

**THE OPEN UNIVERSITY OF SRI LANKA
BACHELOR OF MANAGEMENT STUDIES HONOURS
DEGREE PROGRAMME**

LEVEL 6

AFU6422: INVESTMENT ANALYSIS AND PORTFOLIO MANAGEMENT

FINAL EXAMINATION: 2024/2025

DURATION: THREE (03) HOURS



Date: 23rd November 2025

Time: 9.30 am – 12.30 pm

All the questions carry equal marks.

Answer any five (05) questions.

The use of non-programmable calculators is allowed.

Question No. 01

1. The Efficient Market Hypothesis (EMH) states that security prices fully reflect all available information. However, empirical evidence has documented several anomalies that appear to contradict this theory. Explain what is meant by a market anomaly in the context of EMH with suitable examples. (07 marks)
 2. Explain why Treasury bills are considered risk-free and discuss the limitations of treating government securities as completely risk free in emerging markets in countries like Sri Lanka. (06 marks)
 3. Explain the Investment Management Process, outlining each major step (07 marks)
- (Total Marks: 20)**

Question No. 02

1. Define the term “investment” and explain how it differs from speculation. Support your answer with relevant examples. (05 marks)
 2. Investors in financial markets have different levels of risk tolerance, which influence their investment choices. Explain three types of risk attitudes with suitable examples for each. (09 marks)
 3. Explain how an investor selects a portfolio on the Markowitz Efficient Frontier that maximizes their utility using indifference curves. Use suitable illustrations (06 marks)
- (Total Marks: 20)**

Question No. 03

An investor is evaluating a portfolio consisting of three (03) risky assets. The characteristics of the assets are as follows:

Asset	Expected Return	Standard Deviation	Variance Covariance Matrix		
			A	B	C
A	10%	15%	2.250%	1.125%	0.450%
B	16%	25%	1.125%	6.250%	3.750%
C	20%	30%	0.450%	3.750%	9.000%

The investor initially distributes the total investment across the three assets by allocating 40% of the funds to Asset A, 30% to Asset B, and the remaining 30% to Asset C.

You are required to;

- Calculate the expected return of the three-asset portfolio. (06 marks)
- Calculate the variance and standard deviation of the portfolio. (08 marks)
- Briefly explain how the correlation between the securities affects the level of diversification within the portfolio. (06 marks)

(Total Marks: 20)

Question No. 04

An investor is considering investing in Portfolio P, which has a standard deviation of 12% and an expected return of 8%. The risk-free rate is 5%, and the expected return on the market portfolio is 13%. The standard deviation of the market portfolio is 18%.

You are required to:

- Calculate the expected return that can be achieved for the same level of risk as Portfolio P according to the Capital Market Line (CML). (08 marks)
- Evaluate whether Portfolio P is efficient compared to the CML, and discuss how CML can provide a better portfolio choice. (07 marks)
- Determine whether the portfolio is a lending portfolio or a borrowing portfolio. Explain your reasoning based on the portfolio's position relative to the market portfolio and the risk-free asset on CML. (Use relevant illustration) (05 marks)

(Total Marks: 20)

Question No. 05

- Differentiate between the Security Market Line (SML) and the Capital Market Line (CML), highlighting their key characteristics. (06 marks)

2. An investor is analyzing three stocks P, Q, and R with the following data:

Stock	Beta (β)	Actual Return
P	0.8	9.5%
Q	1.2	14.2%
R	1.5	18.4%

The risk-free rate is 5%, and the expected return on the market portfolio is 12%.

You are required to:

- Calculate the expected return for each stock using the SML and determine whether each stock is overvalued, undervalued, or fairly valued based on the SML. (08 marks)
- Explain the investment implications for a portfolio manager if a stock lies above or below the SML. (Use relevant Illustration) (06 marks)

(Total Marks: 20)

Question No. 06

1. Suppose that the risk-free rate was 6% during the last 5 years period and annual return of the market portfolio is 12% and the standard deviation is 15%. Following details are presented to you.

Portfolio	Annual Return	Standard Deviation	Beta (β)
1	10%	13%	0.9
2	13%	16%	1.1
3	15%	19%	1.3

Calculate following portfolio performance measures and explain whether to renew the investment or not with justification.

- Sharpe's ratio;
- Treynor's ratio;
- Jensen's Alpha

(12 Marks)

2. "The only risk relevant to investors is systematic risk." Do you agree with this statement? Critically discuss, explaining the distinction between systematic and unsystematic risk.

(08 Marks)

(Total Marks: 20)

-All Rights Reserved-

Formular Sheet

$$E(R) = \sum_{i=1}^T P_i r_i = P_1 r_1 + P_2 r_2 + P_3 r_3 \dots + P_T r_T \quad \sigma = \sqrt{\sum_{i=1}^n (R_i - E(R)_i)^2 P_i}$$

$$Cov_{AB}/\sigma_{AB} = \sum_{i=1}^n (R_A - E(R)_A) (R_B - E(R)_B) P_i$$

$$E(R)_P = \sum_{i=1}^n W_i E(R)_i \quad \sigma_P = \sqrt{W_1^2 \sigma_1^2 + W_2^2 \sigma_2^2 + 2W_1 W_2 \sigma_1 \sigma_2 \text{Corr}_{12}}$$

$$\sigma_P^2 = W_1^2 \sigma_1^2 + W_2^2 \sigma_2^2 + 2W_1 W_2 \sigma_{12} \quad E(R)_P = R_{RF} + \left[\frac{E(R)_M - R_{RF}}{\sigma_M} \right] \sigma_P$$

$$E(R)_P = W_{RF} R_{RF} + (1 - W_{RF}) E(R)_M$$

$$\sigma_P = (1 - W_{RF}) \sigma_M$$

$$E(R)_i = R_{RF} + \beta_i [E(R)_M - R_{RF}]$$

$$\text{Risk Premium} = E(R)_i - R_{RF}$$

$$T_i = \frac{R_i - R_{RF}}{\beta_i}$$

$$S_i = \frac{R_i - R_{RF}}{\sigma_i}$$

$$\alpha_i = R_i - [R_{RF} + (R_M - R_{RF}) \beta_i]$$

$$R_i = (P_1 - P_0 + D_1)/P_0$$

$$RR_f = \frac{1+NR_f}{1+\text{inflation rate}} - 1$$

$$\sigma^2 = \sum_{i=1} P_i [R_i - E(R)]^2$$

$$\sigma_P^2 = \sum_{i=1}^n \sum_{j=1}^n W_i W_j \sigma_{ij}$$

$$r = R_f + RP$$

$$\text{Corr}_{AB} / \rho_{AB} = \frac{Cov_{AB}}{\sigma_A \sigma_B}$$

$$\sigma_P^2 = W_1^2 \sigma_1^2 + W_2^2 \sigma_2^2 + W_3^2 \sigma_3^2 + 2W_1 W_2 \sigma_{12} + 2W_1 W_3 \sigma_{13} + 2W_2 W_3 \sigma_{23}$$