

# DERIVATIVE MARKETS

# Objective

The chapter gives a basic introduction to derivatives and defines assets like futures, forwards, swaps etc. It also describes the different types of traders like hedgers, speculators and arbitrageurs.

# Derivative Markets

- **Two types:**
  - Exchange traded
  - Over-the-counter (OTC)
- **Exchange traded**
  - Traditionally exchanges have used the open-outcry system, but increasingly they are switching to **electronic trading**
  - Contracts are standard, so there is virtually **no credit risk**
- **Example:**
  - Futures, Options

# Derivative Markets

- **Over-the-counter (OTC)**

- A **computer- and telephone-linked network** of dealers at financial institutions, corporations, and fund managers
- Financial institutions often act as market makers
- Contracts can be non-standard and hence there is some **amount of credit risk**

**Ex:**

- **Swaps, Forward Rate Agreement, Exotic options**

# Exchange Traded Markets

- **Open outcry:** A method of communication between professionals on exchange which involves shouting and the use of hand signals to transfer information primarily about buy and sell orders
- **Electronic trading:** A mode of trading that uses information technology to bring together a buyer and a seller through electronic media to create a virtual market place

# Advantages of OTC & Exchange Traded Markets

- **Advantage of OTC market:**
  - In OTC market participants are free to undertake any mutually attractive deal
- **Advantage of Exchange traded market:**
  - In OTC market there is a small risk that the contract will not be honored, which is eliminated in exchange traded market
  - Secondary trading in the security is possible

# Types of Derivatives

- Forward Contracts
- Futures Contracts
- Swaps
- Options

# Forward Contracts

- A **forward contract** is an agreement to buy or sell an asset at a certain future time for a certain price
- It can be contrasted with a spot contract, which is an agreement to buy or sell an asset today
- The contract is between two financial institutions or between a financial institution and one of its corporate clients
- It is not traded on an exchange
- Forward contracts are particularly popular on **currencies** and **interest rates**

# Forward Contract: Example

- Imagine on July 01,2009 the treasurer of an export company in India knows that it **will receive USD 1 million in 6 months** (i.e. on January 01,2009) and wants to hedge against exchange rate moves
  - He can undertake currency forward contract with a bank now to sell USD 1 million in 6 months at a particular INR/USD forward rate

# Spot & Forward Quotes for INR/USD

	<b>Bid Price</b>	<b>Offer Price</b>
<b>Spot</b>	46.85	47.10
<b>6 month Forward</b>	46.80	47.15

- INR/USD means Rs. per USD
- Bid – price at which one is prepared to buy
- Ask – price at which one is prepared to sell
- These quotes are for inter-bank transactions, for retail investors spread (difference between bid and ask) is more

# Futures contracts: Definition

- **Agreement (obligation)** to buy or sell an asset for a **certain price** at a **certain time**
- Similar to forward contract but futures contracts are **traded on an exchange**

# How futures contracts are traded?

- On Apr 8,2009 an investor calls his broker with instructions to buy 100 bales with each bale of 100 kg Indian 35mm cotton for delivery in September of the same year
- The broker would immediately pass the instruction to any trader on the floor of **NCDEX** for **two long contracts** as each contract is 50 bales with each bale of 100 kg

# How futures contracts are traded?

- Suppose there is another investor who instructs his broker to sell the same **amount** of same **quality** cotton in September
- This broker will pass the instruction to any trader on the floor of NCDEX for two short contracts
- If the **prices match** then the deal would be done
  - This price is the future price of the contract on Apr 8,2009

# Swaps

- A **swap** is an agreement to exchange cash flows at specified future times according to certain specified rules

## Ex:

- Converting a liability from
  - fixed rate to floating rate
  - floating rate to fixed rate
- Converting an investment from
  - fixed rate to floating rate
  - floating rate to fixed rate

# Warrants

- **Warrants** are options that are issued by a corporation or a financial institution
- Warrants are call options that often come into existence as a result of a bond issue
- They are added to the bond issue to make it more attractive to investors
- Typically, warrants last for a number of years
- Once they have been created, they sometimes trade separately from the bonds to which they were originally attached

# Warrants

- The **number of warrants outstanding** is determined by the size of the original issue and **changes** only when they are exercised or when they expire
- The issuer settles up with the holder when a warrant is exercised
- When call warrants are issued by a corporation on its own stock, exercise will lead to new treasury stock being issued

# Types of Traders

- Hedgers
- Speculators
- Arbitrageurs

# Hedgers

- Hedgers are essentially spot market players
- Hedgers are **interested in reducing price risk** (that they already face in the spot market) with derivative contracts and options
- Forward contracts are designed to neutralize risk by fixing the price that hedger will pay or receive for the underlying asset
- Future contracts can be used to undertake minimum variation hedging
- Option strategy enables the hedger to insure itself against adverse exchange rate movements while still benefiting from favorable movements

# Speculators

- **Speculators** wish to take a position in the market either **by betting** that the price will go up or down
- Futures and options can be used for speculation
- When a speculator uses **futures** then the potential gain or loss is high
- When a speculator uses **options**, speculator's loss is limited to the amount paid for the option

# Arbitrageurs

- Arbitrage involves locking in a riskless profit by simultaneously entering into transactions in two markets.
- **Ex:**
  - Consider a stock that is traded in both New York and Mumbai. Suppose that the **stock price is \$1.64 in New York and Rs. 92.2 in Mumbai at a time when the exchange rate is Rs.55 per dollar**
  - An arbitrageur could simultaneously buy 100 shares of the stock in New York and sell them in Mumbai
  - He will obtain a risk-free profit of:  
 $100 * (92.2 - 55 * 1.64)$  or Rs. 200 in the absence of transactions costs