



INVESTMENT

EXAMINATION MARKING GUIDE

SEMESTER 2 2021



Marking Guide

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

There are five questions in the examination. Each question has several parts. The following table summarises information relating to each part of each question:

- The modules from which material relating to the question was drawn
- The learning objectives to which each part of question relates
- The apportionment of the marks for the question across the three main skill levels: knowledge, application, and higher-order

The table also shows the aggregate apportionment of the marks for the examination across the three main skill levels and for the overall assessment of the subject including the assignment.

						Marks (out of 80)					
Year	Semester	Examination question	Part	Modules from which material drawn	Learning objectives to which the question relates	Knowledge	Application	Higher order	Total for question		
2021	2	1	a	2,3	1.1, 1.2, 2.1		2				
		1	b	2,3	1.1, 1.2, 2.1	3					
		1	c	2,3	1.1, 1.2, 2.1	1					
		1	d	2,3,4	1.1, 1.2, 2.1, 3.1		2				
		1	e	2,3,4	1.1, 1.2, 2.1, 3.1		3				
		1	f	2,3,4	1.1, 1.2, 2.1, 3.1	2					
			g	2,3,4	1.1, 1.2, 2.1, 3.1	2					
			h	2,3,4	1.1, 1.2, 2.1, 3.1		2				
										17	
		2	a	4	3.1, 3.2		9				
		2	b	4	3.1, 3.2			9			
										18	
		3	a	6	5.1	1					
		3	b	6	5.2		2				
		3	c	6	5.1	3					
		3	d	6	1.1,1.2, 5.2		6				
		3	e	6	5.3		3				
		3	g	6	5.2,5.3		4				
		3	h	6	5.3			4			
										23	
		4	a	8,9	7.1, 8.2, 8.3, 8.6	2					
		4	b	9	8.3, 8.4, 8.5			4			
		4	c	9	8.6	3					
		4	d	9	8.7			4			
										13	
				5	a	4,10	3.2, 9.2	3			
				5	b	4,10	3.2, 9.4		6		
											9
TOTAL						20	39	21	80		
						Knowledge	Application	Higher order			
% of total						25.0%	48.8%	26.3%	100%		
% of total assessment for the subject including the Assignment						24.0%	49.0%	27.0%			

In the pages below the questions are set out in black font.

Marking guide information is presented in blue font.

The sample answers are not the only possible answers.



QUESTION 1

(17 marks)

- a) Explain one factor that may have led to short-term interest rates in the United States, Europe, Japan, and Australia being below the rates of inflation for most of the last 10 years such that real short-term interest rates have been negative. **(2 marks)**

A factor which has led directly to short term interest rates being below inflation is a series of decisions over the period since the GFC by central banks such as those in the USA, Japan, Europe, and Australia to set short term official rates such as the Fed Funds rate in the USA or the RBA Official Cash rate in Australia, at which commercial banks can deposit funds with the central banks, at rates which are at historically low levels, some of which are negative (thereby imposing a cost on commercial banks for funds not lent to business or consumers. **(1 mark)** The reason for the central banks setting rates so low was that they were making up for a perceived lack of sufficient fiscal stimulus during the aftermath of the GFC in 2008-2009, by encouraging commercial banks to lend more to consumers and businesses. **(1 mark)**

There may be other factors that students may put forward instead of the one set out above. In each case, the effect of the factors on the level of real short-term interest rates needs to be explained in a similar amount of detail.

- b) Describe three factors that you think are currently influencing the level and the shape of the Australian government bond yield curve, which as of 16 August 2021 is shown in the table below:

Term to maturity in years	Yield to maturity % p.a.
2	0.04
5	0.59
10	1.16
15	1.57

(3 marks)

There are five factors that are currently influencing the level and shape of the Australian government bond yield curve. Award up to one mark for each of three factors that are explained as follows:

- The level and shape of the US Treasury Bond yield curve have a strong influence on yields in Australia **(0.5 mark)** This is because the major participants in bond markets operate on a globalized basis. **(0.5 mark)**
- The monetary policy activities of the Reserve Bank of Australia, which is purchasing sufficient three-year government bonds to stabilise the yield at 0.1 percent per annum as well as purchasing at least \$A4 billion per week of longer-term government bonds out to maturities of up to ten years. **(0.5 mark)** This is being done to reduce the cost of long-term finance within the Australian economy. This activity of the RBA reduces the level of the yield curve and also distorts the shape at the maturities which are being purchased. **(0.5 mark)**



- The continued large scale of Commonwealth government borrowing required to fund the ongoing deficits. **(0.5 mark)** This has the effect of increasing yields at the maturities where the government is issuing bonds. **(0.5 mark)**
- The ongoing regulatory requirement for various financial institutions, such as the major banks, to hold Australian government bonds for prudential risk management and liquidity purposes, **(0.5 mark)** This will increase the amount of demand for bonds of some maturities, such as three-year bonds, reducing the yields at those maturities on the yield curve. **(0.5 mark)**
- The relative attractiveness of yields on Australian government bonds to major financial institutions in Japan and Europe compared with those on Japanese government bonds which are yielding close to 0% p.a. and European government bonds many of which are trading at negative yields. **(0.5 mark)** The yields in those countries are so low because the central banks in those countries (the Bank of Japan and the European Central Bank) have been implementing policies aimed at stimulating growth by holding the yields on their long-term bonds at zero or below zero. **(0.5 mark)**

Note that the question asked for "three factors that you think are currently influencing the level and the shape of the Australian government bond yield curve". The candidates' answers should refer to current factors not just theories about the yield curve, although the theories may be mentioned. In addition, the responses should describe how both the level and the shape of the yield curve are influenced by the factor being described.

There may be other current factors that candidates may put forward instead of those set out above. In each case, the effect of the factor on the level and the shape of the yield curve needs to be described in a similar amount of detail.

- c) Define the term 'equity risk premium'. **(1 mark)**

The equity risk premium is a term customarily used to describe the expected excess return on equities compared with the expected return on risk-free assets which are so described because they have no credit risk. **(1 mark)**

- d) Explain how the historical equity risk premium can be estimated **(2 marks)**

The equity risk premium can be estimated by using historical data on the difference between the total return on equities and the total return on bonds or cash. **(1 mark)** Some practitioners use an estimate of the ERP which is the difference in the compound average rate of total returns on equities and long-term (10-year) government bonds over some long-term period in the past, while others use the difference in total returns between equities and short-term government or bank securities (3-month bills), again calculated over long periods. **(1 mark)**



- e) Explain any issues in the estimation of the equity risk premium for future periods. **(3 marks)**

Forecasting the expected returns of various asset classes is difficult. Therefore, historical data is often used as a basis of the forecast.

Historical data from the USA, which was covered in Module 2 showed that estimates of the equity risk premium can vary widely depending on the historical period used for the estimation. **(1 mark)**

When measured against the return on cash the equity risk premium in the United States averaged 6.1% p.a. over the 90 years between 1925 and 2015 but varied when measured for 10-year periods, between minus 2.7% per annum to plus 13.3% per annum p.a. **(1 mark for discussion of instability of historical estimates of the equity risk premium)**

The historical data have shown that estimates of the equity risk premium will vary with the period used for the calculation of the average equity risk premium for various periods. For example, the equity risk premiums derived by Siegel from the total returns on broad US equity market indices versus the total returns on US 10-year Treasury bonds and US 3-month Treasury bills are as follows:

Period	Total returns on equities % p.a.	Equity risk premium versus bonds % p.a.	Equity risk premium versus bills % p.a.	Inflation % p.a.
1802-1998	7.0	3.5	4.1	1.3
1802-1870	7.0	2.2	1.9	0.1
1871-1925	6.6	2.9	3.4	0.6
1926-1998	7.4	5.2	6.7	3.1
1946-1998	7.8	6.5	7.2	4.2

(1 mark for quoting the more detailed evidence of instability in the ERP)

- f) Identify the four components of the discount rate that can be used in the valuation of equities. **(2 marks)**

The discount rate used in the valuation of equities, for the expected future holding period of the equity security, can be considered to comprise:

- the required real return on risk-free assets; plus **(0.5 mark)**
- an inflation premium to compensate for the expected loss of purchasing power of the cash flows due to inflation; plus **(0.5 mark)**
- an inflation risk premium to allow for uncertainty in the inflation forecast (sometimes called by the term premium because it should increase with the holding period); plus **(0.5 mark)**



- an equity risk premium (ERP) to compensate for the uncertainty in the cash flows that are being valued, noting that the ERP can vary over time. **(0.5 mark)**

Some candidates may refer to investors who are discounting the free cash flow to the firm (FCFF), using the Weighted Average Cost of Capital (WACC) as the discount rate. The WACC is the weighted average of the cost of equity capital and the cost of debt capital used to finance the company's operations. The WACC formula is:

$$\text{WACC} = (E/V \times R_e) + (D/V \times R_d \times (1 - T_c)) \quad \textbf{(0.5 mark for formula for WACC)}$$

Where:

- E = Market value of the firm's equity
- D = Market value of the firm's debt **(0.5 mark for E/D)**
- R_e = Cost of equity, which is often calculated as the earnings yield (earnings per share/price) but also sometimes calculated using the Capital Asset Pricing Model (CAPM). The use of the CAPM requires estimates to be made of the expected return of the equity market, the risk-free rate and the Beta of the stock being valued. **(0.5 mark)**
- R_d = Cost of debt, which is often calculated as the average interest rate paid on the company's debt, which is usually tax-deductible. **(0.5 mark)**
- T_c = Corporate tax rate. **(0.5 mark)**

- g)** Describe how estimates of the future rate of return on long-term risk-free assets and the equity risk premium can be used to derive the discount rate used in valuing equities. **(2 marks)**

The discount rate is derived by compounding or adding the estimates of the equity risk premium and the long-term risk-free rate. **(1 mark)**

The estimate of the long-term risk-free rate is derived by compounding or adding the estimate of the required real return on risk-free assets, the inflation premium, and the inflation risk premium. **(1 mark)**

Some candidates may describe the process of combining the Equity Risk premium (ERP) and the risk free rate by referring to the CAPM (capital asset pricing model), which has the form:

- $R_e = R_f + \text{Beta} \times (R_m - R_f)$
- The equity risk premium is equivalent to the $(R_m - R_f)$ term as it is the excess return demanded by investors to invest in the equity.



- Beta is a measure of the stock's correlation risk relative to the market i.e., a measure of its price movements relative to market returns.
- R_f is the long-run risk free rate.

h) Distinguish which types of cash flow can be appropriately valued using the discount rate derived in (f) and which cannot be valued using that rate. **(2 marks)**

The discount rate that is derived in this way can be used to discount cash flows that are relevant to equity investors:

- Dividends per share **(0.5 mark)**
- Net after-tax earnings per share **(0.5 mark)**
- Earnings before interest and tax **(0.5 mark)**
- Earnings before interest, tax and depreciation and amortisation **(0.5 mark)**
- Free cash flow to equity investors per share. **(0.5 mark)**

Note: Free Cash Flow to the Company or FCFF, which should be valued using the Weighted Average Cost of Capital, cannot be valued using the discount rate for equity. **(0.5 mark for stating this.)**

If the candidate referenced the WACC in part (f), then award (0.5 mark) if it is stated that it is the FCFF that is being valued and the WACC is being used as the discount rate and that the valuation of the equity can be derived by subtracting the market value of the debt from the valuation of the firm.

END OF QUESTION 1: MARKING GUIDE



QUESTION 2

(18 marks)

You are the portfolio manager of a property trust which has the investment objectives of:

- earning an income sufficient to pay distributions at a rate of 5% per annum net of all costs to the investors in the property trust; and
- achieving capital growth of the units in the trust which at least matches the rate of inflation over rolling five-year periods.

The Trust has \$20 million worth of assets in the childcare sector with an average lease term of 20 years and net rental income in excess of 6% p.a. which, under the terms of the leases, is growing at the higher of inflation or 3% p.a. The trust is attracting a steady flow of new investors and it is the intention to invest in new assets with the aim of diversifying across several sectors of the commercial property market. All asset purchases are funded 50% by equity from the trust and 50% by borrowing on a variable rate basis at bank bill plus 3% p.a.

The trust has been offered an asset which is an office property located in a small regional city. The economy of this city has historically grown faster than the national average fuelled by net interstate immigration, as well as growth in both interstate and international tourism.

The following is a summary from the valuation report on the office property which was built in 2020 and valued at the end of 2020. The total net lettable area (NLA) is 4,503 square metres and is rented as follows:

Tenants	% Of NLA
Major bank	10.2
Energy company	15.9
Accounting firm	8.9
Bistro (retail)	7.2
Smaller office tenants	19.5
Vacant but subject to rental guarantee for 5 years from the vendor	38.3
Total	100.0

The weighted average lease expiry, including the effect of the rental guarantee, is 6.15 years.

The gross rent received (including the rental guarantee) is considered by the valuer, a major international real estate firm, to be equal to current market rent. The gross rent per annum on the building is \$2.249 million, comprising \$1.729 million of office rent, and \$0.520 million of retail rent. The net rent after outgoings paid by the owner of the building is \$1.959 million p.a.,



The valuation using a capitalisation rate method with a capitalisation rate of 6.25% p.a. is stated by the valuer to be \$31 million.

The valuation derived from a discounted cash flow (DCF) method is also stated to be \$31 million. The following assumptions were used in the DCF valuation:

- Gross rents are projected for ten years at a compound annual growth rate (CAGR) of 3.05% p.a. for office rents and 2.43% p.a. for retail rent, while capital expenditure by the owner is expected to grow at a CAGR of 3.0% p.a.
- The discount rate used for the first ten years was 6.25% p.a. Thereafter the net rent projected to year ten was valued as a perpetuity at a discount rate of 6.5% p.a.

Of the total valuation of \$31 million, 41.2 % was derived from the present value of the discounted cash flow in the first ten years while 58.8% was derived from the value of the net cash flows beyond the first ten years.

- a) Explain three significant risk factors associated with buying the office property in the small regional city for the trust that may affect the rate of return on the investment.

(9 marks)

Note that the information in the question says: "the intention to invest in new assets with the aim of diversifying across several sectors of the commercial property market". Therefore, the decision to consider and invest in other types of property should be assumed to take place within the context that the organisation has the capacity to deal with various types of commercial property. The question asks the candidates to:

" Explain three significant risk factors associated with buying the office property in the small regional city for the trust that may affect the rate of return on the investment." i.e., specific to the investment which has been offered, not an explanation of more general issues relating to the property fund manager's organisational capabilities.

The answers from the candidates should be focussed on the risks relating to the property being offered. There may be other risks that candidates may put forward instead of those set out below. In each case, the effect of the risk on the the rate of return on the investment needs to be explained in a similar amount of detail to the notes below.

3 marks each for explaining how each of 3 of the risk factors can affect the rate of return on the property, which is being acquired. There are at least five such risks:

- The potential impact of the 38% vacancy in the building not being leased before the vendor's rental guarantee expires in 5 years' time. **(1 mark)** If this were to occur, then the rental income would be reduced **(1 mark)** and along with it the valuation of the property may be reduced, thereby reducing the rate of return on the investment. **(1 mark)**



- The impact of the COVID pandemic on internal and international tourism, and consequently, on the economic growth of the regional city, **(1 mark)** may cause a fall in the level of business activity and the rents that businesses are prepared to pay for office accommodation, **(1 mark)** reducing the valuation of the property and thus the return on the investment **(1 mark)**
 - The risk of business failures within the five-year among the smaller tenants and the Bistro, **(1 mark)** which would cause vacancies and loss of rental income that may be difficult to replace, depending on general market conditions when such vacancies occur. **(1 mark)** Vacancies that persist for more than a few months would reduce the valuation of the property and the return on the investment. **(1 mark)**
 - The risk of an increase in inflation **(1 mark)** and a consequent increase in the bank bill rate causing the cost of debt used to acquire the property to become less sustainable. **(1 mark)** The use of borrowing to fund 50% of the purchase price would lead to a significant increase in costs from interest rate rises. **(1 mark)**
 - The use of borrowing to fund the purchase price of the property (sometimes referred to as gearing) also magnifies the reduction in the return on the investment that results from a reduction in the net rental income that occurs for any reason, **(1 mark)** and hence the valuation of the property **(1 mark)**. The degree of magnification of these adverse effects is a function of the proportion of the asset purchases funded by borrowing **(1 mark)**
- b) Propose how you would attempt to mitigate three of these risks to the return on the investment for the trust. **(9 marks)**

3 marks each for proposing how to mitigate the risk factors identified in part (a). The following are examples of how such mitigation should be described:

- The potential impact of the 38% vacancy- introduce a very active asset management program that involves finding out the financial position and needs of potential tenants for the building to improve the likelihood of attracting tenants to fill the vacancy. **(3 marks)**
- The impact of the COVID pandemic on internal and international tourism and on the economic growth of the regional city- seek to diversify the tenancies to businesses that are less dependent on tourism either directly or indirectly **(3 marks)**
- The risk of business failures within the five-year among the smaller tenants and the Bistro - introduce a very active asset management program which involves finding out the financial position and needs of the current tenants in the building so that there is an early warning of defaults on leases, so that replacement tenants can be found, and vacancies avoided. **(3 marks)**
- The risk of an increase in inflation and a consequent increase in the bank bill rate causing the cost of debt used to acquire the property to become less sustainable- actively consider switching the debt to a fixed rate while rates are still historically low. **(3 marks)**
- The magnification of the impact on the return from any fall in the rental income or the valuation of the property can be mitigated by reducing the level of gearing used in the purchase by borrowing a smaller percentage of the price that is paid to acquire the property. **(3 marks)**



END OF QUESTION 2: MARKING GUIDE



QUESTION 3

(23 marks)

The following questions relate to a multi-asset class portfolio.

a) Define:

- i. Strategic asset allocation
- ii. Tactical asset allocation

(1 mark)

Strategic asset allocation (SAA) is the asset allocation designed to meet the investment objectives of the portfolio. **(0.5 mark)**

Tactical asset allocation (TAA) is an active investment management strategy that involves shifting the actual asset allocation away from the strategic allocation. **(0.5 mark)**

b) Distinguish what the two methods of asset allocation are intended to achieve relative to the investment objectives of a portfolio. **(2 marks)**

The strategic asset allocation process aims to minimise the risk that the portfolio will not meet its investment objectives by testing whether the strategic asset allocation is appropriate given the level of uncertainty in investment markets, which causes instability in asset class returns. **(1 mark)**

Tactical asset allocation (TAA) is an active investment management strategy that varies the asset allocation over time with the aim of increasing portfolio returns or reducing the volatility of portfolio returns relative to what would occur if the asset allocation were kept in line with the strategic asset allocation. **(1 mark)**

c) Outline the steps involved in strategic asset allocation. **(3 marks)**

Strategic asset allocation (SAA) aims to ensure that the portfolio meets its investment objectives by using a process with the following steps:

- confirming the investment objectives for the portfolio, which in turn are based on the needs of the investor **(0.5 mark)**
- defining the asset classes to be included for consideration **(0.5 mark)**
- forecasting long-term asset class returns **(0.5 mark)**
- forecasting the risk characteristics such as volatility and correlations for each asset class **(0.5 mark)**
- modelling the proposed asset allocation using the forecast asset class characteristics **(0.5 mark)**
- testing whether the proposed asset allocation meets the investment objectives. **(0.5 mark)**



- d) Explain the factors that need to be considered in a tactical asset allocation process **(6 marks)**

The process of tactical asset allocation varies the asset allocation over time leading to a series of overweight or underweight positions in each asset class relative to the strategic allocation, within a range of permissible allocations that have been established by the investment policy. **(1 mark)**. The overweight or underweight positions in each asset class are usually derived from a forecast of the rates of return in each asset class over some defined future period. **(1 mark)**

The factors that are usually considered when making forecasts of rates of return in various asset classes are:

- the relative valuation of different asset classes **(1 mark)**
- the momentum or the rate of change in prices within asset classes **(1 mark)**
- the correlation of returns across various asset classes calculated over various periods **(1 mark)**
- the potential impact on future asset class returns and the correlations of returns of influences such as monetary policy and fiscal policy. **(1 mark)**

- e) Interpret any empirical evidence on the relative importance of each of the following in relation to their contribution to portfolio returns

- i. Strategic asset allocation
- ii. Tactical asset allocation
- iii. Security selection

(3 marks)

Note that the candidates need to indicate or cite the empirical evidence that they are interpreting. These may be the empirical studies referenced in the course material as noted below. It may also be empirical evidence drawn from other sources, but those sources need to be identified in the candidate's answer. If the interpretation is given but the source is not identified award **(0.5 mark)** for each.

- It has been well established in studies by Brinson, Donaldson, and others over the last 40 years that differences in strategic asset allocation explain well in excess of 60% of the variation in returns between multi-asset class portfolios. **(1 mark)**
- Security selection within asset classes has been identified by Brinson and others as the factor that often explains most of the balance of the difference in returns on portfolios after strategic asset allocation differences have been accounted for. **(1 mark)**
- Tactical asset allocation often contributes little or no added value relative to the returns derived from strategic asset allocation as shown by the evidence such as the Lonsec 2018 multi-asset sector review, that many multi-asset class managers have difficulty in adding returns above those achieved by the strategic asset allocation. **(1 mark)**



- f) Relate how various types of factors may contribute to the risk of a multi-asset class portfolio which is usually defined in terms of the likelihood of the portfolio not meeting its investment objectives. **(4 marks)**

The factors that may contribute to the risk of the portfolio not meeting its objectives are and how they contribute to the risk are:

- A significant divergence of the actual asset allocation from the strategic asset allocation at a time when there is an unforeseen shift in the relative returns of major asset classes **(1 mark)** and the overweight asset classes have relatively low (or negative) returns for the period under review and the underweight assets classes have relatively high returns. **(1 mark)**
- A major divergence in the return within one or more asset classes due to a significantly different return on the portfolios' holdings within those asset classes and the benchmark index for those asset classes. **(1 mark)** because the holdings which are overweight relative to the asset class benchmark have returns below that of the benchmark **and** because the holdings which are underweight relative to the asset class benchmark have returns above that of the benchmark. **(1 mark)**

- g) Propose two methods that can be used to manage the risk of a multi-asset class portfolio failing to meet its investment objectives. **(4 marks)**

2 marks for each method proposed with an indication of how it may reduce the risk of the portfolio return failing to meet its objective. There are several methods that can be used that are listed below. The key requirement is that for the two methods proposed there should be an explanation of how they work to reduce or mitigate the risk at the multi-asset class portfolio level.

- Establish portfolio risk limits whereby the actual asset allocation to an asset class is limited to a certain percentage of the strategic asset allocation. **(2 marks)**
- Set maximum allocations within asset classes to individual securities or funds or portfolios managed on a high conviction basis. **(2 marks)**
- Set a minimum number of securities to be held within each asset class. **(2 marks)**
- Set limits on how much an asset class portfolio may vary from the portfolio weightings in the benchmark against which it is measured. **(2 marks)**
- Regular reviews of the asset allocation to assess the impact shifts in investment market conditions and also in factors that may affect forecast asset class returns. **(2 marks)**

There may be other methods that can be employed. The key requirement is that for the two methods proposed there should be an explanation of how they work to reduce or mitigate the risk at the multi-asset class portfolio level.

END OF QUESTION 3: MARKING GUIDE



QUESTION 4

(13 marks)

You are the advisor to an investment committee that wishes to select and appoint an active global equity manager. A candidate manager has already been identified and you have been asked to conduct an analysis of that manager.

- a) Identify four of the statistics or indicators of the performance of the candidate active global equity manager which you would consider in your quantitative analysis.

(2 marks)

The quantitative measures that are commonly calculated in relation to active investment managers are:

- returns over various periods such as the trailing 1,3,5- or 10-year periods to a particular date or rolling 1,3-, 5-, or 10-year periods;
- the standard deviation of the return
- excess return (also known as active return)
- tracking error (also known as active risk)
- risk-adjusted return measures such as the Sharpe Ratio or the Information Ratio
- the proportion of time over which the excess return was positive (or batting average [BA])
- the proportion of the movement in the benchmark which the fund captures when the benchmark is rising or falling (also known as upside or downside capture)
- probability of return falling short of the investment objective.

0.5 mark for each of up to 4 statistics or indicators identified.

- b) Justify which two of these statistics or indicators that you would give more weight to in your recommendation.

(4 marks)

2 marks for each of the statistics nominated and justified in terms such as:

Return on the investment

Return on investment, calculated for a given period, for different investment managers is comparable where the managers are operating within the same asset class and are being measured against that same benchmark for that asset class.

In order to use returns as the basis for judgments on the performance and skill of the managers, they need to be operating within the same asset class and be compared against the same benchmark.

Advantages: easy to calculate and relatively easy to explain to people, who are not investment specialists.

Disadvantage: Lacks a frame of reference (such as the return of a relevant benchmark)



Standard deviation of the return

The standard deviation of the return is usually calculated as the annualised monthly standard deviation of the monthly total return. It is also called volatility and is commonly used as a measure of risk. The comments relating to the comparability of returns also apply to volatility.

Advantage: Easy to calculate.

Disadvantages: Does not necessarily measure risk, does not measure returns, lacks a frame of reference (such as the volatility of the return of a relevant benchmark)

Excess return

The excess return is calculated as the total return less the return on the benchmark for the investment manager, for a given period. It allows a valid comparison to be made between investment managers within an asset class where they have a common benchmark. If they are operating within the same asset class but are being measured against different benchmarks, then the validity of the comparison is reduced to an extent depending on the divergence between the benchmarks.

Advantage: focuses attention on the value added by the investment process being applied.

Disadvantages: a positive excess return may not satisfy the stakeholders or investors if the absolute level of return is negative, lacks the context of the degree of variability in excess returns

Tracking error

Tracking error is the standard deviation of the excess return. Tracking errors are comparable between investment managers where they operate within the same asset class and where they have a common benchmark. Tracking error is not a useful means of comparing investment managers in different asset classes.

A low tracking error is an indicator of a more consistent level of excess return, which may be positive or negative. It is an indicator of good performance if the excess return is positive, but by itself is not a useful indicator of good performance.

Advantage: shows the degree of variability in excess returns

Disadvantages: Does not necessarily measure the risk that is being tolerated in seeking excess returns and does not indicate the level of excess returns.



Risk-adjusted return

The form of Risk-Adjusted Return most commonly used for comparisons of investment managers against each other as well as against their relevant benchmarks is the Information Ratio. This is calculated as the Excess Return divided by the standard deviation of that excess return (the Tracking Error).

The information ratio is useful in comparing the investment performance of portfolios with similar objectives and/or asset allocations. The Information Ratio is useful for comparing the investment performance of portfolios with similar objectives or asset allocations. It is calculated by dividing the excess or active return of a portfolio by the tracking error. The tracking error is calculated as the standard deviation of the difference between the portfolio return and the benchmark return. The information ratio is a measure of how much excess return is achieved per unit of additional volatility of that excess return. **(1 mark)** It is therefore often regarded as a measure of the efficiency of the investment process of an investment manager which can be compared with the efficiency of other managers. Generally, an Information Ratio measured over a given period that is higher than that of competing managers is to be preferred. **(1 mark)**

It should be noted that both the Information Ratio and the Sharpe Ratio used as measures of 'risk-adjusted return' are using measures of volatility as a means of adjusting for risk, while they are simply measures of variability of returns over time. They could more accurately be described as measures of excess return per unit of volatility; however, usage of the term 'risk-adjusted return' is widespread and long-standing among many investment practitioners.

Advantages: Provides context in which excess returns are being achieved and focuses attention on the value-added per unit of the variability of excess return, by the investment process being applied.

Disadvantage: More complicated to explain to people who investment specialists are not.

Proportion of time over which the excess return was positive (Batting average)

This is usually calculated as the percentage of months during a period, such as three or five years or more, in which the return achieved by an investment manager exceeded that of the relevant benchmark return.

Advantages: Relatively easy to calculate and explain to people, who are not investment specialists; allows comparability of investment managers within and between asset classes.

Disadvantage: does not indicate the size of the excess returns or the cumulative effect of excess returns over time and has no context in terms of the variability of returns or excess returns that are being tolerated.



Risk

Risk is defined in this Subject as the probability of the return being less than the benchmark return set out in the investment objective (for the investment manager).

Advantages: Explicitly related to the investment objective, therefore clearly related to the purpose of employing the investment managers; allows comparability of investment managers within and between asset classes.

Disadvantage: Difficult to estimate for future periods (ex-ante risk)

The batting average can be used as a historical or ex-post estimate of risk, but it may not necessarily be a good estimate of future risk.

- c) Identify three of the qualitative factors, which may be indicators of the future performance of the candidate active global equity manager, that you would consider in your analysis. **(3 marks)**

1 mark for each of up to 3 of the following qualitative factors which may be indicators of the future performance could be identified by students:

- Clarity of stated investment philosophy upon which the investment process is based
- Clarity of the investment process for valuing and selecting assets and incorporating them in portfolios
- Effectiveness of risk management procedures in various market conditions
- Stability of the investment process over time
- Experience of the people who make the decisions on asset selection and portfolio composition
- Clarity of accountability for decisions
- Remuneration and incentives and their alignment with achieving the investment objectives of portfolios
- Turnover of investment staff and stability of the investment decision making team over time

Alternatively, the students may indicate a number of questions about the investment process, the answers to which are indicators of how well the process is working. **1 mark** for each of up to 3 of the following questions that they identify:

- Which valuation models are used to value assets?
- How are assumptions set for rates of growth of revenues, expenses (including terminal assumptions)?
- How is the discount rate set?
- How are assets ranked in order of attractiveness, making allowances for risk and uncertainty?
- Is sensitivity or scenario analysis used?
- How does the manager determine the weighting of assets in the portfolio?
- How does the manager decide to sell or reduce an asset's weighting in the portfolio?



Alternatively, the candidates may describe the qualitative factors in more general terms such as

- Quality of the process
- Quality of people working on the process
- Quality of business management acting to support or improve the current and future quality of the process

In which case they should be awarded **(0.5 mark)** for each.

- d) Justify which two of these qualitative factors that you would give more weight to in your recommendation. **(4 marks)**

2 marks for each of the two qualitative factors nominated and clearly justified by a reasonable argument that relates the factors chosen to a potential causal link between the factor and the achievement of investment objectives or meeting expectations (such as outperforming the MSCI World Index over rolling 3-year periods). Marks should be deducted for lack of clarity or reasonable argument.

The following sets out examples of points that may be made in justifying the factors to which greater weight could be given in formulating the decision to recommend a fund manager:

- Clarity of stated investment philosophy upon which the investment process is based- because it is important to have an investment process that is based on clearly stated belief about how excess returns can be achieved in an investment market and that this belief is based on evidence that such a process can work.
- Clarity of the investment process for valuing and selecting assets and incorporating them in portfolios- because the process needs to be clearly stated in order to be repeatable and accountable as well as capable of explanation to stakeholders (customers of the investment manager).
- Effectiveness of risk management procedures in various market conditions – because the investment process will not be perfect and there will be mistakes made in asset valuation, selection, and portfolio weighting and so there needs to be a risk management process that limits the impact of mistakes on returns.
- Stability of the investment process over time – because the process needs to be relied upon not to change from the process that led to the selection of the investment manager.
- Experience of the people who make the decisions on asset selection and portfolio composition- because experience is a proxy for judgment and skill in varying investment market conditions.
- Clarity of accountability for decisions- so that it is clear how both good and bad decisions were made and by whom in case a change in process and /or personnel becomes necessary in order to avoid repetition of mistakes or to make more use of good decision processes.
- Remuneration and incentives and their alignment with achieving the investment objectives of portfolios- in order to encourage behaviour that is aligned with



achieving the investment objectives for customers or clients.

- Turnover of investment staff and stability of the investment decision making team over time – since change in personnel can disrupt good performance via the loss of people with experience and good judgment and /or a change in the investment process itself which may have adverse effects on investment performance versus benchmarks or objectives.

END OF QUESTION 4: MARKING GUIDE



QUESTION 5

(9 marks)

You are an advisor to an investment committee that is considering the introduction of the consideration of environmental, social, and governance (ESG) issues into its investment process. Initially, the integration of ESG factors into the process will be focused on the equity asset class. You have been asked to assist the committee by carrying out the following work:

- a)** Identify one of the ESG issues from each of the E, S, and G categories, which can be considered as part of an ESG investment policy. **(3 marks)**

1 mark for each of the ESG issues from each of the E, S, and G categories identified from the following list of issues that may affect the value of an equity investment:

- Environmental
 - climate change and carbon emissions
 - air and water pollution
 - energy efficiency
 - waste management
 - water scarcity
 - biodiversity and deforestation
- Social
 - gender and diversity policies
 - human rights
 - labour standards
 - employee engagement
 - customer satisfaction
 - community relations
- Governance
 - board composition
 - executive compensation
 - audit committee structure
 - bribery and corruption policies
 - lobbying activities
 - political contributions

- b)** Explain two of the ways in which ESG issues can be integrated into the asset selection or asset valuation processes. **(6 marks)**

3 marks for identifying each of two ways of integrating ESG issues into the asset valuation and selection processes and for explaining each to a depth such as in the following examples:

- Some investors use ESG issues to develop qualitative selection criteria that lead to some securities being included in or excluded from the universe of securities that can subsequently be selected for a portfolio. **(1 mark)**



- Inclusion is called positive screening. Exclusion is called negative screening and has historically been more common than positive screening. **(1 mark)**
 - The assets are then valued, selected, and weighted in the portfolios using whatever investment process that the investor has adopted. There is no specific impact on the valuation, selection, or weighting of particular securities based on an analysis of how the ESG issue impacts on cash flows. **(1 mark)**
- Some investors use commercially available services which assign ESG ratings to issuers of equity and fixed interest securities. **(1 mark)** Such services are available from entities such as MSCI and Morningstar, to name two. **(1 mark)**
 - Investors often incorporate external ESG ratings into scoring and ranking systems that assist with decisions on positive or negative screening on ESG grounds. **(1 mark)**
- Some investors use ESG issues to develop qualitative selection criteria for use in the exclusion of equity securities issued by companies or organisations which are deemed to be engaging in practices that are judged to be unacceptable to the investor without using any detailed process to support the process of inclusion or exclusion. **(1 mark)** Such processes may be better suited to the needs of the investing organisation than packaged solutions **(1 mark)** They may also be less transparent because they may be harder to explain. **(1 mark)**
- Some investors integrate ESG considerations more fully into the valuation of either equity or fixed interest securities. **(1 mark)** This is sometimes done by making explicit allowances or adjustments to the cash flows being valued to take into account the increased or decreased risk of the loss of cash flow due to, for example, customer purchasing behaviour changing as a result of an ESG issue. **(1 mark)** It may also be done by adjusting the valuation factors used to value the cash flow such as the discount rate in a DCF method or the PE ratio or Price to Book ratio where a market multiple based method of valuation is used. **(1 mark)**

END OF QUESTION 5: MARKING GUIDE

END OF MARKING GUIDE