KENYATTA UNIVERSITY

UNIVERSITY EXAMINATIONS 2018/2019

SECOND SEMESTER EXAMINATION FOR THE DEGREE OF MASTERS OF SCIENCE (FINANCE)

BAC 816: THEORY OF FINANCE

DATE: Thursday, 28th March 2019 **TIME: 5.30pm - 8.30pm**

INSTRUCTIONS:

Attempt ALL Questions

QUESTION ONE

a) Briefly discuss the weakness of CAPM as a pricing model. (4 marks)

b) There are two stocks in the market, Stock A and B. The price of stock A today is shs.50. The price of stock A next year will be shs.40 if the economy is in a recession, shs.55 if the economy is normal, and shs.60 if the economy is expanding. The attendant probabilities of recession, normal times and expansion are 0.1, 0.8 and 0.1 respectively. Stock A pays no dividend. Assume the CAPM model is true. Other information about the market includes:

$SD(R_m)$ = Standard deviation of the market portfolio = 0.10

$SD(R_B)$ = Standard deviation of stock B's return = 0.12

R_B = Expected return on stock B = 0.09

$Corr(R_A, R_M)$ = The correlation of stock A and market = 0.8

$Corr(R_B, R_M)$ = The correlation of stock B and the market = 0.2

$Corr(R_A, R_B)$ = The correlation of stock A and stock B = 0.6

Required

i. Using the beta of stock A and Stock B, which stock would you prefer? (3 marks)

ii. What are the expected return and standard deviation of a portfolio consisting 70% of stock A and 30% of stock B? (2 marks)

iii. Have you reduced risk by holding a portfolio? (1 mark)

QUESTION TWO

a) Multifactor models of security returns have received increased attention. The arbitrage pricing theory (APT) probably has drawn the most attention and has been proposed as a replacement for the capital asset pricing model. (CAPM).

i. Briefly explain the advantages of APT over CAPM. (6 marks)

ii. APT requires the use of common factors. Assume you are the portfolio manager of Barclays Bank Ltd in Kenya. Identify four common factors that you can use to estimate the returns of stocks in banking sector. (4 marks)

b) Stocks 1 and 2 are affected by three factors as shown below. Factors 2 and 3 are unique to each stock. Expected values of each are $E(F_1)$ =3.0%, $E(F_2)$ =0.0% and $E(F_3)$=0.0%. Neither stock pays a dividend. The two stocks are currently selling at prices \$40 and \$10 respectively. You expect their prices in a year to be $E(P_1)$ = \$45 and E (P_2) = 10.70.

$$R_1 = 6.0(F_1) + 0.3(F_2)+0.0(F_3)$$

$$R_2 = 1.5(F_1) + 0.0(F_2) + 0.4(F_3)$$

Required

i. What kind of risk does factor 2 and 3 measure? (2 marks)

ii. Neglecting F_2 and F_3, create a riskless arbitrage. Explain. (4 marks)

c) Consider the following data for a one-factor economy. All portfolios are assumed to be well diversified.

Portfolio	Expected return	Beta
A	12%	1.2
F	6%	0.0

Suppose that another portfolio, portfolio E, is well diversified with a beta of 0.6 and expected return of 8%. Would an arbitrage opportunity exist? If so, what would be the arbitrage strategy? Note: show what the percentage profit from arbitrage will be. (4 marks)

QUESTION THREE

a) Briefly explain the efficient market theory. (6 marks)

b) Empirical tests of the efficient market theory have uncovered a number of results suggesting anomalies may exist to the theory. Briefly discuss three such anomalies. (9 marks)

QUESTION FOUR

a) Illustrate how the existence of a capital market can improve consumption opportunities and therefore investor utility. (4 marks)

b) Suppose that Sweet Biscuits, a biscuit manufacturer jointly owned by Kamau and Shah, can invests in several ovens which yield cash flows from increased sales as follows:

Number of ovens bought	Total net cash flow next period (shs.000)
0	0
1	6,500
2	12,500
3	18,000
4	23,000

Required

i. If each oven costs shs.5 million and Sweet Biscuits have initial resources of shs.20 million, how many ovens should the firm buy? Assume a 10% required rate of return. (3 marks)

ii. Draw Sweet Biscuits' production opportunity frontier to depict your answer to (a) diagrammatically. (3 marks)

iii. If Kamau wishes to consume shs.2 million now, how would he do this? (3 marks)

iv. How would Sweet Biscuits' investment decision be affected if the market rate of interest was 12%. (2 marks)