

# UNIT- 3

## Future Contract

### Mechanism of Trading

Trading in Futures has been realized as an important strategy for price risk aversion in commodities. The purpose of futures trading is mainly price risk minimization, price discovery and price dissemination. The commodity futures markets provide a means to transfer price risk between from the persons with a position in physical commodity or hedgers to speculators and arbitragers. Futures exchanges are successful based on the principle that hedgers may forego some profit potential in exchange for risk minimization while speculators may take such risk with a view to gain from probable potential profits.

**Futures contracts** are typically have certain features such as the ability to extinguish positions through offset rather than actual delivery of the commodity. In addition, standardization of contract terms makes futures contracts more convenient for hedging.

Traditionally, futures contracts have been traded in an **open outcry** environment where traders and brokers shout bids and offers in a trading pit or ring. With advent of technology, trading in commodities as well as financial product futures has been migrating to **electronic trading platforms** through a computerized trading system.

Standardized terms of Futures include:

1. Contract size,
2. delivery months,
3. last trading day,
4. delivery location,
5. specification of grades, and
6. quality of the commodity.

The standardization enhances liquidity, by making it possible for large numbers of market participants to trade the same instrument. This liquidity makes the contract more useful for hedging.

**Clearinghouses** Futures trades that are made on an exchange are cleared through clearinghouses. When a trader enters into a futures contract, he is technically buying from or selling to, the clearinghouse rather than the party with whom he executed the transaction on the trading floor or through an electronic trading platform.

## Margins

In futures trading, the entire value of a contract need not be paid but only a certain per cent of the contract value called **margin** is paid. Margin is typically between 2% and 10% of the total value of the contract. There are different types of margins levied while trading in futures.

**Initial margin** is paid when a futures trader enters into a futures position, as specified by the futures exchange. Thereafter, the margin amount varies based on "**marked-to-market**" and the margin amount will be adjusted automatically according to the changes in futures price.

**Special margin** is levied in addition to the prevailing margin typically when the prices of the commodity become volatile beyond certain acceptable level specified by the exchange or the regulator (FMC).

## Risk Management Strategies

Primary purpose of derivatives trading in commodities is aimed to reduce price risk from the seasonal fluctuations. The strategies of risk management include hedging, speculation and arbitrage.

**Hedging** is an economic function that helps to reduce the price risks in commodities significantly, if not eliminate altogether. Hedging is the practice of off-setting the price risk inherent in any cash market position by taking an equal but opposite position in the futures market.

Futures markets believed to be originally developed to meet the requirements of producers who wanted to hedge against the price risk arising from seasonal fluctuations. However, the scope of commodity futures has expanded latter with widespread participation of producers, traders and users of commodities. Hedger is the person who has a position in physical market and wants to avoid the risk.

Hedging will be effective only when the following requirements are met

- Driven by the demand and supply over a period the prices of cash and futures markets tend to move together
- As the maturity date approaches, cash and futures prices tend to converge or reach an acceptable difference.

**Process:** Hedging in the futures market in general is a two-step process, depending upon the hedger's cash market situation

**First step:** If the hedger is going to buy a commodity in the cash market at a later time, his first step is to buy futures contracts. Or if he is going to sell in cash commodity at a later time, his first step in the hedging process is to sell futures contracts.

**Second step:** when the cash market transaction takes place, the futures position is no longer needed for price protection and should therefore be closed. Depending on the initial position taken long or short, hedger would offset his position by selling or buying back the futures contract.

**For example,** in June if a farmer expects an output of 100 tonnes of soyabean in October. Soyabean prices in October are expected to be relatively lower as it is harvesting season for soya bean. In order to hedge against the price fall, the farmer sells 100 contracts of one ton each at Rs.1347 in June. On a fall of price to Rs.1216 per ton in October he makes a profit of Rs.131 per ton.

**Speculation:** Contrary to the hedging, speculation involves risk with no cash market position. Speculators take risk that hedgers want to avoid with a motive to make profits and provide the necessary liquidity through bid-offers that result into a continuous flow of transactions. Commodities are becoming increasingly attractive to investor as an alternative asset class that may allow reduction in overall risk of financial portfolio and enhance returns. Unlike in spot markets, he has to invest only a margin amount instead of the total amount and can gain profits to the total extent.

**Arbitrage:** A third category of market participants is the arbitrageurs. Arbitrage is a risk-less profit realized by simultaneous trading in two or more markets. However, arbitrage opportunities are very desirable but not easy to uncover, as they do not last longer since the prices get adjusted soon with buying and selling

Arbitrage is possible when one of three conditions is met:

- The same asset must trade at the different prices on all markets.
- Two assets with identical cash flows must trade at different prices.
- An asset with a known price in the future, must trade today at a different price than its future price discounted at the risk-free interest rate.

**For example,** spot price of gold in Mumbai is Rs 7000 per 10 gm and at the same time the futures contract on MCX is traded at Rs 7200 per gm then the trader buys a kg of gold in cash market and simultaneously takes a short position in the futures market. On the expiry of the contract he opts to deliver the physical gold and gains at the rate of Rs 200 per gm.

### **Basis and Basis risk**

Understanding basis risk is fundamental for hedging in futures trading

$$\text{Basis}_t^T = \text{Spot price}_t - \text{Futures price}^T_t$$

Where T is maturity period and t is a specific date

It is normally quoted as premium or discount in relation to the cash price.

If  $S_p > F_p$  then basis is said to be **OVER** future and called **premium**

If  $S_p < F_p$  then basis is said to be **UNDER** future and called **discount**

**Example:** on a particular day (October 1) if a trader purchased soyabean in Indore market at a price of Rs 1180 per quintal and on the same day, October futures contract closed at Rs 1208 per quintal then the basis could be calculated by subtracting the futures price from spot price (Rs 28). The basis is partly determined by the interest on difference between margin deposit and the total value of the contract and partly by storage costs. Thus, futures prices for physical commodities are typically higher than spot prices, a situation known as **Contango**.

Differences in quality and grade as well as expectations about future supply also can affect the basis. If expected future supplies greatly exceed current supplies, futures prices may be lower than spot prices, a situation known as **backwardation**.

**Basis risk** exists when futures and spot prices do not change in the same magnitude and may not converge at maturity on account of the physical attributes of the commodities including grade, location and chemical composition etc.,

It is now common that the market participants analyse their risk in a mark-to-market perspective at date 't'. As a result, the basis risk is often defined as the variance of the basis.

$$s^2 (S_t - F^T(t)) = s^2 (S_t) + s^2 (F^T(t)) - 2rs (S_t)s (F^T(t))$$

Where, r is the correlation coefficient between the futures and spot price series

The equation shows basis risk is zero when variances between the Futures and spot prices are identical and r equals one.

**Practically, the correlation between spot and futures prices is the stringent factor and on which the magnitude of basis risk depends.**

### **Price Discovery**

Futures contracts are often relied upon for price discovery as well as for hedging. In many commodities, cash market participants typically base spot and forward prices on the futures prices that are "discovered" in the competitive, open auction market of a futures exchange. This is considered to be an important economic purpose of futures markets. In financial futures contracts such as stocks, interest rates, and foreign currency, the price discovery role of futures occurs in tandem with the cash markets, which also contribute significantly to price discovery.

## **Players in futures market**

**Hedgers:** Futures markets believed to be originally developed to meet the requirements of hedgers or producers who wanted to safeguard against the price risk. However, the scope of commodity futures has expanded latter with widespread participation of producers and users of commodities. Hedger is the person who basically wants to avoid the risk and enters into a contract with speculator.

**Speculators:** speculation is the opposite of hedging Speculators on the other hand, wish to take risk that hedgers want to avoid with a motive to make profits and provide the necessary liquidity through bids and offers that result into a continuous flow of transactions. Commodities are becoming increasingly attractive to investor and hedge fund managers as an alternative asset class that may allow reduction in overall risk of financial portfolio and enhance returns.

**Arbitrager:** A third category of market participants is the arbitragers. Arbitrage is a risk-less profit realized by simultaneous trading in two or more markets. However, arbitrage opportunities are very desirable but not easy to uncover, as they do not last longer since the prices get adjusted soon with buying and selling