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ZIMBABWE EZEKIEL GUTI UNIVERSITY

FACULTY OF LAW, BUSINESS INTELLIGENCE AND ECONOMICS

DEPARTMENT OF ECONOMICS, MARKETING AND ENTREPRENEURSHIP

EXAMINATION PAPER

COURSE CODE	:	MSTM5218
COURSE TITLE	:	INVESTMENT & PORTFOLIO MANAGEMENT
DURATION	:	3 Hours
LEVEL	:	1.2

13 JUN 2025

INSTRUCTIONS TO CANDIDATES:

1. No cell phones are allowed in the examination venue.
2. Use of silent, non-programmable calculators is allowed
3. Answer question number **one (1)** in Section A (Compulsory) and any other **three (3)** questions in Section B.
4. Begin each question on a new page.
5. The number of marks for each question or part question is shown in brackets [ ]
6. Show all workings, where applicable.

Section A (Compulsory)

Question 1

An investor has gathered the following information about the Zimbabwean market

	Equity Fund	Bond Fund	Treasury Bill
E(R)	60%	30%	15%
Standard Deviation	45%	25%	0%

The correlation coefficient between equities and bonds is - 0.125 whilst the investor's risk aversion coefficient is 3

Required

a) Calculate the weight invested in
   i. the bond fund
   ii. the equity fund , and **[5 marks]**
   iii. the treasury bill **[5 marks]**
   [5 marks]

b) Calculate the expected return and standard deviation of the risky portfolio and the complete portfolio. **[4 marks]**

c) Calculate the Reward to Variability ratio supported by the risk free asset and the risky portfolio **[4 marks]**

d) Comment on the results in a), b) and c) above. **[4 marks]**

Section B

Question 2

a) Explain the differences between
   i. Money market and capital market; **[6 marks]**
   ii. Primary market and secondary market; and. **[6 marks]**
   iii. Real assets and financial markets **[6 marks]**

b) Explain why the issues of selectivity, timing and diversification are important when forming the investment portfolio. **[7 marks]**

Question 3

Using evidence from Zimbabwe and financial markets beyond, evaluate the implications of the EMH for financial decisions?
[25 marks]

Question 4

a) A portfolio has an expected rate of return of 30% and a standard deviation of 25%. T-bills have a rate of return of 15%. Which investment would you select if your risk aversion index A is 4 ? **[8 marks]**

b) Which investment would you select if your risk aversion index A is 8 ? **[7marks]**

c) You have the following two alternative investments. Which of them would you select and justify your answer?

	Investment A	Investment B
Standard deviation	5%	7%
Expected return	20%	22%

Which of them would you select and justify your answer? **[10 marks]**

Question 5

a) The following table presents the three-stock portfolio

Stocks	Portfolio Weight	Coefficient Beta	Expected Return	Standard Deviation
A	0.25	0.50	0.4	0.07
B	0.25	0.50	0.25	0.05
C	0.50	1.00	0.21	0.07

Variance of the market returns is 0.06.

Calculate the Beta coefficient of the portfolio **[4 marks]**
Calculate the expected rate of return on the portfolio **[4 marks]**
Given that the actual covariance between stock returns is as follows; COV(R_A, R_B)=0.020, COV(R_A, R_C)=0.035 and COV(R_B, R_C)=0.035, Calculate the actual variance of the portfolio **[4marks]**

a) A promissory note of $100 000 is due in 65 days and can be discounted at a discount rate of 26%. Determine the following:

i. The discount amount, **[3 marks]**
ii. The discounted value, and **[5 marks]**
iii. Calculate the equivalent simple interest rate **[5 marks]**

Question 6

Tough Corporation is a company that is registered in Zimbabwe which has in operation for the past ten years. You are given the following information about its performance and that of the market over the last 6 months of the year 2024.

Table 1: Individual-Market returns

Month	Tough Corporation-HPR (%)	ZSE Index- HPR (%)
JULY	100	40
AUGUST	90	60
SEPTEMBER	120	90
OCTOBER	150	134
NOVEMBER	160	110
DECEMBER	89	115

a) Estimate the index model using capital asset pricing model **[20 marks]**

b) Comment on the significance of your results illustrating your answer with a Security Characteristic Line **[5 marks]**

The End

Formulas: Investment Analysis and Portfolio Management

1. $E(R_A) = \sum \Pr * R_A$

2. $\sigma_A{}^2 = \sum \left[R_A - E(R_A)^2\right]\Pr$

3. $r_{A,B} = \dfrac{COV_{A,B}}{\sigma_A \sigma_B}$

4. $E(Rp) = E(Ri)Wi$

5. $\sigma^2 p = W^2{}_A \sigma^2{}_A + W^2{}_B \sigma^2{}_B \, 2COV_{A,B} W_A W_B$

6. $Y^* = \dfrac{E(Rp) - Rf}{0.01 * A * \sigma^2 p}$

7. $Y = \dfrac{E(Rm) - Rf}{0.01 * A * \sigma^2 p}$

8. $WD = \dfrac{[E(R_D) - Rf]\sigma^2{}_E - [E(R_E) - Rf]COV_{D,E}}{[E(R_D) - Rf]\sigma^2{}_E + [E(R_E) - Rf]\sigma^2{}_D - [E(R_D) - Rf + E(R_E) - Rf]COV_{D,E}}$

9. $\alpha = ER - [Rf + \beta E(Rm)]$

10. $R_i = \alpha + \beta_i Rm + e_i$

11. $\sigma^2 i = \beta^2 i \sigma^2 m + \sigma^2{}_{(ei)}$ Variance of the rate of return on a security

12. $COV\ (R_i Rm) = \beta i \sigma^2 m$

13. $\sigma^2(e_i) = \left(\dfrac{1}{n-2}\right)\sum_{t=1}^{n} e^2{}_t$ Variance attributable to firm specific factors

14. $\sigma^2{}_m = \dfrac{1}{n-1}\sum\left(RM - \bar{RM}\right)^2$ $\beta^2\sigma^2 m =$ Variance attributable to market forces

15. $\sigma^2(ep) = \sum_{t=1}^{n}\left(\dfrac{1}{n}\right)^2 \sigma^2 e_i$

16. $\beta = \dfrac{\sum XY - \left(\sum X \sum Y\right)/n}{\sum X^2 - \left(\sum X^2\right)/n}$

17. $\alpha = \bar{Y} - \beta \bar{X}$

18. COV (ab)= $\sum$Pi $[Ra - E(Ra)][Rb - E(Rb)]$

19 $\sigma^2 = \sum\sum W_i W_j \sigma_{ji}$,

14/2 AM