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CIFA PART II SECTION 4

PORTFOLIO MANAGEMENT

MONDAY: 30 November 2020. **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) In the context of pooled investment products, examine four differences between "conventional mutual funds" and "exchange traded funds (ETFs)". (4 marks)

(b) Joel Mundia, an investment products analyst, has gathered the following information about three stocks:

State of economy	Probability of State of economy	Rate of return if state of economy occurs		
		Stock A	Stock B	Stock C
Boom	0.35	0.20	0.35	0.60
Normal	0.40	0.15	0.12	0.05
Bust	0.25	0.01	– 0.25	– 0.50

Additional information:

1. Joel Mundia has invested 40% each in stock A and B and 20% in stock C.
2. The expected Treasury bill rate is 3.80% and expected inflation rate is 3.50%.

Required:

Calculate the following:

(i) Portfolio expected return. (4 marks)

(ii) Portfolio standard deviation. (2 marks)

(iii) Expected risk premium on the portfolio. (2 marks)

(iv) Expected real risk premium on the portfolio. (2 marks)

(c) Benson Mwahima is a risk manager for a large multinational agribusiness firm. The firm grows its own maize, wheat and soya beans but pays large sums of money to third parties for pesticides, fertilizer and other supplies. For these payments, the company borrows heavily to finance its purchases. Customers typically purchases from them on credit. Moreover, the company buys and sells its products and raw materials worldwide, often transacting the domestic currency of its customers and suppliers. This year, the firm intends to finance its expansion through issue of equity.

Required:

Recommend and justify six risk exposures that should be reported as part of an enterprise risk management (ERP) system for this firm. (6 marks)

(Total: 20 marks)

QUESTION TWO

(a) In the context of behavioural finance, discuss four information processing biases. (8 marks)

(b) Susan Opiyo, an investor estimates that her annual living expenses will average Sh.132,500 before taking into account her daughter's educational costs. Susan believes that if necessary, she can reduce her spending by Sh.32,500. She plans to meet her living expenses with the proceeds from her motivational speaking amounting to Sh.50,000 annually and her investment portfolio amounting to sh.82,500. Because of the uncertainty of her motivational speaking fees, Susan plans to establish an emergency reserve equal to one year's living expenses.

She has recently received an inheritance of Sh.1,020,000. She also holds Sh.75,000 in a balanced mutual fund and Sh.25,000 in a money market fund.

Susan intends to re-evaluate her investment policy statement and asset allocation guidelines every three years.

Required:

(i) Discuss the investor's liquidity requirements. (4 marks)

(ii) Determine the investor's return requirement. (3 marks)

(iii) Evaluate whether the investor's portfolio can be expected to satisfy that requirement assuming inflation averages 3% annually and she reduces her annual living expenses to Sh.100,000. (2 marks)

(iv) Explain why an analysis of the investor's investment policy statement might become necessary before the next three-year review. (3 marks)

(Total: 20 marks)

QUESTION THREE

(a) Explain three functions of a private wealth manager. (6 marks)

(b) Grace Wanjohi and Colnerius Korir both have Sh.100,000 each split equally between a tax deferred account and a taxable account. Grace chooses to put stock with an expected return of 7% in the tax deferred account and bonds yielding 4% in the taxable account. Colnerius chooses to put stock with an expected return of 7% in the taxable account and bonds yielding 4% in the tax deferred account. When held in taxable account, equity returns will be taxed entirely as capital gains at a 5% rate, while interest income is taxed annually at a rate of 15%. The tax rate applicable to withdrawals from the tax deferred account will be 30%.

Required:

Calculate for Grace Wanjohi and Colnerius Korir, the after tax accumulation after 20 years. (4 marks)

(c) The investment committee of Matrix investment Ltd. used reports from various security analysts to develop inputs for the single-index model.

The output derived from the single model consisted of the following efficient portfolios:

Portfolio	Expected return (%)	Standard deviation (%)
A	8	3
B	10	6
C	13	8
D	17	13
E	20	18

Required:

(i) Assuming that the prevailing risk free rate is 6%, determine the optimal portfolio. (5 marks)

(ii) Assuming that the standard deviation of 12% were acceptable, determine the expected portfolio return and demonstrate how Matrix Investment Ltd. would finance it. (3 marks)

(iii) The investment committee would like to earn an expected return of 10% with a standard deviation of 4%.

Using suitable computation, explain whether this is possible. (2 marks)

(Total: 20 marks)

QUESTION FOUR

(a) Explain the following terms as used in investment management:

(i) Fintech. (2 marks)

(ii) Robo-Advisory services. (2 marks)

(iii) Distributed ledger technology (DLT). (2 marks)

(b) John Omurundo has gathered the following information about four individual securities whose active returns are uncorrelated with each other and forecasts are independent from year to year.

The active return forecasts, active risks and the active weights for each security are shown below:

Security	Expected active Return (%)	Active return Volatility (%)	Active weight (%)
1	5	25	18
2	10	50	9
3	– 5	25	– 18
4	10	50	– 9

Required:

(i) The portfolio weights and the total expected returns for each of the four securities given that the benchmark portfolio for these four securities is equally weighted and that the forecasted return on the benchmark is 10%. (3 marks)

(ii) The forecasted total return and active return of the managed portfolio. (2 marks)

(iii) The active risk of the managed portfolio. (2 marks)

(iv) Verify the basic fundamental law of active management using the expected active return and active risk of the managed portfolio. The individual security active return forecasts and active weights were sized using an information coefficient of 0.20, breadth of 4 and active risk. (3 marks)

(c) With an aid of a well labelled diagram, differentiate between an "efficient portfolio" and an "optimal portfolio". (4 marks)

(Total: 20 marks)

QUESTION FIVE

(a) (i) Explain the term "ethical investor". (2 marks)

(ii) Propose two challenges that could be encountered by ethical investors while undertaking their portfolio management assignments. (2 marks)

(b) As a young Certified Investment and Financial Analyst (CIFA) graduate, you recently landed a job as a financial analyst trainee with Boma Capital.

You have been presented with the following information relating to portfolio of your company's shares trading at the Securities Exchange:

Equity stock	1 January 2019 (Sh.)	31 December 2019 (Sh.)
P	225,000	248,000
Q	86,000	75,000
R	152,500	167,500
S	105,000	90,000

Required:

Based on the holding period return (HPR), calculate the following:

(i) Arithmetic mean. (2 marks)

(ii) Geometric mean. (2 marks)

(iii) The value of the new index using the results obtained in (b) (i) and (b) (ii) above. Assume an initial index of 102. (2 marks)

(c) You recently got a job as a financial analyst with Aspen Consultants.

The following information have been availed to you relating to a client's portfolio return and the bond index return:

Period	Portfolio return (%)	Bond index return (%)
1	– 0.62	– 0.93
2	2.47	1.89
3	1.12	0.63
4	0.74	– 0.15
5	1.19	0.67
6	2.05	1.37

Required:

(i) The annualised tracking error in basis points. (5 marks)

(ii) Comment on whether the portfolio return is succeeding or not based on your answer in (c) (i) above. (2 marks)

(d) Describe three major challenges in application of risk-adjusted performance measures in portfolio management. (3 marks)

(Total: 20 marks)

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