Derivatives and Forex Segment

- Derivatives: Definition, Types, Uses , Factors
- Forward: Definition, Uses and other uses
- Futures: Definition, uses
- Option: Definition, types, uses, problems
- Other Derivative Products

Risk

- Risk of small losses with high probability.
- Risk of high losses with low probability.

Markets

- Forex Market
- Commodity Market
- Equity Market (Stock)-Individual stocks, indices
- Spot market
- Derivative market

Derivative: Definition

- Derivative is a product whose value is derived from the value of one or more basic variables, called bases (underlying asset, index, or reference rate), in a contractual manner.

Derivative

- It is a contract of buying or selling an underlying asset at a pre-determined price for specified period.
- Underlying assets-

  Currency derivatives (Forward, Futures, Option)

  Commodity derivatives (Forward, Futures, Option)

  Equity, Indices derivatives (Forward, Futures, Option)

  Contracts

Derivatives

- Contract
- Buyer and Seller
- Why I shall buy? Expectation
- Buy at lower and sell in the spot at delivery date at higher price.
- Price (Pre-determined)
- Delivery date/ Settlement based

Ways Derivatives are Used

- To hedge risks
- To speculate (take a view on the future direction of the market)
- To lock in an arbitrage profit
- To change the nature of a liability
- To change the nature of an investment without incurring the costs of selling one portfolio and buying another

Over-the-counter market

- The *over-the-counter market is an important alternative to* exchanges and, measured in terms of the total volume of trading, has become much larger than the exchange-traded market.
- It is a telephone- and computer-linked network of dealers, who do not physically meet.

Exchanges Trading Futures

- Chicago Board of Trade
- Chicago Mercantile Exchange
- LIFFE (London)
- Eurex (Europe)
- BM&F (Sao Paulo, Brazil)
- TIFFE (Tokyo)
- and many more (see list at end of book)

Derivative Products

- Forwards,
- Futures,
- Options and
- Swaps
- Nonstandard derivatives are sometimes termed *exotic options or just exotics (index currency option notes)*

Risks in Spot

- Equity Market (spot market), Currency (Forex Market)
- Risks
- ONGC (Crude oil- Fixed???---, Volatile)
- P.C. Chandra – Jewelries (metals –Gold, Silver, Diamond etc.)
- Equity (Shares)

Derivative: Example

- Contract (Buyer, Seller)
- Agreement (13.08.2022)
- Buy (after 2 months)
- Today's price Rs. 40,000 (10 gm)
- Expected price Rs.44,000 (10%)
- Contract Rs. 43,000 (after 2 months) Consideration (Price)
- 1,000 Kg of Gold
- Underlying Assets (Gold) Quality / Brand/ Equity/ Currency
- MCX
- Margin Account (10% margin on Contract Value)

Derivatives: How to use

- Speculation (future projection)
- Hedging (Risk minimisation)
- Arbitraging (price difference)
- Bank (Investment)
- Import/ Export
- Holding shares

Types of Derivatives

- Based U/A
  - Commodity
  - Currency
  - Equity

Types of Derivatives

Settlement

- OTC
  (Over-the-Counter)
  (Direct Contract)
  Exam- Forward
- Exchange Traded
  (Indirect Contract)
  Futures, Options

OTC Vs Exchange Traded

	OTC	Exchange Traded
Contract	Tailor made contract Crude 100 barrel (Forward) Negotiable	Designated Contract/Specified One Contract Infoys 900? Contract size? Price (No negotiation) Futures and Options, Commodity Futures Financial Futures, Stock Futures and Indices Futures, Currency Futures
Investment	No investment (Initial)	Futures (Margin Money) (% of contract price) i.e. Rs. 10,80,000 (10%) i.e. Rs.10,800 for 2 months for Rs1800 per share After 2 Months Rs.1750 per share Expected Spot Price i.e. (30,000) Option (Option Premium)
Risk	**Counterparty Risk** **Risk of Default** Contract price Rs.1800 After Two Months	Who will bear risk? (Exchange)

Example

- One Contract Infosys (How many shares?)
- 600 shares
- One contract Infosys Futures (600)*1800= 10,80,000
- Ten contracts 6000 shares
- Presently holding 6000 shares (Rs. 1862)
- After 2 months Expecting share price will reduce by 10% (1862-186) 1675
- Loss 186*6000= Rs. 11,16,000
- How to protect?
- Futures contract price Rs.1750
- Action

Forward Contract

- It is an agreement to buy or sell an asset at a certain future time for a certain price.
- A forward contract is traded in the over-the-counter market—usually between two financial institutions or between a financial institution and one of its clients.
- One of the parties to a forward contract assumes a long position and agrees to buy the underlying asset on a certain specified future date for a certain specified price.
- The other party assumes a short position and agrees to sell the asset on the same date for the same price.

Essential features of a forward contract

- Contract between two parties (without any exchange between them)
- Price decided today
- Quantity decided today (can be based on convenience of the parties)
- Quality decided today (can be based on convenience of the parties)
- Settlement will take place sometime in future (can be based on convenience of the parties)
- No margins are generally payable by any of the parties to the other.

Forwards:

- A forward contract is a customized contract between two entities, where settlement takes place on a specific date in the future at today's pre-agreed price.
- Risks
  - Counterparty Risk
  - Price Risk
  - Delivery Risk

Futures

- A futures contract is an agreement between two parties to buy or sell an asset at a certain time in the future at a certain price. Futures contracts are special types of forward contracts in the sense that the former are standardized exchange-traded contracts.

Types of Futures

- Commodity Futures (Gold, Curde oil)
- Stock Futures (Individual Like Reliance
- Index Futures (Nifty)
- Currency Futures (USD)
- Interest Rate Futures (Fixed Rate and Floating Rate)

Distinguish between forward and futures

Forward	**Futures**
OTC in nature	Trade on an organized exchange
Customized contract terms hence less liquid	Standardized contract terms hence more liquid
No margin payment	Requires margin payments
Settlement happens at end of period	Follows daily settlement

Option Contract

An option is a contract that gives its owner the right, but not the obligation to conduct a transaction involving an underlying asset at a predetermined future date and at a predetermined price (exercise or strike price).

Assets Underlying Exchange-Traded Options

- Stocks
- Foreign Currency
- Stock Indices
- Futures

Option Terminology

- Long/buy = Holder
- Short/sell = Writer
- Option price = Option premium
- Exercise price = Strike price (K or X)
- Expiration = Maturity
- Call
- Put
- American (Exercise at Any time)
- European (Exercise at End)

Long and Short Position

- Long and short – Long refers to a position as the holder of an option.
- Short refers to a position as the writer of an option.

Option Premium

- Premium is the price paid by the buyer to the seller to acquire the right to buy or sell

Option premium

- Option premium is made up of two parts:
  - Intrinsic value
  - Time value
- Intrinsic value is the difference between the spot price and the strike price of the option
- Time value is the difference between the option's price and the intrinsic value

Strike Price or Exercise Price

- The strike or exercise price of an option is the specified/ predetermined price of the underlying asset at which the same can be bought or sold if the option buyer exercises his right to buy/ sell on or before the expiration day.

Expiration Date

- The date on which the option expires is known as the Expiration Date.
- On the Expiration date, either the option is exercised or it expires worthless.

Exercise Date

- The date on which the option is actually exercised is called the Exercise Date.
- In case of European Options, the exercise date is same as the expiration date while in case of American Options, the options contract may be exercised any day between the purchase of the contract and its expiration date (see European/ American Option). In India, options on "S&P BSE SENSEX®" are European style, whereas options on individual are stocks American style.
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Open Interest

- The total number of options contracts outstanding in the market at any given point of time.

Option Holder

- **Option Holder** is the one who buys an option, which can be a call, or a put option. He enjoys the right to buy or sell the underlying asset at a specified price on or before specified time.
- His upside potential is unlimited while losses are limited to the premium paid by him to the option writer.

Option seller/ writer

- **Option seller/ writer** is the one who is obligated to buy (in case of put option) or to sell (in case of call option), the underlying asset in case the buyer of the option decides to exercise his option. His profits are limited to the premium received from the buyer while his downside is unlimited.

Option: types

- Options are of two types - calls and puts.
- Calls give the buyer the right but not the obligation to buy a given quantity of the underlying asset, at a given price on or before a given future date.
- Puts give the buyer the right, but not the obligation to sell a given quantity of the underlying asset at a given price on or before a given date.

- Rs.100
- Premium Rs.6 for Put Option (Cost)
- Expecting price will fall by 10% in next two months
- Rs.90
- Buy put option (Sell right) Agreement today

Rs.95.

After two Months Rs. 85 (Spot Market)

Inference

- Price increase then make profit
- Price decreases
- Max loss is premium

Review of Option Types

- A call is an option to buy
- A put is an option to sell
- A European option can be exercised only at the end of its life
- An American option can be exercised at any time

Call Options

Buy

Long Call
Right to buy the underlying at strike price

Benefit if the underlying rises. Profits substantial

Lose if the underlying is steady/ falling. Loss limited to Premium

Sell

Short Call
Obligation to sell the underlying at strike price

Benefit if the underlying is steady/ falling. Profit limited to Premium

Lose if the underlying rises. Loss substantial

Long Put

Right to sell the underlying at strike price

Benefit if the underlying falls. Profits substantial

Lose if the underlying is steady/ rising. Loss limited to Premium

Buy

Put Options

Sell

Short Put

Obligation to Buy the underlying at strike price

Benefit if the underlying is steady/ rising. Profit limited to Premium

Lose if the underlying falls. Loss substantial

Calls and Puts

It is vital to know who has the Right to transact vs. who may be Obliged to transact in order to determine the direction of cash flows at expiry

	BUYER	**SELLER**
CALL	Has the **Right** to **Buy** the Asset	Has the Potential **Obligation** to **Sell** the Asset if Exercised Against
PUT	Has the **Right** to **Sell** the Asset	Has the Potential **Obligation** to **Buy** the Asset if Exercised Against

Problem 1

- Identify which of the following options are In-the Money, At-the Money, and Out of Money for the buyer of the option. Which of these options would be exercised?
- RIL 840 Call when the price on expiry is Rs.855
- ACC 510 put when the price on expiry is Rs.510
- RIL 830 call when the price on expiry is Rs.840

Problem 2

- The shares of B Ltd. are selling at Rs.105 each. Chandrasekher wants to chip in with buying a three months call option at a premium of Rs.10 per share. The exercise price is Rs.110. Five possible prices per share on the expiration date ranging from Rs.100 to 140 with intervals of Rs.10 are taken into consideration by him. What is Chandrasekher's pay off as call option holder on expiration.

Problem 3

- Ramesh purchases the following European Call Options on Reliance. He also purchases the following European put options on ACC. What decisions he would take on expiry, if RIL closes at Rs.835 and ACC at Rs.565. Ignore premium.
- RIL 830 Call
- ACC 510 Put
- RIL 840 Call
- ACC 520 Put

Who can write options in Indian Derivatives market ?

- In the Indian Derivatives market, SEBI has not created any particular category of options writers.
- Any market participant can write options.
- However, the margin requirements are stringent for options writers.

Types of Trader in Derivative Market

- Hedgers
- Speculators, and
- Arbitrageurs

Hedgers

- Hedgers use futures, forwards, and options to reduce the risk that they face from potential future movements in a market variable.

Speculators

- Speculators use them to bet on the future direction of a market variable.
- They are betting that the price will go up or they are betting that it will go down.

Arbitrageurs

- Arbitrageurs take offsetting positions in two or more instruments to lock in a profit.
- Arbitrage involves locking in a riskless profit by simultaneously entering into transactions in two or more markets.

Swap

- Interest Rate
  - Fixed Rate
  - Floating Rate

thank you