

UNIVERSITY OF SWAZILAND
DEPARTMENT OF BUSINESS MANAGEMENT
MAIN EXAMINATION PAPER MAY 2018

DEGREE AND

YEAR OF STUDY : MASTER OF BUSINESS ADMINISTRATION

TITLE OF PAPER : QUANTITATIVE INVESTMENT ANALYSIS
PORTFOLIO MANAGEMENT

COURSE CODE : ACF604

TOTAL MARKS : 100 MARKS

TIME ALLOWED : THREE (3) HOURS

- INSTRUCTIONS :
1. This paper consists of **FOUR (4)** numbered pages, including this page and Appendix A which contains useful formulae.
 2. There are **FIVE (5)** questions, answer **ALL FIVE (5)** questions.
 3. Begin solution to each question on a new page.
 4. Show all the necessary workings.
 5. Round off as you deem appropriate.

Note: You are reminded that in assessing your work, account will be taken of accuracy of the language and general quality of expression, together with layout and presentation of your answer.

THIS PAPER MUST NOT BE OPENED UNTIL PERMISSION HAS BEEN GRANTED BY THE INVIGILATOR OR SUPERVISOR.

SPECIAL REQUIREMENT: FINANCIAL CALCULATOR

QUESTION 1 (30 marks)

At your request, an analyst has provided you with the following information.

State of economy	Probability	Returns in each state		
		Bree Ltd	Edie Ltd	Gabi Ltd
Boom	20%	40%	20%	20%
Expansion	50%	10%	10%	40%
Recession	30%	-20%	-10%	-30%
Beta		0.9	1.2	1.5

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

Required:

Construct an equally-weighted portfolio of all three stocks and calculate:

- (i) the expected return of the portfolio
- (ii) the standard deviation or total risk of the portfolio
- (iii) the systematic risk / beta of the portfolio
- (iv) the return on the portfolio if it was correctly priced.

QUESTION 2 (15 marks)

Discuss the reasons why investors should consider constructing global investment portfolios.

QUESTION 3 (25 marks)

Under equity portfolio management, discuss how the four asset allocation strategies differ from one another.

QUESTION 4 (20 marks)

(a) Discuss the components of interest rate risk. Assuming a change in interest rates over time, explain the two risks faced by the holder of a bond.

(10 marks)

(b) Define immunization and discuss why a bond manager would immunize a portfolio.

(10 marks)

QUESTION 5 (10 marks)

You are the manager of a large Eswatini milling company and you are concerned about the price of maize from farmers as the harvest season is approaching. After evaluating the various advantages and drawbacks to forwards and options, you decide to enter into an option contract.

(a) Name the type of option contract you would use and explain your choice.

(2 marks)

(b) If a single option has an underlying of 100 tons of maize, the strike price is E2550 per ton, the premium is E175; calculate the profit /loss you will make, describe and justify the action you will take and if the price ends up being;

(i) R2500 and

(ii) R2700.

(8 marks)

APPENDIX A: USEFUL FORMULAE

- $E(R_i) = R_f + \beta_i [E(R_M) - R_f] \times$
- $\beta_p = \sum_{i=1}^n (w_i \times \beta_i)$
- $R_p = w_1R_1 + w_2R_2 + \dots + w_mR_m$
- $E(R_p) = \sum_{i=1}^n [R_p \times p_i] \quad \text{or} \quad \sum_{i=1}^n [w_i \times E(R_i)]$
- $\text{Var}(R_p) = \sum_{i=1}^n [p_i \times (R_p - \bar{R}_p)^2]$
- $\text{SD} = \sqrt{\text{Variance}}$
- $\sigma = \sqrt{W_A^2 \sigma_A^2 + W_B^2 \sigma_B^2 + 2 W_A W_B \sigma_A \sigma_B \rho_{AB}}$