

kasneb

CIFA PART II SECTION 4

PORTFOLIO MANAGEMENT

THURSDAY: 28 November 2019.

Time Allowed: 3 hours.

Answer ALL questions. Marks allocated to each question are shown at the end of the question. Show ALL your workings.

QUESTION ONE

- (a) Highlight five steps involved in the portfolio management process. (5 marks)
- (b) Explain three forms of investment strategies that could be adopted by a portfolio manager in the management of a client portfolio. (6 marks)
- (c) The following financial data relates to the performance of company's X shares against the market share index over the last three year period:

Year	Market index return (%)	Returns on company's shares (%)
1	8	10
2	10	11
3	12	12

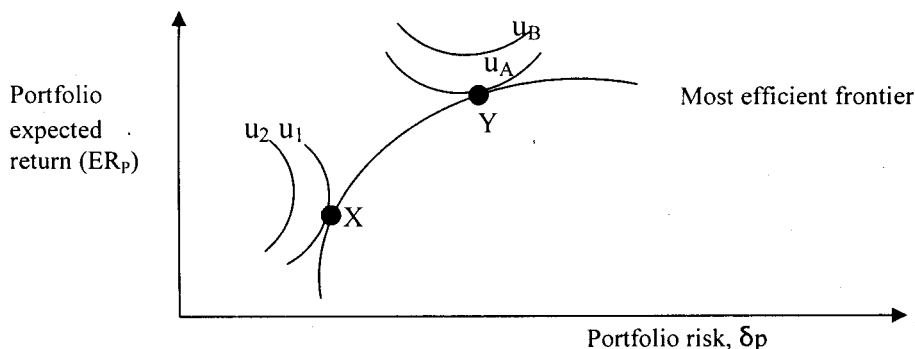
The Treasury bill rate has been stable at 6% per annum over the last three years.

Required:

- (i) Using the capital asset pricing model (CAPM), determine the expected return for year 4 assuming that the market index return for the fourth year is forecasted at 14%. (6 marks)
- (ii) Advise a Kenyan fund manager who is planning to use CAPM on its practicability both in Kenya and in other African countries. (3 marks)
- (Total: 20 marks)

QUESTION TWO

- (a) Propose four investments constraints considered by a portfolio manager while developing an investment policy statement (IPS) for a client. (4 marks)
- (b) Lewis Mulwa, a financial analyst at Kiwa Capital is analysing two investors, X and Y, whose portfolio performance is illustrated in the diagram below:



Where: u_1 , u_2 and u_A , u_B are the utility curves for investor X and Y respectively.

Required:

Describe investor X and investor Y in terms of their utility and investment decisions.

(4 marks)

- (c) An investment manager has time-weighted returns for the first six months of the year as follows:

Month	Monthly returns (%)
January	1.25
February	3.47
March	-2.36
April	1.89
May	-2.67
June	2.57

Required:

- (i) A time-weighted rate of return for the investment manager by chain-linking the monthly time-weighted returns. (2 marks)
- (ii) Compare and contrast the time-weighted rate of return with a calculation involving adding the monthly rates of return. (4 marks)
- (d) The table below provides information on two securities assumed to constitute the market portfolio:

Security	Expected return	Standard deviation	Proportion
A	10%	20%	0.40
B	15%	28%	0.60

The correlation between the two securities is 0.3 and the risk-free rate is 5%.

Required:

Predict the capital market line (CML) equation for the portfolio.

(6 marks)

(Total: 20 marks)

QUESTION THREE

- (a) Examine three major risks associated with managing a portfolio against a liability structure. (6 marks)
- (b) Phan Limited wishes to buy Sh.1,000,000 worth of shares in each of two companies from a choice of three companies; X Ltd., Y Ltd. and Z Ltd. that it might wish to acquire at some future date. The three companies are in different industries. Historical data for 5 years on the risk and return of the three companies are provided below:

Company	Annual average returns (%)	Standard deviation of returns (%)
X	11	17
Y	20	29
Z	14	21

Correlation coefficient between returns

Company	
X and Y	0.00
X and Z	0.62
Y and Z	0.40

Required:

- (i) Using suitable computations, advise Phan Limited on the most efficient portfolio to select for investment. (7 marks)
- (ii) Explain whether the company's strategy should be to purchase the most efficient portfolio identified in (b) (i) above. (3 marks)
- (c) The following table shows the portfolio estimated factor sensitivity of Nella Limited to the Fama-French three-factor model and the risk premiums associated with each factor:

	Factor sensitivity	Risk premium (%)
Market factor	1.25	9.0
Size factor	-0.60	5.4
Value factor	-0.25	8.6

The risk-free rate is 9.4%.

Required:

- (i) The required rate of return for the company using the Fama-French three factor model. (2 marks)
- (ii) Comment on the expected style characteristics of the company based on its factor sensitivities. (2 marks)
- (Total: 20 marks)**

QUESTION FOUR

- (a) In relation to behavioural finance, discuss four challenges that portfolio managers could face while classifying and understanding individual investor behaviour. (8 marks)
- (b) During the annual evaluation of fund managers, an asset management firm collected the following data on the performance of its two fund managers, A and B:

Asset	Fund manager A		Fund manager B		Market index	
	Weight (%)	Return (%)	Weight (%)	Return (%)	Weight (%)	Return (%)
1	60	18	40	12	33.3	12
2	20	15	30	10.5	33.3	9
3	20	5	30	8.4	33.3	6

Required:

Determine the best performing manager in terms of the following criterion:

- (i) Value added (VA). (4 marks)
- (ii) Asset selection skills. (4 marks)
- (iii) Asset allocation skills. (4 marks)
- (Total: 20 marks)**

QUESTION FIVE

- (a) (i) Explain the term "estate planning" as used in portfolio management. (2 marks)
- (ii) Assess three estate planning tools that could be used to manage private wealth. (6 marks)
- (b) An analyst develops the assumptions below which will be used for estimating the portfolio value at risk (VaR) for a Sh.260 million portfolio:

Method	Average return assumption (%)	Standard deviation assumption (%)
Monte Carlo simulation	0.026	0.501
Parametric approach	0.026	0.501
Historical simulation	0.023	0.490

The analyst decides to apply annual 1% VaR limit of Sh.260 million in his portfolio. The number of standard deviations to attain 1% VaR is 2.33.

Assume the year has 250 days.

Required:

The portfolio's annual 1% parametric VaR. (4 marks)

- (c) A financial advisory firm is considering subscribing to the investment newsletters of two independent equity analysts; Jack and Elizabeth. Their alphas, residual risk and correlation between forecasted and realised alpha are provided in the table below:

	Jack	Elizabeth
Alpha	4%	7%
Residual risk (σ^2)	0.30	0.40
Correlation between forecasted and realised alpha	0.85	0.60

A regression of forecast alpha on realised alphas $\alpha^f = \alpha_0 + \alpha_1 \alpha^r + \varepsilon$ indicated that Jack and Elizabeth's forecast were not biased. There are two stocks in the active portfolio, one recommended by Jack and the other by Elizabeth.

Required:

Using the Treynor-Black Model and alphas adjusted for each analyst's forecast accuracy, determine the optimal allocation of the stock recommended by Jack to the active portfolio. (4 marks)

- (d) Titus Makanda, an active portfolio manager, has on an annual basis a 5% portfolio return with a standard deviation of 10% and a tracking error of 5%.

Assume that the benchmark return is 2.5% per annum and a risk-free rate is 0.1% per annum.

Required:

- (i) The Sharpe ratio of the portfolio manager. (2 marks)
- (ii) The information ratio of the portfolio manager. (2 marks)

(Total: 20 marks)

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