



MASENO UNIVERSITY
UNIVERSITY EXAMINATIONS 2016/2017

**FIRST YEAR SECOND SEMESTER EXAMINATIONS FOR
THE DEGREE OF MASTER OF ARTS IN ECONOMICS**

CITY CAMPUS

AEC 812: FINANCIAL ECONOMETRICS

Date: 8th December, 2016

Time: 5.30 - 8.30 pm

INSTRUCTIONS:

- Answer ANY FOUR questions.
- All questions carry equal marks.

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QUESTION ONE

- a) Explain the role of econometrics in financial analysis for decision making (marks)

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- a) Explain the role of econometrics in financial analysis for decision making (6 marks)
- b) Consider a two-factor model such that;

$$y = \alpha + X\beta + \mu$$

Derive the expected value and the variance of returns. Provide interpretation criteria of the results (9 marks)

QUESTION TWO

Following Jensen (1968), suppose you want to test whether a given mutual fund provides consistently higher returns than those implied by the Capital Asset Pricing Model (CAPM). To do so, you estimate α_i and β_i in the linear equation

$$R_{it} - R_{ft} = \alpha_i + \beta_i(R_{mt} - R_{ft}) + \varepsilon_{it}$$

Where; R_{it} , R_{ft} , R_{mt} are the returns of mutual fund, risk free rate and market respectively. ε_{it} is the white noise term

- i. State and explain the null hypothesis corresponding to the abnormal returns above those prescribed by CAPM (5 marks)
- ii. How can you test the null hypothesis above? (5 marks)
- iii. Provide the formula for the Ordinary Least Squares (OLS) estimator of $\hat{\beta}_i$ (5 marks)

QUESTION THREE

- a) Identify and explain steps to be followed in financial econometrics research for sound determination and prediction of asset pricing (10 marks)
- b) Discuss the stylized features of financial data (5 marks)

QUESTION FOUR

- i. Explain the numerical and statistical properties of OLS estimators (6 marks)

- ii. By use of the efficient market Hypothesis, explain the cause of differences in asset pricing and returns to investors (9 marks).

QUESTION FIVE

In capital asset pricing model of the modern portfolio theory, the risk premium form is given as;

$$(ER_i - rf) = \beta_i(ER_m - rf)$$

Where; ER_i is the expected rate of return on security i ; ER_m is the expected rate of return on market portfolio; rf is the risk free rate of return and β_i a measure of systematic risk.

- a) Construct an econometric model to explain the capital asset pricing model of the modern portfolio theory (10 marks)
b) Provide possible interpretation of β_i in the econometric model(5 marks).

QUESTION SIX

- i. Suppose that you are interested in modelling the correlation between the returns of the Kenya Airways stock and the returns on crude oil. (6 marks)
a) Write down a constant correlation problem for this model.
b) Explain carefully how you would estimate the model in part(a).
- ii. Identify and explain the various diagnostic tests necessary to avoid spurious results in financial research (9 marks).