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Fourth Semester MBA Degree Examination, June/July 2015
Risk Management

Time: 3 hrs.

Max. Marks: 100

- Note: 1. Answer any THREE questions from Q.No. 1 to Q.No. 6**
2. Question No. 7 & 8 are compulsory.
3. Use of Logarithm, e^x , normal distribution tables permitted.

1.
 - a. What are the motives of hedgers, speculators and arbitrageurs in a derivatives market? (03 Marks)
 - b. What is a FRA? State the significant characteristics of a FRA. (07 Marks)
 - c. Discuss the major types of Pure risk. Explain the methods of managing pure risk. (10 Marks)
2.
 - a. Bring out the differences between market risk and credit risk. (03 Marks)
 - b. Mr. X is bearish about the index. Spot index Nifty stands at 2250. He decides to sell one three – month Nifty call option contract with a strike value of 2275 for a premium of Rs 28.60. Three months later the index closes at 2225. Calculate his profit / loss on this position. Had he purchased a 3 month Nifty put option contract with same strike price, what would have been his pay off at maturity when the index closed at 2250. (Each Nifty = 200 points). (07 Marks)
 - c. Bring the differences between Forward and Future contracts. (10 Marks)
3.
 - a. Explain Value at Risk. (03 Marks)
 - b. Discuss the underlying motives for a swap transaction. What is Plain Vanilla swap? (07 Marks)
 - c. An investor holds a portfolio worth Rs 11,75,000 that almost tracks the Nifty Index. Currently the Nifty futures is quoting at 6500 and the investor tends to stay away from the market due to the ensuing general election, since he expects that market may decline by five percent. Show how stock futures can help him to cover the losses in spot market. How many contracts should he sell? Assume contract multiplier = 50. If his portfolio had been Aggressive than Nifty say a beta of 1.25, how many futures should he trade? (10 Marks)
4.
 - a. Suppose that 1 – year, 2 – year, 3 – year, 4 – year and 5 – year zero rates are 3%, 4%, 4.6%, 5% and 5.3% per annum respectively. Calculate the forward rates for the second, third, fourth and fifth years. (05 Marks)
 - b. Discuss the factors affecting the prices of options. (05 Marks)
 - c. Mehra is interested in purchasing a call option on Dabur Ltd with an exercise price of Rs 100 and two years until expiry. Dabur Ltd is currently trading at Rs 100 per share and the annual variance of its continuously compounded rate of return is 0.04 or (4%). The treasury bill that matures in 2 years, has an interest rate at continuous compounding of 5% per annum. Using Black and Scholes model, Calculate the price of call option? What does Put call parity imply about the price of put? (10 Marks)
5.
 - a. Explain the structure of credit default exchange swap with an illustration. (05 Marks)
 - b. Calculate the Rupee value at risk for the given portfolio of Rs 10 millions at 99% confidence interval for a holding period of 30 days. (05 Marks)

Variance – Covariance matrix of two securities

Security	A	B
A	0.06250	0.00375
B	0.00375	0.02250
Proportion	0.5	0.5

- c. Assume that ABC wants a floating rate, LMN desires a fixed rate. There is an intermediary who arranges the deals for ABC and LMN and derives 50 basis points as its fees. Design a swap deal for ABC and LMN in such a way that it benefits both companies when they face the following term structures. (10 Marks)

ABC	Fixed rate	Floating rate
ABC	10%	MIBOR + 25bp
LMN	12%	MIBOR + 75 bp

- 6 a. Write a brief note on economic functions of commodity derivative markets. (10 Marks)
 b. Tata power is trading in the spot market at Rs 70. The continuously compounded risk free rate is 8% per annum. Calculate the fair value of a 3 – month futures contract for each of the following scenarios : i) When the stock pays no dividend ii) When the stock pays a dividend of 5% iii) When the stock pays a dividend of Rs 1.50 in one month time. (10 Marks)
- 7 a. Explain how companies planning new bond issues can hedge their interest rate risk through futures market. (05 Marks)
 b. A bank's risk management department has identified that it has too much exposure to a particular client and intends to reduce it by Rs 200 million. Explain the consequences of using a credit default swap here. (05 Marks)
 c. Explain the rationale behind the calculation of optimal hedge ratio. (05 Marks)
 d. "Call writers and put buyers exhibit bearish sentiments". Do you agree? Explain. (05 Marks)

8 **CASE STUDY (compulsory) :**

BRTI is a provider of telecommunication services. Its diversified service range includes mobile, voice and data solutions using 3G and 4G technologies. In Oct 2013, it completed the acquisition of WBSPL Ltd. The share is trading at Rs 275. Mr Dalal, an active trader based on his earlier experience wanted to create a Bull spread using 2 call options. First option at exercise price of Rs 280, available at a premium of Rs 12 and another option at exercise price of Rs 290 quoted at a price of Rs 8. The lot size per contract is 1250 shares. Mr. Karthik another trader reads an update from Moody's ratings develops a different view of BRTI. He decides to create a straddle using call and put option with a exercise price of Rs 300 call premium was Rs 7 and put premium Rs 2.

Questions :

- a. What are the motives of Mr. Dalal and Mr. Karthik in using bull spread and straddle? (05 Marks)
 b. Can they use Nifty options, in case they had long position in BRIT in spot market to hedge their position? (05 Marks)
 c. Calculate the maximum loss / gain to Mr. Dalal. Detail his pay off using a diagram. (05 Marks)
 d. Calculate the Break even prices in the straddle. Detail the pay – off at Rs 286, Rs 310. (05 Marks)
