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UNIVERSITY EXAMINATIONS 2023/2024

THIRD YEAR SECOND SEMESTER EXAMINATION FOR DEGREE OF BACHELOR OF SCIENCE IN FINANCE

BFS 3353: FINANCIAL DERIVATIVES

DATE: APRIL 2024 **TIME: 2 HOURS**

INSTRUCTIONS: Answer Question ONE and any other TWO questions.

QUESTION ONE (30 MARKS)

a) Futures contracts and options on futures contracts can be used to modify risk;

Required;

b) Identify the fundamental distinction between a futures contract and an option on a future contract and explain the difference in the manner that futures and options modify portfolio risk. (8marks)

c) Explain the two broad ways in which a firm can hedge against a currency transaction exposure (8marks)

d) Explain the following financial derivatives used in international financial markets.

i. Futures contract (2marks)

ii. Forward contracts (2marks)

iii. Swaps (2marks)

e) Nchiru Ltd, a subsidiary of a UK multinational has a translation exposure of shs. 20 million. The rates are as follows;

Sport; shs.120.00/ʃ

One year forward shs.123/ʃ

A 6% depreciation of the shilling is expected. How can the exchange risk be hedged? (8marks)

QUESTION TWO(20MARKS)

a) Maendeleo Industries is concerned about interest rates rising. It needs to borrow in the bond market three months hence. The company believes that an option on treasury bond futures is the best hedging device.

   i. Should the company buy a put option or a call option? Explain (5marks)

   ii. Presently, the futures contract trades at shs.100 and 3 months put and call options both involve premiums of 1½% based on this strike price. During the three months, interest rates rise, so that the price on a treasury bond futures contract goes to shs.950.

   What is your gain or loss on the option for shs.1,000,000 contract?(10marks)

b) What are derivatives? (5marks)

QUESTION THREE(20MARKS)

a) In the context of derivatives, define risk Management (2marks)

b) Discuss reasons why risk management might increase shareholders wealth(8marks)

c) High speed electronics Ltd has taken delivery of 50,000 electronic devices from an American Company. The seller is in a strong bargaining position and has priced the devices in American dollars at $12.00 each.

High speed electronics Ltd has been granted three months' credit. Assume that interest rate in America are3% per quarter (3months). high speed electronics Ltd has all its money tied up in its operations but it could borrow in dollars at 3% per quarter if necessary.

Foreign exchange rates

US$ =	Shs. 1
Spot	0.013
Three months forward	0.0154

A three-month dollar call option for US$600,000 is available at a premium of US$15,000

Required

Using suitable computations illustrate two hedging strategies available to highspeed electronics limited (10marks)

QUESTION FOUR(20MARKS)

a) The current market price per ordinary share of Spark International Ltd is shs.29. a call option exists on the company's share with an exercise price of shs.26 and within six mounts to maturity.

The option can only be exercised on maturity. the risk free rate of return is 6% and the variance of the rate of return on the share is 15%

Required

Using Black-Scholes option pricing model, estimate the value of the call option.

Note;

The following values way be useful

$\log_e 1.1154 = 0.1092$

$e^{-0.03} = 0.97$ (10marks)

b) Explain the following rypes of foreign currency risk exposure

i. Transaction exposure (3marks)

ii. Translation exposure (3marks)

iii. Economic exposure (4marks)

QUESTION FIVE(20MAKRS)

Explain how the following derivative instruments are used to minimize interest rate risk

a) Forward rate Agreement(FRA)

b) Interest rate futures

c) Interest rate option

d) Interest rate swaps (20marks)