NCRD's Sterling Institute of Management Studies, Nerul, Navi Mumbai

TERM END EXAMINATION MMS SEM III Nov- Dec. 2013

Sub: -Derivatives and Risk Management

Date: 15.11.2013

Time: 10.30 am to 1.30 pm

Day: Friday

Marks: 60 Marks

Roll No:

Instructions: Section I is compulsory. (1 Question x 20 Marks = Total 20 Marks)

Section II - Attempt any two. (2 Questions x 10 Marks = Total 20 marks)

Section III – Attempt any four. (4 Questions x 5Marks = Total 20 marks)

Section I

Q .1 Suppose the price of a non dividend paying stock is Rs. 32, its volatility is 30%, and the risk free rate for all maturities is 5% per annum. Calculate the cost of setting up the following positions:

(a) A bull spread using European call option with strike price of Rs. 25 and Rs. 30 and maturity of 6 month.

(b) A bear spread using European put option with strike prices of Rs. 25 and Rs. 30 and maturity of 6 month.

(c) A butterfly spread using European put option with strike prices of Rs. 25, Rs. 30 and Rs. 35 and maturity of 6 month.

A. Calculate the cost of setting up the all above positions where option price for all strike prices are as follows-

Strike Price	Put option price	Call option price
25	1	8
30	3	4
35	4	1

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B. In each case provide a table and graph showing the relationship between profit and final stock price. Ignore the impact of discounting.

Section II

Q. 2 A one year future contract on a non dividend paying stock is entered into when the stock price is Rs. 40 and the risk free interest rate is 10% per annum with continuous compounding.

(a)What are the forward price and initial value of the forward contract?

(b) Six month later, price of the stock is Rs. 45 and interest rate is still 10%. What are forward price and value of the contract?

Q. 3 The 2 month interest rate in Singapore and India are respectively are 2% and 5% per annum with continuous compounding. The spot price of Singapore dollar is 45. The future price for contract deliverable in two months is Rs. 48. What arbitrage opportunity does it create?

Q.4 Consider an option on non dividend paying stock when the stock price is Rs. 30, strike price is Rs.29 risk free interest rate is 5%perannum and volatility is 25% per annum and time to maturity is 4 months.

(a) What is the price of European call option?

(b)What is the price of European put option?

Section III

Q. 5 Write short notes:

(a)Historical volatility

(b) Implied volatility

Q.6 How is gamma different from delta? What is the principal behind delta gamma hedge?

Q.7 What is the impact of change of following factors on put option price and call option price?

(a) Stock price

(b) Exercise price or strike price

Q. 8 How are options different than futures?

Q. 9 What is Basis risk? What is its importance in hedging?

Q. 10 What categories of investors/ traders use derivatives?

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