)** and that the 5 year period is fairly representative and can be applied to the future **(1 mark)**. This would perhaps not take into account any effect which the major equity market decline in 2020 (due to the COVID shutdown of many economies) followed by a major recovery (due to massive fiscal stimulus), may have had on the decision making processes of active equity managers **(1 mark)**. It may also not take into account differences between the US listed equity market, which is the largest in the world, very well researched, very liquid and regarded by many as very efficient, and other, smaller equity markets where active equity investment processes may add more value **(1 mark)**.
- The Board may decide to consider further evidence from periods other than 2020 to 2024, **(0.5 mark)** and also from listed markets other than the USA, **(0.5 mark)** and not discount using active equity managers outside of the US or even in the US **(0.5 mark)**. Having said this, S&P regularly produce SPIVA reports on active managers versus their benchmarks for several regions such as Europe, the UK, Japan, Asia ex Japan, India, Canada, Australia and South Africa, and have done so for longer periods than 2020 to 2024 **(1 mark)**. All of these reports which are readily publicly available show a similar pattern that only a minority of active equity managers are able to demonstrate a capacity to achieve excess returns above the relevant benchmarks, over all time scales from 1 year to 10 years **(1 mark)**.



- Notwithstanding the evidence from a wider range of longer term SPIVA reports, the Board may consider the advice offered by many asset advisers that a diligent search for active equity managers which persistently add excess returns more often than not, is worthwhile **(1 mark)** and that it is possible to identify such managers using a combination of quantitative analysis of past results achieved and qualitative analysis of factors such as people (experience) **(1 mark)** and process that ought to sustain an ability to persistently achieve positive excess returns from active equity management **(1 mark)**.
- b) Explain how various quantitative and qualitative methods can be used by the Board of the fund to assess and select active equity managers given the difficulty of identifying skill in active investment management **(8 marks)**

*Command verb: Explain (Level 4 – Analyse): Give an account of something with the goal of clarifying it to someone or making something easier to understand. Calls for even more information than describe, showing that you can convey ‘why’ or ‘how’ or ‘so what’. A connection is expected between the item(s) and something else.*

### Question solution

Investors such as the retirement fund often use the services of investment consultants to assist with the assessment and selection of active equity investment managers. **(0.5 mark)** The assessment process used by such consultants normally includes both quantitative and qualitative assessments of the investment managers.

The quantitative assessment usually incorporates an analysis of measures of past investment performance such as:

- the excess return defined as the active managers return less the benchmark return **(0.5 mark)**
- performance attribution of excess return **(0.5 mark)** to factors such as leverage effects **(0.5 mark)**, factor effects **(0.5 mark)** and stock selection **(0.5 mark)**
- the information ratio, which is the excess return divided by the standard deviation of the excess return **(0.5 mark)**
- the proportion of time over which the excess return has been negative, which is a measure of the probability of the return failing to meet its objective **(0.5 mark)**



- other measures such as tracking error (0.5 mark) and volatility of return **(0.5 mark)** or value at risk (VAR) (0.5 mark) which is a measure of the potential loss of a portfolio's value over a specified period **(0.5 mark)**
- factor analysis of the active manager's returns over time **(0.5 mark)**
- the proportion of market benchmark upside and downside capture **(0.5 mark)**
- maximum drawdown of the active manager's return relative to the benchmark, length of time that the drawdown takes, and length of time to recovery **(0.5 mark)**
- active share (to assess how different the manager's portfolio is from the benchmark weights); **(0.5 mark)**

The quantitative analysis is conducted using fairly standard and widely agreed statistical methods usually focussed on a series of monthly returns of an active equity manager compared with the returns of the benchmark. **(0.5 mark)**

Qualitative assessment of active equity managers aims to identify the factors that are likely to lead to excess returns. **(0.5 mark)** The premises of qualitative assessment are that:

- active equity investment managers have a stated investment philosophy setting out how they think about investing, the potential excess returns that equity markets will allow them to achieve (given that markets are inefficient) and that this can be objectively evaluated as to how realistic it is **(0.5 mark)**
- the investment process used by the investment personnel of the active equity manager is sufficiently expert and experienced in equity market to produces an active equity investment portfolio that produces the excess investment performance, **(0.5 mark)** and the likely quality of the people and the efficacy of the process can be objectively assessed **(0.5 mark)**
- understanding the investment process and the capabilities and stability of the investment personnel will provide an ability to estimate whether the investment performance will continue at the level revealed by the quantitative assessment or will be different in the future. **(0.5 mark)**

While it is important to understand the process being used, the skills of the people operating the process, and the market conditions in which the active equity investment manager will outperform or underperform its benchmark **(0.5 mark)**, no active equity investment manager will outperform in all markets or time periods. **(1 mark)** Given that past performance is not a reliable indicator of future performance, **(0.5 mark)** where an investment manager has underperformed the relevant



benchmark for a particular period (i.e. produced negative excess returns), it may be more useful to place less emphasis on past results than on the assessment of the active equity investment manager's skills and ability to implement those skills, **(0.5 mark)** and ask the investment manager to explain why they have underperformed **(0.5 mark)** and whether they have been investing consistently with their stated investment philosophy and process. **(0.5 mark)**

The qualitative assessment process usually comprises:

- a detailed request for information (RFI) about the active equity investment manager's stated investment philosophy and the basis for it, **(0.5 mark)** the investment process adopted for portfolio management with a focus on criteria for equity security selection and weighting in the portfolio, **(0.5 mark)** the experience and expertise of the investment personnel involved in the investment process, **(0.5 mark)** with a focus on decision making responsibilities. **(0.5 mark)**
- a review by the investment consultant of the response to the RFI, the quantitative analysis and any other information that is available **(1.0 mark)**
- the formulation of questions to be asked in an interview with key investment personnel, focussed on any inconsistencies in the information reviewed **(1 mark)** and on being able to make judgments about the quality of the investment process and the investment personnel **(1 mark)**
- forming judgments on the process and people and writing a recommendation to the Board of the fund on whether the particular active equity manager is likely to achieve excess returns above its benchmark over some defined future period such as 3 or 5 years **(1 mark)**

The capacity of the investment consultant to make such judgments and recommendations depends in turn on many years of experience of observing and analysing active equity investment managers. **(1 mark)** Just as active equity managers do not add excess return in all periods, neither do investment consultants. **(0.5 mark)**

- c) Suggest the proportion of the global equities allocation that should be allocated to active equity managers **(6 marks)**

**Command verb: Suggest (Level 6 – Create): Select and communicate a solution, action or range of possible solutions/actions. Rationale, reasons, or justification must be included.**

**Question solution**



***Note to markers: The candidates may suggest any proportion between 0% and 100% and may quote a relatively narrow range such as 45% to 55%. There is no single correct answer. A clear suggestion of a particular proportion should be awarded 1 mark. If a clear suggestion is not made, the maximum marks that can be awarded for this question part is 4 marks.***

***Whatever proportion is suggested there must be reasons provided in support of it. The reasons provided need to include:***

- **Reference to the quantitative evidence given in the question - up to 2 marks with 0.5 mark for each reasonable point made**
- **Reference to other evidence of active equity manager performance of which the candidate is aware - up to 2 marks with 0.5 mark for each reasonable point made**
- **Why the evidence referred to was used to support the recommendation - up to 2 marks with 0.5 mark for each reasonable point made**

***Any other reasonable point in support of the recommendation should be awarded 0.5 mark.***

***Maximum marks for this question part is 6 marks.***

### END OF QUESTION 2: MARKING GUIDE



### QUESTION 3: MARKING GUIDE

(20 marks)

#### Question solution

- a) Explain the similarities in the return and risk characteristics and what drives them, of public listed equity investments and private equity investments and how they relate to the aim of achieving higher returns for the endowment fund. (6 marks)

*Command verb: Explain (Level 4 – Analyse): Give an account of something with the goal of clarifying it to someone or making something easier to understand. Calls for even more information than describe, showing that you can convey ‘why’ or ‘how’ or ‘so what’. A connection is expected between the item(s) and something else.*

#### Question solution

Private equity investments and public equity investments are two types of equity investments where the owners of the securities issued by the companies are entitled to a share of the net after tax profits or earnings of the issuing companies. (0.5 mark)

Most equity investments whether they are private or public have historically exhibited returns in excess of the returns on fixed interest or cash (1 mark). This excess return is called the equity risk premium (0.5 mark). In both cases it is likely that the equity risk premium derives from the capacity for equity investments to rise in price substantially over time (0.5 mark). This is believed to be related to the growth in the earnings per share of the securities (0.5 mark) due to the presence of leverage effects at the company level: operating leverage and financial leverage (1 mark).

Operating leverage is the phenomenon where growth in revenue results in a greater degree of growth in both pretax profits (EBIT or EBITDA) and net after tax profits or earnings (0.5 mark). This is because expenses do not grow as fast as revenues due to a proportion of them being relatively fixed (0.5 mark). In addition, any companies employ financial leverage to expand their operations and profits by borrowing at a cost which after allowing for the tax deductibility of interest is less than that of the cost of equity capital (1 mark). Financial leverage will generally magnify the operating leverage effect (0.5 mark).

As long as the leverage effects have positive impacts on earnings per share it will generally lead to positive impacts the market price of the equity security (1 mark).

Where revenues fall relative to fixed costs operating leverage will have a negative on earnings per share (1 mark). If there is also financial leverage this negative effect will be magnified (0.5 mark). This can lead to negative earnings per share of the equity security (0.5 mark) and if this



persists it will likely lead to a fall in the market price of the equity security **(0.5 mark)**.

***An alternative way of answering this question part is as follows:***

The returns for private equity investments can be considered as comprising the following components:

- credit risk free rate for a long-term bond (10-year Treasury bond yield) **(0.5 mark)**
- illiquidity premium driven by the private nature of the investment, lack of transaction data, **(0.5 mark)** and inability to sell or liquidate it in a short period **(0.5 mark)**
- Equity risk premium which may be different for various industry sectors. **(0.5 mark)**

The returns for listed equity investments can be considered as comprising the following components:

- credit risk free rate for a long-term bond (10-year Treasury bond yield) (0.5 mark)
- Equity risk premium which may be different for various industry sectors. (0.5 mark)

There are several drivers of returns:

- both listed equities and private equities are affected by the movements in credit risk free rate **(0.5 mark)** and equity risk premium. **(0.5 mark)** The observed Equity risk premium (ERP) is likely to be affected by the growth in earnings per share (EPS) **(0.5 mark)** which may be increased due to operating leverage **(0.5 mark)** and/ or financial leverage. **(0.5 mark)**
- Both listed equities and private equities have the potential of profit increase from the use of leverage in the portfolio, **(0.5 mark)** which is the use of borrowed money to magnify the returns (and also risks) for the equity holders. **(0.5 mark)**, where:
  - operating leverage arises from fixed operating costs in a company's cost structure. The higher the fixed cost, the higher the sensitivity of profits to revenue changes. **(1 mark)**
  - financial leverage arises from the use of debt financing. Interest payments are fixed, so earnings available to shareholders are more volatile. **(1 mark)**

The main drivers of risk are:

- Leverage risks: As both listed equities and private equities may employ leverage in the return drivers, they are exposed to some risks:





- Default risks, which is the risk of the portfolio defaulting on the loan obligation **(0.5 mark)**
- Refinancing risks, which is the risk of the cost of debt increases when they are previous term of loans have expired and they are entering into a new loan agreement. **(0.5 mark)**
- Macro Risks
  - slower economic growth may negatively affect businesses and lead to lower expected earnings growth and affecting the expected returns from equity investment. **(0.5 mark)**
  - higher long term bond yields can increase the cost of borrowing for businesses over the long term and hence, businesses could refrain from investing and hiring to save on costs, which could slow down the growth in earnings per share. **(0.5 mark)**
  - higher inflation will affect the discount rate used to value equity securities. and increased the required equity risk premium. **(0.5 mark)**

How they relate to achieving higher returns for the endowment fund:

- By having the exposure of the portfolio to equity securities that are expected to provide high returns but also to volatility the portfolios returns, this increases the expected return for the portfolio (through higher capital upside for both listed and private equity) rather than investing in the traditional asset classes like bonds or cash that has lower expected return. This high allocation to the equities would then allow the investor to achieve higher returns. **(1 mark)**
  - The endowment fund has an objective to achieving higher returns in the long term and lower volatility of reported annual returns, while it is true that having a huge proportion to private equity could provide a more stable returns as they are priced infrequently, it should be considered that this present an additional risk element to the portfolio as the private equity investment does not always work well and have significant risk in failures. **(1 mark)**
- b) Explain the differences between the return and risk characteristics of private equity investments and public listed equities and how they relate to increased proportion of the university's funding that will need to be supported by the endowment fund. **(6 marks)**

**Command verb: Explain (Level 4 – Analyse): Give an account of something with the goal**



*of clarifying it to someone or making something easier to understand. Calls for even more information than describe, showing that you can convey 'why' or 'how' or 'so what'. A connection is expected between the item(s) and something else.*

### Question solution

The main difference in the return and risk characteristics between private equity securities and public equity securities results from the listing of public equity securities and the required regular and frequent publication of more detailed information comprising audited financial accounts financial statements (balance sheet and profit and loss) **(1 mark)** and of any information which may have an impact on the valuation and market price of the securities **(1 mark)**. While public companies are required to report under either GAAP or IFRS, this is not required of private companies. **(0.5 mark)** So there is both a frequency of reporting and a quality of information dimension **(0.5 mark)**

Public equity investments are listed and continually traded on public equity security exchange **(0.5 mark)** which provides liquidity for the securities **(0.5 mark)** in return for more demanding and frequent disclosure of financial statements **(0.5 mark)** and other information that may be deemed to influence the net after tax earnings or the valuation of those earnings **(0.5 mark)** and hence the market price of the securities **(0.5 mark)**.

Private equity securities are not listed on securities exchanges and are not required to disclose as much information **(0.5 mark)** which may affect the valuation or the market price of the securities **(0.5 mark)**. They are also traded between investors directly or through a limited secondary market much less frequently than public or listed equity securities **(0.5 mark)**. Investment in private equity therefore is done with much less information on factors that may affect earnings **(0.5 mark)** or on the opinion of market participants (in the form of frequently reported market prices) **(0.5 mark)**. Underwriting and due diligence through an experience asset manager for primary equity is more critical, since only the managers will have access those deal level information. This is in contrast to public equity where a lot of the information are readily available in public. **(1 mark)**

Public equity investment is about processing and analysing public information well in a timely manner. **(1 mark)** Private equity investments is often relationship based and about having access to the information needed to make an investment assessment. **(1 mark)**

Investors in public equity securities have the benefit of a continual flow or information on the market prices of the securities **(0.5 mark)** as well as on issues or factors which may influence



the valuation of such securities and the market price all the securities **(0.5 mark)**.

Investors in private equity securities have less information to work with when they are trying to value the security **(0.5 mark)**. It is therefore common for investors in private equity securities to require a higher rate of return to compensate **(0.5 mark)** for both the lack of information and the lack of liquidity **(0.5 mark)**.

This is sometimes referred to as the illiquidity premium **(0.5 mark)** and is in addition to the equity risk premium that applies to listed or public equity securities **(0.5 mark)**.

The infrequency of trading and valuation of private equity securities also leads to an apparent lower degree of fluctuation in the prices of these securities **(1 mark)**. Therefore the reported volatility of the prices or the returns on private equity securities is usually lower than the volatility of returns on public equity securities **(1 mark)**. It therefore appears that many private equity securities offer a higher return with lower volatility than is the case with public equity securities **(1 mark)**. This has encouraged entities such as the Endowment to increase the allocation to private equity **(1 mark)**

In a portfolio construction framework such as the mean variance optimizer approach proposed by Markowitz and widely adopted over the last 70 years this can lead to decisions whereby significant proportions of multi asset class portfolios are allocated to private equity instead of public equity securities **(1 mark)**.

In the listed equity market experienced investors may in addition to using discounted cash flow models, value equity securities using a price to earnings ratio model **(1 mark)**. The application of a PE model requires an estimate of (a) the net after tax profit or earnings per share at some point in the future such as three years **(0.5 mark)** and (b) an estimate of the Price-to-Earnings ratio which the market will be applying at that time to the security **(0.5 mark)**, to derive a valuation of the equity security. Using this type of model is much easier in the public equity market than in the private equity market due to the presence of more information relevant to the two quantities being estimated: the earnings per share and the PE Ratio or multiple **(1 mark)**.

In the private equity market the use of discounted cash flow models is also very common, **(0.5 mark)** but market based approaches are also used **(0.5 mark)**. Because many companies in the private equity market have not reached the point where they are consistently producing positive net after tax profits it is quite common for investors to value private equity securities using a multiple of Earnings Before Interest Depreciation and Amortisation (EBITDA) per share **(1 mark)**. This is analogous to the approach in the public equity market of using Price to Earnings ratios for valuation but importantly relies on the assumption that eventually EBITDA/share will be sufficient to produce positive Net After Tax Profit or Earnings per share (EPS) **(1**



mark).

When private equity securities are eventually traded, it is possible to compare the market price (the price at which the trade takes place), with the estimates that have been made using the EBITDA multiple or DCF approaches **(1 mark)** . There are many examples where a wide disparity has been revealed(1 mark) . This can result in the previously estimated higher return and lower volatility of return not being realised. **(1 mark)**

Many companies funded with private equity tend to have higher levels of debt or financial leverage than most publicly listed companies **(0.5 mark)** and this adds to the perception that private equity securities have more risk than public equity securities **(0.5 mark)**

One further factor to consider is that publicly listed equities are issued by companies that are more mature and more likely to distribute part of their profits as dividends **(0.5 mark)**. This adds to the perception of lower risk in public equities compared with private equities **(0.5 mark)**.

***An alternative way of answering this question part is as follows:***

The differences in the drivers of returns are:

Listed Equity

- more frequent reporting and better-quality information for public equities **(0.5 mark)**.
- continual trading of public equities which provides liquidity and more information on price **(0.5 mark)**.
- is about processing and analysis public information well in a timely manner. **(0.5 mark)**.
- benefit on continual flow of information on market prices of securities as well as on issues or factors that may influence the valuation of such securities and the market price of securities. but exposed to insider trading. **(0.5 mark)**.
- Hence the difference in the returns drivers are that the listed equity are more volatile to the changes in the market conditions or market news which could affect the price of the security on a daily basis. **(0.5 mark)**.

Private Equity

- not listed on securities exchanges and are not required to disclose as much information **(0.5 mark)**.
- traded between investors directly or through a limited secondary market much less frequently than public or listed equity securities **(0.5 mark)**.



- investment in PE is done with much less information on factors that may affect earnings or on the opinion of market participants. Analysis and due diligence through an experienced asset manager are more critical. **(0.5 mark)**.
- often relationship based, and about having access to the information needed to make an investment. **(0.5 mark)**.
- Hence, the difference in returns drivers are investors require higher rate of return to compensate for both the lack of information and lack of liquidity **(0.5 mark)**.
- infrequent trading and valuation leads to a low degree of fluctuations in the prices of these securities. **(0.5 mark)**. Volatility of returns is usually lower than volatility of returns on public equity securities. It therefore appears that many private equity investments offer a higher return with lower volatility than is the case with public equity. **(0.5 mark)**. This has encouraged many investors to increase the allocation to private equity. **(0.5 mark)**. If they use mean variance optimiser, they may have a tendency to invest a lot in PE. **(0.5 mark)**.

Private equity securities may be riskier than public equity securities because they:

- are issued by companies that are less mature and often have not yet made a profit after tax (e.g. Open AI after ten years) **(0.5 mark)**.
- may have higher operating leverage and higher financial leverage, increasing the risk of failure or major declines in valuation and market price **(0.5 mark)**.
- are usually not liquid and depend on either initial public offers (IPOs) (listing on an exchange) or a trade sale for liquidity, as secondary private equity markets are not always active **(0.5 mark)**.
- Private equity securities are often owned by private equity funds whose managers have secured inflows to their funds by offering the prospect of high rates of capital growth from realised gains on sales via IPOs or trade sales with potential exits at 1.5 to 2.0 times the initial entry price within 5 to 10 years **(0.5 mark)**.
- IPOs and trade sales may not be available options, leading to a need for private equity fund managers to sell at a discount via a secondary market sale to other private equity investors **(0.5 mark)**.
- Private equity fund managers may have an incentive to sell at a reduced price to realise at least some of their performance fees which are usually linked to realised gains **(0.5 mark)**.
- Some private equity fund managers have expertise in only a few industry sectors which may lead to a concentration of risk by industry **(0.5 mark)**.



How they relate to increased proportion of the university funding that will need to be supported by the endowment fund.

- The endowment fund has an objective to achieving higher returns in the long term and lower volatility of reported annual returns, while it is true that having a huge proportion to private equity could provide a more stable returns as they are priced infrequently, it should be considered that this present an additional risk element to the portfolio as the private equity investment does not always work well and have significant risk in failures. **(1 mark)**
  - As the university funding required to be funded 30% from the endowment fund, the university should be aware that a proportion of their returns from the endowment are illiquid and are not easily converted to cash and might also be concentrated as the potential of the concentration risk in the book of the PE firm. **(1 mark)**
- c) Discuss the risk management limits relating to private equity investments that could be included in an investment policy statement for the endowment and how they may be changed due to the change in government policy. **(8 marks)**

**Command verb: Discuss (Level 2 – Understand): Write about a subject or topic in detail taking into consideration issues and ideas. Provide more than one fact or observation relevant to the topic.**

### Question solution

Private equity securities may be riskier than public equity securities for the following reasons:

- may be issued by companies that are less mature and often have not yet made a profit after tax **(1 mark)**
- may have higher operating leverage and higher financial leverage, increasing the risk of failure or major declines in valuation and market price **(1 mark)**
- they are often not liquid and depend on either initial public offers (IPOs) (listing on an exchange) or a trade sale for liquidity, as secondary private equity markets are not always active **(1 mark)**
- private equity securities are often owned by private equity funds whose managers have secured inflows to their funds by offering the prospect of high rates of capital growth from realised gains on sales via IPOs or trade sales with potential exits at 1.5 to 2.0 times the initial entry price within 5 to 10 years **(1 mark)**



- IPOs and trade sales are often not available options, leading to a need for investors to sell at a discount via a secondary market sale to other private equity investors **(1 mark)**
- private equity fund managers may have an incentive to sell at a reduced price to realise at least some of their performance fees which are usually linked to realised gains **(1 mark)**
- some private equity fund managers have expertise in a few industry sectors which may lead to a concentration of risk by industry **(1 mark)**

Taking the above into consideration the investment policy statement could include risk limits relating to private equity investments such as the following:

1. there should be a diversified portfolio of private equity investments with a maximum limits as a percentage of the private equity allocation of no more than:
  - a. 20% to any industry sector **(0.5 mark)**
  - b. 50% to any country or jurisdiction **(0.5 mark)**
  - c. 5% to any issuer (company) **(0.5 mark)**
  - d. 20% to any single private equity fund or manager **(0.5 mark)**
  - e. 15% to any particular vintage year of initial investment to ensure diversification of realised gains over time **(0.5 mark)**
  - f. An appropriate mixture between primary funds and secondary opportunities **(0.5 mark)**
2. The average of the financial leverage of the private equity investments portfolio should be no more than 65% **(1 mark)**
3. The performance fee of any private equity funds held should be no more generous than 20% of realised gains in excess of 8% p.a. (the long term expected return from private equity) **(1 mark)**
4. The allocation of the Endowment's total portfolio to private equity should be no more than 40%. **(1 mark)**

Given the change in government policy, the University will lose 30% of its cash flow, but its expenses are likely to continue to rise or at least not fall. **(1 mark)** This will place greater reliance on the investment earnings of the Endowment in the form of investment income and realised gains received rather than unrealised gains. **(1 mark)** This ought to lead to a consideration of a



reduction in the Endowment's allocation to private equity in favour of a higher allocation to more liquid investments such as publicly listed equities **(1 mark)** or a greater allocation to cash generating secondary Private Equity funds **(1 mark)**

There should also be consideration given to modifying some of the other risk management limits, to reduce the exposure to risks that have been identified within the private equity portfolio. **(1 mark)**. For example limit 1 (d) could be reduced from 30% to 20% to reduce exposure to agency risk. **(1 mark)**  
***An alternative way of framing the latter part of the answer to this question part is as follows:***

Risk management limits relating to the private equity investments that could be included in the IPS

- Imposing some risk limits for the private equity investments including:
  - Asset specific risk limit – including maximum pricing criteria when buying. **(0.5 mark)**
  - Market risk limit – to limit the holding as % of the private equity portfolio **(0.5 mark)**
  - Manager risk limit – to limit the holding as % of the private equity portfolio **(0.5 mark)**
  - Vintage risk limit – to limit the holding as % of the private equity portfolio **(0.5 mark)**
  -
- Portfolio management limits such as
  - Minimum or maximum in the private equity class **(0.5 mark)**
  - Minimum or maximum in industry sector **(0.5 mark)**
  - Minimum or maximum in a single issuer **(0.5 mark)**
  - Minimum or maximum in a geographic region **(0.5 mark)**
- Governance process for dealing with breaches of portfolio risk limit **(0.5 mark)**
- Ongoing processes such as investment performance measurement as well as monitoring the compliance of private equity investment managers with their investment mandates. **(0.5 mark)**
- Specifying criteria for the implementation of a process of stress testing the private equity valuations and liquidity. **(1.0 mark)**





**END OF QUESTION 3: MARKING GUIDE**



### QUESTION 4: MARKING GUIDE

(20 marks)

- a) Discuss the capital market assumptions provided by the investment management firms and how the Board may have taken them into consideration when setting the current strategic asset allocation of the SWF. (4 marks)

*Command verb: Discuss (Level 2 – Understand): Write about a subject or topic in detail taking into consideration issues and ideas. Provide more than one fact or observation relevant to the topic.*

#### Question solution

Aspects of the capital market assumptions provided by the investment management firms that the Board may have taken them into consideration when setting the current strategic asset allocation of the SWF are:

The long term (10 year) total return forecasts from SSGA and Capital Group, are similar in most respects, except for some variance in the forecasts for total returns on long term debt securities. (0.5 mark) This may reflect a herding tendency among senior economic and investment professionals at established financial institutions. (0.5 mark) The similarity may have acted to reinforce the credibility of these forecasts. (0.5 mark)

The forecasts from PineBridge may have been given less weight because they are over 5 years (0.5 mark) which may have been regarded as insufficient as input to the determination of the long term strategic asset allocation. (0.5 mark)

The variation between SSGA and Capital Group in relation to 10 year US Treasury Bonds and other debt securities indicates that SSGA envisages a decline in bond prices and yields rising to produce a total return over ten years which is less than the current income yield on bonds. (0.5 mark) This likely reflects a more pessimistic view of the US fiscal deficit which would imply a greater supply of bonds. (0.5 mark) It may also be factoring in a decline in demand for bonds as:

- foreign investors seek to avoid US bonds due to concerns about weaker US dollar (0.5 mark)
- central banks such as the US Federal Reserve seek to reduce their holdings of bonds as they continue to shift monetary policy from quantitative easing to quantitative tightening (0.5 mark)

Divergences between the three investment managers on the total returns for cash are not that significant (0.5 mark) and apply only to a minor part of both the strategic asset allocation and



the tactical asset allocation. **(0.5 mark)**

The Board will likely focus its attention on the outlook for returns equity and debt securities and in particular US equities and U.S. Treasury bonds given the large relative size of the markets for these assets. **(0.5 mark)**

The Board will have decided on which (if any) of the investment managers forecasts it adopted in setting the SAA. It may well have had a different view altogether on some asset class returns, perhaps informed by other sources. **(0.5 mark)** For example it may have formed an even more pessimistic view about the total return on treasury bonds than that held by SSGA. **(0.5 mark)**

- b) Discuss other sources of input on capital market assumptions which the Board could have considered **(4 marks)**.

*Command verb: Discuss (Level 2 – Understand): Write about a subject or topic in detail taking into consideration issues and ideas. Provide more than one fact or observation relevant to the topic.*

### Question solution

The Board may have sourced inputs from other investment managers which it retains as part of its investment management process. It would need to allow for biases on the part of such managers. **(1 mark)** For example a small cap global equities manager may will overstate the outlook for the asset class which it manages. **(0.5 mark)**

The Board may in common with many similar institutions have contracted asset consultants such as actuarial firms to provide forecasts of asset class returns which are independent of investment managers which may have a subconscious bias in line with their own investment strategies. **(1 mark)** It is worth noting that forecasts from asset consultants have been observed to cluster around a consensus reflecting that it may be preferable to be incorrect collectively rather than alone. **(1 mark)**

Other sources that may have been used such as central banks, government treasuries, the IMF and private economic forecasters will have mainly provided input based on economic theories and accompanying macroeconomic models. **(1 mark)** It has been observed that these that have not worked well in the last 20 years and have had difficulty in achieving even reasonable reasonably accurate forecasts of economic variables such as GDP growth or inflation let alone market responses to economic events such as the return on listed equities or traded fixed interest. **(1 mark)**

A prime example is the Bank of England which commissioned a special review of its failure to



forecast the upsurge in inflation in the 2021 and 2022. **(0.5 mark)**

Other potential sources of input to the strategic asset allocation decision may well have been entities such as major commercial banks which have access to very good information on consumer confidence and business investment conference **(0.5 mark)** which may have some predictive power in relation to the growth of equity earnings. **(0.5 mark)**

Investment banks and other entities involved in securities markets are often prolific producers of forecasts of economic variables and more importantly equity market and fixed income market returns. **(0.5 mark)** They tend to have a short run focus out to two to three years **(0.5 mark)** and so may not be very useful when trying to forecast returns over longer periods which are appropriate to strategic asset allocation. **(0.5 mark)**

The Board may have access to analysis previously performed by other sovereign wealth funds with comparable objectives which could be used if their results were deemed to be successful. **(1 mark)**

Finally the Board of the sovereign wealth fund may well have its own internal staff of economists and investment strategists who have drawn all of the sources noted, as well as the work of finance academics, to produce considered recommendations for the Board in relation to the SAA. **(1 mark)**

- c) Discuss other factors that may affect asset returns and may have influenced the Board in its consideration of the current strategic asset allocation **(4 marks)**

*Command verb: Discuss (Level 2 – Understand): Write about a subject or topic in detail taking into consideration issues and ideas. Provide more than one fact or observation relevant to the topic.*

### Question solution

Other factors which may have influenced the Board's assessment of capital market assumptions returns may have been:

- shifts in the fiscal outlook of countries with major equity and bond markets such as if the US, Japan, Germany and the UK. **(0.5 mark)** Virtually every country, with very few exceptions such as Norway, is increasing its fiscal deficit and the supply of bonds and this will put upward pressure on bond yields **(0.5 mark)**



- shifts in monetary policy in addition to the shift from quantitative easing to quantitative tightening may with significant shifts in short term interest rates . **(0.5 mark)** which will affect the shape and level of the yield curve equity markets. **(0.5 mark)**
  - supply chain disruptions which have been an important source of shifts in returns on equity assets over the last 10 years **(0.5 mark)** - firstly during the COVID pandemic of 2020, then during the Russia-Ukraine War of 2022 onwards, and then most recently major shifts in U.S. trade policy. **(0.5 mark)** All of these have had the effect of disrupting supply chains in many industries. **(0.5 mark)** Supply chain disruptions of this nature can be major contributors to an increase in the uncertainty relating to capital market assumptions. **(0.5 mark)**
  - Major shifts in regulation and tax policy such as have occurred in the USA in 2025 may also have been factored in, although this would have been remarkably prescient. **(0.5 mark)**
  - Demographic shifts for example where the ageing of the population may well have major effects not only on consumer spending **(0.5 mark)** but also on the rate of savings which will contribute to the demand for both tradeable fixed interest securities and listed equities **(0.5 mark)** For example the ageing of the Australian population and the growth of its superannuation system has contributed significantly to the momentum of the Australian equity market in recent years. **(0.5 mark)**
- d) Justify why the current TAA differs from the SAA in each of the four asset classes where there is a difference. **(8 marks)**

**Command verb: Justify (Level 5 – Evaluate): Present a reasoned case for actions or decisions made.**

### Question solution

The differences between the TAA and the SAA together with the factors that justify these



differences are as follows:

- Modest underweight to US Treasury Bonds – due to concerns about the high level of the US Federal deficit **(0.5 mark)** which is over 6% of GDP **(0.5 mark)** and likely to rise further as taxes have been cut and spending although reduced has not been cut by as much **(0.5 mark)** - this will likely lead to an increase in the supply of bonds just as the demand from foreign investors and central banks is falling **(0.5 mark)** – leading to rising bond yields and declining total returns **(0.5 mark)** – it can be argued that the shift in the ten year US Treasury bond yield above 4% p.a. has already priced in some of the risk, **(0.5 mark)** hence only a modest underweight at this stage. **(0.5 mark)**
- Modest underweight to US equities – due to concerns about rising bond yields increasing the discount rate applied to future net cash flows, **(0.5 mark)** reduced earnings growth following tariff induced trade disruption, , **(0.5 mark)** despite rising inflation, which will squeeze profit margins, , **(0.5 mark)** all offset to a degree in some industries and companies by productivity growth due to adoption of AI, **(0.5 mark)** - hence a modest underweight. **(0.5 mark)** , there have been recent signs of weakness in the US economy indicated by weaker labour market statistics **(0.5 mark)** , and US public listed equities are trading at historically high Price to Earnings multiples (or low earnings yields) **(0.5 mark)**
- Modest overweight to other debt securities – due to the relative rise in bond yields outside of the US in places such as Japan and Germany **(0.5 mark)**, a shift from US government bonds to corporate bonds issued by high quality (mainly major tech) companies **(0.5 mark)**, offset to some extent by some concerns about rising government deficits in most countries **(0.5 mark)**, and the historically low credit risk margins offered on investment grade corporate bonds **(0.5 mark)**, – hence the modest overweight **(0.5 mark)** Modest overweight to cash- mostly due to elevated uncertainty about the final shape of major US policy decisions on tariffs and trade **(0.5 mark)** , offset to some extent by recently increased clarity on US taxes and spending plans **(0.5 mark)** , which may support equity earnings **(0.5 mark)**, while being more clearly negative for longer term bond returns **(0.5 mark)** - hence the modest overweight **(0.5 mark)**.

### END OF QUESTION 4: MARKING GUIDE

### END OF MARKING GUIDE