ANURAG GROUP OF INSTITUTIONS

Venkatapur (V), Ghatkesar (M), R.R. Dist

School of Business Management (2014-16)

MANAGEMENT OF DERIVATIVES (A93004/F)

TEACHING PLAN (2016-17)   **Name of the Faculty: Ch.Siva Priya**

S.NO	TOPIC	NO. OF CLASSES	REFERENCES
	UNIT-I INTRODUCTION		
1.	Definition, Features, Its importance	1	
2.	Development & growth of Derivatives Market	1	
3.	Types of Derivatives	2	**John C Hull,**
4.	Uses of Derivatives	1	
5.	Fundamental Linkage between Spot & Derivative Market	2	**Options, Futures**
6.	The Role of Derivatives Market	1	**and Other**
7.	Uses and Misuses of Derivatives, Derivative Markets in India	2	**Derivatives,**
	Total	**10**	
	UNIT-2 FORWARD MARKETS		**Pearson, 2012**
8	Forward Market Concept, Meaning & Features	1	
9	Structure of Forward Markets	2	
10	Managing Risks using Forwards	2	
11	Commodity Price, Interest Rate Risks	2	
12	Foreign Exchange and Determination of Forward Prices	2	**&**
	Total	**9**	
	UNIT-3 FUTURE MARKETS		
14	Meaning, Mechanics of Futures Contract	2	
15	Forwards Vs Futures	1	
16	Hedging Strategies using Futures	2	**M. Ranganatham**
17	Determinationnof Future prices	1	
18	Interest Rate Futures, Currency Futurtes	2	**&**
	Total	**8**	
	UNIT-4 OPTIONS		**R. Madhumathi**
20	Meaning. Structure of Options Market	1	
21	Distinction between Options & Futures	1	**Derivatives and**
22	Principlwes of Option Pricing	1	**Risk**
23	Option Pricing Models: The Binomial Model	2	**Management**
24	The Black-Scholes Merton Model	2	
25	Basic Option Strategies: Advanced Option Strategies	2	**Pearson, 2012**
26	Trading with options, Hedging with Options, Currency Options	2	
	Total	**11**	
	UNIT-5 SWAPS		
27	Swaps: Concept, Nature , Evolution of Swap Market	2	
28	Features of Swaps, Major types of Swaps	2	
29	Currency Swaps, Commodity Swaps	2	
30	Equity Index Swaps, Credit Risk in Swaps	2	
31	Credit Swaps, Using Swaps to Manage Risk	2	
32	Pricing and Valuing Swaps	2	
	Total	**12**	
	Total No. of Classes	**50**	

UNIT – 1 INTRODUCTION

SHORT ANSWER QUESTIONS:

1. Define Derivatives
2. What is a spot Market

LONG ANSWER QUESTIONS:

1. Explain the term "Financial Derivative", What are its important features with suitable Examples
2. Explain different types of financial derivatives
3. Bring out the historical development & importance of derivative market in India
4. Explain the fundamental linkages between Spot & Derivative Market
5. Explain the Uses & Misuses of Derivatives

UNIT-2 FORWARD MARKETS

*SHORT ANSWER QUESTIONS***:**

1. What is a Forward Contract
2. What is Commodity Price Risk
3. What is Interest Rate risk

LONG ANSWER QUESTIONS:

1. Explain the Structure & Features of Forward Markets
2. Explain the Forward Trading Mechanism
3. Explain how the risk can be Managed using Forwards
4. Write a Short note on
   a) Foreign Exchange Risk
   b) Determination of Forward Prices
5. On January 1, price of Reliance Share is Rs. 450,and two parties enter into a forward contract for delivery of 1000 shares of Reliance on April 15 at a price of Rs.460. Find out the Profit/Loss Profile of seller (short Position) if the price of Reliance share turns our be (a) Rs. 470 (b) Rs.400 on April 15

UNIT-3 FUTURE MARKETS

SHORT ANSWER QUESTIONS:

1. What is a Future Market
2. What is Hedging
3. Explain the Mechanics of Futures Contract

LONG ANSWER QUESTIONS:

1. What is a Financial Futures Contract? Discuss Growth of Financial Future Market
2. Distinguish between Futures Market and Forward Market
3. Explain the Hedging Strategies using Futures
4. Explain different types of Financial Future Contracts

5. An investor predicts a price increase in the silver futures market from current futures price of Rs.8000 per kg. The market lot is being 10 kg. he buys one lot of futures silver of Rs(8000X10)
=Rs.80, 000. Assume the margin is 20%. What is amount of margin money? Suppose, if the price of silver increases by 20%, what will be profit/loss to investor.

UNIT-4 OPTIONS

SHORT ANSWER QUESTIONS:

1. Define Options
2. Explain the Principle of Option Pricing

LONG ANSWER QUESTIONS:

1. Define Options. Explain the structure of Option Market
2. Distinguish between Options and Futures
3. Explain briefly about Option Pricing Models
4. Consider the following data

Stock Price	Rs.50
Months to Expiration	3 months
Risk Free Rate of Interest	10%p.a.
Standard Deviation of stock	40%
Exercise Price	Rs.55
Option Type	European Call

   Calculate the value of call option as per Black-Scholes Model
5. Explain the strategies involving a single option and a Stock
6. Explain the concept of fixed hedging, its mechanism and limitations with suitable Examples

UNIT-5 SWAPS

SHORT ANSWER QUESTIONS:

1. Define the term SWAPS

LONG ANSWER QUESTIONS:

1. Define Swaps. Explain the evolution of Swaps Market
2. Explain the features of Swaps Market
3. Explain the major types of Swaps.
4. What is Interest Rate Swap Contract? Discuss the various features of a interest rate swaps with suitable Examples
5. What are the various types of Currency Swaps? Explain its Structure?

Case Studies on Management of Derivatives:

Case Study 1:

Illiquid Commodity Markets:

Nymex trades natural gas futures in 10,000 million British thermal units (MMBtu). Nymex accounts for almost a quarter of the world's natural gas trades. Natural gas futures are traded in 36 consecutive months commencing the next calendar month (during December 2008, trading occurs in all the months from January 2009 through December 2011). Natural gas futures are quoted in Dollars per MMBTU, i.e., January 2009 futures are natural gas were quoted at Nymex for $5.616 per MMBTU 9 December 2008. The position limits for the natural gas futures are 7000 contracts for all the months combined, but not to exceed 1000 in last three days of trading in the sport month or 5000 in any month.

Amaranth Advisors, a Greenwich based multi strategy hedge fund, had used risk management strategies extensively to record high return profits. Brian Hunter, head of Amarnath's energy trading desk, had been placing large trades on natural gas making huge returns when natural gas prices raised sharply after hurricanes Katrina and Rita. Energy traders to a large extent followed the seasonal occurrence of hurricanes since the demand for energy products surged dramatically after such disasters

Once trading strategy of the hedge fund involved going long on the March natural gas futures contract, while shorting April futures contracts. This spread position trade helped the hedge fund to profit from the fact that, historically natural gas prices rise during winter and fall after March as demand for heating among consumers reduces. If an expectation is that the winter would be severe or hurricanes are expected to reduce energy supplies, such a spread trade results in a profitable position for an investor.

During 2006, the hedge fund entered into spread trades, forecasting that natural gas spreads would increase, and it kept increasing its exposure in such spread contracts. In a highly liquid market, the natural gas futures trades were more that 100000 contracts, while in illiquid markets the trades were only around 50,000 to 60,000 contracts. It is estimated that Amarnath held well over 50,000 natural gas contract at times when there was an illiquid market. Hunter thus took on more exposure that was more than what could have been dealt with on behalf of well known investment banks.

By the end of February 2006, the fund held nearly 70 per cent of the open interest in the November future contracts on Nymex and nearly 60 percent in the futures for January. Roughly, Hunter's exposure was giving a return of 11 per cent to 13 per cent in April 2006 alone. Then he had a loss of nearly $1 billion in May 2006 when prices of gas for delivery far in the future suddenly collapsed. By the end of MAy, the hedge fund had accumulated larger natural gas positions than it could sell profitably. In june and july 2006, despite the losses, the hedge fund did not reduce its exposures but on the other hand increased its spread positions. The fund, however received back $1 billion that had been lost earlier during the month of june 2006. By the end of August, Amarnath had accumulated a huge position in favour of a rising market, but the market took a different direction. Natural gas for october 2006 delivery settled at $4.942 per MMbtu on Nymex.

The speed at which Amarnath's energy derivatives portfolio accumulated mark to market losses has been astounding. Unpredictable market events caused the funds natural gas spread positions to record heavy losses. The prices behaviour and illiquidity in the markets also did not provide any economically viable means of exiting those positions for the hedge fund. Additionally, a relatively uneventful hurricane season in the year 2006 caused the MArch/April spread narrowed from 2.05 points on 1 september 0.75 points on 18th september.

After starting in 2006 with a $7.5 billion asset value, the fund showed a comfortable position of $9.2 billion in assets in April and eventually collapsed to less than $3 billion by the end of june 2006. On 14 september alone, it lost $565 millions. It suffered close to a $6 billion loss in september 2006 after huge concentrated positions in the natural gas market went wrong. The losses have forced the firm to sell its energy portfolio to Chicago based hedge fund citadel and JP Morgan.

Investigations from the senate Permanent Subcommittee examine millions of trading records from the two main American energy exchanges, the Nymex and the International Exchange (ICE). the report found that Amaranth hedge fund held as many as 1,00,000 natural gas contracts in a single month, accounting for 5 per cent of the total amount of natural gas consumed in the United States during 2005. The position was so large that it allowed the hedge fund to dominate trading in natural gas future and push up prices.

The investigations also fault Nymex for failing to restrain Amaranth hedge fund in time. Nymex officials had known since MAy 2006 that Amaranth had accumulated sizable holdings in several future contracts. When Nymex finally asked Amaranth to reduce its holdings in August, the fund moved its assets from Nymex to ICE, an exchange that is exempt from federal regulation.

The energy hedge fund had several key positions that caused the losses. Amaranth hedge fund found itself on the wrong side of the market and could not make up for its losses when prices fell. A failure to account for illiquidity could have led to Amaranth hedge fund's huge erosion of capital in such a short spam.

Case Questions

1. Discuss the risk exposure of Amaranth hedge fund
2. What are the negatives to rolling a spread position
3. Assuming that the hedge fund had not expanded its contract exposure in spread positions, what are other alternative strategies would be available
4. What are the risk management strategies that are available for traders in illiquid markets

Case Study 2:

COIMBATORE YARNS' MARK RECEIVABLES

Struggling to understand the subtleties of international finance, Mr.Shanmugham, Managing Director of Coimbatore, Yarns, called his banker for advice. "The rupee has been unexpectedly firm in the last two months" replied the banker, "but our inflation rate is still higher than that of our trading partners and our balance of payments situation is still precarious. I expect the rupee to weaken in the next few weeks. Nevertheless since you are a newcomer to international operations, i would advise you to take forward cover routinely until you develop enough experience and are able to take a view on the market"

Coimbatore Yarn was a small closely held company in the south Indian State of Tamilnadu. In the last fifteen years of its existence, it had sole entirely in the domestic market and had never seriously explored the export market. This was partly because during most of this period, an overvalued rupee made Indian Yarn uncompetitive in the world market. This position began changing in the early 90s when a balance of Payments crisis forced the Indian government to embark on a programme of wide ranging economic reforms and liberalization. In July 1991, the rupee was devalued sharply in March 1992; the liberalized Exchange Rate Management System (LERMS) was introduced under which exporters had to surrender only 40% of their foreign Exchange earnings at the official rate leaving the remaining 60% to be sold in the free market at a rate which was typically 20% higher than the

official rate. In March 1993, all trade transactions were left entirely to the free market. A dollar of export earnings was now worth Rs 31 as against only Rs20 two years back.

Coimbatore Yarns now started receiving offers from Bombay based brokers eager to buy yarn to fill export orders. Coimbatore Yarns saw no reason why it should sell its Yarn to brokers and let them make large profits by exporting their yarn to Europe and elsewhere. It started exploring the market on its own. At the end of April 1993, it was rewarded with an export order from an Italian firm for nearly Rs1 crore worth if yarn at a price about 15% higher than the domestic price. The yarn was to be shipped in the end of May on 60 days credit. Shanmugham was initially a little worried about the Italian Lira's reputation as a weak currency, but his fears were allayed when the Italians readily agreed to accept invoicing in deutsche marks. Happy that his efforts had borne fruit, Shanmugham left the financial aspects of the transaction to be handled by his Finance Manager, Mr. Mahadevan and resolved to pursue the export market more aggressively.

Mahadevan sought advice from his friends who worked in companies with substantial international transactions. They told him that the basic decision was whether to take forward cover or not. If Coimbatore Yarns waited for the payment to be received from the Italian Importer, the amount of rupee that it would get in return for the DM 500,000 invoice value would depend on the exchange rate prevailing on that date. To get rid of his uncertainty, the company would enter into a forward contract to sell this DM 500,000 at the future date at a price specified now. This pre-specified forward rate was often quoted as an annualized percentage premium or discount relative to the spot rate prevailing now; for example it the six month forward rate was1.5% above the spot rate, this would be described as a 3% annualized forward premium. Mahadevan was told that the DM was currently trading at about Rs19.80 and was at a forward premium of about 4.5% (annualized). Mahadevan found to his consternation that there was no consensus among his friends about whether to take forward cover or not. It appeared him tough that importers were generally more eager to take forward cove than exporters.

Since this was the first such transaction at Coimbatore Yarn, Mahadevan decided to take the matter ti shanmugham for a financial decision. That was when shanmugham had the conversation with the banker reported at the beginning of this case. Shanmugham was a novice in international finance, but his well developed business acumen told him that the banker's last sentence of advice ran counter to the preceding two sentences of facts and analysis.

Case Questions

Discuss the Case on Futures Risk

MODEL & PREVIOUS YEAR QUESTION PAPERS

ANURAG GROUP OF INSTITUTIONS
(Autonomous)
School of Business Management
II-M.B.A-I-Semester End Examinations, Jan/Feb-2016
Subject: Management of Derivatives

Time: 3 Hours   Max.Marks:60

Section – A (Short Answer type Questions)   (10X2=20 Marks)

Answer all questions, each question carry equal marks.

1. Market Risk
2. Currency Swaps
3. Arbitrage
4. Binomial Option Pricing Model
5. Cross hedging
6. Put-call Parity
7. American Options
8. Credit swap
9. Covered Call
10. Forward Vs Futures

Section – B (Essay Questions)   (5X8=40 Marks)

Answer all the questions

11. A) "Derivatives play a significant role in price discovery". Justify.

<div align="center">OR</div>

B) "Derivative instruments are used to hedge risk in a financial market". Explain different types of risk that occur in a financial market?

12. A) The following is the information regarding the market rates and the objectives of the corporate.

Name of the	A	B
Objectives	Floating $	Fixed $
Fixed rate $	5.50	X
Floating rate $	Libor+ 0.25	Libor+ 0.75
Fixed	6.00	5.50

Calculate the fixed rate for B to arrange a swap in such a way that the benefit is equally distributed among the parties.

<div align="center">OR</div>

B) Consider the following data relating to an interest rate swap:

Remaining term to maturity	4 yr. 3-m
Floating rate payment	LIBOR
LIBOR applicable for the current half	
Current 3-m LIBOR	7.5%
Current market quote for 4 yr. swap	4 yr. Treasury bill + 30/45

Find the value of the swap.

13. A) An exporter has a receivable of the US$ 5 million which is expected to be received 3-m from now. The following options are proposed to be used for hedging.

Type of option	Strike price	Premium
Call	Rs./$ 43.00	0.75
Put	Rs./$ 43.25	1.00

If the spot rate is Rs.42.50 and 3-m forward rate is Rs. 42.75, which alternative will you suggest for hedging?

OR

B) Consider a four-month European call option on the pound sterling. The current spot rate of the pound against the rupee is 70.30 and the volatility of the Rs. /£ rate is 20%. The risk-free interest rate in the UK and India are 5% and 10% respectively. The strike price of the option is Rs 70.50/£. Is it worthwhile to buy the option at a premium of Rs.2

14. A) October Soyabean Oil futures are selling at 19.44 cents per lb. The standard s size of the contract is 60,000 lbs. Initial margin requirement is $3000 while the maintenance margin is $1500. If a trader goes long in two October futures contracts and the prices on the subsequent 4 days are 19. 19.4, 19.6 and 19.8 cents/lb, explain how the margin account changes. Assume that money in excess of the initial margin is withdrawn immediately.

OR

B) A corn farmer sells 10 futures contracts of 5000 bushels each at Rs. 4.00 per bushel. The spot price is Rs. 3.30 per bushel. At the time of harvesting, which is four months from now, if the price per bushel reaches Rs. 4.15, what is the basis at the time of expiration of the contract? Does the farmer gain or loss and by how much amount with respect to futures price and spot price four months ago?

15. A) Following information is available for call options on the stock of Micon Ltd.

Current market price	Rs.120
Strike price	Rs.110
Time to expiration	30 days
Standard deviation of return on the stock	25%
Risk-free rate of interest	8%

You are required to compute for the call option value using Black-scholes Model.

OR

B) "Forward Rate Agreement (FRA) is also known as Interest Rate Forward Contract". Discuss in detail an Interest Rate Forward Contract

ANURAG GROUP OF INSTITUTIONS
(Autonomous)
School of Business Management
II-M.B.A-I-Semester End Examinations, March -2015
Subject: DERIVATIVES

Time: 3 Hours   **Max.Marks:60**

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Section – A (Short Answer type questions)   **(10X2=20 Marks)**

  Answer all questions, each question carry equal marks

1. Derivatives
2. Hedgers
3. Basis risk
4. Forwards
5. Clearing house
6. Binomial Option Pricing Model (BOPM)
7. Normal Distribution
8. Fixed hedging
9. LIBOR
10. Interest rate swaps

Section – B (Essay Type Questions) Answer all the questions   **(5x8=40 Marks)**

11. A) Explain the development and growth of derivative market in India?

                                             Or

B) Explain the types of Derivatives

12. A) how does a futures contracts differ from forward contracts?

                                             Or

B) A company knows that it will buy 2 million gallon fuel for jet in six months. The standard deviation of the change in price per gallon of fuel over a six months period is calculated as 0.020. The company chooses to hedge by buying futures contract on heating oil. The standard deviation of the change in future price over a 3 months period is 0.025 and co- efficient correlation between 3 months change in the price of jet fuel and 3 month change is 0.5. Calculate the optimum hedge ratio and number of Contracts Company should buy to hedge the risk?

13. A) what is option? Explain different types of options and principles involved in option trading?

                                             Or

B) From the following data

Stock price = Rs. 50 risk free interest rate = 10% P.A. standard deviation = 40% Exercise price= Rs. 55 months of expiry is 3 months, option type is European call. Calculate value of call as per Black Scholes model.

14. A) Explain Black Scholes option pricing model? Write its assumptions.

Or

B) Explain about currency option?

15. A) What are major types of financial swaps?

Or

B) Explain the risk associated with swaps

ANURAG GROUP OF INSTITUTIONS
(Autonomous)
School of Business Management
II-M.B.A-I-Semester End Examinations, March - 2014
Subject: DERIVATIVES

Time: 3 Hours   **Max.Marks:60**

Section – A (Short Answer type questions)   (10X2=20 Marks)
Answer all questions, each question carry equal marks

Explain the following terms:

1. Currency Forward Contract

2. Delta Hedging

3. Out-of-the-Money

4. Coupon Swaps

5. Straddles

6. Floors

7. LIBOR

8. Foreign Exchange Risk

9. Plain Vanilla Swaps

10. Maintenance Margin

Section – B (Essay Type Questions)   **(5x8=40 Marks)**

Answer all the questions. Each question carries equal marks

11. a) Explain the types of Derivatives?

OR

b) Briefly explain the role of Derivative instruments?

12. a) How does a Futures contract differ from a Forward contract?

OR

b) What are the regulations related to booking of Forward Contracts?

13. a) Discuss the pricing of Currency Futures?

<div align="center">OR</div>

b) If the current spot rate is USD/INR 46 and the Indian and US one year risk-free rates are 6% and 4% respectively, find the one-year futures price of the US dollar.

14. a) Explain the Black and Scholes option pricing model? What are its assumptions?

<div align="center">OR</div>

b) X paid a premium of Rs. 5 per share for a 6 month call option contract (total of Rs.500 for 100) share of ABC corporation. At the time of purchase ABC stock was selling for Rs. 57 per share and the exercise price of the call option was Rs. 56.

i) Determine X's profit or loss if the price of ABC's stocks is Rs. 53, when the option is exercised.

ii) What is X's profit or loss if the price of ABC's stock is Rs. 63 when the option is exercised.

15. a) Explain the various types of Currency Swaps?

<div align="center">OR</div>

b) Suppose the interest rate is 8% per annum in India and 6% per annum in the US. A swap bank has entered into a three-year currency swap, of 9% per annum in INR and pays a 6% per annum in US dollars once a year. The principal amounts are INR 900 million and USD 20 million. The current exchange rate is USD/INR 45. If the present value of cash flows associated with borrowing in the domestic currency, what would be the swap value.