PG – 273

III Semester M.Com. (FA) Examination, May 2024
(CBCS Scheme) (2021-22)
FINANCIAL ANALYSIS
Paper – 3.5 : Financial Derivatives

Time : 3 Hours Max. Marks : 70

SECTION – A

Answer **any seven** out of ten. **Each** question carries **two** marks. **(7×2=14)**

1. a) Define Credit Derivatives.
   b) What is the Expiration date ?
   c) Define Index Option.
   d) Explain the concept of "counterparty risk" in financial derivatives transactions.
   e) Why might individuals purchase futures contracts rather than the underlying assets ?
   f) What is an interest rate swap ?
   g) What do you mean by hedging ?
   h) Why is a Forward contract useful ?
   i) How are the Contracts settled ?
   j) What is a Long Position ?

SECTION – B

Answer **any four** questions out of six. **Each** question carries **five** marks. **(4×5=20)**

2. Explain the assumptions of the Black Scholes Model.
3. Critically assess the ethical considerations involved in the use of financial derivatives by corporations and financial institutions, discussing potential conflicts of interest and regulatory challenges.
4. What are various types of Derivative Instruments Traded at NSE ? Explain.
5. Explain the concept of in the money, at the money, and out of the money in respect of options.

P.T.O.

6. Ram buys 10,000 shares of X Ltd. at a price of ₹ 22 per share whose beta value is 1.5 and sells 5,000 shares of A Ltd. at a price of ₹ 40 per share having a beta value of 2. He obtains a complete hedge by Nifty futures at ₹ 1,000 each. He closed out his position at the closing price of the next day when the share of X Ltd. dropped by 2%, the share of A Ltd. appreciated by 3%, and Nifty futures dropped by 1.5%. What is the overall profit/loss to Ram ? Is it possible for stock as well as Nifty to rise or fall at the same percentage ? State the reason.

7. A company is long on 10 MT of copper @ ₹ 534 per kg (spot) and intends to remain so for the ensuing quarter. The variance of change in its spot and future prices are 16% and 36% respectively, having a correlation coefficient of 0.75. The contract size of one contract is 1,000 kgs. Required :
   a) Calculate the Optimal hedge ratio for perfect hedging in the future market.
   b) Advice on the position to be taken in the future market for perfect hedging.
   c) Determine the number and the amount of the copper futures to achieve a perfect hedge.

SECTION – C

Answer **any two** questions out of four. **Each** question carries **twelve** marks. **(2×12=24)**

8. "Only risk-seeking organizations should use derivatives." – Justify the statement.

9. Consider the following data about NIFTY options. (All values taken are the opening values for the day)

Exercise Price (₹)	Call Premium (₹)	Put Premium (₹)
8960		9.90
9080		18.30
9100	80.00	12.60
9120	71.10	18.30
9140	48.00	40.15
9160	20.00	55.20
9180	8.50	
9200	3.60	
9220	1.00	

   The index opened out at 9150.
   Based on these, classify the options based on their "Moneyness" and segregate them into intrinsic and time values.

10. "Investors can use Stock Index Futures to perform myriad tasks." – Explain.

11. Electraspace is a consumer electronics wholesaler. The business of the firm is highly seasonal in nature. In 6 months of the year, the firm has a huge cash deposit, especially near Christmas time, and in the other 6 months' firm cash crunch, leading to the borrowing of money to cover up its exposures for running the business. It is expected that the firm shall borrow a sum of €50 million for the entire period of slack season in about 3 months. A bank has given the following quotations :

Spot 5.50% – 5.75%

3 × 6 FRA 5.59% – 5.82%

3 × 9 FRA 5.64% – 5.94%

A 3-month €50,000 future contract maturing in a period of 3 months is quoted at 94.15 (5.85%). You are required to determine :

a) How an FRA, shall be useful if the actual interest rate after 3 months turn out to be :

i) 4.5% ii) 6.5% ?

b) How 3-month future contract be useful for the company if the interest rate turns out as mentioned in part (a) above ?

SECTION – D

Answer the following : **(1×12=12)**

12. AB Ltd.'s equity shares are presently selling for 500 each. An investor is interested in purchasing AB Ltd.'s shares. The investor expects that there is a 70% chance that the price will go up to 650 or a 30% chance that it will go down to 450, three months from now. There is a call option on the shares of the firm that can be exercised only at the end of three months at an exercise price of 550. Calculate the following :

i) If the investor wants a perfect hedge, what combination of the share and option should he select?

ii) Explain how the investor will be able to maintain an identical position regardless of the share price.

iii) If the risk-free rate of return is 5% for the three months, what is the value of the option at the beginning of the period ?

iv) What is the expected return on the option ?