

The
Management
University
of Africa



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UNDERGRADUATE UNIVERSITY EXAMINATIONS

SCHOOL OF MANAGEMENT AND LEADERSHIP

DEGREE OF BACHELOR OF COMMERCE

FIN 412: PORTFOLIO MANAGEMENT

DATE: 31ST MARCH 2025

DURATION: 2 HOURS

MAXIMUM MARKS: 70

INSTRUCTIONS:

1. Write your registration number on the answer booklet.
2. **DO NOT** write on this question paper.
3. This paper contains **SIX (6)** questions.
4. Question **ONE** is compulsory.
5. Answer any other **THREE** questions.
6. Question **ONE** carries **25 MARKS** and the rest carry **15 MARKS** each.
7. Write all your answers in the Examination answer booklet provided.

QUESTION ONE

Read the Case Study below carefully and answer the questions that follow:

Portfolio Decisions Using Arbitrage Pricing Theory

Arbitrage Pricing Theory (APT) is an asset pricing model that explains the expected return of a financial asset as a linear function of various macroeconomic factors. Unlike the Capital Asset Pricing Model (CAPM), which relies on a single factor (market risk), APT considers multiple factors that might affect an asset's return. These factors can include inflation, interest rates, gross domestic product (GDP), exchange rates, and others. APT assumes that there are no arbitrage opportunities, meaning that all mispricings are corrected by market participants.

The Capital Asset Pricing Model (CAPM) is a financial model that describes the relationship between the expected return of an asset and its risk, as measured by beta. According to CAPM, the expected return on an asset is equal to the risk-free rate plus a risk premium, which is determined by the asset's beta and the expected market return.

A diversified investment fund uses APT to evaluate the expected return of a particular stock, XYZ Corp. The fund's analysts have identified three significant macroeconomic factors that influence the returns of XYZ Corp:

Interest Rate Changes (Factor 1); Inflation Rate Changes (Factor 2); GDP Growth Rate (Factor 3); The sensitivity of XYZ Corp's returns to these factors (factor loadings or betas) are: Interest Rate Changes (β_1): 1.2; Inflation Rate Changes (β_2): 0.8; GDP Growth Rate (β_3): 1.5

The expected values and risk premiums for these factors are: Interest Rate Change Risk Premium (RP1): 2%; Inflation Rate Change Risk Premium (RP2): 3%; GDP Growth Rate Risk Premium (RP3): 4%. The risk-free rate is currently 1%. The fund manager computes the Expected Return using APT and determines it to be at 11,8%. Using APT, the fund can gain a more nuanced understanding of the factors affecting XYZ Corp's returns. By accurately estimating the expected return and continuously monitoring deviations, the fund can make informed investment decisions and manage risks more effectively.

Required:

- a) Examine three ways in which the investment fund can use Arbitrage Pricing Theory (APT) to make portfolio decisions (6 marks)
- b) From the case study's data on significant macroeconomic factors, expected values and risk-free rate, the fund manager has determined that the Expected Return of XYZ Corp to be 11.8%. Illustrate whether the fund analyst's computation is right or wrong (6 marks)
- c) Assess two advantages of using Arbitrage Pricing Theory (APT) over CAPM for evaluating the expected return of XYZ Corp (4 marks)
- d) Suppose the actual return of XYZ Corp was 13% over the period, examine how an analyst would interpret this (4 marks)
- e) Describe two steps the fund should take if they observe significant deviations between expected returns (using APT) and actual returns (3 marks)
- f) Evaluate the limitation of practical application of Arbitrage Pricing Theory (APT) (2 marks)

QUESTION TWO

- a) You have been provided with data for two mutual funds XYZ and ABC. XYZ Fund has an Alpha of 4% and standard deviation of 6% while ABC Fund, has an alpha of 5% and a standard deviation of residuals of 10%. Determine the appraisal ratio for both funds and advice on the fund that has a better performance (6 marks)
- b) Evaluate any three passive portfolio management strategies (9 marks)

QUESTION THREE

- a) Examine five challenges of cross border listing (10 marks)
- b) Assume a security is currently trading at \$100 per unit. An investor wants to enter into a forward contract that expires in one year. The current annual risk-free interest rate is 6%. The security pays a 50-cent dividend every three months. Determine the forward price for the security. (5 marks)

QUESTION FOUR

- a) Examine four applications of the Capital Market Theory in portfolio management
(8 marks)
- b) Assume a mutual fund realized a return of 15% last year. The appropriate market index for this fund returned 12%. The beta of the fund versus that same index is 1.2, and the risk-free rate is 3%. Determine the fund's Jensen's Alpha and interpret it.
(7 marks)

QUESTION FIVE

- a) Demonstrate five practical problems with application of Markowitz Portfolio Theory
(10 marks)
- b) Security A is selling for \$48.50 with options available at 40, 50, and 60 strike prices. The 50 call option price is at 2.75. Determine the intrinsic value and the speculative premium on the 50 call option
(5 marks)

QUESTION SIX

- a) Appraise three benefits Kenya and Uganda enjoy as a result demutualization of stock exchanges in both countries
(6 marks)
- b) Private investors use structured products to gain access to alternative investments. Evaluate two reasons why investors use structured products
(4 marks)
- c) Capital market theories provide a variety of powerful tools to value financial assets and analyze markets. Evaluate two main advantages of the capital market theories in the Kenyan context
(5 marks)