



DECEMBER 2, 2019

**FINANCIAL DERIVATIVES**  
**SCHOOL OF BUSINESS MANAGEMENT**



ANURAG GROUP OF INSTITUTIONS  
(Autonomous)  
SCHOOL OF BUSINESS MANAGEMENT

Course Name : Management of Derivatives

Course Number : **A93004**

Course Designation : Finance Elective

Credits : 3

Prerequisites : -

II MBA – I Semester  
(2018-19)

Name of Faculty	Academic Year/Regulation	Version No
P.Kalpana	R15	1
P.Kalpana	R18	2
Seema Nazneen	R18	2

Seema Nazneen  
Asst. Professor  
Course Coordinator

### Course File Index

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## SYLLABUS

Unit – I	<b>Introduction:</b> Definition, Features, Its Importance, Development and Growth of Derivative Markets, Types of Derivatives, Uses of Derivatives, Fundamental linkages between Spot & Derivative Markets, The Role of Derivatives Market, Uses and Misuses of Derivatives, Derivative Markets in India.
Unit – II	<b>Future And Forward Markets:</b> Structure Of Forward & Futures Markets, Mechanics Of Future Markets, Hedging Strategies Using Futures determination of Forward & Future Prices, Interest Rate Futures, Currency Futures & Forwards.
Unit – III	<b>Options:</b> Meaning, Structure of Options Market, Distinction between Options and Futures, Principles of Option Pricing. Option Pricing Models: The Binomial Model, The Black – Scholes Merton Model
Unit – IV	Basic Option Strategies: Advanced Option Strategies, Trading with Options, Hedging with Options, Currency Options.
Unit-V	<b>SWAPS:</b> Concept, Nature, Evolution of Swap Market and Features of Swaps, Major types of Swaps-Interest Rate Swaps, Currency Swaps, Commodity Swaps, Equity Index Swaps, Credit Risk in Swaps, Credit Swaps, Using Swaps to Manage Risk, Pricing and Valuing Swaps.

### Text Books, Reference Book, Web/Other Resources

- Gupta, Financial Derivatives, PHI 2012
- M. Ranganatham & R. Madhumathi, Derivatives and Risk Management, Pearson, 2012
- Sundaram Das, Derivatives-Principles and Practice, MC Graw Hill, 2012

## **PROGRAM LEARNING OUTCOMES (PO's)**

The learning outcomes specify the knowledge, skills, values and attitudes students are expected to attain in courses or in a program.

1. ***Business Environment and Domain Knowledge:*** Graduates are able to improve their awareness and knowledge about functioning of local and global business environment and society.
2. ***Critical thinking, Business Analysis, Problem Solving and Innovative Solutions:*** Graduates are expected to develop skills on analyzing the business data, application of relevant analysis, and problem solving in other functional areas such as marketing, business strategy and human resources.
3. ***Global Exposure and Cross-Cultural Understanding:*** Demonstrate a global outlook with the ability to identify aspects of the global business and Cross Cultural Understanding.
4. ***Social Responsiveness and Ethics:*** Graduates are expected to identify the contemporary social problems, exploring the opportunities for social entrepreneurship, designing business solutions and demonstrate ethical standards in organizational decision making.
5. ***Effective Communication:*** Graduates are expected to develop effective oral and written communication especially in business applications, with the use of appropriate technology.
6. ***Leadership and Teamwork:*** Graduates are expected to collaborate and lead teams across organizational boundaries and demonstrate leadership qualities, maximize the usage of diverse skills of team members in the related context.

## **MBA PROGRAM EDUCATIONAL OBJECTIVES (PEO's):**

1. To teach the fundamentals of the key elements of a business organization.
2. To provide a critical perspective on theoretical knowledge and practical approach to various functional areas of management and decision making.
3. To develop analytical skills to identify the link between the management practices in the functional areas of an organization and business environment.
4. To establish and realize a creative research culture among the student community.

5. To provide insights on latest technology, business communication, management concepts and to build team work and leadership skills within them.
6. To inculcate the habit of inquisitiveness and creativeness aimed at self-actualization and realization of ethical practices.

<b>Definitions</b>	<b>I. Remembering</b>	<b>II. Understanding</b>	<b>III. Applying</b>	<b>IV. Analyzing</b>	<b>V. Evaluating</b>	<b>VI. Creating</b>
<b>Bloom's Definition</b>	Exhibit memory of previously learned material by recalling facts, terms, basic concepts, and answers.	Demonstrate understanding of facts and ideas by organizing, comparing, translating, interpreting, giving descriptions, and stating main ideas.	Solve problems to new situations by applying acquired knowledge, facts, techniques and rules in a different way.	Examine and break information into parts by identifying motives or causes. Make inferences and find evidence to support generalizations.	Present and defend opinions by making judgments about information, validity of ideas, or quality of work based on a set of criteria.	Compile information together in a different way by combining elements in a new pattern or proposing alternative solutions.
<b>Verbs</b>	<ul style="list-style-type: none"> <li>• Choose</li> <li>• Define</li> <li>• Find</li> <li>• How</li> <li>• Label</li> <li>• List</li> <li>• Match</li> <li>• Name</li> <li>• Omit</li> <li>• Recall</li> <li>• Relate</li> <li>• Select</li> <li>• Show</li> <li>• Spell</li> <li>• Tell</li> <li>• What</li> <li>• When</li> <li>• Where</li> <li>• Which</li> <li>• Who</li> <li>• Why</li> </ul>	<ul style="list-style-type: none"> <li>• Classify</li> <li>• Compare</li> <li>• Contrast</li> <li>• Demonstrate</li> <li>• Explain</li> <li>• Extend</li> <li>• Illustrate</li> <li>• Infer</li> <li>• Interpret</li> <li>• Outline</li> <li>• Relate</li> <li>• Rephrase</li> <li>• Show</li> <li>• Summarize</li> <li>• Translate</li> </ul>	<ul style="list-style-type: none"> <li>• Apply</li> <li>• Build</li> <li>• Choose</li> <li>• Construct</li> <li>• Develop</li> <li>• Experiment with</li> <li>• Identify</li> <li>• Interview</li> <li>• Make use of</li> <li>• Model</li> <li>• Organize</li> <li>• Plan</li> <li>• Select</li> <li>• Solve</li> <li>• Utilize</li> </ul>	<ul style="list-style-type: none"> <li>• Analyze</li> <li>• Assume</li> <li>• Categorize</li> <li>• Classify</li> <li>• Compare</li> <li>• Conclusion</li> <li>• Contrast</li> <li>• Discover</li> <li>• Dissect</li> <li>• Distinguish</li> <li>• Divide</li> <li>• Examine</li> <li>• Function</li> <li>• Inference</li> <li>• Inspect</li> <li>• List</li> <li>• Motive</li> <li>• Relationships</li> <li>• Simplify</li> <li>• Survey</li> <li>• Take part in</li> <li>• Test for</li> <li>• Theme</li> </ul>	<ul style="list-style-type: none"> <li>• Agree</li> <li>• Appraise</li> <li>• Assess</li> <li>• Award</li> <li>• Choose</li> <li>• Compare</li> <li>• Conclude</li> <li>• Criteria</li> <li>• Criticize</li> <li>• Decide</li> <li>• Deduct</li> <li>• Defend</li> <li>• Determine</li> <li>• Disprove</li> <li>• Estimate</li> <li>• Evaluate</li> <li>• Explain</li> <li>• Importance</li> <li>• Influence</li> <li>• Interpret</li> <li>• Judge</li> <li>• Justify</li> <li>• Mark</li> <li>• Measure</li> <li>• Opinion</li> <li>• Perceive</li> <li>• Prioritize</li> <li>• Prove</li> <li>• Rate</li> <li>• Recommended</li> <li>• Rule on</li> <li>• Select</li> <li>• Support</li> <li>• Value</li> </ul>	<ul style="list-style-type: none"> <li>• Adapt</li> <li>• Build</li> <li>• Change</li> <li>• Choose</li> <li>• Combine</li> <li>• Compile</li> <li>• Compose</li> <li>• Construct</li> <li>• Create</li> <li>• Delete</li> <li>• Design</li> <li>• Develop</li> <li>• Discuss</li> <li>• Elaborate</li> <li>• Estimate</li> <li>• Formulate</li> <li>• Happen</li> <li>• Imagine</li> <li>• Improve</li> <li>• Invent</li> <li>• Make up</li> <li>• Maximize</li> <li>• Minimize</li> <li>• Modify</li> <li>• Original</li> <li>• Originate</li> <li>• Plan</li> <li>• Predict</li> <li>• Propose</li> <li>• Solution</li> <li>• Solve</li> <li>• Suppose</li> <li>• Test</li> <li>• Theory</li> </ul>

## Course outcomes:

1. To explain the derivative trading methods in India
2. To describe the concept and structure of forward markets for risk management.
3. To analyze and determine strategies the Futures Markets.
4. To analyze the basic option strategies and trading with commodity and currency options.
5. To evaluate the swap markets and it's pricing.

## MAPPING OF COURSE OUT COMES WITH PO's & PEO's

Course Outcomes	PO's	PEO's
CO1	1,2	1,2, 5
CO2	1,2,3	1,2,3
CO3	2,3,4	3,4,6
CO4	1,2,4	2,3,4
CO5	1,3,5,6	2,3,5

## Articulation matrix of Course outcomes with PO's & PEO's

	Program Outcome's						Program Educational Outcome's					
	PO1	PO2	PO3	PO4	PO5	PO6	PEO1	PEO2	PEO3	PEO4	PEO5	PEO6
CO1	1						2					
CO2		2							2			
CO3	1			2		2				1		
CO4			1		2			2			1	
CO5	1						1					1



## Course Schedule

Distribution of Hours in Unit – Wise

Unit	Topic	Chapters		Total No. of Hours
		F.DERIVATIVES S.L.GUPTA	F.DERIVATIVES S.S.S KUMAR	
I	<b>Introduction:</b> Definition, Features, Its Importance, Development and Growth of Derivative Markets, Types of Derivatives, Uses of Derivatives, Fundamental linkages between Spot & Derivative Markets, The Role of Derivatives Market, Uses and Misuses of Derivatives, Derivative Markets in India.	1,2		10
II	<b>Futures and Forward Markets:</b> Forwards Market Concept, Meaning, Features, and Structure of Forward Markets, Managing Risks using Forwards, Commodity Price Risk, Interest Rate Futures, Currency Futures	3		9
III	<b>Options:</b> Meaning, Structure of Options Market, Distinction between Options and Futures, Principles of Option Pricing, Option Pricing Models: The Binomial Model, The Black – Scholes Merton Mode	4		8
IV	I. Basic Option Strategies: Advanced Option Strategies, Trading with Options, Hedging with Options, Currency Options.	14,15		11
V	<b>Swaps:</b> Concept, Nature, Evolution of Swap Market and Features of Swaps, Major types of Swaps-Interest Rate Swaps, Currency Swaps, Commodity Swaps, Equity Index Swaps, Credit Risk in Swaps, Credit Swaps, Using Swaps to Manage Risk, Pricing and Valuing Swaps.	13		12
Total contact classes for Syllabus coverage				<b>50</b>
<i>Tutorial Classes : 1 per week</i>				

Number of hours / lectures available in Semester / Year: 50

## Lecture Plan:

.NO	TOPIC	NO. OF CLASSES	Teaching methodology
<b>UNIT-I INTRODUCTION</b>			
1.	Definition, Features, Its importance	1	Chalk & Board
2.	Development & growth of Derivatives Market	1	Chalk & Board
3.	Types of Derivatives	2	Chalk & Board
4.	Uses of Derivatives	1	PPTs & Student presentations
5.	Fundamental Linkage between Spot & Derivative Market	2	Chalk & Talk
6.	The Role of Derivatives Market	1	Chalk & Talk
7.	Uses & Misuses, Derivatives markets in India	2	PPTs & Student presentations
<b>UNIT-2 FORWARD MARKETS</b>			
8	Forward Market Concept, Meaning & Features	1	Chalk & Talk
9	Structure of Forward Markets	2	Chalk & Board
10	Managing Risks using Forwards	2	
11	Commodity Price, Interest Rate Risks	2	Chalk & Talk
12	Foreign Exchange and Determination of Forward Prices	2	
14	Meaning, Mechanics of Futures Contract	2	Chalk & Talk
15	Forwards Vs Futures	1	Activity
16	Hedging Strategies using Futures	2	PPT
17	Determination of Future prices	1	Chalk & Board
18	Interest Rate Futures, Currency Futures	2	Video Lecture
<b>UNIT-3 FUTURE MARKETS</b>			
20	Meaning. Structure of Options Market	1	Chalk & Talk
21	Distinction between Options & Futures	1	PPTs & Student presentations
22	Principles of Option Pricing	1	Chalk & Talk
23	Option Pricing Models: The Binomial Model	2	Chalk & Board
24	The Black-Scholes Merton Model	2	PPT
<b>UNIT IV Basic Option Strategies</b>			
25	Advanced Option Strategies	4	Chalk & Talk
26	Trading with options, Hedging with Options, Currency	4	Video

	Options		
	<b>UNIT-5 SWAPS</b>		
27	Swaps: Concept, Nature , Evolution of Swap Market	2	Chalk & Board
28	Features of Swaps, Major types of Swaps	2	Chalk & Talk
29	Currency Swaps, Commodity Swaps	2	Chalk & Talk
30	Equity Index Swaps, Credit Risk in Swaps	2	
31	Credit Swaps, Using Swaps to Manage Risk	2	Chalk & Board
32	Pricing and Valuing Swaps	2	PPT
	<b>Total No. of Classes</b>	<b>54</b>	

## Minutes of Course Review Meeting

Details of Meeting No -	
Date of Meeting	
Member's Present	
Signature of Member's	
Remarks	
Details of Meeting No -	
Date of Meeting	
Member's Present	
Signature of Member's	
Remarks	
Details of Meeting No -	
Date of Meeting	
Member's Present	
Signature of Member's	

### UNIT – 1 INTRODUCTION

#### SHORT ANSWER QUESTIONS:

1. Define Derivatives (CO1, L-1)
2. What is a spot Market(CO1, L-1)
3. Discuss about the commodities market(CO1, L-2)
4. List out atleast two uses & misuses of derivatives (CO1, L-2)
5. Discuss about the features of a financial derivative (CO1, L-3)
6. Explain the difference between ETD & OTC derivatives(CO1, L-2)

**LONG ANSWER QUESTIONS:**

1. Explain the term “Financial Derivative”, What are its important features with suitable Examples(CO1, L-12)
2. Explain different types of financial derivatives (CO1, L-2)
3. Bring out the historical development & importance of derivative market in India(CO1, L-1)
4. Explain the fundamental linkages between Spot & Derivative Market(CO1, L-2)
5. Explain the Uses & Misuses of Derivatives(CO1, L-2)

**UNIT-2 FORWARD MARKETS**

**SHORT ANSWER QUESTIONS:**

1. What is a Forward Contract (CO-2 L-1)
2. What is Commodity Price Risk (CO-2, L-1)
3. What is Interest Rate risk(CO-2 L-1)
4. What is a Future Market(CO-2 L-1)
5. What is Hedging(CO-2 L-1)
6. Explain the Mechanics of Futures Contract(CO-2 L-2)

**LONG ANSWER QUESTIONS:**

1. Explain the Structure & Features of Forward Markets(CO-2 L-2)
2. Explain the Forward Trading Mechanism(CO-2 L-2)
3. Explain how the risk can be Managed using Forwards(CO-2 L-2)
4. Explain the determination of Forward Prices(CO-2 L-2)
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 out to be (a) Rs. 470 (b) Rs.400 on April 15(CO-2 L-3)

**UNIT-3 FUTURE MARKETS**

**SHORT ANSWER QUESTIONS:**

1. What is a Future Market (CO-3, L-1)
2. What is a write option (CO-3, L-1)
3. Explain the Mechanics of Futures Contract (CO-3, L-2)
4. List out the difference between options and futures (CO-3,L-3)

5. Define option premium (CO-3, L-2)

**LONG ANSWER QUESTIONS:**

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

**UNIT-4 OPTIONS**

**SHORT ANSWER QUESTIONS:**

1. Define Options (CO-4, L-2)
2. Explain the Principle of Option Pricing (CO-4, L-2)

**LONG ANSWER QUESTIONS:**

1. Define Options. Explain the structure of Option Market (CO-4, L-2)
2. Distinguish between Options and Futures (CO-4, L-2)
3. Explain briefly about Option Pricing Models (CO-4, L-2)
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 (CO-4, L-4)
5. Explain the strategies involving a single option and a Stock (CO-4, L-2)
6. Explain the concept of fixed hedging, its mechanism and limitations with suitable Examples (CO-4, L-2)

**UNIT-5 SWAPS**

**SHORT ANSWER QUESTIONS:**

1. Define the term SWAPS (CO-5, L-2)

**LONG ANSWER QUESTIONS:**

1. Define Swaps. Explain the evolution of Swaps Market (CO-5, L-2)

2. Explain the features of Swaps Market (CO-5, L-2)
3. Explain the major types of Swaps. (CO-5, L-3)
4. What is Interest Rate Swap Contract? Discuss the various features of an interest rate swaps with suitable Examples (CO-5, L-2)
5. What are the various types of Currency Swaps? Explain its Structure? (CO-5, L-2)

## **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 than 100,000 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 contracts 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 fund's natural gas spread positions to record heavy losses. The price 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 to narrow from 2.05 points on 1 September to 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 million. 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 span.

### **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 of 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 if the six month forward rate was 1.5% 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 to him that importers were generally more eager to take forward cover than exporters.

Since this was the first such transaction at Coimbatore Yarn, Mahadevan decided to take the matter to 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

### **RESEARCH ACTIVITY:**

- Students are asked to pair in teams of 3 and four students and create a virtual future and forward contract role plays.
- Posters and charts are made with future and forward prices
- Role play on option contracts are made
- Swaps a virtual SE is created to design their interest rate swaps

# 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.

OR

- 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 Comp.	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.

OR

Remaining term to maturity	4 yr. 3-m
Fixed rate payment	9%
Floating rate payment	LIBOR
LIBOR applicable for the current half year	8.5%
Current 3-m LIBOR	7.5%
Current market quote for 4 yr. swap	4 yr. Treasury bill + 30/45
Current 4 yr. Treasury rate	8.25%

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Find the value of the swap.

B)

Consider the following data relating to an interest rate 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 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

**Tutorial Sheet**

<b>Unit-I Topics Revised</b>
<b>Topic Name</b>
<b>Unit-I Topics Revised</b>
<b>Topic Name</b>
<b>Unit-III Topics Revised</b>
<b>Topic Name</b>
<b>Unit-IV Topics Revised</b>
<b>Topic Name</b>
<b>Unit-V Topics Revised</b>
<b>Topic Name</b>

## Course Assessment Report

**Batch:**

**Academic Year/Sem:**

**Course Name:**

**Course Number:**

**Course Attainment (75% of Direct + 25% of Indirect) on a scale of 1 to 3.**

**Remarks and suggestions:**

**Course Coordinator**

**Direct Course Assessment Sheet (As per IonCudos)**

**a) Internal Examination**

**CSP Rubric**

**Course assessment sheet Ass1**

Hall Ticket No	S1	S2	TOT
1			
2			
3			

**Course assessment sheet Mid1**

Hall Ticket No	S1	S2	S3	S4	S5	L1	L2	L3	L4	L5	TOT
1											
2											
3											

**Course assessment sheet Ass2**

Hall Ticket No	S1	S2	TOT
1			
2			
3			

**Course assessment sheet Mid2**

Hall Ticket No	S1	S2	S3	S4	S5	L1	L2	L3	L4	L5	TOT
1											
2											
3											

**b) External Examination**

Hall Ticket No	Total Marks



S.No.	Criteria	<b>LEVEL</b> ( Level: 3-Excellent      Level: 2-Good      Level: 1-Poor)		
1	<b>Oral Communication</b>	3	Student speaks in phase with the given topic confidently using Audio-Visual aids. Vocabulary is good	
		2	Student speaking without proper planning, fair usage of Audio-Visual aids. Vocabulary is not good	
		1	Student speaks vaguely not in phase with the given topic. No synchronization among the talk and Visual Aids	
2	<b>Writing Skills</b>	3	Proper structuring of the document with relevant subtitles, readability of document is high with correct use of grammar. Work is genuine and not published anywhere else	
		2	Information is gathered without continuity of topic, sentences were not framed properly. Few topics are copied from other documents	
		1	Information gathered was not relevant to the given task, vague collection of sentences. Content is copied from other documents	
3	<b>Social and Ethical Awareness</b>	3	Student identifies most potential ethical or societal issues and tries to provide solutions for them discussing with peers	
		2	Student identifies the societal and ethical issues but fails to provide any solutions discussing with peers	
		1	Student makes no attempt in identifying the societal and ethical issues	
4	<b>Content Knowledge</b>	3	Student uses appropriate methods, techniques to model and solve the problem accurately	
		2	Student tries to model the problem but fails to solve the problem	
		1	Student fails to model the problem and also fails to solve the problem	
5	<b>Student Participation</b>	3	Listens carefully to the class and tries to answer questions confidently	
		2	Listens carefully to the lecture but doesn't attempt to answer the questions	
		1	Student neither listens to the class nor attempts to answer the questions	
6	<b>Managerial and analytical Skills</b>	3	The managerial analysis process and presentation is well organized with appropriate use of technologies and methodology. Concept is easy to understand and well documented.	
		2	The managerial analysis process and presentation is well organized with appropriate use of technologies and methodology. Concept is difficult to understand and not well documented. Analysis is accurate.	
		1	The managerial analysis process and presentation is not well organized with mistakes in usage of appropriate technologies and methodology. Concept is difficult to understand and student is not able to explain the decision making process.	
7	<b>Practical Knowledge</b>	3	Independently able to understand and relate the managerial concepts covered in theory to contemporary business environments.	
		2	Independently able to understand the concepts covered in theory but not able to relate the concepts to contemporary business environments.	
		1	Not able to understand the concepts and not able to relate concepts to contemporary business environments.	
8	<b>U n d e r</b>	3	Student uses appropriate methods, techniques to model and solve the	

			problem accurately in the context of multidisciplinary managerial concerns.
		2	Student tries to model the problem but fails to solve the problem in the context of multidisciplinary managerial concerns.
		1	Student fails to model the problem and also fails to solve the problem in the context of multidisciplinary managerial concerns.

## Indirect Course Assessment Sheet

**Tools:**

a) **Case Study**

<b>S.No.</b>	<b>Hall Ticket Number</b>	<b>Rubric Assessment</b>
1		
2		
3		

**b) Course End Survey Report**

**Add-ons** (Guest Lecture/Video Lecture/Certification/Training Program/Poster Presentation.... etc.)

Stock market Trends

**Unit Wise PPT's & Lecture Notes**

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