MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY

UNIVERSITY EXAMINATIONS

2021/2022 ACADEMIC YEAR

SECOND YEAR FIRST SEMESTER

MAIN EXAMINATION

FOR THE DEGREE OF DOCTOR OF PHILOSOPHY IN BUSINESS ADMINSTRATION

COURSE CODE: PBA 927

COURSE TITLE: EMPIRICAL FINANCE

DATE: WEDNESDAY 27TH APRIL 2022 **TIME: 2-5PM**

INSTRUCTIONS TO CANDIDATES

ANSWER QUESTION ONE AND ANY OTHER THREE (3) QUESTIONS

TIME: 3 HOURS

QUESTION ONE

a. The first step necessary to empirically test the theoretical CAPM is to transform it from expectations or exante (expectations cannot be measured) into a form that uses observed data. You are required to demonstrate the mathematical steps followed in this transformation (10 Marks)

b. It is not possible to use regression analysis in testing the Arbitrage pricing theory (APT) because the risk factors are not known. Explain the steps followed in the usual empirical procedure of testing APT (10 Marks)

QUESTION TWO

a. Consider the following

Actual return (ya)	Average return($\underline{ya}$)	Deviation (ya –$\underline{ya}$)	Deviation squared (ya-$\underline{ya}$)^2
1 500	1 650	-150	22 500
1 950	1 650	300	90 000
900	1 650	-750	562 500
900	1 650	-750	562 500
2 700	1 650	1 050	1 102 500
2 250	1 650	600	360 000
1 950	1 650	300	90 000
2 100	1 650	450	202 500
1 350	1 650	-300	90 000
1 050	1 650	-600	360 000
1 800	1 650	150	22 500
1 350	1 650	-300	90 000

You are required to determine:

i. Coefficient of determination (4 Marks)

ii. Standard error of estimate (4 Marks)

iii. Standard error of the coefficient (4 Marks)

b. Explain the approaches to the empirical research on futures contracts (8 Marks)

QUESTION THREE

a. Miller and Modigliani (1966) did an empirical study to find out the effect of leverage on firm value. The study was based on a sample of 63 electric utility firms in 1954, 1956 and 1957. The results were as follows:

Table: sources contributing to the value of the firm

	Source	Absolute contribution			Percentage contribution		
		1957	1956	1954	1957	1956	1954
1.	Value of assets in place	0.758	0.808	0.914	68.1	72.0	75.9
2.	Tax subsidy on debt	0.262	0.254	0.258	23.5	22.6	23.7
3.	Growth potential	0.112	0.072	0.028	10.0	6.4	2.3
4.	Size of the firm	-0.019	-0.008	-0.21	-1.7	-1.7	-1.7
	Average(market/book) value	1.113	1.123	1.204	100.0	100.0	100.0

You are required to give interpretation of the results (10 Marks)

b. The design and interpretation of empirical studies of market efficiency is a tricky business. Unless research is carefully conducted, results that indicate possible market inefficiencies may simply be faulty research. Explain five common errors committed in empirical studies of market efficiency (10 Marks)

QUESTION FOUR

a. In an empirical test of dividend theory, Naranjo, Nimelandran, and Ryngaert(1998) examined the cross-section of returns as a function of the Fama-French (1992) factors and dividend yield as shown in the empirical model below:

$R_{pt} = \lambda 0 + \beta_{1F}[MKT+\lambda 1] + \beta_{2F}[SMBt+\lambda 2] + \beta_{3F}[HMLt+\lambda 3] + \lambda 4 dp_{t-1} + \varepsilon_{pt}$

You are required to give an interpretation of the variables captured in the model (12 Marks)

b. Empirical studies have established that the betas of conglomerate firms have been significantly above 1. What does this imply about diversification as a strong motive for conglomerate mergers? (8 Marks)

QUESTION FIVE

a. Explain how the following empirical methodologies are applied in mergers and acquisitions studies.

i. Event studies (3 Marks)

ii. Accounting studies (3 Marks)

iii. Case by case studies with/without simulation (4 Marks)

b. Explain why *Fama and French Three Factor Model* specified below is considered a better tool for evaluating manager performance as compared to the original Capital Asset Pricing Model (CAPM) (10 Marks)

$Rit - Rft = \alpha it + \beta 1(Rmt - Rft) + \beta 2SMBt + \beta 3HMLt + \varepsilon it$