NCFM

NSE's CERTIFICATION IN FINANCIAL MARKETS

Commodities Market Module

NATIONAL STOCK EXCHANGE OF INDIA LIMITED

Test Details

Sr. No.	Name of Module	Fees (Rs.)	Test Duration (in minutes)	No. of Questions	Maximum Marks	Pass Marks (%)	Certificate Validity (in years)
1	Financial Markets: A Beginners' Module	1500	120	60	100	50	5
2	Mutual Funds : A Beginners' Module	1500	120	60	100	50	5
3	Currency Derivatives: A Beginner's Module	1500	120	60	100	50	5
4	Equity Derivatives: A Beginner's Module	1500	120	60	100	50	5
5	Interest Rate Derivatives: A Beginner's Module	1500	120	60	100	50	5
6	Commercial Banking in India:A Beginner's Module	1500	120	60	100	50	5
7	Securities Market (Basic) Module	1500	105	60	100	60	5
8	Capital Market (Dealers) Module *	1500	105	60	100	50	5
9	Derivatives Market (Dealers) Module **	1500	120	60	100	60	3
10	FIMMDA-NSE Debt Market (Basic) Module	1500	120	60	100	60	5
11	Investment Analysis and Portfolio Management Module	1500	120	60	100	60	5
12	NISM-Series-I: Currency Derivatives Certification Examination	1000	120	60	100	60	3
13	NISM-Series-II-A: Registrars to an Issue and Share Transfer Agents – Corporate Certification Examination	1000	120	100	100	50	3
14	NISM-Series-II-B: Registrars to an Issue and Share Transfer Agents – Mutual Fund Certification Examination	1000	120	100	100	50	3
15	NISM-Series-IV: Interest Rate Derivatives Certification Examination	1000	120	100	100	60	3
16	NISM-Series-V-A: Mutual Fund Distributors Certification Examination ***	1000	120	100	100	50	3
17	NSDL–Depository Operations Module	1500	75	60	100	60 #	5
18	Commodities Market Module	1800	120	60	100	50	3
19	Surveillance in Stock Exchanges Module	1500	120	50	100	60	5
20	Corporate Governance Module	1500	90	100	100	60	5
21	Compliance Officers (Brokers) Module	1500	120	60	100	60	5
22	Compliance Officers (Corporates) Module	1500	120	60	100	60	5
23	Information Security Auditors Module (Part-1)	2250	120	90	100	60	2
	Information Security Auditors Module (Part-2)	2250	120	90	100	60	
24	Options Trading Strategies Module	1500	120	60	100	60	5
25	FPSB India Exam 1 to 4****	2000 per exam	120	75	140	60	NA
26	Examination 5/Advanced Financial Planning ****	5000	240	30	100	50	NA
27	Equity Research Module ##	1500	120	65	100	55	2
28	Issue Management Module ##	1500	120	80	100	55	2
29	Market Risk Module ##	1500	120	50	100	55	2
30	Financial Modeling Module ###	1000	150	50	75	50	NA

* Candidates have the option to take the CMDM test in English, Gujarati or Hindi language. The workbook for the module is presently available in ENGLISH.

** Candidates have the option to take the DMDM test in English, Gujarati or Hindi language. The workbook for the module is also available in ENGLISH, GUJARATI and HINDI languages.

*** Candidates have the option to take the 'NISM-Series-V-A: Mutual Fund Distributors Certification Examination' in English, Gujarati or Hindi language. The workbook for the module is presently available in ENGLISH.

Candidates securing 80% or more marks in NSDL-Depository Operations Module ONLY will be certified as 'Trainers'.

**** Following are the modules of Financial Planning Standards Board India (Certified Financial Planner Certification)

- FPSB India Exam 1 to 4 i.e. (i) Risk Analysis & Insurance Planning (ii) Retirement Planning & Employee Benefits (iii) Investment Planning and (iv) Tax Planning & Estate Planning
- Examination 5/Advanced Financial Planning

Modules of Finitiatives Learning India Pvt. Ltd. (FLIP)

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CHAPTER 1: Introduction To Derivatives

The origin of derivatives can be traced back to the need of farmers to protect themselves against fluctuations in the price of their crop. From the time of sowing to the time of crop harvest, farmers would face price uncertainty. Through the use of simple derivative products, it was possible for the farmer to partially or fully transfer price risks by locking-in asset prices. These were simple contracts developed to meet the needs of farmers and were basically a means of reducing risk.

A farmer who sowed his crop in June faced uncertainty over the price he would receive for his harvest in September. In years of scarcity, he would probably obtain attractive prices. However, during times of oversupply, he would have to dispose off his harvest at a very low price. Clearly this meant that the farmer and his family were exposed to a high risk of price uncertainty.

On the other hand, a merchant with an ongoing requirement of grains too would face a price risk - that of having to pay exorbitant prices during dearth, although favourable prices could be obtained during periods of oversupply. Under such circumstances, it clearly made sense for the farmer and the merchant to come together and enter into a contract whereby the price of the grain to be delivered in September could be decided earlier. What they would then negotiate happened to be a futures-type contract, which would enable both parties to eliminate the price risk.

In 1848, the Chicago Board of Trade (CBOT) was established to bring farmers and merchants together. A group of traders got together and created the `to-arrive' contract that permitted farmers to lock in to price upfront and deliver the grain later. These to-arrive contracts proved useful as a device for hedging and speculation on price changes. These were eventually standardised, and in 1925 the first futures clearing house came into existence.

Today, derivative contracts exist on a variety of commodities such as corn, pepper, cotton, wheat, silver, etc. Besides commodities, derivatives contracts also exist on a lot of financial underlying like stocks, interest rate, exchange rate, etc.

1.1 Derivatives Defined

A derivative is a product whose value is derived from the value of one or more underlying variables or assets in a contractual manner. The underlying asset can be equity, forex, commodity or any other asset. In our earlier discussion, we saw that wheat farmers may wish to sell their harvest at a future date to eliminate the risk of a change in prices by that date. Such a transaction is an example of a derivative. The price of this derivative is driven by the spot price of wheat which is the 'underlying' in this case.

The Forward Contracts (Regulation) Act, 1952, regulates the forward/ futures contracts in commodities all over India. As per this Act, the Forward Markets Commission (FMC) continues to have jurisdiction over commodity forward/ futures contracts. However, when derivatives trading in securities was introduced in 2001, the term 'security' in the Securities Contracts (Regulation) Act, 1956 (SC(R)A), was amended to include derivative contracts in securities. Consequently, regulation of derivatives came under the purview of Securities Exchange Board of India (SEBI). We thus have separate regulatory authorities for securities and commodity derivative markets.

Derivatives are securities under the SC(R)A and hence the trading of derivatives is governed by the regulatory framework under the SC(R)A. The Securities Contracts (Regulation) Act, 1956 defines 'derivative' to include -

1. A security derived from a debt instrument, share, loan whether secured or unsecured, risk instrument or contract for differences or any other form of security.
2. A contract which derives its value from the prices, or index of prices, of underlying securities.

1.2 Products, Participants And Functions

Derivative contracts are of different types. The most common ones are forwards, futures, options and swaps. Participants who trade in the derivatives market can be classified under the following three broad categories: hedgers, speculators, and arbitragers.

1. ***Hedgers:*** The farmer's example that we discussed about was a case of hedging. Hedgers face risk associated with the price of an asset. They use the futures or options markets to reduce or eliminate this risk.
2. ***Speculators:*** Speculators are participants who wish to bet on future movements in the price of an asset. Futures and options contracts can give them leverage; that is, by putting in small amounts of money upfront, they can take large positions on the market. As a result of this leveraged speculative position, they increase the potential for large gains as well as large losses.
3. ***Arbitragers:*** Arbitragers work at making profits by taking advantage of discrepancy between prices of the same product across different markets. If, for example, they see the futures price of an asset getting out of line with the cash price, they would take offsetting positions in the two markets to lock in the profit.

Whether the underlying asset is a commodity or a financial asset, derivatives market performs a number of economic functions.

- Prices in an organised derivatives market reflect the perception of market participants about the future and lead the prices of underlying to the perceived future level. The prices of derivatives converge with the prices of the underlying at the expiration of the derivative contract. Thus, derivatives help in discovery of future as well as current prices.
- The derivatives market helps to transfer risks from those who have them but may not like them to those who have an appetite for them.
- Derivatives, due to their inherent nature, are linked to the underlying cash markets. With the introduction of derivatives the underlying market witnesses higher trading volumes, because of participation by more players who would not otherwise participate for lack of an arrangement to transfer risk.
- Speculative traders shift to a more controlled environment of the derivatives market. In the absence of an organised derivatives market, speculators trade in the underlying cash markets. Margining, monitoring and surveillance of the activities of various participants become extremely difficult in these kinds of mixed markets.
- An important incidental benefit that flows from derivatives trading is that it acts as a catalyst for new entrepreneurial activity. Derivatives have a history of attracting many bright, creative, well-educated people with an entrepreneurial attitude. They often energize others to create new businesses, new products and new employment opportunities, the benefit of which are immense.
- Derivatives markets help increase savings and investment in the long run. The transfer of risk enables market participants to expand their volume of activity.

1.3 Derivatives Markets

Derivatives markets can broadly be classified as commodity derivatives market and financial derivatives markets. As the name suggest, commodity derivatives markets trade contracts are those for which the underlying asset is a commodity. It can be an agricultural commodity like wheat, soybeans, rapeseed, cotton, etc or precious metals like gold, silver, etc. or energy products like crude oil, natural gas, coal, electricity etc. Financial derivatives markets trade contracts have a financial asset or variable as the underlying. The more popular financial derivatives are those which have equity, interest rates and exchange rates as the underlying. The most commonly used derivatives contracts are forwards, futures and options which we shall discuss in detail later.

Box 1.1 Emergence of financial derivative products

Derivative products initially emerged as hedging devices against fluctuations in commodity prices and commodity-linked derivatives remained the sole form of such products for almost three hundred years. Financial derivatives came into the spotlight in the post-1970 period due to growing instability in the financial markets. However, since their emergence, these products have become popular and by 1990s, they accounted for about two - thirds of total transactions in derivative products.

In recent years, the market for financial derivatives has grown tremendously in terms of instruments available, their complexity and also turnover. In the class of equity derivatives the world over, futures and options on stock indices have gained more popularity than on individual stocks, especially among institutional investors, who are major users of index-linked derivatives. Even small investors find these useful due to high correlation of the popular indexes with various portfolios and ease of use. The lower costs associated with index derivatives vis-à-vis derivative products based on individual securities is another reason for their growing use.

1.3.1 Spot versus Forward Transaction

Every transaction has three components - trading, clearing and settlement. A buyer and seller come together, negotiate and arrive at a price. This is trading. Clearing involves finding out the net outstanding, that is exactly how much of goods and money the two should exchange. For instance, A buys goods worth Rs.100 from B and sells goods worth Rs. 50 to B. On a net basis, A has to pay Rs. 50 to B. Settlement is the actual process of exchanging money and goods. Using the example of a forward contract, let us try to understand the difference between a spot and derivatives contract.

In a spot transaction, the trading, clearing and settlement happens instantaneously, i.e. 'on the spot'. Consider this example. On 1st January 2010, Aditya wants to buy some gold. The goldsmith quotes Rs. 17,000 per 10 grams. They agree upon this price and Aditya buys 20 grams of gold. He pays Rs.34,000, takes the gold and leaves. This is a spot transaction.

Now suppose, Aditya does not want to buy the gold on the 1st January, but wants to buy it a month later. The goldsmith quotes Rs. 17,100 per 10 grams. They agree upon the 'forward' price for 20 grams of gold that Aditya wants to buy and Aditya leaves. A month later, he pays the goldsmith Rs. 34,200 and collects his gold. This is a forward contract, a contract by which two parties irrevocably agree to settle a trade at a future date, for a stated price and quantity. No money changes hands when the contract is signed. The exchange of money and the underlying goods only happens at the future date as specified in the contract. In a forward contract, the process of trading, clearing and settlement does not happen instantaneously. The trading happens today, but the clearing and settlement happens at the end of the specified period.

A forward contract is the most basic derivative contract. We call it a derivative because it derives value from the price of the asset underlying the contract, in this case- gold. If on the 1st of February, gold trades for Rs. 17,200 per 10 grams in the spot market, the contract becomes more valuable to Aditya because it now enables him to buy gold at Rs.17,100 per 10 grams. If however, the price of gold drops down to Rs. 16,900 per 10 grams he is worse off because as per the terms of the contract, he is bound to pay Rs. 17,100 per 10 grams for the same gold. The contract has now lost value from Aditya's point of view. Note that the value of the forward contract to the goldsmith varies exactly in an opposite manner to its value for Aditya.

1.3.2 Exchange Traded Versus OTC Derivatives

Derivatives have probably been around for as long as people have been trading with one another. Forward contracting dates back at least to the 12th century and may well have been around before then. These contracts were typically OTC kind of contracts. Over the counter (OTC) derivatives are privately negotiated contracts. Merchants entered into contracts with one another for future delivery of specified amount of commodities at specified price. A primary motivation for prearranging a buyer or seller for a stock of commodities in early forward contracts was to lessen the possibility that large swings would inhibit marketing the commodity after a harvest.

Box 1.2: History of Commodity Derivatives Markets

Early forward contracts in the US addressed merchants' concerns about ensuring that there were buyers and sellers for commodities. However, 'credit risk' remained a serious problem. To deal with this problem, a group of Chicago businessmen formed the Chicago Board of Trade (CBOT) in 1848. The primary intention of the CBOT was to provide a centralized location known in advance for buyers and sellers to negotiate forward contracts. In 1865, the CBOT went one step further and listed the first 'exchange traded' derivatives contract in the US, these contracts were called 'futures contracts'. In 1919, Chicago Butter and Egg Board, a spin-off of CBOT, was reorganized to allow futures trading. Its name was changed to Chicago Mercantile Exchange (CME). The CBOT and CME remain the two largest organized futures exchanges, indeed the two largest 'financial' exchanges of any kind in the world today.

The first stock index futures contract was traded at Kansas City Board of Trade. Currently, the most popular stock index futures in the world is based on S&P 500 index, traded on Chicago Mercantile Exchange. During the mid eightees, financial futures became the most active derivative instruments generating volumes many times more than the commodity futures. Index futures, futures on T-bills and Euro-Dollar futures are the three most popular futures contracts traded today. Other popular international exchanges that trade derivatives are LIFFE in Europe, DTB in Germany, SGX in Singapore, TIFFE in Japan, MATIF in France, Eurex etc.

Later many of these contracts were standardised in terms of quantity and delivery dates and began to trade on an exchange.

The OTC derivatives markets have the following features compared to exchange-traded derivatives:

1. The management of counter-party (credit) risk is decentralised and located within individual institutions.
2. There are no formal centralised limits on individual positions, leverage, or margining.
3. There are no formal rules for risk and burden-sharing.
4. There are no formal rules or mechanisms for ensuring market stability and integrity, and for safeguarding the collective interests of market participants.
5. The OTC contracts are generally not regulated by a regulatory authority and the exchange's self-regulatory organisation, although they are affected indirectly by national legal systems, banking supervision and market surveillance.

The derivatives markets have witnessed rather sharp growth over the last few years, which have accompanied the modernisation of commercial and investment banking and globalisation of financial activities. The recent developments in information technology have contributed to a great extent to these developments. While both exchange-traded and OTC derivative contracts offer many benefits, the former have rigid structures compared to the latter.

The largest OTC derivative market is the inter-bank foreign exchange market. Commodity derivatives, the world over are typically exchange-traded and not OTC in nature.

1.3.3 Some commonly used Derivatives

Here we define some of the more popularly used derivative contracts. Some of these, namely futures and options will be discussed in more details at a later stage.

Forwards: A forward contract is an agreement between two entities to buy or sell the underlying asset at a future date, at today's pre-agreed price.

Futures: A futures contract is an agreement between two parties to buy or sell the underlying asset at a future date at today's future price. Futures contracts differ from forward contracts in the sense that they are standardised and exchange traded.

Options: There are two types of options - call and put. A Call option gives 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. A Put option gives 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.

Warrants: Options generally have lives of up to one year, the majority of options traded on

options exchanges having a maximum maturity of nine months. Longer-dated options are called warrants and are generally traded over-the-counter.

Baskets: Basket options are options on portfolios of underlying assets. The underlying asset is usually a weighted average of a basket of assets. Equity index options are a form of basket options.

Swaps: Swaps are private agreements between two parties to exchange cash flows in the future according to a prearranged formula. They can be regarded as portfolios of forward contracts. The two commonly used swaps are:

- **Interest rate swaps:** These entail swapping only the interest related cash flows between the parties in the same currency.
- **Currency swaps:** These entail swapping both principal and interest between the parties, with the cash flows in one direction being in a different currency than those in the opposite direction.

1.4 Difference Between Commodity And Financial Derivatives

The basic concept of a derivative contract remains the same whether the underlying happens to be a commodity or a financial asset. However, there are some features which are very peculiar to commodity derivative markets. In the case of financial derivatives, most of these contracts are cash settled. Since financial assets are not bulky, they do not need special facility for storage even in case of physical settlement. On the other hand, due to the bulky nature of the underlying assets, physical settlement in commodity derivatives creates the need for warehousing. Similarly, the concept of varying quality of asset does not really exist as far as financial underlyings are concerned. However, in the case of commodities, the quality of the asset underlying a contract can vary largely. This becomes an important issue to be managed. We have a brief look at these issues.

1.4.1 Physical Settlement

Physical settlement involves the physical delivery of the underlying commodity, typically at an accredited warehouse. The seller intending to make delivery would have to take the commodities to the designated warehouse and the buyer intending to take delivery would have to go to the designated warehouse and pick up the commodity. This may sound simple, but the physical settlement of commodities is a complex process. The issues faced in physical settlement are enormous. There are limits on storage facilities in different states. There are restrictions on interstate movement of commodities. Besides state level octroi and duties have an impact on the cost of movement of goods across locations. The process of taking physical delivery in commodities is quite different from the process of taking physical delivery in financial assets.

We take a general overview at the process flow of physical settlement of commodities. Later on in chapter 9, we will look into the details of physical settlement through the Exchange providing platform for commodity derivatives trading, National Commodity and Derivatives Exchange Limited (NCDEX).

Delivery notice period

Unlike in the case of equity futures, typically a seller of commodity futures has the option to give notice of delivery. This option is given during a period identified as `delivery notice period'.

Assignment

Whenever delivery notices are given by the seller, the clearing house of the Exchange identifies the buyer to whom this notice may be assigned. Exchanges follow different practices for the assignment process.

Delivery

The procedure for buyer and seller regarding the physical settlement for different types of contracts is clearly specified by the Exchange. The period available for the buyer to take physical delivery is stipulated by the Exchange. Buyer or his authorised representative in the presence of seller or his representative takes the physical stocks against the delivery order. Proof of physical delivery having been effected is forwarded by the seller to the clearing house and the invoice amount is credited to the seller's account.

The clearing house decides on the delivery order rate at which delivery will be settled. Delivery rate depends on the spot rate of the underlying adjusted for discount/ premium for quality and freight costs. The discount/ premium for quality and freight costs are published by the clearing house before introduction of the contract. The most active spot market is normally taken as the benchmark for deciding spot prices.

1.4.2 Warehousing

One of the main differences between financial and commodity derivative is the need for warehousing. In case of most exchange-traded financial derivatives, all the positions are cash settled. Cash settlement involves paying up the difference in prices between the time the contract was entered into and the time the contract was closed. For instance, if a trader buys futures on a stock at Rs.100 and on the day of expiration, the futures on that stock close at Rs.120, he does not really have to buy the underlying stock. All he does is take the difference of Rs.20 in cash. Similarly, the person who sold this futures contract at Rs.100 does not have to deliver the underlying stock. All he has to do is pay up the loss of Rs.20 in cash.

In case of commodity derivatives however, there is a possibility of physical settlement. It means that if the seller chooses to hand over the commodity instead of the difference in cash,

the buyer must take physical delivery of the underlying asset. This requires the Exchange to make an arrangement with warehouses to handle the settlements. The efficacy of the commodities settlements depends on the warehousing system available. Such warehouses have to perform the following functions:

- Earmark separate storage areas as specified by the Exchange for storing commodities;
- Ensure proper grading of commodities before they are stored;
- Store commodities according to their grade specifications and validity period; and
- Ensure that necessary steps and precautions are taken to ensure that the quantity and grade of commodity, as certified in the warehouse receipt, are maintained during the storage period. This receipt can also be used as collateral for financing.

In India, NCDEX has accredited over 775 delivery centres which meet the requirements for the physical holding of goods that are to be delivered on the platform. As future trading is delivery based, it is necessary to create the logistics support for the same.

1.4.3 Quality of Underlying Assets

A derivatives contract is written on a given underlying. Variance in quality is not an issue in case of financial derivatives as the physical attribute is missing. When the underlying asset is a commodity, the quality of the underlying asset is of prime importance. There may be quite some variation in the quality of what is available in the marketplace. When the asset is specified, it is therefore important that the Exchange stipulate the grade or grades of the commodity that are acceptable. Commodity derivatives demand good standards and quality assurance/ certification procedures. A good grading system allows commodities to be traded by specification.

Trading in commodity derivatives also requires quality assurance and certifications from specialized agencies. In India, for example, the Bureau of Indian Standards (BIS) under the Department of Consumer Affairs specifies standards for processed agricultural commodities. AGMARK, another certifying body under the Department of Agriculture and Cooperation, specifies standards for basic agricultural commodities.

Box. 1.3 Specifications of some commodities underlying derivatives contracts

The Intercontinental Exchange (ICE) has specified for its orange juice futures contract "US Grade A with a Brix value of not less than 62.5 degrees".

The Chicago Mercantile Exchange (CME) in its random length lumber futures contract has specified that "Each delivery unit shall consist of nominal 2x4's of random lengths from 8 feet to 20 feet. Each delivery unit shall consist of and be grade stamped #1 or #2 AND BETTER. Each delivery unit shall be manufactured in California, Idaho, Montana, Nevada,

Oregon, Washington, Wyoming, or Alberta or British Columbia, Canada, and contain lumber produced from and grade stamped Hem Fir (except that Hem-Fir shall not be deliverable if it is manufactured in Canada; nor that portion of Washington including and to the west of Whatcom, Skagit, Snohomish, King, Pierce, Lewis and Skamania counties; nor that portion of Oregon including and to the west of Multnomah, Clackamas, Marion, Linn, Lane, Douglas and Jackson counties; nor that portion of California west of Interstate Highway 5 nor south of US Highway 50), Englemann Spruce, Lodgepole Pine, Englemann Spruce/Lodgepole Pine and/or Spruce Pine Fir (except that Spruce-Pine-Fir shall not be deliverable if it is manufactured in those portions of Washington, Oregon and California that are noted above)".

CHAPTER 2: Commodity Derivatives

Derivatives as a tool for managing risk first originated in the commodities markets. They were then found useful as a hedging tool in financial markets as well. In India, trading in commodity futures has been in existence from the nineteenth century with organised trading in cotton through the establishment of Cotton Trade Association in 1875. Over a period of time, other commodities were permitted to be traded in futures exchanges. Regulatory constraints in 1960s resulted in virtual dismantling of the commodity futures market. It is only in the last decade that commodity futures exchanges have been actively encouraged. In the commodity futures market, the quinquennium after the set up of national level exchanges witnessed exponential growth in trading with the turnover increasing from 5.71 lakh crores in 2004-05 to 52.48 lakh crores in 2008-09. However, the markets have not grown to significant levels as compared to developed countries. In this chapter, we take a brief look at the global commodity markets and the commodity markets that exist in India.

2.1 Evolution Of Commodity Exchanges

Most of the commodity exchanges, which exist today, have their origin in the late 19th and earlier 20th century. The first central exchange was established in 1848 in Chicago under the name Chicago Board of Trade. The emergence of the derivatives markets as the effective risk management tools in 1970s and 1980s has resulted in the rapid creation of new commodity exchanges and expansion of the existing ones. At present, there are major commodity exchanges all over the world dealing in different types of commodities.

2.1.1 Commodity Exchange

Commodity exchanges are defined as centers where futures trade is organized in a wider sense; it is taken to include any organized market place where trade is routed through one mechanism, allowing effective competition among buyers and among sellers. This would include auction-type exchanges, but not wholesale markets, where trade is localized, but effectively takes place through many non-related individual transactions between different permutations of buyers and sellers.

2.1.2 Role of Commodity Exchanges

Commodity exchanges provide platforms to suit the varied requirements of customers. Firstly, they help in price discovery as players get to set future prices which are also made available to all participants. Hence, a farmer in the southern part of India would be able to know the best price prevailing in the country which would enable him to take informed decisions. For this to happen, the concept of commodity exchanges must percolate down to the villages. Today the farmers base their choice for next year's crop on current year's price. Ideally this decision

ought to be based on next year's expected price. Futures prices on the platforms of commodity exchanges will hopefully move farmers of our country from the current 'cobweb' effect where additional acreage comes under cultivation in the year subsequent to one when a commodity had good prices; consequently the next year the commodity price actually falls due to oversupply.

Secondly, these exchanges enable actual users (farmers, agro processors, industry where the predominant cost is commodity input/output cost) to hedge their price risk given the uncertainty of the future - especially in agriculture where there is uncertainty regarding the monsoon and hence prices. This holds good also for non-agro products like metals or energy products as well where global forces could exert considerable influence. Purchasers are also assured of a fixed price which is determined in advance, thereby avoiding surprises to them. It must be borne in mind that commodity prices in India have always been woven firmly into the international fabric. Today, price fluctuations in all major commodities in the country mirror both national and international factors and not merely national factors.

Thirdly, by involving the group of investors and speculators, commodity exchanges provide liquidity and buoyancy to the system.

Lastly, the arbitrageurs play an important role in balancing the market as arbitrage conditions, where they exist, are ironed out as arbitrageurs trade with opposite positions on different platforms and hence generate opposing demand and supply forces which ultimately narrows down the gaps in prices.

It must be pointed out that while the monsoon conditions affect the prices of agro-based commodities, the phenomenon of globalization has made prices of other products such as metals, energy products, etc., vulnerable to changes in global politics, policies, growth paradigms, etc. This would be strengthened as the world moves closer to the resolution of the WTO impasse, which would become a reality shortly. Commodity exchanges would provide a valuable hedge through the price discovery process while catering to the different kind of players in the market.

2.1.3 Commodity Derivative Markets in India

Commodity futures markets have a long history in India. Cotton was the first commodity to attract futures trading in the country leading to the setting up of the Bombay Cotton Trade Association Ltd in 1875. The Bombay Cotton Exchange Ltd. was established in 1893 following the widespread discontent amongst leading cotton mill owners and merchants over the functioning of Bombay Cotton Trade Association.

Subsequently, many exchanges came up in different parts of the country for futures trading in various commodities. Futures trading in oilseeds started in 1900 with the establishment of the Gujarati Vyapari Mandali, which carried on futures trade in groundnut, castor seed and cotton.

Before the Second World War broke out in 1939, several futures markets in oilseeds were functioning in Gujarat and Punjab.

Futures trading in wheat existed at several places in Punjab and Uttar Pradesh, the most notable of which was the Chamber of Commerce at Hapur, which began futures trading in wheat in 1913 and served as the price setter in that commodity till the outbreak of the Second World War in 1939.

Futures trading in bullion began in Mumbai in 1920 and subsequently markets came up in other centres like Rajkot, Jaipur, Jamnagar, Kanpur, Delhi and Kolkata.

Calcutta Hessian Exchange Ltd. was established in 1919 for futures trading in raw jute and jute goods. But organized futures trading in raw jute began only in 1927 with the establishment of East Indian Jute Association Ltd. These two associations amalgamated in 1945 to form the East India Jute & Hessian Ltd. to conduct organized trading in both raw jute and jute goods. In due course several other exchanges were also created in the country to trade in such diverse commodities as pepper, turmeric, potato, sugar and gur (jaggery).

After independence, with the subject of `Stock Exchanges and futures markets' being brought under the Union list, responsibility for regulation of commodity futures markets devolved on Govt. of India. A Bill on forward contracts was referred to an expert committee headed by Prof. A. D. Shroff and select committees of two successive Parliaments and finally in December 1952 **Forward Contracts (Regulation) Act, 1952,** was enacted.

The Act provided for 3-tier regulatory system:

(a) An association recognized by the Government of India on the recommendation of Forward Markets Commission,

(b) The Forward Markets Commission (it was set up in September 1953) and

(c) The Central Government.

Forward Contracts (Regulation) Rules were notified by the Central Government in July, 1954.

According to FC(R) Act, commodities are divided into 3 categories with reference to extent of regulation, viz:

- Commodities in which futures trading can be organized under the auspices of recognized association.
- Commodities in which futures trading is prohibited.
- Commodities which have neither been regulated nor prohibited for being traded under the recognized association are referred as Free Commodities and the association organized in such free commodities is required to obtain the Certificate of Registration from the Forward Markets Commission.

India was in an era of physical controls since independence and the pursuance of a mixed economy set up with socialist proclivities had ramifications on the operations of commodity markets and commodity exchanges. Government intervention was in the form of buffer stock operations, administered prices, regulation on trade and input prices, restrictions on movement of goods, etc. Agricultural commodities were associated with the poor and were governed by polices such as Minimum Price Support and Government Procurement. Further, as production levels were low and had not stabilized, there was the constant fear of misuse of these platforms which could be manipulated to fix prices by creating artificial scarcities. This was also a period which was associated with wars, natural calamites and disasters which invariably led to shortages and price distortions. Hence, in an era of uncertainty with potential volatility, the government banned futures trading in commodities in the 1960s.

The Khusro Committee which was constituted in June 1980 had recommended reintroduction of futures trading in most of the major commodities, including cotton, kapas, raw jute and jute goods and suggested that steps may be taken for introducing futures trading in commodities, like potatoes, onions, etc. at appropriate time. The government, accordingly initiated futures trading in Potato during the latter half of 1980 in quite a few markets in Punjab and Uttar Pradesh.

With the gradual trade and industry liberalization of the Indian economy pursuant to the adoption of the economic reform package in 1991, GOI constituted another committee on Forward Markets under the chairmanship of Prof. K.N. Kabra. The Committee which submitted its report in September 1994 recommended that futures trading be introduced in the following commodities:

- Basmati Rice
- Cotton, Kapas, Raw Jute and Jute Goods
- Groundnut, rapeseed/mustard seed, cottonseed, sesame seed, sunflower seed, safflower seed, copra and soybean and oils and oilcakes
- Rice bran oil
- Castor oil and its oilcake
- Linseed
- Silver
- Onions

The committee also recommended that some of the existing commodity exchanges particularly the ones in pepper and castor seed, may be upgraded to the level of international futures markets.

UNCTAD and World Bank joint Mission Report "India: Managing Price Risk in India's Liberalized Agriculture: Can Futures Market Help? (1996)" highlighted the role of futures markets as market based instruments for managing risks and suggested the strengthening of institutional capacity of the Regulator and the exchanges for efficient performance of these markets.

Another major policy statement, the National Agricultural Policy, 2000, also expressed support for commodity futures. The Expert Committee on Strengthening and Developing Agricultural Marketing (Guru Committee: 2001) emphasized the need for and role of futures trading in price risk management and in marketing of agricultural produce. This Committee's Group on Forward and Futures Markets recommended that it should be left to interested exchanges to decide the appropriateness/usefulness of commencing futures trading in products (not necessarily of just commodities) based on concrete studies of feasibility on a case-to-case basis. It, however, noted that all the commodities are not suited for futures trading. For a commodity to be suitable for futures trading it must possess some specific characteristics.

The liberalized policy being followed by the Government of India and the gradual withdrawal of the procurement and distribution channel necessitated setting in place a market mechanism to perform the economic functions of price discovery and risk management.

The National Agriculture Policy announced in July 2000 and the announcements of Hon'ble Finance Minister in the Budget Speech for 2002-2003 were indicative of the Governments resolve to put in place a mechanism of futures trade/market. As a follow up, the Government issued notifications on 1.4.2003 permitting futures trading in the commodities, with the issue of these notifications futures trading is not prohibited in any commodity. Options trading in commodity is, however presently prohibited.

The year 2003 is a landmark in the history of commodity futures market witnessing the establishment and recognition of three new national exchanges [National Commodity and Derivatives Exchange of India Ltd. (NCDEX), Multi Commodity Exchange of India Ltd (MCX) and National Multi Commodity Exchange of India Ltd. (NMCE)] with on-line trading and professional management. Not only was prohibition on forward trading completely withdrawn, the new exchanges brought capital, technology and innovation to the market.

These markets depicted phenomenal growth in terms of number of products on offer, participants, spatial distribution and volume of trade. Majority of the trade volume is contributed by the national level exchanges whereas regional exchanges have a very less share.

With developments on way, the commodity futures exchanges registered an impressive growth till it saw the first ban of two pulses (Tur and Urad) towards the end of January 2007. Subsequently the ban of two more commodities from cereals group i.e. Wheat and Rice in the next month. The commodity market regulator, Forward Markets Commission as a measure of abundant caution, suspended futures trading in Chana, Soya oil, Rubber and Potato w.e.f. May

7, 2008. However, with the easing of inflationary pressure, the suspension was allowed to lapse on November 30, 2008. Trading in these commodities resumed on December 4, 2008. Later on futures trading in wheat was re-introduced in May 2009. These bans affected participants' confidence adversely. In May 2009, futures trading in sugar was suspended. Due to mistaken apprehensions that futures trading contributes to inflation, futures trading in rice, urad, tur and sugar has been temporarily suspended.

Box 2.4 : Futures Trading

The Government of India had appointed a committee under the chairmanship of Prof. Abhijit Sen, Member, Planning Commission to study the impact of futures trading, if any, on agricultural commodity prices. The Committee was appointed on March 2, 2007 and submitted its report on April 29, 2008. The main findings and recommendations of the committee are: negative sentiments have been created by the decision to delist futures trades in some important agricultural commodities; the period during which futures trading has been in operation is too short to discriminate adequately between the effect of opening of futures markets, if any, and what might simply be the normal cyclical adjustments in prices; Indian data analyzed does not show any clear evidence of either reduced or increased volatility; the vibrant agriculture markets including derivatives markets are the frontline institutions to provide early signs of future prospects of the sector. The committee recommended for upgradation of regulation by passing of the proposed amendment to FC(R) Act 1952 and removal of infirmities in the spot market (Economic Survey, 2009-10).

The "Study on Impact of Futures Trading in Wheat, Sugar, Pulses and Guar Seeds on Farmers" was commissioned by the Forward Markets Commission and undertaken by the Indian Institute of Management, Bangalore. While the study was primarily intended to find out how futures trading is helping major stakeholders in the value chain of these commodities; it also dealt with the impact of futures trading on the prices of these commodities. The study did not find any visible link between futures trading and price movement and suggested that the main reason for price changes seemed to be changes in the fundamentals (mainly on the supply side) of these commodities, Price changes were also attributed to changes in government policies.

2.1.4 Indian Commodity Exchanges

There are more than 20 recognised commodity futures exchanges in India under the purview of the Forward Markets Commission (FMC). The country's commodity futures exchanges are divided majorly into two categories:

- National exchanges
- Regional exchanges

The four exchanges operating at the national level (as on 1st January 2010) are:

i) National Commodity and Derivatives Exchange of India Ltd. (NCDEX)

ii) National Multi Commodity Exchange of India Ltd. (NMCE)

iii) Multi Commodity Exchange of India Ltd. (MCX)

iv) Indian Commodity Exchange Ltd. (ICEX) which started trading operations on November 27, 2009

The leading regional exchange is the National Board of Trade (NBOT) located at Indore. There are more than 15 regional commodity exchanges in India.

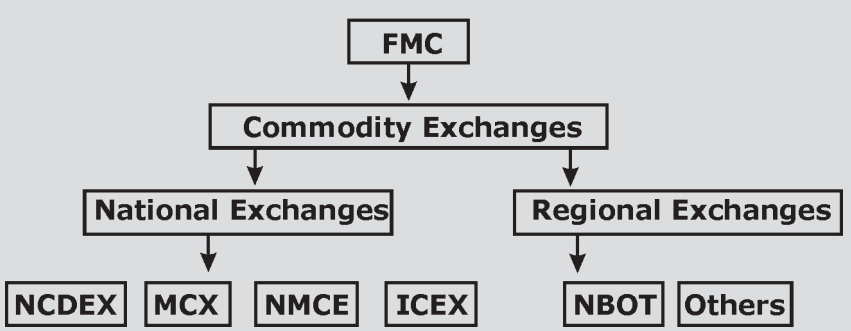
Table 2.1: Commodity Futures Trade in India (Rs Crore)

Category	2008-09
Total	52,48,956.18
Bullion	29,73,674.60
Agri	6,27,303.14
Others	16,47,978.45

Table 2.2: Trade Performance of leading Indian Commodity Exchanges for January 2010

Traded Value (Rs Crore)	MCX	NCDEX	NMCE	ICEX	NBOT
January 2010	5,62,703	87,824	16,990	32,901	4,245

Box 2.5 : Indian Commodity Exchanges.



Some of the features of national and regional exchanges are listed below:

National Exchanges

- Compulsory online trading
- Transparent trading
- Exchanges to be de-mutualised
- Exchange recognised on permanent basis
- Multi commodity exchange
- Large expanding volumes

Regional Exchanges

- Online trading not compulsory
- De-mutualisation not mandatory
- Recognition given for fixed period after which it could be given for re regulation
- Generally, these are single commodity exchanges. Exchanges have to apply for trading each commodity.
- Low volumes in niche markets

Table 2.3: Commodity Exchanges in India

No.	Exchanges	Main Commodities
1	Multi Commodity Exchange of India Ltd., Mumbai*	Gold, Silver, Copper, Crude Oil, Zinc, Lead, Nickel, Natural gas, Aluminium, Mentha Oil, Crude_Palm_Oil, Refined Soya Oil, Cardamom, Guar Seeds, Kapas, Potato, Chana\Gram, Melted Menthol Flakes, Almond, Wheat, Barley, Long Steel, Maize, Soybean Seeds, Gasoline US, Tin, Kapaskhali, Platinum, Heating Oil
2	National Commodity & Derivatives Exchange Ltd, Mumbai*	Guar Seed, Soy Bean, Soy Oil, Chana,RM Seed, Jeera, Turmeric, Guar Gum, Pepper, Cotton Cake, Long Steel, Gur, Kapas, Wheat, Red Chilli, Crude Oil, Maize, Gold, Copper, Castor Seeds, Potato, Barley, Kachhi Ghani Mustard Oil, Silver, Indian 28 Mm Cotton, Platinum
3	National Multi Commodity Exchange of India Limited, Ahmedabad*	Rape/Mustard Seed, Guar Seeds, Nickel, Jute, Refined Soya Oil, Zinc, Rubber, Chana\Gram, Isabgul, Lead, Gold, Aluminium, Copper, Turmeric, Copra, Silver, Raw Jute, Guar Gum, Pepper, Coffee Robusta, Castor Seeds, Mentha oil

4	Indian Commodity Exchange Limited, Gurgaon *	Gold, Crude Oil, Copper, Silver
5	National Board of Trade. Indore.	Soy bean, Soy Oil
6	Chamber Of Commerce., Hapur	Gur, Mustard seed
7	Ahmedabad Commodity Exchange Ltd.	Castorseed
8	Rajkot Commodity Exchange Ltd, Rajkot	Castorseed
9	Surendranagar Cotton & Oilseeds Association Ltd, S.nagar	Kapas
10	The Rajdhani Oil and Oilseeds Exchange Ltd., Delhi	Gur, Mustard Seed
11	Haryana Commodities Ltd.,Sirsa	Mustard seed, Cotton seed Oil Cake
12	India Pepper & Spice Trade Association. Kochi	Pepper Domestic-MG1,Pepper 550 G/L,
13	Vijay Beopar Chamber Ltd.,Muzaffarnagar	Gur
14	The Meerut Agro Commodities Exchange Co. Ltd., Meerut	Gur
15	Bikaner Commodity Exchange Ltd.,Bikaner	Guarseed,
16	First Commodity Exchange of India Ltd, Kochi	Coconut oil
17	The Bombay Commodity Exchange Ltd. Mumbai	Castor Seed

18	The Central India Commercial Exchange Ltd, Gwaliar	Mustard seed
19	Bhatinda Om & Oil Exchange Ltd., Batinda.	Gur
20	The Spices and Oilseeds Exchange Ltd., Sangli	Turmeric
21	The East India Jute & Hessian Exchange Ltd, Kolkatta	Raw Jute
22	The East India Cotton Association Mumbai.	Cotton

Main commodities for regional exchanges refer to the fortnight 16-31 Jan 2010.

*Note: Please visit the website of national exchanges for detailed list of all the products traded.

The growth in commodity futures trade has led to an upsurge of interest in a number of associated fields, viz. research, education and training activities in commodity markets, commodity reporting for print and visual media, collateral management, commodity finance, ware-housing, assaying and certification, software development, electronic spot exchanges etc. Markets and fields almost non-existent some years ago now attract significant mind-share nationally and internationally.

2.2 Global Commodity Derivatives Exchanges

Globally commodity derivatives exchanges have existed for a long time. The evolution of the exchanges was fuelled by the needs of businessmen and farmers. The need was to make the process of buying and selling commodities easier by bringing the buyers and sellers together. In the US, the development of modern futures trading began in the early 1800s. This development was tied closely to the development of commerce in Chicago, which started developing as a grain terminal. At that time, supply and demand imbalances were normal. There was a glut of commodities at harvest time in some years and severe shortages during years of crop failure. Difficulties in transportation and lack of proper storage facilities aggravated the problem of demand and supply imbalances.

The uncertain market conditions led farmers and merchants to contract for forward delivery.

Some of the first forward contracts were in corn. To reduce the price risk of storing corn in winter, these merchants went to Chicago in spring and entered into forward contracts with processors for the delivery of grain. The grain was received from farmers in late fall or early winter. The earliest recorded forward contract was on March 13, 1851. As the grain trade expanded, a group of 82 merchants gathered at a flour store in Chicago to form the Chicago Board of Trade (CBOT). CBOT started the "to arrive" forward contract, which permitted farmers to lock in the price and deliver the grain much later. The exchange's early years saw the dominance of forward contracts. However, certain drawbacks of forwards such as lack of standardization and non-fulfillment of commitments made CBOT take steps in 1865 to formalize grain trading.

By the mid 19th century, futures markets had developed into effective mechanisms for managing counterparty and price risks. The clearinghouse of the exchange guaranteed the performance of contracts and started collecting margins to ensure contract performance. Trading practices were further formalized as contracts started getting more refined and rules of conduct and procedures for clearing and settlement were established.

New exchanges were formed in the late 19th and early 20th centuries as trading started in non-agricultural commodities such as precious metals and processed products, among others. Financial innovations in the post-Bretton Woods period led to trading in financial futures, the most successful contract in the futures industry. Financial derivatives became important due to the rising uncertainty in the post-1970s period, when the US announced the end of the Bretton Woods System of fixed exchange rates. This led to the introduction of currency derivatives followed by other innovations including stock index futures.

Commodities' trading in some developing economies also has a long history. The Buenos Aires Grain Exchange in Argentina (founded in 1854) is one of the oldest in the world. Though developing countries saw the early use of commodity risk-management instruments, increased government intervention and policies impeded the development of futures markets. Failure of government-led price-stabilisation schemes and the adoption of liberalisation and globalisation policies since the 1980s have contributed to the resurgence of commodity markets in these countries.

Table 2.5: Global Ranking of Volumes on Commodities (Futures, Options and Indices) for Jan-June 2009

Exchange	Traded Volumes (000 contracts)	Futures (in %)
New York Mercantile Exchange (NYMEX), US	206,026	84
Dalian Commodity Exchange, China	170,869	100
Shanghai Futures Exchange, China	151,544	100
Zhengzhou Commodity Exchange, China	93,213	100
Chicago Board of Trade (CBOT), US	83,234	82
Intercontinental Exchange (ICE) Futures UK	78,373	99
Multi Commodity Exchange (MCX), India	77,743	100
London Metal Exchange (LME) UK	55,185	95
Intercontinental Exchange (ICE), US	25,271	80
Tokyo Commodity Exchange, Japan	14,643	100
National Commodity and Derivatives Exchange (NCDEX), India	11,434	100
Chicago Mercantile Exchange (CME), US	9,786	88
London International Financial Futures and Options Exchange (LIFFE), UK	4,240	90
Tokyo Grain Exchange, Japan	2,730	100
LIFFE, US	2,177	99.7
ICE Futures Canada	1,929	98
Kansas City Board of Trade	1,789	97
LIFFE Paris	1,665	75
Central Japan Commodity Exchange	841	100
Minneapolis Grain Exchange	577	98
Dubai Mercantile Exchange, UAE	272	100
MERCADO A TERMINO DE BUENOS AIRES Argentina	88	84
Kansai Commodities Exchange Japan	41	100

Source: FIA

Please note: CBOT and CME data are reported separately by the FIA although the collaboration between two exchanges.

The assessment of the volumes across the commodity segment of global exchanges shows that futures trading account for the major share however contribution of Options and Indices is lesser.

Table 2.6: Top Traded Commodities

Exchange	Commodities
NYMEX	Crude oil, Natural Gas, Gold
CBOT	Corn, Soybean, Wheat, Soyabean oil
ICE, US	Sugar, Coffee, Cotton, Cocoa
CME	Live Cattle, Lean Hogs, Feeder Cattle
Shanghai Futures Exchange	Copper, Rubber, Fuel oil, Zinc, Aluminium
Dalian Commodity Exchange	Soy Meal, Soy oil, Polyethylene, Soybeans no 1, Palm oil
Zhengzhou Commodity Exchange	Sugar, Pure Terephthalic acid (PTA), Rapeseed oil, Wheat, Cotton
ICE Futures UK	Brent Crude oil, WTI Crude, Gasoil, Natural Gas
LME UK	Aluminium, Copper, Zinc, Nickel, Lead
Tokyo Commodity Exchange	Gold, Platinum, Rubber, Gasoline

2.3 Latest Developments

Agriculture commodity futures staged a remarkable recovery after steady decline over the last two years, recording a trading value of Rs 10.88 lakh crore in 2009, signifying growth of 48 per cent over the previous year. During the year 2009, a new National Commodity Exchange called Indian Commodity Exchange (ICEX) became operational. Besides, a scheme of upgradation of Ahmedabad Commodity Exchange to National Commodity Exchange status has been approved.

Development of Electronic Spot Exchanges

Electronic spot exchanges is an emerging phenomenon in the country These spot exchanges provide real time, online, transparent and vibrant spot platform for commodities. The contracts allow participants from all over the country to buy and sell, thereby enabling producers and users to discover best price.

The Government has allowed the National Commodity Exchanges to set up three spot exchanges in the country, namely the National Spot Exchange Ltd. (NSEL), NCDEX Spot Exchange Ltd. (NSPOT) and National Agriculture Produce Marketing Company of India Ltd. (NAPMC). During 2009, there was significant expansion of spot exchanges' trading facilities in India. These spot exchanges have created an avenue for direct market linkage among farmers, processors, exporters and end users with a view to reducing the cost of intermediation and enhancing

price realization by farmers. They will also provide the most efficient spot price inputs to the futures exchanges. The spot exchanges will encompass the entire spectrum of commodities across the country and will bring home the advantages of an electronic spot trading platform to all market participants in the agricultural and nonagricultural segments. On the agricultural side, the exchanges would enable farmers to trade seamlessly on the platform by providing real-time access to price information and a simplified delivery process, thereby ensuring the best possible price. On the buy side, all users of the commodities in the commodity value chain would have simultaneous access to the exchanges and be able to procure at the best possible price. Therefore, the efficiency levels attained as a result of such seamless spot transactions would result in major benefits for both producers and consumers.

In order to overcome current inefficiencies in the commodities spot market and to bring transparency in trading in commodity spot markets, National Commodity and Derivatives Exchange Limited (NCDEX) has set up an electronic spot exchange called NCDEX Spot Exchange Limited. This is discussed in detail in Chapter 12 after understanding the commodity futures market in India.

CHAPTER 3: The NCDEX Platform

National Commodity & Derivatives Exchange Limited (NCDEX), a national level online multi-commodity exchange, commenced operations on December 15, 2003. The Exchange has received a permanent recognition from the Ministry of Consumer Affairs, Food and Public Distribution, Government of India as a national level exchange. The Exchange, in just over two years of operations, posted an average daily turnover (one-way volume) of around Rs 4500-5000 crore a day (over USD 1 billion). The major share of the volumes come from agricultural commodities and the balance from bullion, metals, energy and other products. Trading is facilitated through over 850 Members located across around 700 centers (having ~20000 trading terminals) across the country. Most of these terminals are located in the semi-urban and rural regions of the country. Trading is facilitated through VSATs, leased lines and the Internet.

3.1 Structure Of NCDEX

NCDEX has been formed with the following objectives:

- To create a world class commodity exchange platform for the market participants.
- To bring professionalism and transparency into commodity trading.
- To inculcate best international practices like de-materialised technology platforms, low cost solutions and information dissemination into the trade.
- To provide nation wide reach and consistent offering.
- To bring together the entities that the market can trust.

3.1.1 Shareholders of NCDEX

NCDEX is promoted by a consortium of four institutions. These are National Stock Exchange (NSE), ICICI Bank Limited, Life Insurance Corporation of India (LIC) and National Board for Agriculture and Rural Development (NABARD). Later on their shares were diluted and more institutions became shareholders of NCDEX. These are Canara Bank, CRISIL Limited, Indian Farmers Fertilisers Cooperative Limited (IFFCO), Punjab National Bank (PNB), Goldman Sachs, Intercontinental Exchange (ICE) and Shree Renuka Sugars Ltd.

All the ten shareholders (now ICICI is not a shareholder of NCDEX) bring along with them expertise in closely related fields such as agriculture, rural banking, co-operative expertise, risk management, intensive use of technology, derivative trading besides institution building expertise.

3.1.2 Governance

The governance of NCDEX vests with the Board of Directors. None of the Board of Directors has any vested interest in commodity futures trading. The Board comprises persons of eminence, each an authority in their own right in the areas very relevant to the Exchange.

Board appoints an executive committee and other committees for the purpose of managing activities of the Exchange. The executive committee consists of Managing Director of the Exchange who would be acting as the Chief Executive of the Exchange, and also other members appointed by the board. Apart from the executive committee the board has constituted committees like Membership committee, Audit Committee, Risk Committee, Nomination Committee, Compensation Committee and Business Strategy Committee, which help the Board in policy formulation.

3.1.3 NCDEX Products

NCDEX currently offers an array of more than 50 different commodities for futures trading. The commodity segments covered include both agri and non-agri commodities [bullion, energy, metals (ferrous and non-ferrous metals) etc]. Before identifying a commodity for trading, the Exchange conducts a thorough research into the characteristics of the product, its market and potential for futures trading. The commodity is recommended for approval of Forward Markets Commission, the Regulator for commodity exchanges in the country after approval by the Product Committee constituted for each of such product and Executive Committee of the Exchange.

3.1.4 Initiatives

- NCDEX pioneered constructing four indices: NCDEXAGRI - an agricultural spot price index covering the agricultural spectrum, FUTEXAGRI - an agricultural futures index, FREIGHTEX - a freight index and NCDEXRAIN - a rainfall index.
- NCDEX is the first commodity exchange in India to provide near real time spot prices of commodities traded on the Exchange. These prices are polled from various principal market places for the commodity two to three times a day.
- The spot prices that are collected and futures prices that are traded on the Exchange are disseminated through its website, trader work stations, news agencies such as Reuters, Bloomberg, newspapers and journals, rural kiosks (e-chaupals and n-Logue), TV channels such as Doordarshan News, CNBC, etc.
- Price ticker boards have been widely installed by the Exchange to display both real time futures and spot prices of commodities traded on its platform.

- NCDEX has also spearheaded several pilot projects for the purpose of encouraging farmers to participate on the Exchange and hedge their price risk.
- NCDEX took the initiative of establishing a national level collateral management company, National Collateral Management Services Limited (NCMSL) to take care of the issues of warehousing, standards and grades, collateral management as well as facilitate commodity finance by banks.
- Within a year of operations, NCDEX has accredited and networked around over 320 delivery centres (now over 775). Each warehouse has the services of reputed and reliable assayers through accredited agencies.
- Very much like holding cash in savings bank accounts and securities in electronic bank accounts, NCDEX has enabled holding of commodity balances in electronic form and dematerialized the warehouse receipt (in partnership with National Securities Depository Limited (NSDL) and the Central Depository Services (India) Limited (CDSL)) so as to enable smooth physical commodity settlements. The Exchange was the first to facilitate holding of commodity balances in an electronic form.
- Physical deliveries in an electronic form (demat mode) have taken place in many commodities across the country.
- Physical deliveries of commodities take place through the Exchange platform which presently range between 30,000-45,000 tonnes every month.

3.2 Spot Price Polling

Like any other derivative, a futures contract derives its value from the underlying commodity. The spot and futures market are closely interlinked with price and sentiment in one market affecting the price and sentiment in the other.

Fair and transparent spot price discovery attains importance when studied against the role it plays in a futures market. The availability of spot price data of the basis centre has the following benefits:

- Near real time spot price information helps the trading members to take a view on the future market and vice versa.
- The data helps the Exchange to analyze the price data concurrently to make meaningful analysis of price movement in the futures market and helps in the market surveillance function.
- The Exchange has to track the convergence of spot and futures prices towards the last few days prior to the expiry of a contract.

- The Exchange need to know the spot prices at around closing time of the contract for the Final Settlement Price on the expiry day.
- The Exchange needs to know the spot price at the basis centre of the underlying commodity of which the futures are being traded on the platform.
- The near real-time spot price data when it is disseminated by the Exchange is of great interest to the general public, especially researchers, governmental agencies, international agencies, etc.

In India, there is no effective mechanism or real time spot price information of commodities. The only government agency which collects spot prices is Agmarknet which collects the post-trade mandi data, but even such information is not disseminated real time. The Exchange needs the spot price information real time at several points in time during the trading hours.

Moreover, agricultural spot markets in India are spread over 7,000 mandis across the country. Prices for the same commodity differ from mandi to mandi. This is a direct consequence of the lack of integration of markets and the lack of good transportation facilities. The price differentials create a problem in the development of a unique representative spot price for the commodity.

Considering the importance of spot price information to the trader and the unavailability of reliable source of real time spot price data, NCDEX has put in place a mechanism to poll spot prices prevailing at various mandis throughout the country. This process is analogous to the interest rate polling conducted to find the LIBOR rates.

The Exchange collates spot prices for all commodities on which it offers futures trading and disseminates the same to the market via the trading platform. This collection and dissemination of spot prices is done by various reputed external polling agencies which interact directly with market participants and collect feedback on spot prices which are then disseminated to the market.

3.2.1 Polling and Bootstrapping

Polling is the process of eliciting information from a cross section of market players about the prevailing price of the commodity in the market. A panel of polling participants comprising various user class viz. growers, traders/brokers, processors and users is chosen.

Primarily, the data on spot prices is captured at the identified delivery centres which are also termed as the primary centre of a commodity by asking bid and ask quotes from the empanelled polling participants. Besides the primary centre, spot price of a commodity from a couple of other major centers (subject, sometimes, to adequate number of respondents) are also captured. These centers are termed non-primary or non-priority centers. Multiple-location polling for a commodity helps the Exchange

- in estimating the price at the primary centre when the market there is closed for some reason.
- in validating the primary centre price when there are reasons to believe that polled data is not reliable or justified considering the underlying factors.
- in providing a value addition to the users.

Polling is carried out once, twice or thrice a day depending upon the market timings, practices at the physical market.

When polling for the spot price of a commodity, the participant is asked 'what he thinks is the ASK or BID price of the commodity conforming to grade and quality specifications of the Exchange. The respondent may or may not have any buy or sell position of the commodity in the physical market at that point in time. However since the respondent is an active player in the spot trade of the commodity, he has a clear understanding of the prevailing price at that point in time.

Considering the vital role the participants play in the process, the polling participants are carefully chosen to ensure that they are active players in the market. For this reason no association, group of persons or a trade body/association has been included as polling participant as it is against the spirit of the polling process.

3.2.2 Cleansing of data

The spot price polled from each mandi is transmitted electronically to a central database for further process of bootstrapping to arrive at a clean benchmark average price. To arrive at the bootstrapped price, all the BID & ASK quotes are sorted in ascending order and through adaptive trimming procedure the extreme quotes are trimmed from the total quotes. These values are sampled with replacement multiple numbers of times, where software gives different mean with their respective standard deviation. The mean with least standard deviation is the spot price that will be uploaded by the polling agency through the polling application provided by NCDEX. This price is broadcast through the Trader Work Station and also on the NCDEX website without any human intervention.

3.2.3 Outsourcing of Polling

It is prohibitively expensive for the Exchange to post personnel at various mandis to poll prices especially in the initial stages when there is no scope to recover any fee from the sale of price data. Further it is advisable that the spot prices are polled by an agency independently rather than by the Exchange itself for reasons of corporate governance. Thirdly, the agencies chosen will have some expertise and experience in this field which the Exchange can leverage upon. For the above reasons, NCDEX has outsourced the processes of polling and bootstrapping to external reputed entities.

The Product Managers for the various commodities are asked to identify through interactions at the mandis the participants who would form a part of the polling community for a given commodity. They would also explain in detail to the participants about the Exchange, futures trading, need for polling, the reason why they have chosen the polling participant, the grade and other quality specifications of the commodity and the name of the polling agency. After obtaining the concurrence of the participant, the names and contact numbers will be passed on to the polling agency.

3.2.4 Validation & Checks on the Polling Processes

The Exchange routinely makes daily calls to the polling participants randomly in various commodities and speak to them about the prices quoted to cross check the raw quotes sent by the polling agency. Besides they also talk to them about the demand and supply conditions, mandi arrivals, imports/exports activities, impact of state procurement and agricultural policies, weather conditions impacting the crop, etc. This gives them a feel of the spot market which is a valuable input in tracking and analyzing futures price movements.

Necessary precaution/checks are maintained at the Exchange so that any spot price which deviates from the previous day's spot price by +/- 4% is reviewed before uploading. In such case, the Exchange reviews the raw prices as quoted by respondents available with the polling agency and tries independently to ascertain the reason for deviation through interaction with the participants. If the price rise/fall is justified with the feedback received from the participants, the price is uploaded in the system after obtaining necessary approval. If the price rise/fall is not justified with the feedback received from the participants, the polling agency is asked to re-poll the prices and the new bootstrapped price is allowed to be uploaded.

Two days prior to the expiry of the contract, the above price limit of 4% will be re-set to 2%. This is done as a precaution in view of the impending expiry and the high risk of accepting what may be an incorrect spot price as the FSP. A check is conducted on the lines describe in the previous paragraph before the prices are uploaded.

It is very important that that the polling participants are periodically reinforced about the grade and quality specifications set by the Exchange for the commodity for which he is polled and it is the responsibility of the polling agency to ensure that this is being adhered to.

3.2.5 Independence of the polling agency

To ensure impartiality and to remove any biases, the Exchange or its officials have given themselves no right to alter a spot price provided by the agency.

Dissemination of spot price data as a service

NCDEX disseminates the spot price data of underlying commodities traded at the Exchange on its website www.ncdex.com. This is done at two or three times a day, depending upon the

availability of the price data at the spot market place. The Exchange provides this data as a value added service. At present, the real time prices are disseminated free to the members.

3.3 Exchange Membership

Membership of NCDEX is open to any person, association of persons, partnerships, co-operative societies, companies etc. that fulfills the eligibility criteria set by the Exchange. FIs, NRIs, Banks, MFs etc are not allowed to participate in commodity exchanges at the moment. All the members of the Exchange have to register themselves with the competent authority before commencing their operations. NCDEX invites applications for Members from persons who fulfill the specified eligibility criteria for trading commodities. The members of NCDEX fall into following categories:

1. Trading cum Clearing Member (TCM) :

Members can carry out the transactions (Trading, clearing and settlement) on their own account and also on their clients' accounts. Applicants accepted for admission as TCM are required to pay the requisite fees/ deposits and also maintain net worth as explained in the following section.

2. Professional Clearing Members (PCM):

Members can carry out the settlement and clearing for their clients who have traded through TCMs or traded as TMs. Applicants accepted for admission as PCMs are required to pay the requisite fee/ deposits and also maintain net worth.

3. Trading Member (TM):

Member who can only trade through their account or on account of their clients and will however clear their trade through PCMs/STCMs.

4. Strategic Trading cum Clearing Member (STCM):

This is up gradation from the TCM to STCM. Such member can trade on their own account, also on account of their clients. They can clear and settle these trades and also clear and settle trades of other trading members who are only allowed to trade and are not allowed to settle and clear.

3.3.1 Capital requirements

NCDEX has specified capital requirements for its members. On approval as a member of NCDEX, the member has to deposit the following capital:

Base Minimum Capital (BMC)

Base Minimum Capital comprises of the following:

- Interest Free Cash Security Deposit
- Collateral Security Deposit

Interest Free Cash Security Deposit

An amount of **Rs. 15 Lacs** by Trading cum Clearing Members (TCM) and **Rs. 25 Lacs** by Professional Clearing Members (PCM) is to be provided in cash. The same is to be provided by issuing a cheque / demand draft payable at Mumbai in favour of National Commodity & Derivatives Exchange Limited.

Collateral Security Deposit

The minimum-security deposit requirement is **Rs. 15 Lacs** for TCM and **Rs. 25 Lacs** for PCM. All Members have to comply with the security deposit requirement before the activation of their trading terminal.

Members may opt to meet the security deposit requirement by way of the following:

Cash

The same is to be provided by issuing a cheque / demand draft payable at Mumbai in favour of 'National Commodity & Derivatives Exchange Limited'.

Bank Guarantee

Bank guarantee in favour of NCDEX as per the specified format. The minimum term of the bank guarantee should be **12 months.**

Fixed Deposit Receipt

Fixed Deposit Receipts (FDRs) issued by approved banks are accepted. The FDR should be issued for a minimum period as specified by the Exchange from time to time from any of the approved banks.

Government of India Securities

National Commodity Clearing Limited (NCCL) is the approved custodian for acceptance of Government of India Securities. The securities are valued on a daily basis and a haircut as prescribed the Exchange is levied.

Additional Base Capital (ABC)

In case the members desire to increase their limit, additional capital may be submitted to NCDEX in the following forms:

- Cash
- Cash Equivalents
  - Bank Guarantee (BG)
  - Fixed Deposit Receipt (FDR)
  - Government of India Securities
  - Bullion
  - Shares (notified list)

The haircut for Government of India securities shall be 25% and 50% for the notified shares.

Table 3.1: Key Criteria for various membership categories

Sr. No.	Particulars	Trading cum Clearing Member (Rs.)	Strategic Trading cum Clearing Member (Rs.)	Professional Clearing Member (Rs.)	Trading Member (Rs.)
1	Admission Fee (one time, non-refundable)	5.00 Lacs	5.00 Lacs*	NIL	5.00 Lacs
2	Annual Membership Fees	0.50 Lacs	0.50 Lacs	1.00 Lacs	0.10 Lacs
3	Advance Minimum Transaction Charges	0.50 Lacs	0.50 Lacs	1.00 Lacs	-
4	Initial Margin i) Interest Free Cash Security Deposit	15.00 Lacs	20.00 Lacs** upfront and additional 0.50 Lacs per TM as and when affiliated to it	25.00 Lacs	STCM/PCM to collect applicable margins
	ii) Collateral Security Deposit	15.00 Lacs	50.00 Lacs	25.00 Lacs	STCM/PCM to collect applicable margins
5	Minimum Net worth Requirement	50.00 Lacs	350.00 Lacs	5000.00 Lacs	5.00 Lacs
6	Maximum No of User IDs permitted	No Limit	No Limit	No Limit	Max Five User IDs at any given point in time
7.	Terminal and net-working	All	All	All	**No CTCL connectivity**

* This condition shall be applicable only to new STCM applicants and not to the existing TCMs getting migrated to STCM.

** Existing TCMs desirous of becoming STCM will have to deposit Rs.5 lac in addition to their existing deposit of Rs.15 Lacs

3.4 Risk Management

NCDEX ensures the financial integrity of trades put through on its platform by adopting a comprehensive, unbiased and professional approach to risk management. NCDEX does not have in its governing/management team, any person who has any vested interest in commodity trading. The Value at risk (VaR) based margining and limits on position levels are transparent and applied uniformly across market participants.

In commodity futures markets, margins are collected from market participants to cover adverse movements in futures prices. Prudent risk management requires that margining system of the Exchange should respond to price volatility to ensure that members are able to meet their counter party liability. In the long run, this ensures financial discipline in the market and aids in the development of the market.

NCDEX provides position monitoring and margining. Position monitoring is carried out on a real-time basis during the trading hours. Margins are calculated intraday to capture the intra-day volatility in the futures prices.

Other risk management tools like daily price limits and exposure margins have been adopted in line with international best practices. Margins are netted at the level of individual client and grossed across all clients, at the members level, without any set-offs between clients. For orderly functioning of the market, stringent limits for near month contracts are set.

3.5 Clearing And Settlement System

3.5.1 Clearing

National Commodity Clearing Limited (NCCL) undertakes clearing of trades executed on the NCDEX. Only clearing members including professional clearing members (PCMs) are entitled to clear and settle contracts through the clearing house. At NCDEX, after the trading hours on the expiry date, based on the available information, the matching for deliveries takes place firstly, on the basis of locations and then randomly, keeping in view the factors such as available capacity of the vault/warehouse, commodities already deposited and dematerialized and offered for delivery etc. Matching done by this process is binding on the clearing members. After completion of the matching process, clearing members are informed of the deliverable/ receivable positions and the unmatched positions. Unmatched positions have to be settled in cash. The cash settlement is only for the incremental gain/ loss as determined on the basis of final settlement price.

3.5.2 Settlement

Futures contracts have two types of settlements, the Mark-to-Market (MTM) settlement which

happens on a continuous basis at the end of the day, and the final settlement which happens on the last trading day of the futures contract. On the NCDEX, daily MTM settlement in respect of admitted deals in futures contracts are cash settled by debiting/ crediting the clearing accounts of clearing members (CMs) with the respective clearing bank. All positions of CM, brought forward, created during the day or closed out during the day, are mark to market at the daily settlement price or the final settlement price on the contract expiry.

The responsibility of settlement is on a trading cum clearing member for all trades done on his own account and his client's trades. A professional clearing member is responsible for settling all the participants trades which he has confirmed to the Exchange. Few days before expiry date, as announced by Exchange from time to time, members submit delivery information through delivery request window on the trader workstation provided by NCDEX for all open position for a commodity for all constituents individually. NCDEX on receipt of such information matches the information and arrives at a delivery position for a member for a commodity. The seller intending to make delivery takes the commodities to the designated warehouse. These commodities have to be assayed by the Exchange specified assayer. The commodities have to meet the contract specifications with allowed variances. If the commodities meet the specifications, the warehouse accepts them. Warehouse then ensures that the receipts get updated in the depository system giving a credit in the depositor's electronic account. The seller then gives the invoice to his clearing member, who would courier the same to the buyer's clearing member. On an appointed date, the buyer goes to the warehouse and takes physical possession of the commodities.

3.5.3 Clearing Days and Scheduled Time

Daily Mark to Market settlement where 'T' is the trading day

Mark to Market Pay-in (Payment): T+1 working day.

Mark to Market Pay-out (Receipt): T+1 working day.

Final settlement for Futures Contracts

The settlement schedule for Final settlement for futures contracts is given by the Exchange in detail for each commodity.

Timings for Funds settlement:

Pay-in: On Scheduled day as per settlement calendars.

Pay-out: On Scheduled day as per settlement calendars.

CHAPTER 4: Commodities Traded On The NCDEX Platform

Commodities have been defined by the Forward Contracts (Regulation) Act 1952 as "Every kind of movable property other than actionable claims, money and securities". Broadly, the commodities tradable on commodity exchanges in India may be classified into following categories:

1. Vegetable oil seeds, oils and meals
2. Pulses
3. Spices
4. Metals
5. Energy products
6. Vegetables
7. Fibres and manufactures
8. Others

National Commodity and Derivatives Exchange Limited (NCDEX) commenced futures trading in nine major commodities (gold, silver, cotton, soybean soybean oil, rape/mustard seed, rapeseed oil, crude palm oil and RBD palmolein) on December 15, 2003. Currently, the NCDEX provides a platform for futures trading in both agri (such as pulses, spices) and non-agri commodities (such as metal, energy, carbon credit, polymers etc.) belonging to the above mentioned categories. NCDEX was the first commodity exchange to facilitate commodities settlement in demat form.

Let us have a brief look in this chapter at the various commodities that trade on the NCDEX and specifications of some of the commodities available for futures trading at NCDEX.

4.1 Commodities Traded on NCDEX

NCDEX gives priority to commodities that are most relevant to India, and where the price discovery process takes place domestically. The products chosen are based on certain criteria such as price volatility, share in GDP, correlation with global markets, share in external trade, warehousing facilities, traders distribution, geographical spread, varieties etc. List of commodities offered for futures trading on NCDEX are given in Table 4.1:

Table 4.1: Commodities traded

Spices	**Oil and Oilseeds**	**Precious Metals**
Pepper	Castor Seed	Gold
Chilli	Sesame Seeds	Silver
Jeera	Cotton Seed Oilcake	Platinum
Turmeric	Soy Bean	**Metals**
Coriander	Refined Soy Oil	Steel
Cereals	Soybean meal (local & export)	Copper
Wheat	Mustard Seed	Zinc
Barley	Kachhi Ghani Mustard Oil	Aluminium
Maize (Yellow/Red)	Rapeseed - Mustard Seed Oil Cake	Nickel
Pulses	Crude Palm Oil	**Energy**
Chana	RBD Palmolein	Crude Oil
Masoor	Groundnut in shell	Furnace Oil
Yellow Peas	Groundnut Expeller Oil	Thermal Coal
Others	**Plantation Products**	Brent Crude Oil
Guar Seeds	Rubber	Natural Gas
Potato	Coffee-Robusta Cherry AB	**Fibres**
Mentha Oil	Cashew	Indian 28.5 mm Cotton
Guar Gum	**Polymers**	V -797 Kapas
CER	Polypropylene	Medium Staple Cotton
Gur	Linear Low density Polyethylene	Kapas
Almond	Polyvinyl Chloride	Raw Jute

Note: Currently, Rice, Sugar, Urad and Tur are de-listed (as on 1 April 2010).

The trade timings on the NCDEX (Monday to Friday) are from 10:00 a.m. to 5:00 p.m. for agricultural products and for metal and energy products from 10.00 a.m. to 11.30 p.m. However, on Saturdays trade in all commodities take place from 10.00 a.m. to 2.00 p.m.

Table 4.2 : Leading five commodities traded on NCDEX

2004-05	**2005-06**	**2006-07**	**2007-08**	**2008-09**
Guar Seeds	Guar Seeds	Guar Seeds	Guar Seeds	RM Seed
Silver	Chana	Chana	Pepper	Guar Seeds
Refined Soy Oil	Urad	Gold	Refined Soy Oil	Soybean Seeds
Chana	Silver	Silver	Chana	Turmeric
Guar Gum	Gold	Pepper	Jeera	Jeera

Contract Specifications

For derivatives with a commodity as the underlying, the Exchange specifies the exact nature of the agreement between two parties who trade in the contract. In particular, it specifies the underlying asset, unit of trading, price limits, position limits, the contract size stating exactly how much of the asset will be delivered under one contract, where and when the delivery will be made, etc. Here, we look at the contract specifications of some of the commodities traded on the Exchange. Contracts specifications of commodities are revised from time to time in light of changing requirements and feedback of market participants in terms of product variety, quality, timings, delivery centers, etc.

Most of the agri commodities futures contract traded on NCDEX expire on the 20th of the expiry month. Thus, a November expiration contract would expire on the 20th of November and a December expiry contract would cease trading after the 20th of December. If 20th happens to be a holiday, the expiry date shall be the immediately preceding trading day of the Exchange, other than a Saturday. Some of the contracts of metals, energy etc expire on different dates.

GUAR SEED

Type of Contract	Futures Contract Specifications	
Name of Commodity	Guar Seed	
Ticker symbol	GARSEDJDR	
Trading System	NCDEX Trading System	
Basis	Ex- warehouse Jodhpur, inclusive of Sales Tax/VAT	
Unit of trading	10 MT	
Delivery unit	10 MT	
Quotation/base value	Rs per Quintal	
Tick size	Re 1	
Quality specification	Whitish	98 % basis
	Foreign Matter	0.5% basis
	Damaged seed	0.5% basis
	Moisture	8 % basis
Quantity variation	+/- 2%	
Delivery center	Jodhpur (up to the radius of 50 Km from the municipal limits)	

Additional delivery centres	Bikaner, Nokha and Deesa (up to the radius of 50 Km from the municipal limits) with location wise premium/ discount as announced by the Exchange from time to time.
Trading hours	As per directions of the Forward Markets Commission from time to time, currently - Mondays through Fridays - 10:00 a.m. to 05:00 p.m. Saturdays - 10.00 a.m. to 2.00 p.m. The Exchange may vary the above timing with due notice
Delivery Logic	Compulsory delivery
No. of active contracts	As per launch calendar
Opening of Contracts	Trading in any contract month will open on the 10th day of the month. If the 10th day happens to be a non-trading day, contracts would open on the next trading day
Tender Period	Tender Date : T Tender Period: Tender period would be of 14 Calendar days during trading hours prior to the expiry date of the contract. Pay-in and Pay-out: on a T+2 basis. If the tender date is T then, pay-in and pay-out would happen on T + 2 day. If such a T + 2 day happens to be a Saturday, a Sunday or a holiday at the Exchange, clearing banks or any of the service providers, Pay-in and Pay-out would be effected on the next working day.
Closing of contract	Clearing and Settlement of contracts will commence with the commencement of Tender Period by delivery through intention matching arrived at by the exchange based on the information furnished by the seller and buyer respectively as per the process put in place by the exchange for effecting physical delivery during the period from E-14 to E-1 prior to expiry. Upon the expiry of the contract all the outstanding open position should result in compulsory delivery

Due date/Expiry date	Expiry date of the contract: 20th day of the delivery month. If 20th happens to be a holiday, a Saturday or a Sunday then the due date shall be the immediately preceding trading day of the Exchange, which is other than a Saturday. The settlement of contract would be by a early delivery system of a maximum of 15 Pay-ins and Pay-outs or less including the last Pay-in and Pay-out which would be the Final Settlement of the contract.
Delivery Specification	During the period from E-14 to E-1, Seller & Buyer having open position are required to give their intention/notice to deliver to the extent of his open position. The delivery position would be arrived at by the exchange based on the information to give/take delivery furnished by the seller and buyer as per the process put in place by the exchange for effecting physical delivery. If the intention of the buyers/sellers match, then the respective positions would be closed out by physical deliveries. If there is no delivery intention matching between sellers and buyers, then such intentions will get automatically extinguished at close of E-1 day. Intentions can be withdrawn during the course of E-14 to E-1 day if they remain unmatched. Upon expiry (i.e E) of the contracts all the outstanding open positions should result in compulsory delivery. The penalty structure for failure to meet delivery obligations will be as per circular no. NCDEX/TRADING-086/2008/216 dated September 16, 2008.
Daily price limit	Daily price fluctuation limit is (+/-) 3%. If the trade hits the prescribed daily price limit there will be a cooling off period for 15 minutes. Trade will be allowed during this cooling off period within the price band. Thereafter, the price band would be raised by (+/-) 1% and trade will be resumed. If the price hits the revised price band (4%) again during the day, trade will only be allowed within the revised price band. No trade / order shall be permitted during the day beyond the revised limit of (+/-) 4%.

Position limits	**Member:** 9000 MT or 15% of Market Open Interest whichever is higher. **Client:** 3,000 MT The above limits will not apply to bona fide hedgers. For bona fide hedgers, the Exchange will, on a case to case basis, decide the hedge limits For near month contracts: The near month limit will be applicable during the last 7 trading days of the expiry of a contract **Member:** 3000 MT or 15% of the market-wide near month open position, whichever is higher **Client:** 1000 MT
Quality Allowance	**Whitish seed** 98% basis below 98 and upto 95%: acceptable at a discount of 1: 0.5 below 95 and upto 90%: acceptable at a discount of 1:1 Below 90% rejected **Moisture** 8% basis acceptable upto 10% at a discount of 1:1 Above 10% rejected **Foreign matter** 0.5% basis Upto 2% acceptable at a discount of 1:1 Above 2% and upto 3% acceptable at a discount of 1:1.5 ('Foreign matter' means anything other than Guar seed e.g. sand, silica, pebbles, stalks and other seeds) **Damaged seed:** 0.5% basis Above 0.5% and upto 2% acceptable at a discount of 1:0.75 The total of Foreign Matter and Damaged seed should not exceed 4%.

Special margins	In case of additional volatility, a special margin at such other percentage, as deemed fit, will be imposed in respect of outstanding positions, which will remain in force as long as the volatility exists, after which the special margin may be relaxed

WHEAT

Type of Contract	Futures Contract Specifications	
Name of Commodity	Wheat	
Ticker symbol	WHTSMQDELI	
Trading System	NCDEX Trading System	
Basis	Ex- Warehouse Delhi inclusive of all taxes	
Unit of trading	10 MT	
Delivery unit	10 MT	
Quotation/base value	Rs/Quintal	
Tick size	20 Paisa (Re. 0.20)	
Quality specification	1. Damaged Kernel (Other than infestation damaged)	2% max.
	2. Infestation damaged Kernel	1% basis
	3. Foreign Matter (Organic/ Inorganic)	1% max (minerals not more than 0.25% and animal origins not more than 0.1%)
	4. Other edible grains	2% max
	5. Shrunken / Shriveled / Broken grains	5% basis
	6. Total defects sum of : • Damaged Kernel (Other than infestation damaged) • Infestation damaged Kernel • Shrunken/Shriveled/Broken grains	7% basis
	7. Moisture	11% basis.
	8. Test Weight	76 Kg/hl basis

Quantity variation	+/- 5 %
Delivery center	Delhi
Additional delivery centres	Ahmedabad, Bareilly, Indore, Itarsi, Kanpur, Karnal, Khanna, Kota, Moga, Rajkot, Shahjahanpur and Sirsa (Within 50 km radius from the municipal limits) with all centers at par
Hours of trading	As per directions of the Forward Markets Commission from time to time, currently- **Mondays through Fridays :** 10:00 AM to 05:00 PM **Saturdays :** 10.00 AM to 2.00 PM The Exchange may vary the above timing with due notice
Due date/Expiry date	20th day of the delivery month If 20th happens to be a holiday, a Saturday or a Sunday then the due date shall be the immediately preceding trading day of the Exchange, (other than a Saturday)
Opening of Contracts	Trading in far month contract will open on the 10th day of the month in which the near month contract is due to expire. If the 10th day happens to be a non-trading day, contracts would open on the next trading day
Delivery specification	Upon expiry of the contract all outstanding positions will result in delivery. The penalty structure for failure to meet delivery obligations will be as per circular no. NCDEX/TRADING-086/2008/216 dated September 16, 2008.
Closing of contract	Upon the expiry of contract all the outstanding open position would result in compulsory delivery.
No. of active contracts	As per Launch Calendar
Price band	Daily price fluctuation limit is (+/-) 3%. If the trade hits the prescribed daily price limit there will be cooling off period for 15 minutes. Trade will be allowed during this cooling off period within the price band. Thereafter the price band would be raised by another (+/-) 1% and trade will be resumed. If the price hits the revised price

	band (4%) again during the day, trade will only be allowed within the revised price band. No trade/order shall be permitted during the day beyond the revised limit of (+ / -) 4%
Position limits	**Member-wise:** 40,000 MT or 15% of market wide open position whichever is higher. **Client-wise:** 8,000 MT The above limits will not apply to bona fide hedgers. For bona fide hedgers, the Exchange will, on a case to case basis, decide the hedge limits. Please refer to Circular No. NCDEX/TRADING-100/2005/219 dated October 20, 2005 **For near month contracts** The following limits would be applicable from one month prior to expiry date of a contract Member-wise: 15,000 MT or 15% of market wide near month open position, whichever is higher **Client-wise:** 3,000 MT
Special Margins	Special margin of 3% of the value of the contract will be levied whenever the rise or fall in price exceeds 20% of the 90-day prior settlement price. The margin will be payable by the buyer or the seller depending on whether price rises or falls respectively. The margin shall remain in force so long as the price stays beyond the 20% limit and will be withdrawn as soon as the price is within the 20% band.
Premium / Discount	Quality variance is acceptable in specifications for Infestation damaged kernel, Shrunken/Shriveled/Broken grains, Total Defects, Moisture and Test Weight only with discounts as follows:- **Infestation damaged Kernel :** • Infestation damaged kernel above 1% to 3% - accepted with rebate on 1:0.25 basis

	• Infestation damaged more than 3% - Rejected **Shrunken/Shriveled/Broken Grains :** • Shrunken/Shriveled/Broken Grains above 5% to 6% - accepted with rebate on 1:1 basis. • Shrunken/Shriveled/Broken Grains more than 6%- Rejected **Total defects** • Total defects above 7% to 9% - accepted with rebate on 1:1 basis • Total defects above 9% - rejected **Moisture** • Moisture above 11% to 13% - accepted with rebate on 1:1 basis • Moisture above 13% - rejected **Test weight** • Test weight below 76 kg/hl - acceptable up to 74 kg/hl-accepted with rebate of 150 grams per kg/hl or pro-rata variance in hectoliter weight deducted per quintal weight delivered • Test weight below 74kg/hl - rejected
Delivery Logic	Compulsory Delivery

STEEL

Type of Contract	Futures Contract Specifications
Name of Commodity	Steel Long
Ticker symbol	STEELLONG
Trading System	NCDEX Trading System
Basis	Ex-Warehouse Ghaziabad, exclusive of all taxes and duties
Unit of trading	10 MT
Delivery unit	10 MT

Quotation/base value	Rs. Per MT	
Tick size	Rs. 10/- per MT	
Quality specification	Mild Steel Ingot/Steel Long	
	Size	3 1/2 * 4 1/2 inch
	Carbon content	upto 0.3 % max
	Manganese	min 0.4 %
	Sulphur	upto 0.06% max
	Phosphorus	upto 0.09% max
	Sulphur + Phosphorous	upto 0.14% max
	Weight	min of 90 Kgs per ingot
	Length	min of 48 inches per ingot
	Ingots without harmful and appreciable hollowness, piping and rising.	
	Ingots must have reasonably plain surface.	
	Heat number to be mentioned on each ingot.	
	Ingots must be free of harmful refractories.	
Additional deliverable grade	1) Mild Steel Ingots	
	Size	3 1/4 * 4 1/4 inch
	All other parameters exactly as per the quality specification mentioned above.	
	2) Mild Steel Billets	
	Size	100*100 to 130*130 mm
	Length	6m ± 200mm
	Billets to be free from open and harmful surface defects.	
	Billets should be suitable for re rolling.	
	Heat number to be mentioned on each billet.	
	Mill Test certificate to accompany for each heat.	
	Chemistry to be the same as mentioned in the quality specifications for MS Ingot.	

Quantity variation	+/- 3% or 5 MT, whichever is lower
Delivery center	Ghaziabad (within 50 kms of the municipal limits of Ghaziabad)
Additional delivery centres	Mandi Gobindgarh, Raipur, Mumbai, Chennai, Jharsuguda, Durgapur, Jaipur (within 50 kms from the municipal limits of the additional delivery centres)
Trading hours	As per directions of the Forward Markets Commission from time to time, currently- Monday through Friday: 10:00 AM to 11:30 PM Saturday: 10.00 AM to 2.00 PM The Exchange may vary the above timing with due notice
Delivery Specification	Upon expiry of the contract all outstanding positions will result in delivery. The penalty structure for failure to meet delivery obligations will be as per circular no. NCDEX/TRADING-086/2008/216 dated September 16, 2008.
No. of active contracts	As per launch calendar below
Opening of Contracts	Trading in any contract month will open on the 10th day of the month. If the opening day happens to be a non-trading day, contracts would open on the next trading day.
Due Date/ Expiry Date	20th day of the delivery month. If 20th happens to be a holiday or non-trading day, a Saturday or a Sunday then the due date shall be the immediately preceding trading day of the Exchange.
Closing of contract	On the expiry of the contract, all the outstanding position would have to be settled by physical delivery.
Price band	Daily price fluctuation limit is (+/-) 4%. If the trade hits the prescribed daily price limit there will be a cooling off period for 15 minutes. Trade will be allowed during this cooling off period within the price band. Thereafter the price band would be raised by another 50% of the existing limit i.e. (+/-) 2%. If the price hits the revised price

	band (6%) again during the day, trade will only be allowed within the revised price band. No trade/order shall be permitted during the day beyond the revised limit of (+/-) 6%.
Position Limits Client-wise: 25,000 MT.	Member-wise: 1,00,000 MT, or 20% of the market wide open interest whichever is higher. (For hedge limits refer circular no. NCDEX/TRADING-100/2005/219 dated October 20, 2005)
Special Margins	Special margin of 4% of the value of the contract will be levied whenever the rise or fall in price exceeds 20% of the 90 days prior settlement price. The margin will be payable by buyer or seller depending on whether price rises or falls respectively. The margins shall stay in force so long as price stays beyond the 20% limit and will be withdrawn as soon as the price is within the 20% band.
Location Premium/Discount	Location Premium/Discount would be announced before launch of contracts. STEEL LONG Base Grade: Mild Steel Ingots — Size: 3 1/2* 4 1/2 inch. Additional Grade: Mild Steel Ingots — Size: 3 1/4* 4 1/4 inch Mild Steel Billets P/D Applicable to additional grade No Premium/ Discount Premium: Rs. 700 per MT The grade premium/discounts would be in addition to the applicable location premium/discounts.
Delivery Logic	Compulsory Delivery

GOLD

Type of Contract	Futures Contract Specifications
Name of Commodity	Gold
Ticker symbol	GLDPURAHM

Trading System	NCDEX's Trading System
Basis	Ex- Ahmedabad inclusive of Customs Duty, exclusive of Sales Tax/VAT, and any other charges or levies.
Unit of trading	1 kg
Delivery unit	1 kg
Quotation/base value	Rs per 10 Grams of Gold with 995 fineness
Tick size	Re 1
Quality specification	Not more than 999.9 fineness bearing a serial number and identifying stamp of a refiner approved by the Exchange. List of approved refiners is available at: www.ncdex.com\downloads\refiners_gold.pdf
Quantity variation	None
Delivery center	Ahmedabad
Additional Delivery centre	Mumbai and New Delhi Location Premium/Discount as notified by the Exchange from time to time from time to time, currently - **Mondays through Fridays:**10:00 AM to 11:30 PM **Saturdays:** 10:00 AM to 02:00 PM On the expiry date, contracts expiring on that day will not be available for trading after 5 PM. The Exchange may vary the above timing with due notice.
Tender Period	**Tender Date -T** **Tender Period:** Tender period would be of 5 working days during trading hours prior to and including the expiry date of the contract. **Pay-in and Pay-out:** on a T+1 basis. If the tender date is T then, pay-in and pay-out would happen on T + 1 day. If such a T + 1 day happens to be a Saturday, a Sunday or a holiday at the Exchange, clearing banks or any of the service providers, Pay-in and Pay-out would be effected on the next working day.

	There would be 5 pay-in & pay-outs starting T +1 the 5th being the Final Settlement.
Due date / Expiry Date	Expiry date of the contract: 20th day of the delivery month. If 20th happens to be a holiday, a Saturday or a Sunday then the due date shall be the immediately preceding trading day of the Exchange, which is other than a Saturday. The settlement of contract would be by a staggered system of 5 Pay-ins and Pay-outs including the 5th Pay-in and Pay-out which would be the Final Settlement of the contract.
Delivery specification	Upon expiry of the contracts all the outstanding open positions should result in compulsory delivery. The penalty structure for failure to meet delivery obligations will be as per circular no. NCDEX/TRADING-086/2008/216 dated September 16, 2008. During the Tender period, if any delivery is tendered by seller, the corresponding buyer having open position and matched as per process put in place by the Exchange, shall be bound to settle by taking delivery on T + 1 day from the delivery centre where the seller has delivered same.
Closing of Contracts	Clearing and settlement of contracts will commence with the commencement of Tender Period by compulsory delivery of each open position tendered by the seller on T +1 to the corresponding buyer matched by the process put in place by the Exchange. Upon the expiry of the contract all the outstanding open position should result in compulsory delivery.
Opening of Contracts	Trading in the far month contract will open on the 10th day of the month in which the near month contract is due to expire. If the 10th happens to be a non-trading day, contracts would open on the next trading day.
No. of active contracts	As per launch calendar
Price limit	Base daily price fluctuation limit is (+/-)3%. If the trade hits the prescribed base daily price limit, the limit will be

	relaxed up to (+/-)6% without any break/ cooling off period in the trade. In case the daily price limit of (+/-) 6% is also breached, then after a cooling off period of 15 minutes, the daily price limit will be further relaxed up to (+/-) 9%. Trade will be allowed during the cooling off period within the price band of (+/-)6%. In case of price movement in International markets which is more than the maximum daily price limit (currently 9%), the same may be further relaxed in steps of 3% with the approval of FMC.
Position limits	Member wise : 6 MT or 15% of market wide open position whichever is higher - For all Gold contracts combined together. Client- wise : 2 MT - For all Gold contracts combined together. The above limits will not apply to bonafide hedgers. For bonafide hedgers the Exchange will decide the limits on a case-to-case basis.
Quality allowance (for Delivery)	Gold bars of 999.9 / 995 fineness A premium will be given for fineness above 995. The settlement price for more than 995 fineness will be calculated at (Actual fineness/995) * Final Settlement Price. Premium of 0.49% would be given for gold delivered of 999.9 purity.
Special Margin	In case of additional volatility, a special margin at such other percentage, as deemed fit by the Regulator/ Exchange, may be imposed on either the buy or the sell side in respect of all outstanding positions. Removal of such Margins will be at the discretion of the Regulator/ Exchange.
Additional Margin	In addition to the above margins the Regulator/Exchange may impose additional margins on both long and short side at such other percentage, as deemed fit. Removal of such Margins will be at the discretion of the Regulator/ Exchange.

CRUDE OIL

Type of Contract	Futures Contract Specifications
Name of Commodity	Light Sweet Crude Oil
Ticker symbol	CRUDEOIL
Trading System	NCDEX Trading System
Unit of trading	100 barrels
Delivery unit	50,000 barrels
Quotation/base value	Rs per barrel*
Tick size	Re 1.00
Quality specification	Crude oil: all crudes which satisfy the following; API Gravity: 37-42 degrees; Sulphur Content: Less than or equal to 0.42%
Quantity variation	+/- 1% by volume
Basis	FOB Cushing, Oklahoma, United States of America exclusive of all levies and taxes
Delivery center	JNPT/ Mumbai Port. The buyer shall be responsible for the freight cost, insurance, import duty and all other taxes and levies on actual basis. Freight and Insurance will be paid on actual basis on production of satisfactory documentary evidence from the seller.
Trading hours	**Mondays through Fridays** - 10:00 AM to 11:30 PM 10:00 AM to 11:55 PM (during US day light saving period) **Saturdays** - 10:00AM to 02:00 PM **Expiry Date** - at 11:30 PM / 11:55 PM * All timings are as per Indian Standard Timings (IST) *during US day light saving period
Due date/Expiry date	As per launch calendar
Delivery specification	The buyer and seller shall give intentions of taking/giving delivery through the delivery request window at least three trading days prior to the expiry of the contracts and such intentions can be given during 3 days which would be notified separately. This will be matched by exchange for physical delivery as per the process put in place by the Exchange.

Closing of contract	All open positions for which delivery intentions have not been received or for which delivery intentions have been rendered but remain unmatched for want of counterparty to settle delivery, will be cash settled at Final settlement Price on the expiry of the contract.
Opening of contracts	As per launch calendar
No. of active contracts	As per launch calendar
Price limit	Base daily price fluctuation limit is (+/-) 4%. If the trade hits the prescribed daily price limit, the price limits will be relaxed up to (+/-) 6% without any break/ cooling off period in the trade. In case the daily price limit of (+/-) 6% is breached, then after a cooling off period of 15 minutes, the daily price limit will be further relaxed up to (+/-) 9%. Trade will be allowed during the cooling off period within the price band of (+/-) 6%. In case of price movement in International markets which is more than the maximum daily price limit (currently 9%), the same may be further relaxed in steps of 3% with the approval of FMC.
Position limits	**12,00,000 barrels for Member** **4,00,000 barrels for Client** (For hedge limits refer circular no. NCDEX/TRADING-100/2005/219 dated October 20, 2005).
Quality Allowance (for Delivery)	No variation allowed

* 1 BARREL = 42 US GALLONS = 158.98 LITRES

JEERA

Name of Commodity	Jeera
Ticker symbol	JEERAUNJHA
Trading System	NCDEX Trading System
Basis	Ex-warehouse Unjha exclusive of sales tax/VAT
Unit of trading	3 MT
Delivery unit	3 MT
Quotation	Rs per Quintal

Tick size	Re 1
Quality specification	Jeera of Indian Origin with the following specifications. Jeera to be necessarily machine cleaned

Foreign Matter*	1.0 % basis
Seeds with Stalks	8.0 % max
Damaged, Discolored, Weevilled seeds, Shriveled and Immature seeds	2.0% basis
Test Weight (on count basis) 300 seeds per gram	Maximum
Moisture	9% max

*Foreign matter includes anything other than Jeera seeds e.g. sand, silica, pebbles, and other edible/non edible seeds

Quantity variation	+/- 2%
Delivery center	At the accredited warehouse(s) in Unjha (up to the radius of 50 Km from the municipal limits)
Additional delivery centres	At the accredited warehouse(s) in Delhi (within municipal limits), Jaipur and Jodhpur (up to the radius of 50 Km from the municipal limits) with location wise premium/ discount as announced by the Exchange prior to launch of contract
Trading hours	As per directions of the Forward Markets Commission from time to time, currently - **Mondays through Fridays :** 10:00 AM to 5:00 PM **Saturdays :** 10.00 AM to 2.00 PM The Exchange may vary the above timing with due notice.
Delivery specification	Upon expiry of the contract all outstanding positions will result in delivery. The penalty structure for failure to meet delivery obligations will be as per circular no. NCDEX/TRADING-086/2008/216 dated September 16, 2008.
Delivery Logic	Compulsory delivery
No. of active contracts	As per launch calendar

Opening of contracts	Trading in any contract month will open on the 10th of the month. If the 10th day happens to be a non-trading day, contracts would open on the next trading day
Due date/Expiry date	20th day of the delivery month If 20th happens to be a holiday, a Saturday or a Sunday then the due date shall be the immediately preceding trading day of the Exchange
Closing of contract	On the expiry of the contract, all the outstanding position should result in compulsory delivery.
Price Band	Daily price limit will be (+/-)2%. If the trade hits the prescribed daily price limit there will be a cooling off period for 15 minutes. Trade will be allowed during this cooling off period within the price band. Thereafter, price limit would be extended by another (+/-) 2% and the trade will be resumed. If the price hits the revised price band (4%) again during the day, trade will only be allowed within the revised price band. No trade/order shall be permitted during the day beyond the revised price limit of (+/-)4%.
Position limits	**Member :** 1000 MT or 15% of Market OI for all contracts whichever is higher **Client :** 300 MT for all contracts The above limits will not apply to bona fide hedgers. For bona fide hedgers, the Exchange will, on a case to case basis, decide the hedge limits. Please refer to Circular No. NCDEX/TRADING-100/2005/219 dated October 20,2005 **For near month contracts:** The following limits would be applicable from one month prior to expiry date of a contract: **Member:** Maximum up to 300 MT or 15% of the market-wide near month open position, whichever is higher. **Client:** Maximum up to 100 MT
Quality Allowance	Foreign Matter 1% basis acceptable upto 1.5 % with a discount of 1:1

	Damaged, Discolored, Weevilled seeds, Shriveled and Immature seeds 2% basis Acceptable upto 5% with discount as under: Above 2% and upto 4% with 1:0.5 discount Above 4% and upto 5% with 1:1 discount Above 5% rejected
Special Margins	In case of additional volatility, a special margin at such other percentage, as deemed fit, will be imposed in respect of outstanding positions, which will remain in force as long as the volatility exists, after which the special margin may be relaxed.

Compulsory delivery contracts of commodities are the contracts in which all the open positions on the expiry date need to be compulsorily settled through physical delivery. The penalty structure for failure to meet delivery obligations is clearly specified by the exchange.

CHAPTER 5: Instruments Available For Trading

In recent years, derivatives have become increasingly popular due to their applications for hedging, speculation and arbitrage. Before we study about the applications of commodity derivatives, we will have a look at some basic derivative products. While futures and options are now actively traded on many Exchanges, forward contracts are popular on the OTC market. In this chapter, we shall study in detail these three derivative contracts. At present, only commodity futures trade on the NCDEX.

5.1 Forward Contracts

A forward contract is an agreement to buy or sell an asset on a specified date for a specified price. One of the parties to the 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. Other contract details like delivery date, price and quantity are negotiated bilaterally by the parties to the contract. The forward contracts are normally traded outside the exchanges.

The salient features of forward contracts are:

- They are bilateral contracts and hence exposed to counterparty risk.
- Each contract is custom designed, and hence is unique in terms of contract size, expiration date and the asset type and quality.
- The contract price is generally not available in public domain.
- On the expiration date, the contract has to be settled by delivery of the asset.
- If the party wishes to reverse the contract, it has to compulsorily go to the same counterparty, which often results in high prices being charged.

However, forward contracts in certain markets have become very standardized, as in the case of foreign exchange, thereby reducing transaction costs and increasing transactions volume. This process of standardization reaches its limit in the organized futures market.

Forward contracts are very useful in hedging and speculation. The classic hedging application would be that of an exporter who expects to receive payment in dollars three months later. He is exposed to the risk of exchange rate fluctuations. By using the currency forward market to sell dollars forward, he can lock on to a rate today and reduce his uncertainty. Similarly an importer who is required to make a payment in dollars two months hence can reduce his exposure to exchange rate fluctuations by buying dollars forward.

If a speculator has information or analysis, which forecasts an upturn in a price, then he can

go long on the forward market instead of the cash market. The speculator would go long on the forward, wait for the price to rise, and then take a reversing transaction to book profits.

5.1.1 Limitations of Forward Markets

Forward markets world-wide are afflicted by several problems:

- Lack of centralization of trading,
- Illiquidity and
- Counterparty risk

In the first two of these, the basic problem is that of too much flexibility and generality. The forward market is like a real estate market in that any two consenting adults can form contracts against each other. This often makes them design terms of the deal which are very convenient in that specific situation, but makes the contracts non-tradable.

Counterparty risk arises from the possibility of default by any one party to the transaction. When one of the two sides to the transaction declares bankruptcy, the other suffers. Even when forward markets trade standardized contracts, and hence avoid the problem of illiquidity, still the counterparty risk remains a very serious issue.

5.2 Introduction To Futures

Futures markets were designed to solve the problems that exist in forward markets. 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. But

Box 5.6: The first financial futures market

Merton Miller, the 1990 Nobel laureate had said that "financial futures represent the most significant financial innovation of the last twenty years." The first exchange that traded financial derivatives was launched in Chicago in the year 1972. A division of the Chicago Mercantile Exchange, it was called the International Monetary Market (IMM) and traded currency futures. The brain behind this was a man called Leo Melamed, acknowledged as the "father of financial futures" who was then the Chairman of the Chicago Mercantile Exchange. Before IMM opened in 1972, the Chicago Mercantile Exchange sold contracts whose value was counted in millions. By 1990, the underlying value of all contracts traded at the Chicago Mercantile Exchange totalled 50 trillion dollars.

These currency futures paved the way for the successful marketing of a dizzying array of similar products at the Chicago Mercantile Exchange, the Chicago Board of Trade, and the Chicago Board Options Exchange. By the 1990s, these exchanges were trading futures and options on everything from Asian and American stock indexes to interest-rate swaps, and their success transformed Chicago almost overnight into the risk-transfer capital of the world.

Table 5.1 Distinction between futures and forwards

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

unlike forward contracts, the futures contracts are standardized and exchange traded. To facilitate liquidity in the futures contracts, the exchange specifies certain standard features of the contract. It is a standardized contract with standard underlying instrument, a standard quantity and quality of the underlying instrument that can be delivered, (or which can be used for reference purposes in settlement) and a standard timing of such settlement. A futures contract may be offset prior to maturity by entering into an equal and opposite transaction.

The main standardized items in a futures contract are:

- Quantity of the underlying
- Quality of the underlying
- The date and the month of delivery
- The units of price quotation and minimum price change
- Delivery center

5.2.1 Distinction between Futures and Forward Contracts

Forward contracts are often confused with futures contracts. The confusion is primarily because both serve essentially the same economic functions of allocating risk in the presence of future price uncertainty. However, futures are a significant improvement over the forward contracts as they eliminate counterparty risk and offer more liquidity. Table 5.1 lists the distinction between the two.

5.2.2 Futures Terminology

- Spot price: The price at which an asset trades in the spot market.
- Futures price: The price at which the futures contract trades in the futures market.
- Contract cycle: The period over which a contract trades. The commodity futures contracts on the NCDEX have one month, two months, three months etc (not more than a year) expiry cycles. Most of the agri commodities futures contracts of NCDEX expire on the 20th day of the delivery month. Thus, a January expiration contract expires on the

20th of January and a February expiration contract ceases to exist for trading after the 20th of February. If 20th happens to be a holiday, the expiry date shall be the immediately preceding trading day of the Exchange, other than a Saturday. New contracts for agri commodities are introduced on the 10th of the month.

- Expiry date: It is the date specified in the futures contract. This is the last day on which the contract will be traded, at the end of which it will cease to exist.
- Delivery unit: The amount of asset that has to be delivered under one contract. For instance, the delivery unit for futures on Soybean on the NCDEX is 10 MT. The delivery unit for the Gold futures contract is 1 kg.
- Basis: Basis is the difference between the futures price and the spot price. There will be a different basis for each delivery month for each contract. In a normal market, futures prices exceed spot prices. Generally, for commodities basis is defined as spot price -futures price. However, for financial assets the formula, future price -spot price, is commonly used.
- Cost of carry: The relationship between futures prices and spot prices can be summarized in terms of what is known as the cost of carry. This measures the storage cost plus the interest that is paid to finance the asset.
- Initial margin: The amount that must be deposited in the margin account at the time a futures contract is first entered into is known as initial margin.
- Marking-to-market (MTM): In the futures market, at the end of each trading day, the margin account is adjusted to reflect the investor's gain or loss depending upon the futures closing price. This is called marking to market.
- Maintenance margin: This is somewhat lower than the initial margin. This is set to ensure that the balance in the margin account never becomes negative. If the balance in the margin account falls below the maintenance margin, the investor receives a margin call and is expected to top up the margin account to the initial margin level before trading commences on the next day.

5.3 Introduction To Options

In this section, we look at another interesting derivative contract, namely options. Options are fundamentally different from forward and futures contracts. An option gives the holder of the option the right to do something. The holder does not have to exercise this right. In contrast, in a forward or futures contract, the two parties have committed themselves to doing something. Whereas it costs nothing except margin requirements to enter into a futures contract, the purchase of an option requires an up-front payment.

5.3.1 Option Terminology

- Commodity options: Commodity options are options with a commodity as the underlying. For instance, a gold options contract would give the holder the right to buy or sell a specified quantity of gold at the price specified in the contract.
- Stock options: Stock options are options on individual stocks. Options currently trade on over 500 stocks in the United States. A contract gives the holder the right to buy or sell shares at the specified price.
- Buyer of an option: The buyer of an option is the one who by paying the option premium buys the right but not the obligation to exercise his option on the seller/ writer.
- Writer of an option: The writer of a call/ put option is the one who receives the option premium and is thereby obliged to sell/ buy the asset if the buyer exercises on him.

Box 5.7: History of options

Although options have existed for a long time, they were traded OTC, without much knowledge of valuation. The first trading in options began in Europe and the US as early as the seventeenth century. It was only in the early 1900s that a group of firms set up what was known as the put and call Brokers and Dealers Association with the aim of providing a mechanism for bringing buyers and sellers together. If someone wanted to buy an option, he or she would contact one of the member firms. The firm would then attempt to find a seller or writer of the option either from its own clients or those of other member firms. If no seller could be found, the firm would undertake to write the option itself in return for a price.

This market however suffered from two deficiencies. First, there was no secondary market and second, there was no mechanism to guarantee that the writer of the option would honour the contract. In 1973, Black, Merton and Scholes invented the famed Black-Scholes formula. In April 1973, CBOE was set up specifically for the purpose of trading options. The market for options developed so rapidly that by early '80s, the number of shares underlying the option contract sold each day exceeded the daily volume of shares traded on the NYSE. Since then, there has been no looking back.

There are two basic types of options: call options and put options.

- Call option: A call option gives the holder the right but not the obligation to buy an asset by a certain date for a certain price.
- Put option: A put option gives the holder the right but not the obligation to sell an asset by a certain date for a certain price.
- Option price: Option price is the price which the option buyer pays to the option seller. It is also referred to as the option premium.

- Expiration date: The date specified in the options contract is known as the expiration date, the exercise date, the strike date or the maturity.
- Strike price: The price specified in the options contract is known as the strike price or the exercise price.
- American options: American options are options that can be exercised at any time upto the expiration date. Most exchange-traded options are American.
- European options: European options are options that can be exercised only on the expiration date itself.
- In-the-money option: An in-the-money (ITM) option is an option that would lead to a positive cash flow to the holder if it were exercised immediately. A call option on the index is said to be in-the- money when the current index stands at a level higher than the strike price (i.e. spot price > strike price). If the index is much higher than the strike price, the call is said to be deep ITM. In the case of a put, the put is ITM if the index is below the strike price.
- At-the-money option: An at-the-money (ATM) option is an option that would lead to zero cash flow if it were exercised immediately. An option on the index is at-the-money when the current index equals the strike price (i.e. spot price = strike price).
- Out-of-the-money option: An out-of-the-money (OTM) option is an option that would lead to a negative cash flow if it were exercised immediately. A call option on the index is out-of-the-money when the current index stands at a level which is less than the strike price (i.e. spot price < strike price). If the index is much lower than the strike price, the call is said to be deep OTM. In the case of a put, the put is OTM if the index is above the strike price.
- Intrinsic value of an option: The option premium can be broken down into two components - intrinsic value and time value. The intrinsic value of a call is the amount the option is ITM, if it is ITM. If the call is OTM, its intrinsic value is zero. Putting it another way, the intrinsic value of a call is Max [0; (St - K)] which means the intrinsic value of a call is the greater of 0 or (St - K). Similarly, the intrinsic value of a put is Max[0;K - St],i.e. the greater of 0 or (K - St). K is the strike price and St is the spot price.
- Time value of an option: The time value of an option is the difference between its premium and its intrinsic value. Both calls and puts have time value. An option that is OTM or ATM has only time value. Usually, the maximum time value exists when the option is ATM. The longer the time to expiration, the greater is an option's time value, all else equal. At expiration, an option should have no time value.

5.4 Basic Payoffs

A payoff is the likely profit/ loss that would accrue to a market participant with change in the price of the underlying asset. This is generally depicted in the form of payoff diagrams which show the price of the underlying asset on the X-axis and the profits/ losses on the Y-axis. In this section, we shall take a look at the payoffs for buyers and sellers of futures and options. But first we look at the basic payoff for the buyer or seller of an asset. The asset could be a commodity like gold or chilli, or it could be a financial asset like a stock or an index.

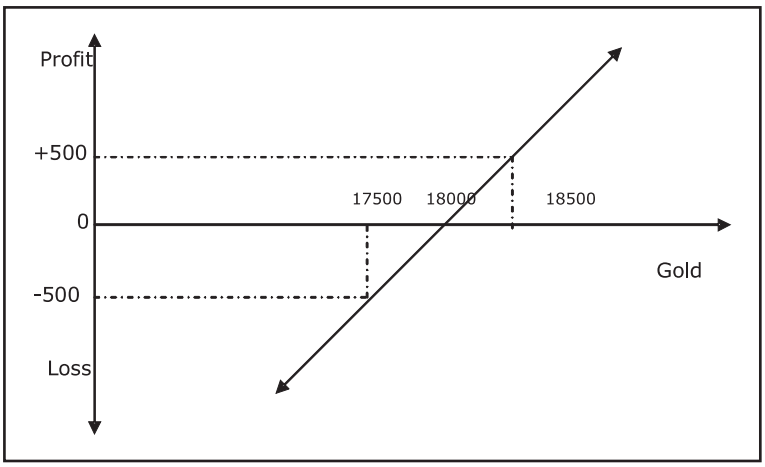
Box 5.8: Use of options in the seventeenth-century

Options made their first major mark in financial history during the tulip-bulb mania in seventeenth-century Holland. It was one of the most spectacular *get rich quick* binges in history. The first tulip was brought into Holland by a botany professor from Vienna. Over a decade, the tulip became the most popular and expensive item in Dutch gardens. The more popular they became, the more Tulip bulb prices began rising. That was when options came into the picture. They were initially used for hedging. By purchasing a call option on tulip bulbs, a dealer who was committed to a sales contract could be assured of obtaining a fixed number of bulbs for a set price. Similarly, tulip-bulb growers could assure themselves of selling their bulbs at a set price by purchasing put options. Later, however, options were increasingly used by speculators who found that call options were an effective vehicle for obtaining maximum possible gains on investment. As long as tulip prices continued to skyrocket, a call buyer would realize returns far in excess of those that could be obtained by purchasing tulip bulbs themselves. The writers of the put options also prospered as bulb prices spiralled since writers were able to keep the premiums and the options were never exercised. The tulip-bulb market collapsed in 1636 and a lot of speculators lost huge sums of money. Hardest hit were put writers who were unable to meet their commitments to purchase Tulip bulbs.

5.4.1 Payoff for Buyer of Asset: Long Asset

In this basic position, an investor buys the underlying asset, gold for instance, for Rs. 18,000 per 10 gms, and sells it at a future date at an unknown price, St. Once it is purchased, the investor is said to be 'long' the asset. Figure 5.1 shows the payoff for a long position on gold. In the above example, the investor has bought the contract for gold for Rs. 18,000 per 10 gms of gold. When the investor decides to sell gold, he would have made a profit of Rs. 500 per 10 gms of gold if the prices have touched Rs. 18,500 per 10 gms. On the other hand, if prices had fallen to Rs. 17,500 per 10 gms, the investor would have made a loss of Rs 500 per 10 gms.

Figure 5.1 Payoff for buyer of gold

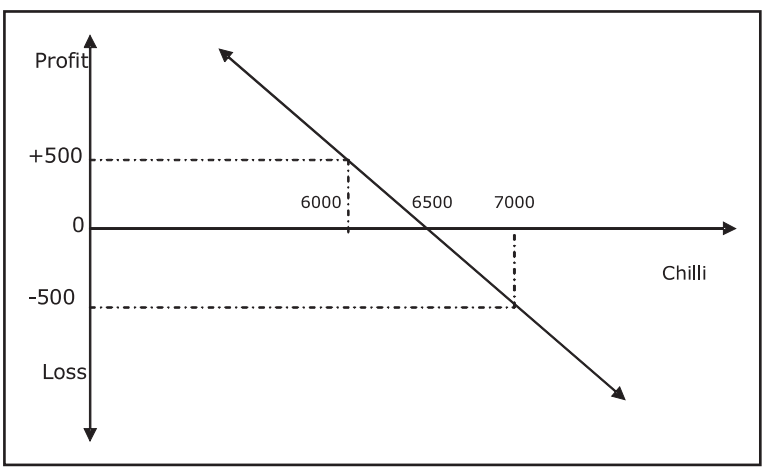


The figure shows the profits / losses from a long position on gold. The investor bought gold at Rs. 18000 per 10 gms. If the price of gold rises, he profits. If price of gold falls, he loses.

5.4.2 Payoff for Seller of Asset: Short Asset

In this basic position, an investor shorts the underlying asset, chilli for instance, for Rs. 6500 per quintal, and buys it back at a future date at an unknown price, St. Once it is sold, the investor is said to be 'short' the asset. Figure 5.2 shows the payoff for a short position on chilli. In the above example, the investor has sold the commodity (chilli) for Rs. 6500 per quintal. If prices increase and touch Rs. 7000 per quintal on the day when the investor offsets the position by buying the commodity, he stands to lose Rs. 500 per quintal. On the other hand, if the prices fell to Rs. 6000 per quintal, the investor stands to gain Rs. 500 per quintal.

Figure 5.2 Payoff for a seller of chilli



The figure shows the profits / losses from a short position on chilli. The investor sold chilli at Rs. 6500 per quintal. If the price of chilli falls, he profits. If price of chilli rises, he loses.

5.5 Payoff For Futures

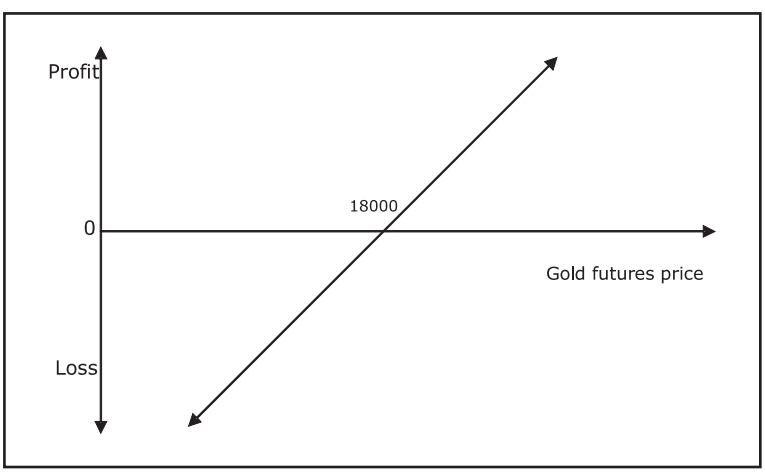
Futures contracts have linear payoff, just like the payoff of the underlying asset that we looked at earlier. If the price of the underlying rises, the buyer makes profits. If the price of the underlying falls, the buyer makes losses. The magnitude of profits or losses for a given upward or downward movement is the same. The profits as well as losses for the buyer and the seller of a futures contract are unlimited. These linear payoffs are fascinating as they can be combined with options and the underlying to generate various complex payoffs.

5.5.1 Payoff for Buyer of Futures: Long Futures

The payoff for a person who buys a futures contract is similar to the payoff for a person who holds an asset. He has a potentially unlimited upside as well as a potentially unlimited downside.

Take the case of a speculator who buys a two-month gold futures contract on the NCDEX when it sells for Rs. 18000 per 10 gms. The underlying asset in this case is gold. When the prices of gold in the spot market goes up, the futures price too moves up and the long futures position starts making profits. Similarly, when the prices of gold in the spot market goes down, the futures prices too move down and the long futures position starts making losses. Figure 5.3 shows the payoff diagram for the buyer of a gold futures contract. In the above example, the investor enters into a two month futures contract at Rs. 18000 per 10 gms of gold and holds the contract till expiry. On the expiry day, if the final settlement price is declared as Rs. 18500 per 10 gms, the investor will have made a profit of Rs. 500 per 10 gms through the term of the contract. On the other hand, if prices of gold have fallen, the final settlement price may be Rs. 17500 per 10 gms. In that event, the investor would have made a loss of Rs. 500 per 10 gms.

Figure 5.3 Payoff for a buyer of gold futures

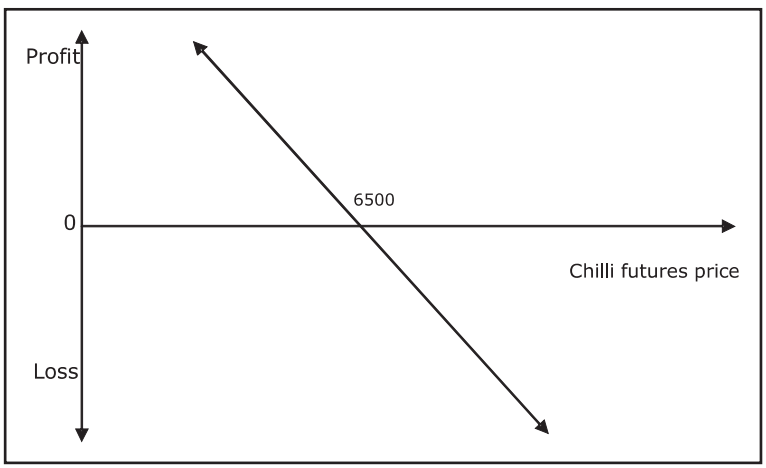


The figure shows the profits / losses for a long futures position. The investor bought futures when gold futures were trading at Rs. 18000 per 10 gms. If the price of the underlying gold goes up, the gold futures price too would go up and his futures position starts making profit. If the price of gold falls, the futures price falls too and his futures position starts showing losses.

5.5.2 Payoff for Seller of Futures: Short Futures

The payoff for a person who sells a futures contract is similar to the payoff for a person who shorts an asset. He has a potentially unlimited upside as well as a potentially unlimited downside. Take the case of a speculator who sells a two-month chilli futures contract when the contract sells at Rs.6500 per quintal. The underlying asset in this case is red chilli. When the prices of chilli move down, the chilli futures prices also move down and the short futures position starts making profits. When the prices of chilli move up, the chilli futures price also moves up and the short futures position starts making losses. Figure 5.4 shows the payoff diagram for the seller of a futures contract. In the above example, the investor sells a chilli futures contract for Rs. 6500 per quintal. If the prices rise to Rs. 7000 per quintal on expiry date, the investor stands to make a loss of Rs. 500 per quintal at the end of the term of the contract. If the prices fall to Rs. 6000 per quintal, the investor makes profit of Rs. 500 per quintal.

Figure 5.4 Payoff for a seller of chilli futures



The figure shows the profits / losses for a short futures position. The investor sold chilli futures at Rs. 6500 per quintal. If the price of the underlying red chilli goes down, the futures price also falls, and the short futures position starts making profit. If the price of the underlying red chilli rises, the futures too rise, and the short futures position starts showing losses.

5.6 Payoff For Options

The optionality characteristic of options results in a non-linear payoff for options. In simple words, it means that the losses for the buyer of an option are limited, however the profits are potentially unlimited. The writer of an option gets paid the premium. The payoff from the option written is exactly the opposite to that of the option buyer. His profits are limited to the option premium, however his losses are potentially unlimited. These non-linear payoffs are

fascinating as they lend themselves to be used for generating various complex payoffs using combinations of options and the underlying asset. We look here at the four basic payoffs.

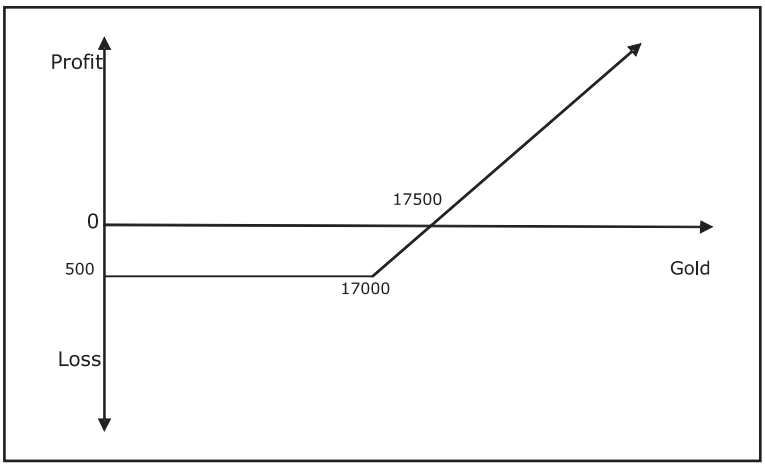
5.6.1 Payoff for Buyer of Call Options: Long Call

A call option gives the buyer the right to buy the underlying asset at the strike price specified in the option. The profit/ loss that the buyer makes on the option depends on the spot price of the underlying. If upon expiration, the spot price exceeds the strike price, he makes a profit. Higher the spot price, more is the profit he makes. If the spot price of the underlying is less than the strike price, he makes loss. If he lets his option expire un-exercised, his loss in this case is the premium he paid for buying the option. Figure 5.5 gives the payoff for the buyer of a three month call option on gold (often referred to as long call) with a strike of Rs.17000 per 10 gms, bought at a premium of Rs.500. In the above example, the holder of the option pays a premium of Rs. 500 and buys a call option to buy 10 gms of gold at Rs. 17000. In the case of a European option which can be exercised only on expiry, if the price of gold stands at Rs. 18000 per 10 gms at the expiry of the contract, then it makes sense for the holder of the option to exercise the option. The investor will stand to gain Rs. 1000 per 10 gms of gold (Rs. 18000 market price at which the investor sells 10 gms of gold less Rs. 17000 at which he bought the 10 gms on exercise of his option). The investor will make a net profit of Rs. 500 per 10 gms of gold since he has already paid Rs. 500 to the writer of the option as premium.

If on expiry, the price of gold stands between Rs. 17500 to Rs. 17000 per 10 gms of gold, it still makes economic sense for the investor to exercise his option to buy gold at Rs. 17000 per 10 gms, since he can recover a part of the premium paid to the writer of the option. If, for e.g., on expiry date, the price of gold stands at Rs. 17250 per 10 gms of gold, he can exercise the option to buy the gold at Rs. 17000 per 10 gms and sell it in the spot market at Rs. 17250 per 10 gms. The profit made would be Rs. 250 per 10 gms. The investor would have made a net loss of Rs. 250 considering that he has already paid a premium of Rs. 500 to buy the options contract. If the investor lets the option lapse without exercising it, this loss would go up to Rs. 500, the full amount of the premium.

If on the other hand, the price of 10 gms of gold has fallen to less than Rs. 17000, then it makes sense for the investor to let the option lapse. In that event, the investor has made a total loss of Rs. 500 per 10 gms of gold.

Figure 5.5 Payoff for buyer of call option on gold



The figure shows the profits / losses for the buyer of a three-month call option on gold at a strike of Rs. 17000 per 10 gms. As can be seen, as the prices of gold rise in the spot market, the call option becomes in-the-money. If upon expiration, gold trades above the strike of Rs. 17000, the buyer would exercise his option and get profit. The profits possible on this option are potentially unlimited. However, if the price of gold falls below the strike of Rs. 17000, he lets the option expire. His losses are limited to the extent of the premium he paid for buying the option.

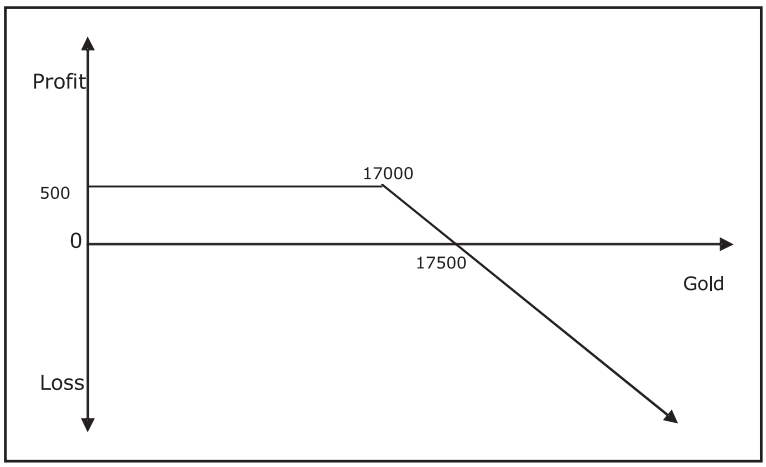
5.6.2 Payoff for Writer of Call Options: Short Call

A call option gives the buyer the right to buy the underlying asset at the strike price specified in the option. For selling the option, the writer of the option charges a premium. The profit/ loss that the buyer makes on the option depends on the spot price of the underlying. Whatever is the buyer's profit is the seller's loss. If upon expiration, the spot price exceeds the strike price, the buyer will exercise the option on the writer. Hence, as the spot price increases, the writer of the option starts making losses. Higher the spot price, more is the loss he makes. If upon expiration the spot price of the underlying is less than the strike price, the buyer losses. If he lets his option expire un-exercised, the writer gets to keep the premium. Figure 5.6 gives the payoff for the writer of a three month call option on gold (often referred to as short call) with a strike of Rs. 17000 per 10 gms, sold at a premium of Rs. 500. In the above example, the investor has written an option in favour of the holder to make available to the holder of the option 10 gms of gold at Rs. 17000 . For writing the option, the investor earns Rs. 500. If the price of gold fall below Rs. 17000 per 10 gms of gold, then the holder of the option will let the option expire without exercising the option. In that event, the writer of the option would have made a profit of Rs. 500 for having written an option which was not exercised.

On the other hand, if the prices of gold rises above Rs. 17000 but below Rs. 17500 per 10 gms, then the writer of the option will not profit from the entire Rs. 500 paid to him as premium. For eg, if the price of gold rises to Rs. 17250 per 10 gm. He stands to make a profit of only Rs. 250.

If the price of gold rises above Rs. 17500, he stands to make a loss to the full amount of the premium. If for e.g. the price on expiry stands at Rs. 18000 per 10 gms of gold, the option will be exercised. The writer will have to sell 10 gms of gold at Rs. 17000 while the market price for the same commodity is Rs. 18000 per 10 gms. He thus makes a loss of Rs. 1000 per 10 gms of gold. Considering the fact that he has already received Rs. 500 as premium for writing the contract, his net loss stands at Rs. 500.

Figure 5.6 Payoff for writer of call option on gold



The figure shows the profits / losses for the seller of a three-month call option on gold with a strike of Rs. 17000 per 10 gms. As the price of gold in the spot market rises, the call option becomes in-the-money and the writer starts making losses. If upon expiration, gold price is above the strike of Rs. 17000, the buyer would exercise his option on the writer who would suffer a loss. The loss that can be incurred by the writer of the option is potentially unlimited, whereas the maximum profit is limited to the extent of the up-front option premium of Rs. 500 charged by him.

5.6.3 Payoff for Buyer of Put Options: Long Put

A put option gives the buyer the right to sell the underlying asset at the strike price specified in the option. The profit/ loss that the buyer makes on the option depends on the spot price of the underlying. If upon expiration, the spot price is below the strike price, he makes a profit. Lower the spot price, more is the profit he makes. If the spot price of the underlying is more than the strike price, he makes loss. If he lets his option expire un-exercised, his loss in this case is the premium he paid for buying the option. Figure 5.7 gives the payoff for the buyer of

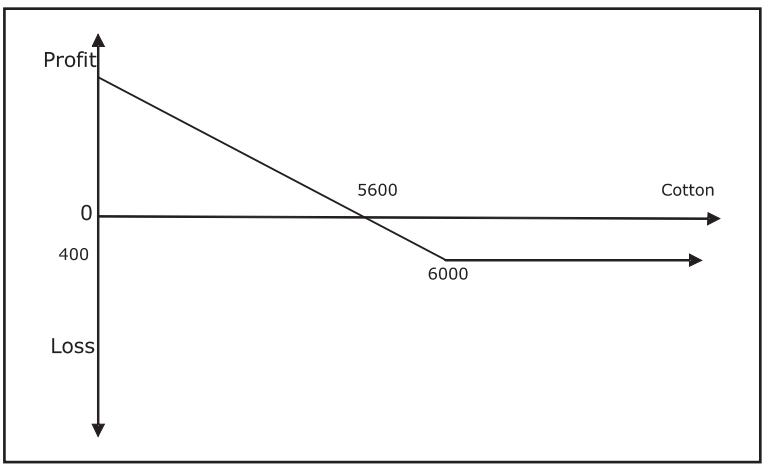
a three month put option on cotton (often referred to as long put) with a strike of Rs. 6000 per quintal, bought at a premium of Rs. 400. In the above example, the investor purchases an option which gives her/him the right to sell cotton at Rs. 6000 per quintal. For the above option, the investor has paid the writer of the option Rs. 400 upfront.

If the prices of cotton fall below Rs. 5600, the holder of the put option makes a profit by exercising his option to sell at Rs. 6000 per quintal of cotton. Let us assume that at the expiry of this European put option, the price of cotton stands at Rs. 5000 per quintal. In that event, the investor will make a profit of Rs. 1000 per quintal of cotton as the market price for the same commodity is Rs. 5000 per quintal as versus the contractual price of Rs. 6000 per quintal on exercise of the option. But the profit, net of the premium paid to the writer of the option, will be Rs. 600 per quintal of cotton.

If the price of cotton stands between Rs. 5600 - Rs. 6000 per quintal, it still makes economic sense for the investor to exercise his option. For eg. If the price of cotton stands at Rs. 5800 per quintal, the investor will exercise his option and sell to the writer of the option the cotton at Rs. 6000 per quintal. He has made a profit of only Rs. 200 per quintal from this transaction which does not cover the premium of Rs. 400. However, the investor stands to make a net loss of Rs. 200.

On the other hand, if the prices of cotton rise above Rs. 6000, the holder of the option will let the option expire as he can sell the cotton in the market for a better price.

Figure 5.7 Payoff for buyer of put option on cotton



The figure shows the profits / losses for the buyer of a three-month put option on cotton. As can be seen, as the price of cotton in the spot market falls, the put option becomes in-the-money. If at expiration, cotton prices fall below the strike of Rs. 6000 per quintal, the buyer would exercise his option and get profit. However, if spot price of cotton on the day of expiration of the contract is above the strike of Rs. 6000, he lets the option expire. His losses are limited to the extent of the premium he paid for buying the option, Rs. 400 in this case.

5.6.4 Payoff for Writer of Put Options: Short Put

A put option gives the buyer the right to sell the underlying asset at the strike price specified in the option. For selling the option, the writer of the option

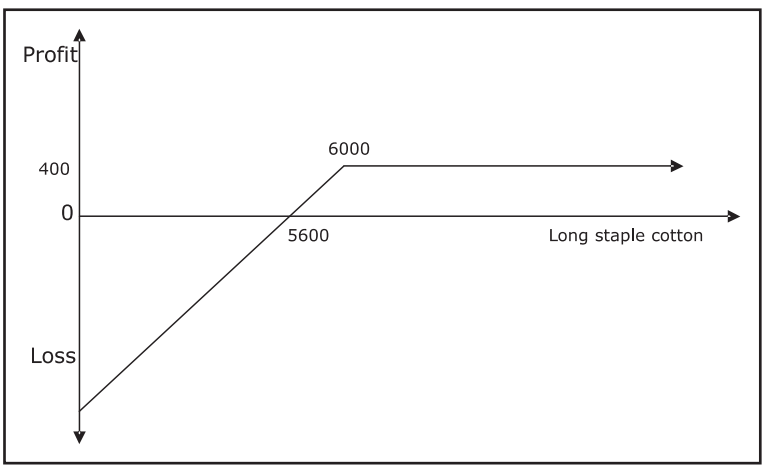
charges a premium. The profit/loss that the buyer makes on the option depends on the spot price of the underlying. Whatever is the buyer's profit is the seller's loss. If upon expiration, the spot price happens to be below the strike price, the buyer will exercise the option on the writer. If upon expiration the spot price of the underlying is more than the strike price, the buyer lets his option expire un-exercised and the writer gets to keep the premium. Figure 5.8 gives the payoff for the writer of a three month put option on cotton (often referred to as short put) with a strike of Rs. 6000 per quintal, sold at a premium of Rs.400. In the above example, for a writer of a put option, the profit that he makes is restricted to the premium of Rs. 400 that he receives from the holder of the option.

In case on exercise of option, the price of cotton stands at Rs. 5000 per quintal. The writer of the contract will have to buy the cotton from the holder of the contract for Rs. 6000 while the market price of the same commodity is Rs. 5000 per quintal. Thus, he makes a loss of Rs. 1000 per quintal. But the loss net of the premium will be Rs. 600 since the writer of the option has already received Rs. 400 upfront as premium.

In case on exercise, the price of cotton lies between Rs. 5600 and Rs. 6000, the investor may still exercise his option. In that event, the profit made by the writer will have to be adjusted for the rise in price. For e.g. if price for the quintal of cotton stood at Rs. 5800, then the writer would make a net profit of only Rs. 200.

In case on exercise, the price of cotton stands at Rs. 6000 per quintal, then the holder of the option will let the option lapse. In this event, the writer of the option makes a profit of Rs. 400.

Figure 5.8 Payoff for writer of put option on cotton



The figure shows the profits / losses for the seller of a three-month put option on cotton. As the price of cotton in the spot market falls, the put option becomes in-the-money and the writer starts making losses. If upon expiration, cotton prices fall below the strike of Rs. 6000 per quintal, the buyer would exercise his option on the writer who would suffer a loss to the extent of the difference between the strike price and spot cotton-close. The profit that can be made by the writer of the option is limited to extent of the premium received by him i.e. Rs. 400 whereas the losses are limited to the strike price since the worst that can happen is that the price of the underlying asset falls to zero.

Table 5.2 Distinction between Futures and Options

Futures	Options
Exchange traded, with novation	Same as futures
Exchange defines the product	Same as futures
Price is zero, strike price moves	Strike price is fixed, price moves
Linear payoff	Nonlinear payoff

5.7 Using Futures Versus Using Options

An interesting question to ask at this stage is - when would one use options instead of futures? Options are different from futures in several interesting senses. At a practical level, the option buyer faces an interesting situation. He pays for the option in full at the time it is purchased. After this, he only has an upside. There is no possibility of the options position generating any further losses to him (other than the funds already paid for the option). This is different from futures, which is free to enter into, but can generate very large losses. This characteristic makes options attractive to many occasional market participants, who cannot put in the time to closely monitor their futures positions.

More generally, options offer "nonlinear payoffs" whereas futures only have "linear payoffs". By combining futures and options, a wide variety of innovative and useful payoff structures can be created.

CHAPTER 6: Pricing Commodity Futures

The process of arriving at a price at which, a person buys and another sells a futures contract for a specific expiration date is called price discovery. In an active futures market, the process of price discovery continues from the market's opening until its close. The prices are freely and competitively derived. Future prices are therefore considered to be superior to the administered prices or the prices that are determined privately. Further, the low transaction costs and frequent trading encourages wide participation in futures markets lessening the opportunity for control by a few buyers and sellers.

In an active futures market, the free flow of information is vital. Futures exchanges act as a focal point for the collection and dissemination of statistics on supplies, transportation, storage, purchases, exports, imports, currency values, interest rates and other pertinent information. Any significant change in this data is immediately reflected in the trading pits as traders digest the new information and adjust their bids and offers accordingly. As a result of this free flow of information, the market determines the best estimate of today and tomorrow's prices and it is considered to be the reflection of the supply and demand for the underlying commodity. Price discovery facilitates this free flow of information, which is vital to the effective functioning of futures market.

In this chapter, we try to understand the pricing of commodity futures contracts and look at how the futures price is related to the spot price of the underlying asset. We study the cost-of-carry model to understand the dynamics of pricing that constitute the estimation of fair value of futures.

6.1 Investment Assets Versus Consumption Assets

When studying futures contracts, it is essential to distinguish between investment assets and consumption assets. An investment asset is an asset that is held for investment purposes by most investors. Stocks and bonds are examples of investment assets. Gold and silver are also examples of investment assets. Note however that investment assets do not always have to be held exclusively for investment. As we know, silver, for example, has a number of industrial uses. However, to classify as investment assets, these assets do have to satisfy the requirement that they are held by a large number of investors solely for investment. A consumption asset is an asset that is held primarily for consumption. It is not usually held for investment. Examples of consumption assets are commodities such as copper, oil, and pork bellies.

As we will learn, we can use arbitrage arguments to determine the futures prices of an investment asset from its spot price and other observable market variables. For pricing consumption assets, we need to review the arbitrage arguments a little differently. To begin with, we look at the cost-of-carry model and try to understand the pricing of futures contracts on investment assets.

6.2 The Cost Of Carry Model

We use arbitrage arguments to arrive at the fair value of futures. For pricing purposes, we treat the forward and the futures market as one and the same. A futures contract is nothing but a forward contract that is exchange traded and that is settled at the end of each day. The buyer who needs an asset in the future has the choice between buying the underlying asset today in the spot market and holding it, or buying it in the forward market. If he buys it in the spot market today, it involves opportunity costs. He incurs the cash outlay for buying the asset and he also incurs costs for storing it. If instead he buys the asset in the forward market, he does not incur an initial outlay. However, the costs of holding the asset are now incurred by the seller of the forward contract who charges the buyer a price that is higher than the price of the asset in the spot market. This forms the basis for the cost-of-carry model where the price of the futures contract is defined as:

$F = S + C$ (6.1)

where:

F Futures price

S Spot price

C Holding costs or carry costs

The fair value of a futures contract can also be expressed as:

$F = S(1 + r)^T$ (6.2)

where:

r Percent cost of financing

T Time till expiration

Whenever the futures price moves away from the fair value, there would be opportunities for arbitrage. If $F < S(1+r)^T$ or $F > S(1+r)^T$, arbitrage would exist. We know what are the spot and futures prices, but what are the components of holding costs? The components of holding cost vary with contracts on different assets. At times, the holding cost may even be negative. In the case of commodity futures, the holding cost is the cost of financing plus cost of storage and insurance purchased. In the case of equity futures, the holding cost is the cost of financing minus the dividends returns.

Equation 6.2 uses the concept of discrete compounding, where interest rates are compounded at discrete intervals, for example, annually or semiannually. Pricing of options and other complex derivative securities requires the use of continuously compounded interest rates. Most books on derivatives use continuous compounding for pricing futures too. When we use continuous compounding, equation 6.2 is expressed as:

$F = Se^{rT}$ (6.3)

where:

r Cost of financing (using continuously compounded interest rate)

T Time till expiration

e = 2.71828

So far we were talking about pricing futures in general. To understand the pricing of commodity futures, let us start with the simplest derivative contract - a forward contract. We use examples of forward contracts to explain pricing concepts because forward contracts are easier to understand. However, the logic for pricing a futures contract is exactly the same as the logic for pricing a forward contract. We begin with a forward contract on an asset that provides the holder with no income and has no storage or other costs. Then we introduce real world factors as they apply to investment commodities and later to consumption commodities.

Consider a three-month forward contract on a stock that does not pay dividend. Assume that the price of the underlying stock is Rs.40 and the three-month interest rate is 5% per annum. We consider the strategies open to an arbitrager in two extreme situations.

1. Suppose that the forward price is relatively high at Rs.43. An arbitrager can borrow Rs.40 from the market at an interest rate of 5% per annum, buy one share in the spot market, and sell the stock in the forward market at Rs.43. At the end of three months, the arbitrager delivers the share and receives Rs.43. The sum of money required to pay off the loan is $40e^{0.05 \times 0.25} = 40.50$. By following this strategy, the arbitrager locks in a profit of Rs.43.00 - Rs.40.50 = Rs.2.50 at the end of the three month period.

2. Suppose that the forward price is relatively low at Rs.39. An arbitrager can short one share for Rs.40, invest the proceeds of the short sale at 5% per annum for three months, and take a long position in a three-month forward contract. The proceeds of the short sale grow to $40e^{0.05 \times 0.25} = 40.50$ in three months. At the end of the three months, the arbitrager pays Rs.39, takes delivery of the share under the terms of the forward contract and uses it to close his short position, in the process making a net gain of Rs.1.50 at the end of three months.

We see that if the forward price is greater than Rs.40.50, there exists arbitrage. Under such a situation, arbitragers will sell the asset in the forward market, eventually driving the forward price down to Rs.40.50. Similarly, if the forward price is less than Rs.40.50, there exists arbitrage. Arbitragers will buy the asset in the forward market, eventually pushing the forward price up to Rs.40.50. At a forward price of Rs.40.50, there will be no arbitrage. This is the fair value of the forward contract. The same arguments hold good for a futures contract on an investment asset.

Now let us try to extend this logic to a futures contract on a commodity. Let us take the example of a futures contract on a commodity and work out the price of the contract. The spot price of gold is Rs.17000 per 10 gms. If the cost of financing is 15% annually, what should be

the futures price of 10 gms of gold one month down the line ? Let us assume that we're on 1st January 2010. How would we compute the price of a gold futures contract expiring on 30th January? From the discussion above, we know that the futures price is nothing but the spot price plus the cost-of-carry. Let us first try to work out the components of the cost-of-carry model.

1. What is the spot price of gold? The spot price of gold, S= Rs.17000 per 10 gms.

2. What is the cost of financing for a month? e0.15 x 30/ 365 .

3. What are the holding costs? Let us assume that the storage cost = 0.

In this case, the fair value of the futures works out to be = Rs.17,210.89

$F = Se^{rT} = 17000^{e0.15 \times 30/365} = Rs.17,210.89$

If the contract was for a three-month period i.e. expiring on 30th March, the cost of financing would increase the futures price. Therefore, the fair value of futures would be $F = 17000^{e0.15 \times 90/365} = Rs.17,640.54$.

6.2.1 Pricing Futures Contracts on Investment Commodities

In the example above, we saw how a futures contract on gold could be priced using arbitrage arguments and the cost-of-carry model. In the example we considered, the gold contract was for 10 grams of gold. Hence, we ignored the storage costs. However, if the one-month contract was for a 100 kgs of gold instead of 10 gms, then it would involve non-zero holding costs which would include storage and insurance costs. The price of the futures contract would then be Rs.17,210.89 plus the holding costs.

Table 6.1 gives the indicative warehouse charges for accredited warehouses/ vaults that functions as delivery centres for contracts that trade on the NCDEX. Warehouse charges include a fixed charge per deposit of commodity into the warehouse, and per unit per week charge. The per unit charges include storage costs and insurance charges.

We saw that in the absence of storage costs, the futures price of a commodity that is an investment asset is given by $F = Se^{rT}$. Storage costs add to the cost of carry. If U is the present value of all the storage costs that will be incurred during the life of a futures contract, it follows that the futures price will be equal to

$$F = (S + U)e^{rT} \qquad (6.4)$$

where

r Cost of financing (annualised)

T Time till expiration

U Present value of all storage costs

Box 6.9: The market crash of October 19. 1987

Under normal market conditions, F, the futures price is very close to $S(1 + r)^T$. However, on October 19,1987, the US market saw a breakdown in this classic relationship between spot and futures prices. It was the day the markets fell by over 20% and the volume of shares traded on the New York Stock Exchange far exceeded all previous records. For most of the day, futures traded at significant discount to the underlying index. This was largely because delays in processing orders to sell equity made index arbitrage too risky. On the next day, October 20,1987, the New York Stock Exchange placed temporary restrictions on the way in which program trading could be done. The result was that the breakdown of the traditional linkages between stock indexes and stock futures continued. At one point, the futures price for the December contract was 18% less than the S&P 500 index which was the underlying index for these futures contracts! However, the highlight of the whole episode was the fact that inspite of huge losses, there were no defaults by futures traders. It was the ultimate test of the efficiency of the margining system in the futures market.

For ease of understanding, let us consider a one-year futures contract on gold. Suppose the fixed charge is Rs.310 per deposit and the variable storage costs are Rs.52.50 per week, it costs Rs.3040 to store one kg of gold for a year (52 weeks). Assume that the payment is made at the beginning of the year. Assume further that the spot gold price is Rs.17000 per 10 grams and the risk-free rate is 7% per annum. What would the price of one year gold futures be if the delivery unit is one kg?

$F = (S + U)e^{rT}$

$= (1700000 + 310 + 2730)e^{0.07 \times 1}$

$= 18,26,524.30$

Table 6.1 NCDEX indicative warehouse charges

Commodity	Fixed Charges per lot at the time of deposit	Warehouse Charges for a day per delivery units (Rs)
Gold	310	7.5 per Kg
Silver	310	0.35 per Kg
Groundnut (in Shell)- Bikaner	310	4.75 per MT
Potatoes	310	1.5 per MT
Copper Cathode	310	5 per MT

Note: Detailed list available on the Exchange website

We see that the one-year futures price of a kg of gold would be Rs.18,26,524.30.

Now let us consider a three-month futures contract on gold. We make the same assumptions - the fixed charge is Rs.310 per deposit and the variable storage costs are Rs.52.50 per week. It costs Rs.992.50 to store one kg of gold for three months (13 weeks). Assume that the storage costs are paid at the time of deposit. Assume further that the spot gold price is Rs.17000 per 10 grams and the risk-free rate is 7% per annum. What would the price of three month gold futures if the delivery unit is one kg?

$$F = (S + U)e^{rT}$$

$$= (1700000 + 310 + 682.50)e^{0.07 \times 0.25}$$

$$= 17,31,022$$

We see that the three-month futures price of a kg of gold would be Rs.17,31,022

6.2.2 Pricing Futures Contracts on Consumption Commodities

We used the arbitrage argument to price futures on investment commodities. For commodities that are consumption commodities rather than investment assets, the arbitrage arguments used to determine futures prices need to be reviewed carefully. Suppose we have

$$F > (S + U)e^{rT} \qquad (6.5)$$

To take advantage of this opportunity, an arbitrager can implement the following strategy:

1. Borrow an amount S+U at the risk-free interest rate and use it to purchase one unit of the commodity and pay storage costs.
2. Short a forward contract on one unit of the commodity.

If we regard the futures contract as a forward contract, this strategy leads to a profit of $F-(S+U)e^{rT}$ at the expiration of the futures contract. As arbitragers exploit this opportunity, the spot price will increase and the futures price will decrease until Equation 6.5 does not hold good.

Suppose next that

$$F < (S + U)e^{rT} \qquad (6.6)$$

In case of investment assets such as gold and silver, many investors hold the commodity purely for investment. When they observe the inequality in equation 6.6, they will find it profitable to trade in the following manner:

1. Sell the commodity, save the storage costs, and invest the proceeds at the risk-free interest rate.
2. Take a long position in a forward contract.

This would result in a profit at maturity of $(S + U)e^{rT} - F$ relative to the position that the investors would have been in had they held the underlying commodity. As arbitragers exploit this opportunity, the spot price will decrease and the futures price will increase until equation

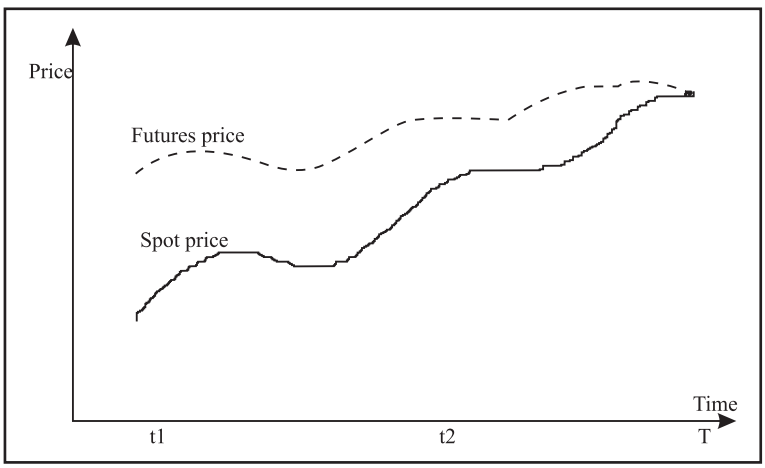
6.6 does not hold good. This means that for investment assets, equation 6.4 holds good. However, for commodities like cotton or wheat that are held for consumption purpose, this argument cannot be used. Individuals and companies, who keep such a commodity in inventory, do so, because of its consumption value - not because of its value as an investment. They are reluctant to sell these commodities and buy forward or futures contracts because these contracts cannot be consumed. Therefore, there is unlikely to be arbitrage when equation 6.6 holds good. In short, for a consumption commodity therefore,

$F <= (S + U)e^{rT}$ (6.7)

That is the futures price is less than or equal to the spot price plus the cost of carry.

6.3 The Futures Basis

The cost-of-carry model explicitly defines the relationship between the futures price and the related spot price. The difference between the spot price and the futures price is called the basis. We see that as a futures contract nears expiration, the basis reduces to zero. This means that there is a convergence of the futures price to the price of the underlying asset. This happens because if the futures price is above the spot price during the delivery period it gives rise to a clear arbitrage opportunity for traders. In case of such arbitrage the trader can short his futures contract, buy the asset from the spot market and make the delivery. This will lead to a profit equal to the difference between the futures price and spot price. As traders start exploiting this arbitrage opportunity the demand for the contract will increase and futures prices will fall leading to the convergence of the future price with the spot price.



If the futures price is below the spot price during the delivery period all parties interested in buying the asset will take a long position. The trader would buy the contract and sell the asset in the spot market making a profit equal to the difference between the future price and the spot price. As more traders take a long position the demand for the particular asset would increase and the futures price would rise nullifying the arbitrage opportunity.

Nuances

- As the date of expiration comes near, the basis reduces - there is a convergence of the futures price towards the spot price (Figure 6.1). On the date of expiration, the basis is zero. If it is not, then there is an arbitrage opportunity. Arbitrage opportunities can also arise when the basis (difference between spot and futures price) or the spreads (difference between prices of two futures contracts) during the life of a contract are incorrect. At a later stage, we shall look at how these arbitrage opportunities can be exploited.
- There is nothing but cost of carry related arbitrage that drives the behaviour of the futures price in the case of investment assets. In the case of consumption assets, we need to factor in the benefit provided by holding the physical commodity.
- Transactions costs are very important in the business of arbitrage.

Note: The pricing models discussed in this chapter give an approximate idea about the true futures price. However, the price observed in the market is the outcome of the price-discovery mechanism (demand-supply principle) and may differ from the so-called true price.

CHAPTER 7: Using Commodity Futures

For a market to succeed, it must have all three kinds of participants - hedgers, speculators and arbitragers. The confluence of these participants ensures liquidity and efficient price discovery in the market. Commodity markets give opportunity for all three kinds of participants. In this chapter, we look at the use of commodity derivatives for hedging, speculation and arbitrage.

7.1 Hedging

Many participants in the commodity futures market are hedgers. They use the futures market to reduce a particular risk that they face. This risk might relate to the price of wheat or oil or any other commodity that the person deals in. The classic hedging example is that of wheat farmer who wants to hedge the risk of fluctuations in the price of wheat around the time that his crop is ready for harvesting. By selling his crop forward, he obtains a hedge by locking in to a predetermined price. Hedging does not necessarily improve the financial outcome; What it does however is, that it makes the outcome more certain. Hedgers could be government institutions, private corporations like financial institutions, trading companies and even other participants in the value chain, for instance farmers, extractors, millers, processors etc., who are influenced by the commodity prices.

7.1.1 Basic Principles of Hedging

When an individual or a company decides to use the futures markets to hedge a risk, the objective is to take a position that neutralizes the risk as much as possible. Take the case of a company that knows that it will gain Rs.1,00,000 for each 1 rupee increase in the price of a commodity over the next three months and will lose Rs.1,00,000 for each 1 rupee decrease in the price of a commodity over the same period. To hedge, the company should take a short futures position that is designed to offset this risk. The futures position should lead to a loss of Rs.1,00,000 for each 1 rupee increase in the price of the commodity over the next three months and a gain of Rs.1,00,000 for each 1 rupee decrease in the price during this period. If the price of the commodity goes down, the gain on the futures position offsets the loss on the commodity. If the price of the commodity goes up, the loss on the futures position is offset by the gain on the commodity.

There are basically two kinds of hedges that can be taken. A company that wants to sell an asset at a particular time in the future can hedge by taking short futures position. This is called a short hedge. Similarly, a company that knows that it is due to buy an asset in the future can hedge by taking long futures position. This is known as long hedge. We will study these two hedges in detail.

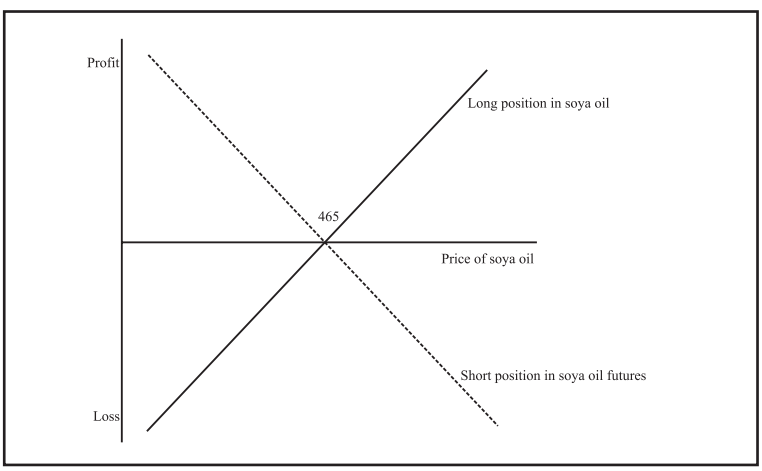
7.1.2 Short Hedge

A short hedge is a hedge that requires a short position in futures contracts. As we said, a short hedge is appropriate when the hedger already owns the asset, or is likely to own the asset and expects to sell it at some time in the future. For example, a short hedge could be used by a cotton farmer who expects the cotton crop to be ready for sale in the next two months. A short hedge can also be used when the asset is not owned at the moment but is likely to be owned in the future. For example, an exporter who knows that he or she will receive a dollar payment three months later. He makes a gain if the dollar increases in value relative to the rupee and makes a loss if the dollar decreases in value relative to the rupee. A short futures position will give him the hedge he desires.

Let us look at a more detailed example to illustrate a short hedge. We assume that today is the 15th of January and that a refined soy oil producer has just negotiated a contract to sell 10,000 Kgs of soy oil. It has been agreed that the price that will apply in the contract is the market price on the 15th April. The oil producer is therefore in a position where he will gain Rs.10000 for each 1 rupee increase in the price of oil over the next three months and lose Rs.10000 for each one rupee decrease in the price of oil during this period. Suppose the spot price for soy oil on January 15 is Rs.450 per 10 Kgs and the April soy oil futures price on the NCDEX is Rs.465 per 10 Kgs. The producer can hedge his exposure by selling 10,000 Kgs worth of April futures contracts (1 unit). If the oil producers closes his position on April 15, the effect of the strategy would be to lock in a price close to Rs.465 per 10 Kgs. Figure 7.1 gives the payoff for a short hedge. Let us look at how this works.

On April 15, the spot price can either be above Rs.465 or below Rs.465.

Figure 7.1 Payoff for buyer of a short hedge



The figure shows the payoff for a soy oil producer who takes a short hedge (dotted line). Irrespective of what the spot price of Soy Oil is three months later, by going in for a short hedge he locks on to a price of Rs. 465 per 10 kgs.

Table 7.1 Refined Soy Oil Futures Contract Specification

Trading system	NCDEX trading system
Trading hours	**Monday- Friday :**10:00 AM to 05:00 PM **Saturday :** 10.00 AM to 2.00 PM
Unit of trading	10000 kgs (10 MT)
Delivery unit	10000 kgs (10 MT)
Quotation / base value	Rs. per 10 kgs
Tick size	5 paise

Case 1: The spot price is Rs. 455 per 10 Kgs. The company realises Rs.4,55,000 under its sales contract. Because April is the delivery month for the futures contract, the futures price on April 15 should be very close to the spot price of Rs. 455 on that date. The company closes its short futures position at Rs. 455, making a gain of Rs.465 - Rs.455 = Rs.10 per 10 Kgs, or Rs. 10,000 on its short futures position. The total amount realized from both the futures position and the sales contract is therefore about Rs. 465 per 10 Kgs, Rs.4,65,000 in total.

Case 2: The spot price is Rs.475 per 10 Kgs. The company realises Rs.4,75,000 under its sales contract. Because April is the delivery month for the futures contract, the futures price on April 15 should be very close to the spot price of Rs.475 on that date. The company closes its short futures position at Rs. 475, making a loss of Rs.475 - Rs.465 = Rs.10 per 10 Kgs, or Rs. 10,000 on its short futures position. The total amount realized from both the futures position and the sales contract is therefore about Rs. 465 per 10 Kgs, Rs. 4,65,000 in total.

7.1.3 Long Hedge

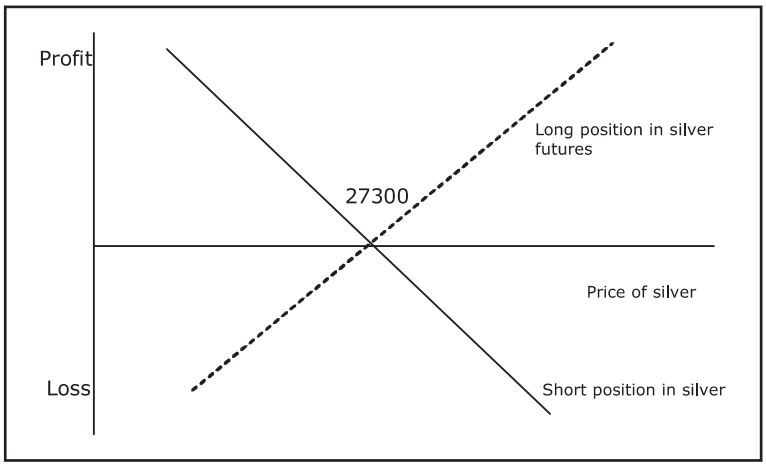
Hedges that involve taking a long position in a futures contract are known as long hedges. A long hedge is appropriate when a company knows it will have to purchase a certain asset in the future and wants to lock in a price now.

Suppose that it is now January 15. A firm involved in industrial fabrication knows that it will require 300 kgs of silver on April 15 to meet a certain contract. The spot price of silver is Rs.26800 per kg and the April silver futures price is Rs. 27300 per kg. Table 7.2 gives the contract specification for silver. A unit of trading is 30 kgs. The fabricator can hedge his position by taking a long position in ten units of futures on the NCDEX. If the fabricator closes his position on April 15, the effect of the strategy would be to lock in a price close to Rs. 27300 per kg. Figure 7.2 gives the payoff for the buyer of a long hedge. Let us look at how this works. On April 15, the spot price can either be above Rs. 27300 or below Rs. 27300 per kg.

Case 1: The spot price is Rs. 27800 per kg. The fabricator pays Rs. 83,40,000 to buy the silver from the spot market. Because April is the delivery month for the futures contract, the futures price on April 15 should be very close to the spot price of Rs. 27800 on that date. The company closes its long futures position at Rs. 27800, making a gain of Rs.27800 - Rs.27300 = Rs.500 per kg, or Rs. 1,50,000 on its long futures position. The effective cost of silver purchased works out to be about Rs. 27300 per Kg, or Rs.81,90,000 in total.

Case 2: The spot price is Rs. 26900 per Kg. The fabricator pays Rs.80,70,000 to buy the silver from the spot market. Because April is the delivery month for the futures contract, the futures price on April 15 should be very close to the spot price of Rs. 26900 on that date. The company closes its long futures position at Rs. 26900, making a loss of Rs.27300 - Rs.26900 = Rs.400 per kg, or Rs.1,20,000 on its long futures position. The effective cost of silver purchased works out to be about Rs. 27300 per Kg, or Rs.81,90,000 in total.

Figure 7.2 Payoff for buyer of a long hedge



The figure shows the payoff for an industrial fabricator who takes a long hedge. Irrespective of what the spot price of silver is three months later, by going in for a long hedge he locks on to a price of Rs. 27300 per kg.

Table 7.2 Silver futures contract specification

Trading system	NCDEX trading system
Trading hours	**Monday-Friday:** 10:00 AM to 11:30 PM **Saturday:** 10:00 AM to 02:00 PM
Unit of trading	30 kgs
Delivery unit	30 kgs
Quotation / base value	Rs. per kg of Silver with 999 fineness
Tick size	Re. 1/-

Note that the purpose of hedging is not to make profits, but to lock on to a price to be paid in the future upfront. In the industrial fabricator example, since prices of silver rose in three months, on hind sight it would seem that the company would have been better off buying the silver in January and holding it. But this would involve incurring interest cost and warehousing costs. Besides, if the prices of silver fell in April, the company would have not only incurred interest and storage costs, but would also have ended up buying silver at a much higher price.

In the examples above, we assume that the futures position is closed out in the delivery month. The hedge has the same basic effect if delivery is allowed to happen. However, making or taking delivery can be a costly process. In most cases, delivery is not made even when the hedger keeps the futures contract until the delivery month. Hedgers with long positions usually avoid any possibility of having to take delivery by closing out their positions before the delivery period.

7.1.4 Hedge Ratio

Hedge ratio is the ratio of the size of position taken in the futures contracts to the size of the exposure in the underlying asset. So far in the examples we used, we assumed that the hedger would take exactly the same amount of exposure in the futures contract as in the underlying asset. For example, if the hedgers exposure in the underlying was to the extent of 11 bales of cotton, the futures contracts entered into were exactly for this amount of cotton. We were assuming here that the optimal hedge ratio is one. In situations where the underlying asset in which the hedger has an exposure is exactly the same as the asset underlying the futures contract he uses, and the spot and futures market are perfectly correlated, a hedge ratio of one could be assumed. In all other cases, a hedge ratio of one may not be optimal. Equation 7.1 gives the optimal hedge ratio, one that minimizes the variance of the hedger's position.

$$h = \rho\sigma S/\sigma F \qquad (7.1)$$

where:

- σ_S: Standard deviation of ΔS
- σ_F : Standard deviation of ΔF
- ρ : Coefficient of correlation between ΔS and ΔF
- h: Hedge ratio
- ΔS: Change in spot price, S, during a period of time equal to the life of the hedge
- ΔF: Change in futures price, F, during a period of time equal to the life of the hedge

Let us consider an example. A company knows that it will require 11,000 bales of cotton in three months. Suppose the standard deviation of the change in the price per quintal of cotton

over a three-month period is calculated as 0.032. The company chooses to hedge by buying futures contracts on cotton. The standard deviation of the change in the cotton futures price over a three-month period is 0.040 and the coefficient of correlation between the change in price of cotton and the change in the cotton futures price is 0.8. The unit of trading and the delivery unit for cotton on the NCDEX is 55 bales. What is the optimal hedge ratio? How many cotton futures contracts should it buy?

If the hedge ratio were one, that is if the cotton spot and futures were perfectly correlated, as shown in Equation 7.3, the hedger would have to buy 200 units (one unit of trading = 55 bales of cotton) to obtain a hedge for the 11,000 bales of cotton it requires in three months.

Number of contracts =11, 000/55 (7.2)

$N_{\rho=1}$ = 200 (7.3)

However, in this case as shown in Equation 7.5, the hedge ratio works out to be 0.64. The company will hence require to take a long position in 128 units of cotton futures to get an effective hedge (Equation 7.7).

Optimal hedge ratio = 0.8 x 0.032/0.040 (7.4)

h = 0.64 (7.5)

Number of contracts = 0.64 x 11,000/55 (7.6)

$N_{\rho=0.8}$ = 128 (7.7)

7.1.5 Advantages of Hedging

Besides the basic advantage of risk management, hedging also has other advantages:

1. Hedging stretches the marketing period. For example, a livestock feeder does not have to wait until his cattle are ready to market before he can sell them. The futures market permits him to sell futures contracts to establish the approximate sale price at any time between the time he buys his calves for feeding and the time the fed cattle are ready to market, some four to six months later. He can take advantage of good prices even though the cattle are not ready for market.

2. Hedging protects inventory values. For example, a merchandiser with a large, unsold inventory can sell futures contracts that will protect the value of the inventory, even if the price of the commodity drops.

3. Hedging permits forward pricing of products. For example, a jewellery manufacturer can determine the cost for gold, silver or platinum by buying a futures contract, translate that to a price for the finished products, and make forward sales to stores at firm prices. Having made the forward sales, the manufacturer can use his capital to acquire

only as much gold, silver, or platinum as may be needed to make the products that will fill its orders.

7.1.6 Limitation of Hedging: Basis Risk

In the examples we used above, the hedges considered were perfect. The hedger was able to identify the precise date in the future when an asset would be bought or sold. The hedger was then able to use the futures contract to remove almost all the risk arising out of price of the asset on that date. In reality, hedging is not quite this simple and straightforward. Hedging can only minimize the risk but cannot fully eliminate it. The loss made during selling of an asset may not always be equal to the profits made by taking a short futures position. This is because the value of the asset sold in the spot market and the value of the asset underlying the future contract may not be the same. This is called the basis risk. In our examples, the hedger was able to identify the precise date in the future when an asset would be bought or sold. The hedger was then able to use the perfect futures contract to remove almost all the risk arising out of price of the asset on that date. In reality, this may not always be possible for various reasons.

- The asset whose price is to be hedged may not be exactly the same as the asset underlying the futures contract. For example, in India we have a large number of varieties of cotton being cultivated. It is impractical for an Exchange to have futures contracts with all these varieties of cotton as an underlying. The NCDEX has futures contracts on medium staple cotton. If a hedger has an underlying asset that is exactly the same as the one that underlies the futures contract, he would get a better hedge. But in many cases, farmers producing small staple cotton could use the futures contract on medium staple cotton for hedging. While this would still provide the farmer with a hedge, since the price of the farmers cotton and the price of the cotton underlying the futures contract would be related. However, the hedge would not be perfect.

- The hedger may be uncertain as to the exact date when the asset will be bought or sold. Often the hedge may require the futures contract to be closed out well before its expiration date. This could result in an imperfect hedge.

- The expiration date of the hedge may be later than the delivery date of the futures contract. When this happens, the hedger would be required to close out the futures contracts entered into and take the same position in futures contracts with a later delivery date. This is called a rollover. Hedges can be rolled forward many times. However, multiple rollovers could lead to short-term cash flow problems.

Table 7.3 Gold futures contract specification

Trading system	NCDEX trading system
Trading hours	**Monday-Friday:** 10:00 AM to 11:30 PM **Saturday:** 10:00 AM to 02:00 PM
Unit of trading	1 kg
Delivery unit	1 kg
Quotation / base value	Rs. per 10 gms of gold with 999 fineness
Tick size	Re. 1/-

7.2 Speculation

An entity having an opinion on the price movements of a given commodity can speculate using the commodity market. While the basics of speculation apply to any market, speculating in commodities is not as simple as speculating on stocks in the financial market. For a speculator who thinks the shares of a given company will rise, it is easy to buy the shares and hold them for whatever duration he wants to. However, commodities are bulky products and come with all the costs and procedures of handling these products. The commodities futures markets provide speculators with an easy mechanism to speculate on the price of underlying commodities.

To trade commodity futures on the NCDEX, a customer must open a futures trading account with a commodity derivatives broker. Buying futures simply involves putting in the margin money. This enables futures traders to take a position in the underlying commodity without having to actually hold that commodity. With the purchase of futures contract on a commodity, the holder essentially makes a legally binding promise or obligation to buy the underlying security at some point in the future (the expiration date of the contract).

We look here at how the commodity futures markets can be used for speculation.

7.2.1 Speculation: Bullish Commodity, Buy Futures

Take the case of a speculator who has a view on the direction of the price movements of gold. Perhaps he knows that towards the end of the year due to festivals and the upcoming wedding season, the prices of gold are likely to rise. He would like to trade based on this view. Gold trades for Rs. 16000 per 10 gms in the spot market and he expects its price to go up in the next two-three months. How can he trade based on this belief? In the absence of a deferral product, he would have to buy gold and hold on to it. Suppose he buys a 1 kg of gold which costs him Rs. 16,00,000. Suppose further that his hunch proves correct and three months later gold trades at Rs. 17000 per 10 grams. He makes a profit of Rs. 1,00,000 on an investment of Rs. 16,00,000 for a period of three months. This works out to an annual return of about 25 percent.

Today a speculator can take exactly the same position on gold by using gold futures contracts. Let us see how this works. Gold trades at Rs. 16,000 per 10 gms and three-month gold futures trades at Rs. 16,650 per 10 gms. Table 7.3 gives the contract specifications for gold futures. The unit of trading is 1 kg and the delivery unit for the gold futures contract on the NCDEX is 1 kg. He buys one kg of gold futures which have a value of Rs. 16,65,000. Buying an asset in the futures market only require making margin payments. To take this position, suppose he pays a margin of Rs. 1,66,500. Three months later gold trades at Rs. 17,000 per 10 gms. As we know, on the day of expiration, the futures price converges to the spot price (else there would be a risk-free arbitrage opportunity). He closes his long futures position at Rs. 17,000 in the process making a profit of Rs. 35,000 on an initial margin investment of Rs. 1,66,500. This works out to an annual return of 85 percent. Because of the leverage they provide, commodity futures form an attractive tool for speculators.

7.2.2 Speculation: Bearish Commodity, Sell Futures

Commodity futures can also be used by a speculator who believes that there is likely to be excess supply of a particular commodity in the near future and hence the prices are likely to see a fall. How can he trade based on this opinion? In the absence of a deferral product, there wasn't much he could do to profit from his opinion. Today all he needs to do is sell commodity futures.

Let us understand how this works. Simple arbitrage ensures that the price of a futures contract on a commodity moves correspondingly with the price of the underlying commodity. If the commodity price rises, so will the futures price. If the commodity price falls, so will the futures price. Now take the case of the trader who expects to see a fall in the price of pepper. Suppose price of pepper is Rs.14000 per quintal and he sells two pepper futures contract which is for delivery of 2 MT of pepper (1MT each). The value of the contract is Rs. 2,80,000. He pays a small margin on the same. Three months later, if his hunch was correct the price of pepper falls. So does the price of pepper futures. He close out his short futures position at Rs.13000 per quintal i.e. Rs. 2,60,000 making a profit of Rs. 20,000.

7.3 Arbitrage

A central idea in modern economics is the law of one price. This states that in a competitive market, if two assets are equivalent from the point of view of risk and return, they should sell at the same price. If the price of the same asset is different in two markets, there will be operators who will buy in the market where the asset sells cheap and sell in the market where it is costly. This activity termed as arbitrage, involves the simultaneous purchase and sale of the same or essentially similar security in two different markets for advantageously different prices. The buying cheap and selling expensive continues till prices in the two markets reach an equilibrium. Hence, arbitrage helps to equalize prices and restore market efficiency.

$F = (S + U)e^{rT}$ (7.8)

where:

r Cost of financing (annualised)

T Time till expiration

U Present value of all storage costs

In the chapter on pricing, we discussed that the cost of carry ensures that futures prices stay in tune with the spot prices of the underlying assets. Equation 7.8 gives the fair value of a futures contract on an investment commodity. Whenever the futures price deviates substantially from its fair value, arbitrage opportunities arise. To capture mispricings that result in overpriced futures, the arbitrager must sell futures and buy spot, whereas to capture mispricings that result in underpriced futures, the arbitrager must sell spot and buy futures. In the case of investment commodities, mispricing would result in both, buying the spot and holding it or selling the spot and investing the proceeds. However, in the case of consumption assets which are held primarily for reasons of usage, even if there exists a mispricing, a person who holds the underlying may not want to sell it to profit from the arbitrage.

7.3.1 Overpriced Commodity Futures: Buy Spot, Sell Futures

An arbitrager notices that gold futures seem overpriced. How can he cash in on this opportunity to earn risk less profits? Say for instance, gold trades for Rs. 1600 per gram in the spot market. Three month gold futures on the NCDEX trade at Rs.1685 per gram and seem overpriced. He could make risk less profit by entering into the following set of transactions.

On day one, borrow Rs. 1,60,05,100 at 6% per annum to cover the cost of buying and holding gold. Buy 10 kgs of gold on the cash/ spot market at Rs. 1,60,00,000. Pay Rs.5100 (approx) as warehouse costs.

Simultaneously, sell 10 gold futures contract at Rs. 1,68,50,000.

Take delivery of the gold purchased and hold it for three months.

On the futures expiration date, the spot and the futures price converge. Now unwind the position.

Say gold closes at Rs. 1635 per gram in the spot market. Sell the gold for Rs. 1,63,50,000.

Futures position expires with profit of Rs. 5,00,000

From the Rs. 1,68,50,000 held in hand, return the borrowed amount plus interest of Rs. 1,62,46,986.

The result is a risk less profit of Rs. 6,04,014.

When does it make sense to enter into this arbitrage? If the cost of borrowing funds to buy the commodity is less than the arbitrage profit possible, it makes sense to arbitrage. This is termed as cash-and-carry arbitrage. Remember however, that exploiting an arbitrage opportunity involves trading on the spot and futures market. In the real world, one has to build in the transactions costs into the arbitrage strategy.

7.3.2 Underpriced Commodity Futures: Buy Futures, Sell Spot

An arbitrager notices that gold futures seem underpriced. How can he cash in on this opportunity to earn risk less profits? Say for instance, gold trades for Rs.1600 per gram in the spot market. Three month gold futures on the NCDEX trade at Rs. 1620 per gram and seem underpriced. If he happens to hold gold, he could make risk less profit by entering into the following set of transactions.

On day one, sell 10 kgs of gold in the spot market at Rs. 1,60,00,000.

Invest the Rs. 1,60,00,000 plus the Rs.5100 saved by way of warehouse costs for three months 6%.

Simultaneously, buy three-month gold futures on NCDEX at Rs.1,62,00,000.

Suppose the price of gold is Rs.1635 per gram. On the futures expiration date, the spot and the futures price of gold converge. Now unwind the position.

The gold sales proceeds grow to Rs. 1,62,46,986

The futures position expires with a profit of Rs. 1,50,000

Buy back gold at Rs.1,63,50,000 on the spot market.

The result is a risk less profit of Rs. 46,986

When the futures price of a commodity appears underpriced in relation to its spot price, an opportunity for reverse cash and carry arbitrage arises. It is this arbitrage activity that ensures that the spot and futures prices stay in line with the cost-of-carry. As we can see, exploiting arbitrage involves trading on the spot market. As more and more players in the market develop the knowledge and skills to do cash-and-carry and reverse cash-and-carry, we will see increased volumes and lower spreads in both the cash as well as the derivatives market.

CHAPTER 8 : Trading

In this chapter we shall take a brief look at the trading system for futures on NCDEX. However, the best way to get a feel of the trading system is to actually watch the screen and observe how it operates.

8.1 Futures Trading System

The trading system on the NCDEX, provides a fully automated screen-based trading for futures on commodities on a nationwide basis as well as an online monitoring and surveillance mechanism. It supports an order driven market and provides complete transparency of trading operations.

The NCDEX system supports an order driven market, where orders match automatically. Order matching is essentially on the basis of commodity, its price, time and quantity. All quantity fields are in units and price in rupees. The Exchange specifies the unit of trading and the delivery unit for futures contracts on various commodities. The Exchange notifies the regular lot size and tick size for each of the contracts traded from time to time. When any order enters the trading system, it is an active order. It tries to find a match on the other side of the book. If it finds a match, a trade is generated. If it does not find a match, the order becomes passive and gets queued in the respective outstanding order book in the system. Time stamping is done for each trade and provides the possibility for a complete audit trail if required.

8.2 Entities In The Trading System

There are following entities in the trading system of NCDEX -

1. Trading cum Clearing Member (TCM) :

Trading cum Clearing Members can carry out the transactions (trading, clearing and settling) on their own account and also on their clients' accounts. The Exchange assigns an ID to each TCM. Each TCM can have more than one user. The number of users allowed for each trading member is notified by the Exchange from time to time. Each user of a TCM must be registered with the Exchange and is assigned an unique user ID. The unique TCM ID functions as a reference for all orders/trades of different users. It is the responsibility of the TCM to maintain adequate control over persons having access to the firm's User IDs.

2. Professional Clearing Member (PCM) :

These members can carry out the settlement and clearing for their clients who have traded through TCMs or traded as TMs.

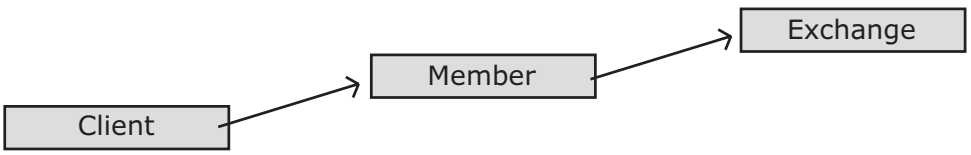
3. Trading Member (TM):

Member who can only trade through their account or on account of their clients and will however clear their trade through PCMs/STCMs.

4. Strategic Trading cum Clearing Member (STCM):

This is up gradation from the TCM to STCM. Such member can trade on their own account, also on account of their clients. They can clear and settle these trades and also clear and settle trades of other trading members who are only allowed to trade and are not allowed to settle and clear.

Structure



Box 8.10: The open outcry system of trading

While most exchanges the world over are moving towards the electronic form of trading, some still follow the open outcry method. Open outcry trading is a face-to-face and highly activate form of trading used on the floors of the exchanges. In open outcry system the futures contracts are traded in pits. A pit is a raised platform in octagonal shape with descending steps on the inside that permit buyers and sellers to see each other. Normally only one type of contract is traded in each pit like a Eurodollar pit, Live Cattle pit etc. Each side of the octagon forms a pie slice in the pit. All the traders dealing with a certain delivery month trade in the same slice. The brokers, who work for institutions or the general public stand on the edges of the pit so that they can easily see other traders and have easy access to their runners who bring orders.

The trading process consists of an auction in which all bids and offers on each of the contracts are made known to the public and everyone can see the market's best price. To place an order under this method, the customer calls a broker, who time-stamps the order and prepares an office order ticket. The broker then sends the order to a booth on the exchange floor called broker's floor booth. There, a floor order ticket is prepared, and a clerk hand delivers the order to the floor trader for execution. In some cases, the floor clerk may use hand signals to convey the order to floor traders. Large orders typically go directly from the customer to the broker's floor booth. The floor trader, standing in a central location i.e. trading pit, negotiates a price by shouting out the order to other floor traders, who bid on the order using hand signals. Once filled, the order is recorded manually by both parties in the trade. At the end of each day, the clearing house settles trades by ensuring that no discrepancy exists in the matched-trade information.

8.2.1 Guidelines for Allotment of Client Code

The trading members are recommended to follow guidelines outlined by the Exchange for allotment and use of client codes at the time of order entry on the futures trading system:

1. All clients trading through a member are to be registered clients at the member's back office.
2. A unique client code is to be allotted for each client. The client code should be alphanumeric and no special characters can be used.
3. The same client should not be allotted multiple codes.

8.3 Commodity Futures Trading Cycle

NCDEX trades commodity futures contracts having one-month, two-month, three-month and more (not more than 12 months) expiry cycles. Most of the futures contracts (mainly agri commodities contract) expire on the 20th of the expiry month. Some contracts traded on the Exchange expire on the day other than 20th of the month. New contracts for most of the commodities on NCDEX are introduced on 10th of every month.

8.4 Order Types And Trading Parameters

An electronic trading system allows the trading members to enter orders with various conditions attached to them as per their requirements. These conditions are broadly divided into the following categories:

- Time conditions
- Price conditions
- Other conditions

Several combinations of the above are possible thereby providing enormous flexibility to users. The order types and conditions are summarized below. Of these, the order types available on the NCDEX system are regular market order, limit order, stop loss order, immediate or cancel order, good till day order, good till cancelled order, good till date order and spread order.

- **Time conditions**

- *Good till day order:* A day order, as the name suggests is an order which is valid for the day on which it is entered. If the order is not executed during the day, the system cancels the order automatically at the end of the day. Example: A trader wants to go long on February 1, 2010 in refined soy oil on the commodity exchange. A day order is placed at Rs.660/ 10 kg. If the market does not reach this price the order does not get filled even if the market touches Rs.661 and closes. In other words, day order is for a specific price and if the order does not get filled that day, one has to place the order again the next day.

- *Good till cancelled (GTC):* A GTC order remains in the system until the user cancels it. Consequently, it spans trading days, if not traded on the day the order is entered. The maximum number of days an order can remain in the system is notified by the Exchange from time to time after which the order is automatically cancelled by the system. Each day counted is a calendar day inclusive of holidays. The days counted are inclusive of the day on which the order is placed and the order is cancelled from the system at the end of the day of the expiry period. Example: A trader wants to go long on refined soy oil when the market touches Rs.650/ 10kg. Theoretically, the order exists until it is filled up, even if it takes months for it to happen. The GTC order on the NCDEX is cancelled at the end of a period of seven calendar days from the date of entering an order or when the contract expires, whichever is earlier.

- *Good till date (GTD):* A GTD order allows the user to specify the date till which the order should remain in the system if not executed. The maximum days allowed by the system are the same as in GTC order. At the end of this day/ date, the order is cancelled from the system. Each day/ date counted are inclusive of the day/ date on which the order is placed and the order is cancelled from the system at the end of the day/ date of the expiry period.

- *Immediate or Cancel (IOC)/ Fill or kill order*: An IOC order allows the user to buy or sell a contract as soon as the order is released into the system, failing which the order is cancelled from the system. Partial match is possible for the order, and the unmatched portion of the order is cancelled immediately.

- *All or none order:* All or none order (AON) is a limit order, which is to be executed in its entirety, or not at all.

- **Price condition**

- *Limit order:* An order to buy or sell a stated amount of a commodity at a specified price, or at a better price, if obtainable at the time of execution. The disadvantage is that the order may not get filled at all if the price for that day does not reach the specified price.

- *Stop-loss:* A stop-loss order is an order, placed with the broker, to buy or sell a particular futures contract at the market price if and when the price reaches a specified level. Futures traders often use stop orders in an effort to limit the amount they might lose if the futures price moves against their position. Stop orders are not executed until the price reaches the specified point. When the price reaches that point the stop order becomes a market order. Most of the time, stop orders are used to exit a trade. But, stop orders can be executed for buying/ selling positions too. A buy stop order is initiated when one wants to buy a contract or go long and a sell stop order when one wants to sell or go short. The order gets filled at the suggested stop order price or at a better price.

Example: A trader has purchased crude oil futures at Rs.3750 per barrel. He wishes to limit his loss to Rs. 50 a barrel. A stop order would then be placed to sell an offsetting contract if the price falls to Rs.3700 per barrel. When the market touches this price, stop order gets executed and the trader would exit the market.

- **Other conditions**

- *Market price:* Market orders are orders for which no price is specified at the time the order is entered (i.e. price is market price). For such orders, the system determines the price. Only the position to be taken long/ short is stated. When this kind of order is placed, it gets executed irrespective of the current market price of that particular commodity.

- *Trigger price:* Price at which an order gets triggered from the stop-loss book.

- *Spread order*: A simple spread order involves two positions, one long and one short. They are taken in the same commodity with different months (calendar spread) or in closely related commodities. Prices of the two futures contract therefore tend to go up and down together, and gains on one side of the spread are offset by losses on the other. The spreaders goal is to profit from a change in the difference between the two futures prices. The trader is virtually unconcerned whether the entire price structure moves up or down, just so long as the futures contract he bought goes up more (or down less) than the futures contract he sold.

Box 8.11: After hours electronic trading system

After-hours electronic trading first began in 1992 at CME (Chicago Mercantile Exchange). Called Globex, this was introduced to meet the needs of an increasingly integrated global economy and to have an access to the currency price protection around the clock. Typically electronic trading systems are used in the open outcry exchanges after the day trading is over.

8.4.1 Permitted Lot Size

The permitted trading lot size for the futures contracts and delivery lot size on individual commodities is stipulated by the Exchange from time to time. The lot size currently applicable on select individual commodity contracts is given in Table 8.1

8.4.2 Tick size for contracts & Ticker symbol

The tick size is the smallest price change that can occur for the trades on the Exchange for commodity futures contracts. The tick size in respect of futures contracts admitted to dealings on the NCDEX varies for commodities. For example: in case of refined soy oil, it is 5 paise, Wheat 20 paise and Jeera Re 1.

A ticker symbol is a system of letters that are used to identify a commodity. NCDEX generally uses a system of alphabetic/alphanumeric to identify its commodities uniquely. The symbol

indicate the commodity and it may indicate quality, quantity and base centre of the commodity as well. Some ticker symbol used for commodities traded at NCDEX is given in table 8.1.

For example: the symbol SYOREFIDR indicates the commodity- Soy Oil, its quality - refined and base centre of Indore. TMCFGRNZM indicates the commodity Turmeric finger and delivery centre of Nizamabad.

There are some commodities for which two-three different futures contracts are available and hence the ticker symbol helps in identifying these contracts easily. NCDEX offers three different futures contract for Gold - Gold (GLDPURAHM), Gold 100 grams (GOLD100AHM) and Gold international (GLDPURINTL).

Table 8.1 Commodity futures: Lot size and other parameters

Commodity	Symbol	Unit of Trading	Price Unit	Delivery Unit
Gold	GLDPURAHM	1 KG	Rs./10 GM	1 KG
Gold 100	GOLD100AHM	100 Gram	Rs./10 GM	100 Gram
Silver	SLVPURAHM	30 KG	Rs./KG	30 KG
Soy Bean	SYBEANIDR	10 MT	Rs./Quintal	10 MT
Refined Soy Oil	SYOREFIDR	10 MT	Rs./10 Kg	10 MT
Rapeseed-Mustard seed	RMSEEDJPR	10 MT	Rs./20 Kg	10 MT
Light Sweet Crude Oil	CRUDEOIL	100 barrels	Rs./Barrel	50,000 Barrels
Guar Seed	GARSEDJDR	10 MT	Rs./Quintal	10 MT
Pepper	PPRMLGKOC	1 MT	Rs./Quintal	1 MT
Gur	GURCHMUZR	10 MT	Rs./40 Kg	10 MT
Chana	CHARJDDEL	10 MT	Rs./Quintal	10 MT
Jeera	JEERAUNJHA	3 MT	Rs./Quintal	3 MT
Guar Gum	GARGUMJDR	5 MT	Rs./Quintal	5 MT
Turmeric	TMCFGRNZM	10 MT	Rs./Quintal	10 MT
Long Steel	STEELLONG	10 MT	Rs./MT	10 MT
Wheat	WHTSMQDELI	10 MT	Rs./Quintal	10 MT
Chilli	CHLL334GTR	5 MT	Rs./Quintal	5 MT
Maize	MAIZYRNZM	10 MT	Rs./Quintal	10 MT
Copper Cathode	COPPER	1 MT	Rs/Kg	1 MT
Potato	POTATO	15 MT	Rs./Quintal	15 MT
Barley	BARLEYJPR	10 MT	Rs./Quintal	10 MT
Kachhi Ghani Mustard Oil	KACHIGHANI	10 MT	Rs./10 Kg	10 MT

Note: Refer to website www.ncdex.com for latest specifications for all commodities traded at NCDEX.

8.4.3 Quantity Freeze

All orders placed by members have to be within the quantity specified by the Exchange in this regard. Any order exceeding this specified quantity will not be executed but will lie pending with the Exchange as a quantity freeze. Table 8.2 gives the quantity freeze for some select commodity contracts. In respect of orders which have come under quantity freeze, the order gets deleted from the system at the end of the day's trading session.

Table 8.2 Commodity futures: Quantity freeze unit

Commodity Futures	Quantity Freeze
Gold	51 KG
Soy Bean	510 MT
Chana	510 MT
Silver	1530 KG
Guar Seed	510 MT
Chilli	255 MT
RM Seed	510 MT
Jeera	153 MT

8.4.4 Base Price

On introduction of new contracts, the base price is the previous days' closing price of the underlying commodity in the prevailing spot markets. These spot prices are polled across multiple centers and a single spot price is determined by the bootstrapping method. The base price of the contracts on all subsequent trading days is the daily settlement price of the futures contracts on the previous trading day.

8.4.5 Price Ranges of Contracts

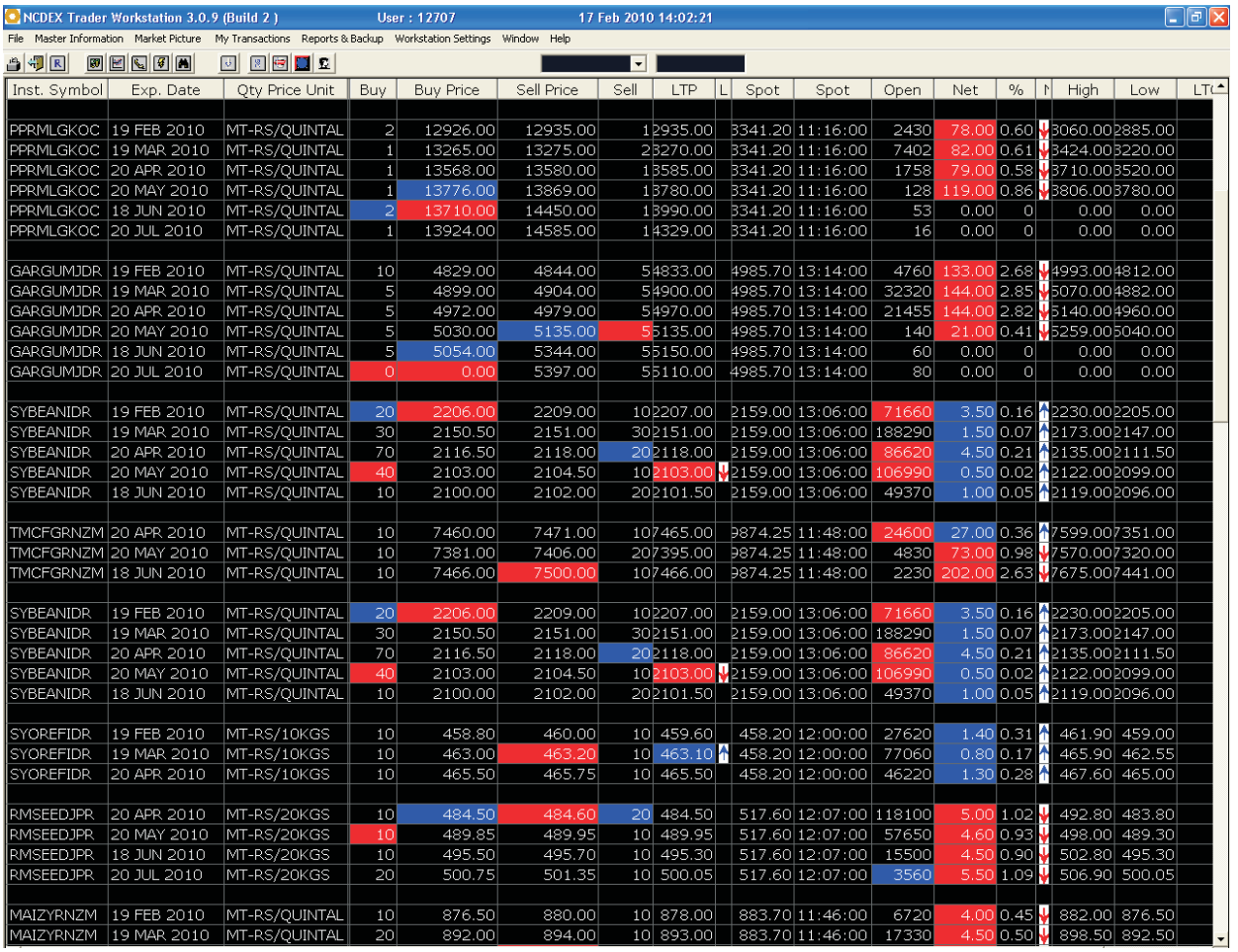
To control wide swings in prices, an intra-day price limit is fixed for commodity futures contract. The maximum price movement during the day can be +/- x% of the previous day's settlement price for each commodity. If the price hits the first intra-day price limit (at upper side or lower side), there will be a cooling period of 15 minutes. Then price band is revised further and in case the price reach that revised level, no trade is permitted during the day beyond the revised limit.

Take an example of Guar Seed- Daily price fluctuation limit is (+/-) 4% (3% +1%). If the trade hits the prescribed first daily price limit of 3 %, there will be a cooling off period for 15 minutes. Trade will be allowed during this cooling off period within the price band. Thereafter, the price band would be raised by (+/-) 1% and trade will be resumed. If the price hits the

revised price band (4%) during the day, trade will only be allowed within the revised price band. No trade / order shall be permitted during the day beyond the limit of (+/-) 4%.

In order to prevent erroneous order entry by trading members, operating price ranges on the NCDEX are pre-decided for individual contracts from the base price. Presently, the price ranges for agricultural commodities is (+/-) 4 % from the base price for the day, and upto (+/-) 9 % for non-agricultural commodities. Orders, exceeding the range specified for a day's trade for the respective commodities are not executed.

Trading Screen



Inst. Symbol	Exp. Date	Qty Price Unit	Buy	Buy Price	Sell Price	Sell	LTP	L	Spot	Spot	Open	Net	%	N	High	Low	LTC
PPRMLGKOC	19 FEB 2010	MT-RS/QUINTAL	2	12926.00	12935.00	1	2935.00		3341.20	11:16:00	2430	78.00	0.60		3060.00	2885.00	
PPRMLGKOC	19 MAR 2010	MT-RS/QUINTAL	1	13265.00	13275.00	2	3270.00		3341.20	11:16:00	7402	82.00	0.61		3424.00	3220.00	
PPRMLGKOC	20 APR 2010	MT-RS/QUINTAL	1	13568.00	13580.00	1	3585.00		3341.20	11:16:00	1758	79.00	0.58		3710.00	3520.00	
PPRMLGKOC	20 MAY 2010	MT-RS/QUINTAL	1	13776.00	13869.00	1	3780.00		3341.20	11:16:00	128	119.00	0.86		3806.00	3780.00	
PPRMLGKOC	18 JUN 2010	MT-RS/QUINTAL	2	13710.00	14450.00	1	3990.00		3341.20	11:16:00	53	0.00	0		0.00	0.00	
PPRMLGKOC	20 JUL 2010	MT-RS/QUINTAL	1	13924.00	14585.00	1	4329.00		3341.20	11:16:00	16	0.00	0		0.00	0.00	
GARGUMJDR	19 FEB 2010	MT-RS/QUINTAL	10	4829.00	4844.00	5	4833.00		4985.70	13:14:00	4760	133.00	2.68		4993.00	4812.00	
GARGUMJDR	19 MAR 2010	MT-RS/QUINTAL	5	4899.00	4904.00	5	4900.00		4985.70	13:14:00	32320	144.00	2.85		5070.00	4882.00	
GARGUMJDR	20 APR 2010	MT-RS/QUINTAL	5	4972.00	4979.00	5	4970.00		4985.70	13:14:00	21455	144.00	2.82		5140.00	4960.00	
GARGUMJDR	20 MAY 2010	MT-RS/QUINTAL	5	5030.00	5135.00	5	5135.00		4985.70	13:14:00	140	21.00	0.41		5259.00	5040.00	
GARGUMJDR	18 JUN 2010	MT-RS/QUINTAL	5	5054.00	5344.00	5	5150.00		4985.70	13:14:00	60	0.00	0		0.00	0.00	
GARGUMJDR	20 JUL 2010	MT-RS/QUINTAL	0	0.00	5397.00	5	5110.00		4985.70	13:14:00	80	0.00	0		0.00	0.00	
SYBEANIDR	19 FEB 2010	MT-RS/QUINTAL	20	2206.00	2209.00	10	2207.00		2159.00	13:06:00	71660	3.50	0.16		2230.00	2205.00	
SYBEANIDR	19 MAR 2010	MT-RS/QUINTAL	30	2150.50	2151.00	30	2151.00		2159.00	13:06:00	188290	1.50	0.07		2173.00	2147.00	
SYBEANIDR	20 APR 2010	MT-RS/QUINTAL	70	2116.50	2118.00	20	2118.00		2159.00	13:06:00	86620	4.50	0.21		2135.00	2111.50	
SYBEANIDR	20 MAY 2010	MT-RS/QUINTAL	40	2103.00	2104.50	10	2103.00		2159.00	13:06:00	106990	0.50	0.02		2122.00	2099.00	
SYBEANIDR	18 JUN 2010	MT-RS/QUINTAL	10	2100.00	2102.00	20	2101.50		2159.00	13:06:00	49370	1.00	0.05		2119.00	2096.00	
TMCFGRNZM	20 APR 2010	MT-RS/QUINTAL	10	7460.00	7471.00	10	7465.00		9874.25	11:48:00	24600	27.00	0.36		7599.00	7351.00	
TMCFGRNZM	20 MAY 2010	MT-RS/QUINTAL	10	7381.00	7406.00	20	7395.00		9874.25	11:48:00	4830	73.00	0.98		7570.00	7320.00	
TMCFGRNZM	18 JUN 2010	MT-RS/QUINTAL	10	7466.00	7500.00	10	7466.00		9874.25	11:48:00	2230	202.00	2.63		7675.00	7441.00	
SYBEANIDR	19 FEB 2010	MT-RS/QUINTAL	20	2206.00	2209.00	10	2207.00		2159.00	13:06:00	71660	3.50	0.16		2230.00	2205.00	
SYBEANIDR	19 MAR 2010	MT-RS/QUINTAL	30	2150.50	2151.00	30	2151.00		2159.00	13:06:00	188290	1.50	0.07		2173.00	2147.00	
SYBEANIDR	20 APR 2010	MT-RS/QUINTAL	70	2116.50	2118.00	20	2118.00		2159.00	13:06:00	86620	4.50	0.21		2135.00	2111.50	
SYBEANIDR	20 MAY 2010	MT-RS/QUINTAL	40	2103.00	2104.50	10	2103.00		2159.00	13:06:00	106990	0.50	0.02		2122.00	2099.00	
SYBEANIDR	18 JUN 2010	MT-RS/QUINTAL	10	2100.00	2102.00	20	2101.50		2159.00	13:06:00	49370	1.00	0.05		2119.00	2096.00	
SYOREFIDR	19 FEB 2010	MT-RS/10KGS	10	458.80	460.00	10	459.60		458.20	12:00:00	27620	1.40	0.31		461.90	459.00	
SYOREFIDR	19 MAR 2010	MT-RS/10KGS	10	463.00	463.20	10	463.10		458.20	12:00:00	77060	0.80	0.17		465.90	462.55	
SYOREFIDR	20 APR 2010	MT-RS/10KGS	10	465.50	465.75	10	465.50		458.20	12:00:00	46220	1.30	0.28		467.60	465.00	
RMSEEDJPR	20 APR 2010	MT-RS/20KGS	10	484.50	484.60	20	484.50		517.60	12:07:00	118100	5.00	1.02		492.80	483.80	
RMSEEDJPR	20 MAY 2010	MT-RS/20KGS	10	489.85	489.95	10	489.95		517.60	12:07:00	57650	4.60	0.93		498.00	489.30	
RMSEEDJPR	18 JUN 2010	MT-RS/20KGS	10	495.50	495.70	10	495.30		517.60	12:07:00	15500	4.50	0.90		502.80	495.30	
RMSEEDJPR	20 JUL 2010	MT-RS/20KGS	20	500.75	501.35	10	500.05		517.60	12:07:00	3560	5.50	1.09		506.90	500.05	
MAIZYRNZM	19 FEB 2010	MT-RS/QUINTAL	10	876.50	880.00	10	878.00		883.70	11:46:00	6720	4.00	0.45		882.00	876.50	
MAIZYRNZM	19 MAR 2010	MT-RS/QUINTAL	20	892.00	894.00	10	893.00		883.70	11:46:00	17330	4.50	0.50		898.50	892.50	

8.4.6 Order Entry on the Trading System

The NCDEX trading system has a set of function keys built into the trading front-end. These keys have been provided to facilitate faster operation of the system and enable quicker trading on the system. The function keys can be operated from the keyboard of the user. The set of function keys enable the following:

• Buy order entry	• Previous trades
• Sell order entry	• Contract description
• Order cancellation	• Alphabetical sorting of contracts
• Order modification	• Spread order status
• Exercise / Delivery	• Spread activity log
• Outstanding orders	• Snap quote
• Quick order cancel	• Manage user limits
• Spread order entry	• Message log
• Market watch setup	• Market movement
• Trade modify	• Full message display
• Trade cancel	• Market inquiry
• Client master maintenance	• View most active contracts
• Market by order	• Net position upload
• Market by price	• Order status
• Activity log	• Liquidity schedule
• Set up portfolio	• Generate Reports
• Offline order entry	• View newly launched contracts
• View Bhav Copy	• Manage user collateral limit

8.5 Margins For Trading In Futures

Margin is the deposit money that needs to be paid to buy or sell each contract. The margin required for a futures contract is better described as performance bond or good faith money. The margin levels are set by the exchanges based on volatility (market conditions) and can be changed at any time. The margin requirements for most futures contracts range from 5% to 15% of the value of the contract, with a minimum of 5%, except for Gold where the minimum margin is 4%.

In the futures market, there are different types of margins that a trader has to maintain. We will discuss them in more details when we talk about risk management in the next chapter. At this stage we look at the types of margins as they apply on most futures exchanges.

- *Initial margin:* The amount that must be deposited by a customer at the time of entering into a contract is called initial margin. This margin is meant to cover the potential loss in one day. The margin is a mandatory requirement for parties who are entering into the contract. The exchange levies initial margin on derivatives contracts using the concept of Value at Risk (VaR) or any other concept as the Exchange may

decide periodically. The margin is charged so as to cover one-day loss that can be encountered on the position on 99.95% confidence-interval VaR methodology.

- *Exposure & Mark-to-Market Margin:* Exposure margin is charged taking into consideration the backtesting results of the VaR model. For all outstanding exposure in the market, the Exchange also collects mark-to-market margin which are positions restated at the daily settlement prices (DSP). At the end of each trading day, the margin account is adjusted to reflect the trader's gain or loss. This is known as marking to market the account of each trader. All futures contracts are settled daily reducing the credit exposure to one day's movement. Based on the settlement price, the value of all positions is marked-to-market each day after the official close. i.e. the accounts are either debited or credited based on how well the positions fared in that day's trading session. If the account falls below the required margin level the clearing member needs to replenish the account by giving additional funds or closing positions either partially/ fully. On the other hand, if the position generates a gain, the funds can be withdrawn (those funds above the required initial margin) or can be used to fund additional trades.
- *Additional margin:* In case of sudden higher than expected volatility, the Exchange calls for an additional margin, which is a preemptive move to prevent potential default. This is imposed when the Exchange/ regulator has view that that the markets have become too volatile and may result in some adverse situation to the integrity of the market/ Exchange.
- *Pre-expiry margin:* This margin is charged as additional margin for most commodities expiring during the current/near month contract. It is charged on a cumulative basis from typically 3 to 5 days prior to the expiry date (including the expiry date). This is done to ensure that only interested parties remain in the market and speculators roll over their positions to subsequent months and ensure better convergence of the futures and spot market prices.
- *Delivery Margin:* This margin is charged only in the case of positions materialising into delivery. Members are informed about the delivery margin payable. Margins for delivery are to be paid the day following expiry of contract.
- *Special Margin :* This margin is levied when there is more than 20% uni-directional movement in the price from a pre-determined base and is typically related to the underlying spot price. The base could be the closing price on the day of launch of the contract or the 90 days prior settlement price. This is mentioned in the respective contract specification. Some contracts also have an as-deemed-fit clause for levying of Special margins. It can also be levied by market regulator if market exhibits excess

volatility. If required by the regulator, it has to be settled by cash. This is collected as extra margin over and above normal margin requirement.

- *Margin for Calendar Spread positions:* Calendar spread is defined as the purchase of one delivery month of a given futures contract and simultaneous sale of another delivery month of the same commodity by a client/ member. At NCDEX, for calendar spread positions, margins are imposed as one half of the initial margin (inclusive of the exposure margin). Such benefit will be given only of there is positive correlation in the prices of the months under consideration and the far month contracts are sufficiently liquid. No benefit of calendar spread is given in the case of additional and special margins. However, calendar spread positions in the far month contract are considered as naked position three days before expiry of near month contract. Gradual reduction of the spread position is done at the rate of 33.3% per day from 3 days prior to expiry.

Just as a trader is required to maintain a margin account with a broker, a clearing house member is required to maintain collaterals/deposits with the clearing house against which the positions are allowed to be taken.

8.6 Charges

Members are liable to pay transaction charges for the trade done through the Exchange during the previous month. The important provisions are listed below. The billing for the all trades done during the previous month will be raised in the succeeding month.

1. *Transaction charges:* The transaction charges are payable at the rate of Rs. 4 per Rs.100,000 worth of trade done. This rate is charged for average daily turnover of Rs. 20 crores. Reduced rate is charged for increase in daily turnover. This rate is subject to change from time to time. The average daily turnover is calculated by taking the total value traded by the member in a month and dividing it by number of trading days in the month including Saturdays.

2. *Due date:* The transaction charges are payable on the 10th day of every month in respect of the trade done in the previous month.

3. *Collection:* Members keep the Exchange Dues Account opened with the respective Clearing Banks for meeting the commitment on account of transaction charges.

4. *Adjustment against advances transaction charges:* In terms of the regulations, members are required to remit Rs.50,000 as advance transaction charges on registration. The transaction charges due first will be adjusted against the advance transaction charges already paid as advance and members need to pay transaction charges only after exhausting the balance lying in advance transaction.

5. *Penalty for delayed payments:* If the transaction charges are not paid on or before the due date, a penal interest is levied as specified by the Exchange.

Finally, the futures market is a zero sum game i.e. the total number of long in any contract always equals the total number of short in any contract. The total number of outstanding contracts (long/ short) at any point in time is called the 'Open interest'. This Open interest figure is a good indicator of the liquidity in every contract. Based on studies carried out in international Exchanges, it is found that open interest is maximum in near month expiry contracts.

8.7 Hedge Limits

The Exchange permits higher client-level open interest (OI) limits (referred to as "Hedge Limits") to Hedgers hedging the price risk of their current cash and expected future commodity requirement subject to their satisfying certain conditions and producing documents as specified by the Exchange.

The Exchange has introduced a Hedge Policy for the benefit of constituents and Members trading in their proprietary account (hereinafter for referred to as "Constituents") who have genuine hedging requirements by virtue of their being an importer or an exporter or those having stocks of physical goods.

Registration:

- The Hedge Policy covers those Constituents who are processors, importers, exporters and those who have physical stocks of the commodities.
- The hedge limits against physical stocks are allowed only if the stocks are owned by the Constituent or if they are pledged with any Government/ Scheduled or Co-operative Banks. Warehouses where the physical stock may be kept include the accredited warehouses, or any private warehouse including hedger's own warehouse / factory premises.
- Such Constituents who have or expect to have one or more of the above requirements for a commodity which exceeds the client-level open interest (OI) limit set by the Exchange may apply for the status of a Hedger on the Exchange platform.
- A prospective Hedger is required to register with the Exchange as a Hedger by forwarding his request for the Hedger status through a TCM along with the forms, annexure and documents mentioned in the Appendix to the circular related to the Hedge Policy of the Exchange.
- Hedge limits for a commodity are determined on the basis of applicant's hedging requirement in the cash market and other factors which the Exchange deems appropriate

in the interest of market. This is subject to the applicant substantiating his hedging requirement by documentary evidence in support of the stocks carried by him or his export or import obligations.

- Under the terms and conditions, hedge limits are not allowed in the near month and outstanding open position is required to be brought within normal client level position levels in the near-month period.
- The hedge limits sanctioned to a Hedger can be utilized only by the hedger and not by anyone else including any subsidiary/associate company.
- A Hedger registered with the Exchange is allotted a unique participant Code. The Participant Code is used by the Hedger while trading on the Exchange in those commodities in which he has been sanctioned hedge limits. This code should not be used by the Hedger while trading in any other commodity where he has no hedge limits approved to him.
- The approved hedge limit is valid from the date of sanction for a period specified in the sanction letter. Unless renewed, the hedge limit shall stands cancelled automatically upon expiry of such period without any notice. The Hedger is required to apply for any renewal of limits at least a month before the expiry of approval along with relevant documents as prescribed by the Exchange from time to time.
- Clients whose applications for Hedge limits have been approved need to submit, through the member through whom they are trading, a monthly statement in respect of physical stock held by them. Members taking Hedge limits are similarly required to submit such a statement of their physical holdings against which hedge limits have been sanctioned in the prescribed format. Such monthly statement as of last day of the calendar month, should reach the Exchange not later than 7th of succeeding month.
- All applicants seeking Hedge limits are required to give a declaration in the prescribed format for combining of positions taken through various trading members.

Terms and Conditions for the Hedger & the Registering TCM

It is the intention of the Exchange to ensure that the sanction of hedge limits does not result in market concentration or undue influence on the futures market prices. The sanction of the hedge limits, therefore, is subject to certain terms and conditions which include:

- The additional open position limit granted by way of hedge limit at no point of time shall exceed a quantity equivalent to the prescribed client level open interest position limit prescribed for that commodity. Where a different client level position limit has been prescribed in a particular commodity/contract, to be applicable in the near-month of the given contract, the hedge limit shall be in accordance with the open position as

applicable during such period. It would also be the responsibility of the Registering TCM to ensure that the Hedger complies with the above requirement.

- A Hedger may be sanctioned hedge limits either for long positions or short positions but not for both. Hence the applicant has to state clearly if the application is for long or short position. A fresh application will be needed if the Hedger needs an opposite position in lieu of the existing sanctioned position.
- The Hedger's sanctioned limit in a commodity will not be allowed to exceed at any time and under any circumstances. If any violations (including intra day violations for whatever reasons) are found, the Exchange may not permit taking of any further position by the Hedger and may reduce his open interest position at market rate, which shall be binding on the Hedger and the Registering TCM.
- The Registering TCM has a responsibility:

  a) Not to put through any trade by a Hedger violating the limits or any of the terms or conditions on which hedge limits are sanctioned to the Hedger by the Exchange.

  b) To monitor the Hedger's position continuously to ensure that it does not exceed the sanctioned limit or the terms and conditions of the sanction of the limits.

  c) To ensure that the Hedger reduces the open interest positions in the spot month contract within the normal limit for that contract before the last ten days prior to expiry of the contract.

  d) To immediately inform the Exchange of any violation of limit or terms and conditions by a Hedger.

- Though the hedge positions can be liquidated based on sound commercial reasons by the Hedgers, they shall not churn (frequent unwinding and reinitiating) the hedge positions during a hedge period for whatever reasons. For this purpose, the hedge period is defined as the time between initiation of hedge position in a futures contract and the time of expiry of the contract. The Exchange shall be the sole authority in determining whether frequent churning happens in a Hedger's position or not and the decision of the Exchange in this regard shall be final and binding on all parties involved.
- The margins for any commodity prescribed by the Exchange for the other market participants shall also be applicable to the hedgers.
- A Hedger shall furnish all information called for by the Exchange at any time and allow officials of Exchange or any person/s authorized by the Exchange or officials of regulatory authorities to inspect their records and account books as also verification of physical stocks for the purpose of verification of information or documents, with or without prior intimation.

- All parties to the limits sanctioned to a Hedger, i.e. the Hedger and the Registering TCM are required to abide by the Rules, Bye-laws and Regulations of the Exchange and directions of the Regulator, if any, may apart from the terms and conditions under which the hedge limits are sanctioned. Any violation may result in cancellation of hedger status and appropriate action including penalties on the constituent and/or other parties concerned at the option of the Exchange.

CHAPTER 9: Clearing And Settlement

Most futures contracts do not lead to the actual physical delivery of the underlying asset. The settlement is done by closing out open positions, physical delivery or cash settlement. All these settlement functions are taken care of by an entity called clearing house or clearing corporation. National Commodity Clearing Limited (NCCL) undertakes clearing of trades executed on the NCDEX.

9.1 Clearing

Clearing of trades that take place on an Exchange happens through the Exchange clearing house. A clearing house is a system by which Exchanges guarantee the faithful compliance of all trade commitments undertaken on the trading floor or electronically over the electronic trading systems. The main task of the clearing house is to keep track of all the transactions that take place during a day so that the net position of each of its members can be calculated. It guarantees the performance of the parties to each transaction. Typically it is responsible for the following:

1. Effecting timely settlement.
2. Trade registration and follow up.
3. Control of the open interest.
4. Financial clearing of the payment flow.
5. Physical settlement (by delivery) or financial settlement (by price difference) of contracts.
6. Administration of financial guarantees demanded by the participants.

The clearing house has a number of members, who are responsible for the clearing and settlement of commodities traded on the Exchange. The margin accounts for the clearing house members are adjusted for gains and losses at the end of each day (in the same way as the individual traders keep margin accounts with the broker). Everyday the account balance for each contract must be maintained at an amount equal to the original margin times the number of contracts outstanding. Thus depending on a day's transactions and price movement, the members either need to add funds or can withdraw funds from their margin accounts at the end of the day. The brokers who are not the clearing members need to maintain a margin account with the clearing house member through whom they trade.

9.1.1 Clearing Mechanism

Only clearing members including professional clearing members (PCMs) are entitled to clear and settle contracts through the clearing house.

The clearing mechanism essentially involves working out open positions and obligations of clearing members. This position is considered for exposure and daily margin purposes. The open positions of PCMs are arrived at by aggregating the open positions of all the Trading Members clearing through him, in contracts in which they have traded. A Trading-cum-Clearing Member's (TCM) open position is arrived at by the summation of his clients' open positions, in the contracts in which they have traded. Client positions are netted at the level of individual client and grossed across all clients, at the member level without any set-offs between clients. Proprietary positions are netted at member level without any set-offs between client and proprietary positions.

At NCDEX, after the trading hours on the expiry date, based on the available information, the matching for deliveries takes place firstly, on the basis of locations and then randomly, keeping in view the factors such as available capacity of the vault/ warehouse, commodities already deposited and dematerialized and offered for delivery etc. Matching done by this process is binding on the clearing members. After completion of the matching process, clearing members are informed of the deliverable/ receivable positions and the unmatched positions. Unmatched positions have to be settled in cash. The cash settlement is only for the incremental gain/ loss as determined on the basis of final settlement price.

9.1.2 Clearing Banks

NCDEX has designated clearing banks through whom funds to be paid and/ or to be received must be settled. Every clearing member is required to maintain and operate a clearing account with any one of the designated clearing bank branches. The clearing account is to be used exclusively for clearing operations i.e., for settling funds and other obligations to NCDEX including payments of margins and penal charges. A clearing member having funds obligation to pay is required to have clear balance in his clearing account on or before the stipulated pay-in day and the stipulated time. Clearing members must authorise their clearing bank to access their clearing account for debiting and crediting their accounts as per the instructions of NCDEX, reporting of balances and other operations as may be required by NCDEX from time to time. The clearing bank will debit/ credit the clearing account of clearing members as per instructions received from NCDEX.

- Bank of India
- Canara Bank
- HDFC Bank Ltd
- ICICI Bank Ltd
- Punjab National Bank
- Axis Bank Ltd

- IndusInd Bank Ltd
- Kotak Mahindra Bank Ltd
- Tamilnad Mercantile Bank Ltd
- Union Bank of India
- YES Bank Ltd
- Standard Chartered Bank Ltd
- State Bank of India

9.1.3 Depository participants

Every clearing member is required to maintain and operate two CM pool account each at NSDL and CDSL through any one of the empanelled depository participants. The CM pool account is to be used exclusively for clearing operations i.e., for effecting and receiving deliveries from NCDEX.

9.2 Settlement

Futures contracts have two types of settlements, the Mark-to-Market (MTM) settlement which happens on a continuous basis at the end of each day, and the final settlement which happens on the last trading day of the futures contract. On the NCDEX, daily MTM settlement and final MTM settlement in respect of admitted deals in futures contracts are cash settled by debiting/ crediting the clearing accounts of CMs with the respective clearing bank. All positions of a CM, either brought forward, created during the day or closed out during the day, are marked to market at the daily settlement price or the final settlement price at the close of trading hours on a day.

- *Daily settlement price:* Daily settlement price is the consensus closing price as arrived after closing session of the relevant futures contract for the trading day. However, in the absence of trading for a contract during closing session, daily settlement price is computed as per the methods prescribed by the Exchange from time to time.
- *Final settlement price:* Final settlement price is the polled spot price of the underlying commodity in the spot market on the last trading day of the futures contract. All open positions in a futures contract cease to exist after its expiration day.

Settlement involves payments (Pay-Ins) and receipts (Pay-Outs) for all the transactions done by the members. Trades are settled through the Exchange's settlement system.

9.2.1 Settlement Mechanism

Settlement of commodity futures contracts is a little different from settlement of financial futures which are mostly cash settled. The possibility of physical settlement makes the process a little more complicated.

Daily mark to market settlement

Daily mark to market settlement is done till the date of the contract expiry. This is done to take care of daily price fluctuations for all trades. All the open positions of the members are marked to market at the end of the day and the profit/ loss is determined as below:

- On the day of entering into the contract, it is the difference between the entry value and daily settlement price for that day.
- On any intervening days, when the member holds an open position, it is the difference between the daily settlement price for that day and the previous day's settlement price.
- On the expiry date if the member has an open position, it is the difference between the final settlement price and the previous day's settlement price.

Table 9.1 explains the MTM for a member who buys one unit of December expiration Chilli contract at Rs.6435 per quintal on December 15. The unit of trading is 5 MT and each contract is for delivery of 5 MT. The member closes the position on December 19. The MTM profit/ loss per unit of trading show that he makes a total loss of Rs.120 per quintal of trading. So upon closing his position, he makes a total loss of Rs.6000, i.e (5 x 120 x 10) on the long position taken by him. **The MTM profit and loss is settled through pay in/ pay out on T+1 basis, T being the trade day.**

Table 9.1: MTM on a long position in Chilli Futures

Date	Settlement Price	MTM
December 15	6320	-115
December 16	6250	-70
December 17	6312	+62
December 18	6310	-2
December 19	6315	+5

Table 9.2 explains the MTM for a member who sells December expiration Chilli futures contract at Rs.6435 per quintal on December 15. The unit of trading is 5 MT and each contract is for delivery of 5 MT. The member closes the position on December 19. The MTM profit/ loss show that he makes a total profit of Rs.120 per quintal. So upon closing his position, he makes a total profit of Rs.6000 on the short position taken by him.

Table 9.2: MTM on a short position in Chilli Futures

Date	Settlement Price	MTM
December 15	6320	+115
December 16	6250	+70
December 17	6312	-62
December 18	6310	+2
December 19	6315	-5

Final settlement

On the date of expiry, the final settlement price is the closing price of the underlying commodity in the spot market on the date of expiry (last trading day) of the futures contract. The spot prices are collected from polling participants from base centre as well as other locations. The poll prices are bootstrapped and the mid-point of the two boot strapped prices is the final settlement price. The responsibility of settlement is on a trading cum clearing member for all trades done on his own account and his client's trades. A professional clearing member is responsible for settling all the participants' trades which he has confirmed to the Exchange.

Members are required to submit delivery information through delivery request window on the trader workstations provided by NCDEX for all open positions for a commodity for all constituents individually. This information can be provided within the time notified by Exchange separately for each contracts. NCDEX on receipt of such information matches the information and arrives at a delivery position for a member for a commodity. A detailed report containing all matched and unmatched requests is provided to members through the extranet.

Pursuant to regulations relating to submission of delivery information, failure to submit delivery information for open positions attracts penal charges as stipulated by NCDEX from time to time. NCDEX also adds all such open positions for a member, for which no delivery information is submitted with final settlement obligations of the member concerned and settled in cash as the case may be.

Non-fulfillment of either the whole or part of the settlement obligations is treated as a violation of the rules, bye-laws and regulations of NCDEX and attracts penal charges as stipulated by NCDEX from time to time. In addition, NCDEX can withdraw any or all of the membership rights of clearing member including the withdrawal of trading facilities of all trading members clearing through such clearing members, without any notice. Further, the outstanding positions of such clearing member and/ or trading members and/ or constituents, clearing and settling through such clearing member, may be closed out forthwith or any time thereafter by the Exchange to the extent possible, by placing at the Exchange, counter orders in respect of the outstanding position of clearing member without any notice to the clearing member and/ or trading member and/ or constituent. NCDEX can also initiate such other risk containment measures as it deems appropriate with respect to the open positions of the clearing members. It can also take additional measures like, imposing penalties, collecting appropriate deposits, invoking bank guarantees or fixed deposit receipts, realizing money by disposing off the securities and exercising such other risk containment measures as it deems fit or take further disciplinary action.

9.2.2 Settlement Methods

Settlement of futures contracts on the NCDEX can be done in two ways - by physical delivery of the underlying asset and by closing out open positions. We shall look at each of these in some detail. All contracts materialising into deliveries are settled in a period as notified by the Exchange separately for each contract. **The exact settlement day for each commodity is specified by the Exchange through circulars known as 'Settlement Calendar'.**

a) Physical delivery of the underlying asset

If the buyer/seller is interested in physical delivery of the underlying asset, he must complete the delivery marking for all the contracts within the time notified by the Exchange.

The following types of contracts are presently available for trading on the NCDEX Platform.

1. Compulsory Delivery
    - Staggered Delivery
    - Early Delivery
2. Seller's Right
3. Intention Matching

1. Compulsory Delivery Contract

On expiry of a compulsory delivery contract, all the sellers with open position shall give physical delivery of the commodity. That is, the sellers need to deliver the commodity and buyers need to accept the delivery. To allocate deliveries in the optimum location for clients, the members need to give delivery information for preferred location.

The information for delivery can be submitted during the trading hours 3 trading days in advance of the expiry date and up to 6 p.m. on the last day of marking delivery intention. For example, for contracts expiring on the 20th of the month, delivery intentions window will be open from the 18th and will close on the 20th.Clients can submit delivery intentions up to the maximum of their open positions. In case the delivery intention is not marked the seller would tender delivery from the base location.

Members will be allowed to submit one-time warehouse preference (default location). They can give even multiple warehouse preferences. The same will be sent by the members to the Exchange. This preference will be applicable for all outstanding long and short client positions in that commodity. If the member does not mark any specific location, the default preference will be applied for all open positions. Members can change the default location preference on any day except the last 5 days before the expiry of the contract. For those members, who have not submitted the preference of the default location, delivery will be marked on the base location specified for the commodity.

After the trading hours on the expiry date, based on the available information, the delivery matching is done. All corresponding buyers with open position as matched by the process put in place by the Exchange shall be bound to settle his obligation by taking physical delivery. The deliveries are matched on the basis of open positions and delivery information received by the Exchange.

In the event of default by the seller, penalty as may be prescribed by the Exchange from time to time would be levied.

Penal Provisions for a compulsory delivery contract

Total amount of penalty imposed on a seller in case of a delivery default would be

- 3.0 % of the final settlement price
- The difference between the Final Settlement Price (FSP) and the average of three highest of the last spot prices of 5 (five) succeeding days after the expiry of contract (E+ 1 to E +5 days)

If the average spot price so determined is higher than FSP then this component will be zero.

Bifurcation of penalty for a compulsory delivery contract

- 1.75 % shall be deposited in the Investor Protection Fund of the Exchange.
- 1 % shall be passed on to the corresponding buyer who was entitled to receive delivery; and
- The rest 0.25 % shall be retained by the Exchange towards administrative expenses.

The difference between the Final Settlement Price (FSP) and the average of three highest of the last spot prices of 5 (five) succeeding days after the expiry of contract (E+ 1 to E +5 days) would also be passed on to the corresponding buyers.

It should be noted that Buyers defaults are not permitted. The amount due from the buyers shall be recovered from the buyer as Pay in shortage together with prescribed charges. Exchange shall have right to sell the goods on account of such Buyer to recover the dues and if the sale proceeds are insufficient, the Buyer would be liable to pay the balance.

The Sub Types of the compulsory delivery contracts are:

i) Staggered Delivery

In the case of certain commodities like gold and silver, delivery is staggered over last 5 days of the contract. In such contracts, the marking of intention to deliver the commodity starts from 5 days prior to the expiry of the near month contract and the physical settlement of the commodity will be the day after the intention is marked.

The process of staggered delivery at NCDEX is as follows:

- Tender period consists of trading hours during 5 trading days prior to and including the expiry date of the contract
- If a seller marks a delivery intention during the tender period, the corresponding buyer, who has open positions that are matched as per process defined by the Exchange, is bound to settle by taking the delivery on T + 1 day (T is the date of tender) from the delivery centre where the seller has delivered the same
- The contract will be settled in a staggered system of 5 Pay-ins and Pay-outs starting from T +1. The 5th Pay-in and Pay-out will be the Final Settlement

ii) Early Delivery System

In case of certain commodities such as Pepper, Mentha Oil, Rubber, Guar Seed, and Soybean, the Exchange introduced early delivery system in 2009. The salient features of this system for commodity futures contracts traded at NCDEX are listed below:

a. An early delivery period is available during E-14 to E-1 days of the contract. During the period from E-14 to E-8, normal client level position limits continue to be in force. Hedgers, allowed higher limits by the Exchange, continue to avail of such limits. If the intentions of the buyers/sellers match, then the respective positions would be closed out by physical deliveries.

b. The near month limits is in force during the period from E-7 till expiry of the contract. During this period also, if the intentions of the buyers / sellers match, then the respective positions would be closed out by physical deliveries.

c. If there is no intention matching for delivery between sellers and buyers, then such delivery intention will get automatically extinguished at the close of E-1 day. The intentions can be withdrawn during the course of E-14 to E-1 day if they remained unmatched. In case intention of delivery gets matched, then the process of pay-in and pay-out will be completed on T + 2 basis, where 'T' stands for the day on which matching has been done.

d. In respect of delivery defaults after the matching of delivery intentions, penalty provisions as applicable in the case of delivery defaults in compulsory delivery contracts will be applied.

e. On the expiry of the contract, all outstanding positions would be settled by physical delivery

The penalty provisions for delivery default in case of Staggered Delivery and Early delivery contracts shall be same as it is applicable in the compulsory delivery contracts.

2. Sellers Right Contract

In Seller's Right contracts, delivery obligation is created for all valid sell requests received by the Exchange. Simultaneously, the deliveries are allocated to the buyers with open positions on a random basis, irrespective of whether a buy request has been submitted or not. While allocating the deliveries, preference is given to those buyers who have submitted buy requests.

The information for delivery can be submitted during the trading hours 3 trading days prior to 5 working days of expiry of contracts. For example, for contracts expiring on the 20th of the month, delivery intentions window will be open from the 13th and will close on the 15th. Clients can submit delivery intentions up to the maximum of their open positions.

All open positions of those sellers who fail to provide delivery intention information for physical delivery shall be settled in cash.

In case of failure to give any delivery intention the seller shall be charged @ of 0.5 % of the FSP as an Open interest penalty. Ninety percent (90%) shall be paid to the corresponding buyers and ten percent (10%) of the penalty amount shall be retained by the Exchange towards administrative charges.

In settling contracts that are physically deliverable, the clearing house:

- Assigns longs to shorts (no relationship to original counterparties)
- Provides a delivery venue

Successful matching of requests with respect to commodity and warehouse location results in delivery on settlement day. After completion of the matching process, clearing members are informed of the deliverable/ receivable positions.

3. Intention Matching Contract

The delivery position for intention matching contract would be arrived at by the Exchange based on the information to give/take delivery furnished by the seller and buyer as per the process put in place by the Exchange for effecting physical delivery. If the intentions of the buyers and sellers match, the respective positions would be settled by physical deliveries.

The information for delivery can be submitted during the trading hours 3 trading days prior to 5 working days of expiry of contracts. For example, for contracts expiring on the 20th of the month, delivery intentions window will be open from the 13th and will close on the 15th. Clients can submit delivery intentions up to the maximum of their open positions.

On the expiry of the contract, all outstanding positions not resulting in physical delivery shall be closed out at the Final Settlement Price as announced by the Exchange.

Penal Provisions for Intention matching and Seller's Right contract

Total amount of penalty imposed on a seller in case of a delivery default would be

- 2.5 % of the final settlement price
- The difference between the Final Settlement Price (FSP) and the spot price on the settlement day, if the said spot price is higher than FSP; else this component will be zero.

Bifurcation of penalty for a Intention matching and Seller's right contract

- 2% shall be deposited in the Investor Protection Fund of the Exchange.
- 0.5% % shall be passed on to the corresponding buyer who was entitled to receive delivery; and
- The difference between the Final Settlement Price (FSP) and the spot price on the settlement day would also be passed on to the corresponding buyer, if the said spot price is higher than FSP; else this component will be zero.

Members giving delivery requests for the Seller's right and Intention matching contract are not permitted to square off their open positions. A penalty of 5% of final settlement price on the position squared off will be levied on the Members violating the same.

Buyer's defaults are not permitted in any of the above said contracts. The amount due from the buyers shall be recovered from the buyer as Pay in shortage along with the prescribed charges. Exchange shall have right to sell the goods on account of such Buyer to recover the dues and if the sale proceeds are insufficient, the Buyer would be liable to pay the balance.

In case of international referenceable commodity such as Aluminum, Nickel, Zinc etc, the information for delivery can be submitted during the trading hours 3 trading days prior to 3 working days of expiry of contracts. For example, for contracts expiring on the 30th of the month, delivery intentions window will be open from the 25th and will close on the 27th.Clients can submit delivery intentions up to the maximum of their open positions.

Any buyer intending to take physicals has to put a request to his depository participant. The DP uploads such requests to the specified depository who in turn forwards the same to the registrar and transfer agent (R&T agent) concerned. After due verification of the authenticity, the R&T agent forwards delivery details to the warehouse which in turn arranges to release the commodities after due verification of the identity of recipient. On a specified day, the buyer would go to the warehouse and pick up the physicals.

The seller intending to make delivery has to take the commodities to the designated warehouse. These commodities have to be assayed by the Exchange specified assayer. The commodities have to meet the contract specifications with allowed variances. If the commodities meet the specifications, the warehouse accepts them. Warehouses then ensure that the receipts get

updated in the depository system giving a credit in the depositor's electronic account. The seller then gives the invoice to his clearing member, who would courier the same to the buyer's clearing member.

NCDEX contracts provide a standardized description for each commodity. The description is provided in terms of quality parameters specific to the commodities. At the same time, it is realized that with commodities, there could be some amount of variances in quality/ weight etc., due to natural causes, which are beyond the control of any person. Hence, NCDEX contracts also provide tolerance limits for variances. A delivery is treated as good delivery and accepted if the delivery lies within the tolerance limits. However, to allow for the difference, the concept of premium and discount has been introduced. Goods that come to the authorised warehouse for delivery are tested and graded as per the prescribed parameters. The premium and discount rates apply depending on the level of variation. The price payable by the party taking delivery is then adjusted as per the premium/ discount rates fixed by the Exchange. This ensures that some amount of leeway is provided for delivery, but at the same time, the buyer taking delivery does not face windfall loss/ gain due to the quantity/ quality variation at the time of taking delivery. This, to some extent, mitigates the difficulty in delivering and receiving exact quality/ quantity of commodity.

b) Closing out by offsetting positions

Most of the contracts are settled by closing out open positions. In closing out, the opposite transaction is effected to close out the original futures position. A buy contract is closed out by a sale and a sale contract is closed out by a buy. For example, an investor who took a long position in two gold futures contracts on the January 30 at Rs.16090 per 10 grams, can close his position by selling two gold futures contracts on February 13, at Rs.15928. In this case, over the period of holding the position, he has suffered a loss of Rs.162 per 10 grams. This loss would have been debited from his account over the holding period by way of MTM at the end of each day, and finally at the price that he closes his position, that is Rs.15928, in this case.

c) Cash settlement

In the case of intention matching contracts, if the trader does not want to take/ give physical delivery, all open positions held till the last day of trading are settled in cash at the final settlement price and with penalty in case of Sellers Right contract. Similarly any unmatched, rejected or excess intention is also settled in cash. When a contract is settled in cash, it is marked to the market at the end of the last trading day and all positions are declared closed.

For example, Paul took a short position in five Silver 5kg futures contracts of July expiry on June 15 at Rs.21500 per kg. At the end of 20th July, the last trading day of the contract, he continued to hold the open position, without announcing delivery intention. The closing spot price of silver on that day was Rs.20500 per kg. This was the settlement price for his contract.

Though Paul was holding a short position on silver, he did not have to actually deliver the underlying silver. The transaction was settled in cash and he earned profit of Rs. 5000 per trading lot of silver.

As mentioned earlier, unmatched positions of contracts, for which the intentions for delivery were submitted, are also settled in cash. In case of NCDEX, all contracts being settled in cash are settled on the day after the contract expiry date. If the cash settlement day happens to be a Saturday, a Sunday or a holiday at the exchange, clearing banks or any of the service providers, Pay-in and Pay-out would be effected on the next working day.

9.2.3 Entities involved in Physical Settlement

Physical settlement of commodities involves the following three entities - an accredited warehouse, registrar & transfer agent and an assayer. We will briefly look at the functions of each.

Accredited warehouse

NCDEX specifies accredited warehouses through which delivery of a specific commodity can be effected and which will facilitate for storage of commodities. For the services provided by them, warehouses charge a fee that constitutes storage and other charges such as insurance, assaying and handling charges or any other incidental charges. Following are the functions of an accredited warehouse:

1. Earmark separate storage area as specified by the Exchange for the purpose of storing commodities to be delivered against deals made on the Exchange. The warehouses are required to meet the specifications prescribed by the Exchange for storage of commodities.
2. Ensure and co-ordinate the grading of the commodities received at the warehouse before they are stored.
3. Store commodities in line with their grade specifications and validity period and facilitate maintenance of identity. On expiry of such validity period of the grade for such commodities, the warehouse has to segregate such commodities and store them in a separate area so that the same are not mixed with commodities which are within the validity period as per the grade certificate issued by the approved assayers.

Approved Registrar and Transfer agents (R&T agents)

The Exchange specifies approved R&T agents through whom commodities can be dematerialized and who facilitate for dematerialization/re-materialization of commodities in the manner prescribed by the Exchange from time to time. The R&T agent performs the following functions:

1. Establishes connectivity with approved warehouses and supports them with physical infrastructure.

2. Verifies the information regarding the commodities accepted by the accredited warehouse and assigns the identification number (ISIN) allotted by the depository in line with the grade, validity period, warehouse location and expiry.

3. Further processes the information, and ensures the credit of commodity holding to the demat account of the constituent.

4. Ensures that the credit of commodities goes only to the demat account of the constituents held with the Exchange empanelled DPs.

5. On receiving a request for re-materialization (physical delivery) through the depository, arranges for issuance of authorisation to the relevant warehouse for the delivery of commodities.

R&T agents also maintain proper records of beneficiary position of constituents holding dematerialized commodities in warehouses and in the depository for a period and also as on a particular date. They are required to furnish the same to the Exchange as and when demanded by the Exchange. R&T agents also do the job of co-ordinating with DPs and warehouses for billing of charges for services rendered on periodic intervals. They also reconcile dematerialized commodities in the depository and physical commodities at the warehouses on periodic basis and co-ordinate with all parties concerned for the same.

Approved assayer

The Exchange specifies approved assayers through whom grading of commodities (received at approved warehouses for delivery against deals made on the Exchange) can be availed by the constituents of clearing members. Assayers perform the following functions:

1. Make available grading facilities to the constituents in respect of the specific commodities traded on the Exchange at specified warehouse. The assayer ensures that the grading to be done (in a certificate format prescribed by the Exchange) in respect of specific commodity is as per the norms specified by the Exchange in the respective contract specifications.

2. Grading certificate so issued by the assayer specifies the grade as well as the validity period up to which the commodities would retain the original grade, and the time up to which the commodities are fit for trading subject to environment changes at the warehouses.

9.3 Risk Management

NCDEX has developed a comprehensive risk containment mechanism for its commodity futures market. The salient features of risk containment mechanism are:

1. The financial soundness of the members is the key to risk management. Therefore, the requirements for membership in terms of capital adequacy (net worth, security deposits) are quite stringent.

2. NCDEX charges an upfront initial margin for all the open positions of a member. It specifies the initial margin requirements for each futures contract on a daily basis. It also follows value-at-risk (VaR) based margining through SPAN. The PCMs and TCMs in turn collect the initial margin from the TCMs and their clients respectively.

3. The open positions of the members are marked to market based on contract settlement price for each contract. The difference is settled in cash on a T+1 basis.

4. A member is alerted of his position to enable him to adjust his exposure or bring in additional capital. Position violations result in withdrawal of trading facility and reinstated only after violation(s) rectified.

5. To safeguard the interest of those trading on the Exchange platform, an Investor Protection Fund is also maintained.

The most critical component of risk containment mechanism for futures market on the NCDEX is the margining system and on-line position monitoring. The actual position monitoring and margining is carried out on-line through the SPAN (Standard Portfolio Analysis of Risk) system.

9.4 Margining At NCDEX

In pursuance of the bye-laws, rules and regulations, the Exchange has defined norms and procedures for margins and limits applicable to members and their clients. The margining system for the commodity futures trading on the NCDEX is explained below.

9.4.1 SPAN

SPAN (Standard Portfolio Analysis of Risk) is a registered trademark of the Chicago Mercantile Exchange, used by NCDEX under license obtained from CME. The objective of SPAN is to identify overall risk in a portfolio of all futures contracts for each member. Its over-riding objective is to determine the largest loss that a portfolio might reasonably be expected to suffer from one day to the next day based on 99.95% confidence interval VaR methodology.

9.4.2 Initial Margin

This is the amount of money deposited by both buyers and sellers of futures contracts to ensure performance of trades executed. Initial margin is payable on all open positions of trading cum clearing members, up to client level, at any point of time, and is payable upfront by the members in accordance with the margin computation mechanism and/ or system as may be adopted by the Exchange from time to time. Initial margin includes SPAN margins and such other additional margins that may be specified by the Exchange from time to time.

9.4.3 Computation of Initial Margin

The Exchange has adopted SPAN (Standard Portfolio Analysis of Risk) system for the purpose of real-time initial margin computation. Initial margin requirements are based on 99.95% VaR (Value at Risk) over a one-day time horizon.

Initial margin requirements for a member for each contract are as under:

1. *For client positions:* These are netted at the level of individual client and grossed across all clients, at the member level without any set-offs between clients.

2. *For proprietary positions:* These are netted at member level without any set-offs between client and proprietary positions.

Consider the case of a trading member who has proprietary and client-level positions in an April 2010 gold futures contract. On his proprietary account, he bought 3000 trading units and sold 1000 trading units within the day. On account of client A, he bought 2000 trading units at the beginning of the day and sold 1500 units an hour later. And on account of client B, he sold 1000 trading units. Table 9.3 gives the total outstanding position for which the TCM would be margined.

Table 9.3 Calculating outstanding position at TCM level

Account	Number of units bought	Number of units sold	Outstanding position
Proprietary	3000	1000	Long 2000
Client A	2000	1500	Long 500
Client B		1000	Short 1000
Net outstanding position			3500

9.4.4 Implementation Aspects of Margining and Risk Management

We look here at some implementation aspects of the margining and risk management system for trading on NCDEX.

1. *Mode of payment of initial margin:* Margins can be paid by the members in cash, or in collateral security deposits in the form of bank guarantees, fixed deposits receipts and approved Government of India securities.

2. *Payment of initial margin:* The initial margin is payable upfront by members.

3. *Effect of failure to pay initial margins:* Non-fulfillment of either the whole or part of the initial margin obligations is treated as a violation of the rules, bye-laws and regulations of the Exchange and attracts penal charges as stipulated by NCDEX from time to time.

4. *Exposure limits:* This is defined as the maximum open position that a member can take across all contracts and is linked to the effective deposits of the member available with the Exchange. The member is not allowed to trade once the exposure limits have been exceeded on the Exchange. The trader workstation of the member is disabled and trading permitted only on enhancement of exposure limits by deposit of additional capital or reduction of existing positions.

   (a) *Liquid networth:* Typically Liquid networth is defined as effective deposits less initial margin payable at any point in time. The minimum cash maintained by the members at any point in time as part of the base capital requirements cannot be less than Rs. 15 lakh or such other amount, as may be specified by the Exchange from time to time.

   (b) *Effective deposits:* This includes all deposits made by the members in the form of cash, cash equivalents and collaterals form the effective deposits. For the purpose of computing effective deposits, cash equivalents mean bank guarantees, fixed deposit receipts and Government of Indian securities.

   (c) *Position limits:* Position limit is specified at a member and client level for a commodity and for near month contracts. Typically member level limits are 3-5 times of the client level limits or 15% of the market open interest, whichever is higher. The position limits are prescribed by the FMC from time to time.

   (d) *Calendar spread positions:* In case of calendar spread positions in futures contracts are treated as open position of one third of the value of the far month futures contract. However the spread positions is treated as a naked position in far month contract three trading days prior to expiry of the near month contract.

5. *Imposition of additional margins and close out of open positions:* As a risk containment measure, the Exchange may require the members to make payment of additional margins as may be decided from time to time. This is in addition to the initial margin, which is or may have been imposed. The Exchange may also require the members to reduce/ close out open positions to such levels and for such contracts as may be decided by it from time to time.

6. *Failure to pay additional margins:* Non-fulfilment of either the whole or part of the additional margin obligations is treated as a violation of the rules, bye-Laws and regulations of the Exchange and attracts penal charges as stipulated by NCDEX.

7. *Return of excess deposit:* Members can request the Exchange to release excess deposits held by it or by a specified agent on behalf of the Exchange. Such requests may be considered by the Exchange subject to the bye-laws, rules and regulations.

8. *Initial margin deposit or additional deposit or additional base capital:* Members who wish to make a margin deposit (additional base capital) with the Exchange and/ or wish to retain deposits and/ or such amounts which are receivable by them from the Exchange, at any point of time, over and above their deposit requirement towards initial margin and/ or other obligations, must inform the Exchange as per the procedure.

9. *Position limits:* Position wise limits are the maximum open positions that a member or his constituents can have in any commodity at any point of time. This is calculated as the higher of a specified percentage of the total open interest in the commodity or a specified value.

10. *Intra-day price limit:* The maximum price movement allowed during a day is +/- x% of the previous day's settlement price prescribed for each commodity.

    (a) *Daily settlement price:* The daily profit/losses of the members are settled using the daily settlement price. The daily settlement price notified by the Exchange is binding on all members and their constituents.

    (b) *Mark-to-market settlement:* All the open positions of the members are marked to market at the end of the day and the profit/loss determined as below: (a) On the day of entering into the contract, it is the difference between the entry value and daily settlement price for that day. (b) On any intervening days, when the member holds an open position, it is the difference between the daily settlement value for that day and the previous day's settlement price. (c) On the expiry date if the member has an open position, it is the difference between the final settlement price and the previous day's settlement price.

11. *Intra-day margin call:* The Exchange at its discretion can make intra day margin calls as risk containment measure if, in its opinion, the market price changes sufficiently. For example, it can make an intra-day margin call if the intra day price limit has been reached, or any other situation has arisen, which in the opinion of the Exchange could result in an enhanced risk. The Exchange at its discretion may make selective margin calls, for example, only for those members whose variation losses or initial margin deficits exceed a threshold value prescribed by the Exchange.

12. *Delivery margin:* In case of positions materialising into physical delivery, delivery margins are calculated as N days VaR margins plus additional margins. N days refer to the number of days for completing the physical delivery settlement. The number of days are commodity specific, as described or as may be prescribed by the Exchange from time to time. There is a mark up on the VaR based delivery margin to cover for default.

9.4.5 Effect of violation

Whenever any of the margin or position limits are violated by members, the Exchange can withdraw any or all of the membership rights of members including the withdrawal of trading facilities of all members and/ or clearing facility of custodial participants clearing through such trading cum members, without any notice. In addition, the outstanding positions of such member and/ or constituents clearing and settling through such member can be closed out at any time at the discretion of the Exchange. This can be done without any notice to the member and/ or constituent. The Exchange can initiate further risk containment measures with respect to the open positions of the member and/ or constituent. These could include imposing penalties, collecting appropriate deposits, invoking bank guarantees/ fixed deposit receipts, realizing money by disposing off the securities, and exercising such other risk containment measures it considers necessary.

CHAPTER 10: Regulatory Framework

At present, there are three tiers of regulations of forward/futures trading system in India, namely, Government of India, Forward Markets Commission (FMC) and Commodity Exchanges. The need for regulation arises on account of the fact that the benefits of futures markets accrue in competitive conditions. Proper regulation is needed to create competitive conditions. In the absence of regulation, unscrupulous participants could use these leveraged contracts for manipulating prices. This could also have undesirable influence on the spot prices, thereby affecting interests of society at large. Regulation is also needed to ensure that the market has appropriate risk management system. In the absence of such a system, a major default could create a chain reaction. The resultant financial crisis in a futures market could create systematic risk. Regulation is also needed to ensure fairness and transparency in trading, clearing, settlement and management of the Exchange so as to protect and promote the interest of various stakeholders, particularly non-member users of the market.

10.1 Rules Governing Commodity Derivatives Exchanges /Participants

The trading of commodity derivatives on the NCDEX is regulated by Forward Markets Commission (FMC). In terms of Section 15 of the Forward Contracts (Regulation) Act, 1952 (the Act), forward contracts in commodities notified under section 15 of the Act can be entered into only by or through a member of a recognized association, i.e, commodity exchange as popularly known. The recognized associations/commodity exchanges are granted recognition under the Act by the central government (Department of Consumer Affairs, Ministry of Consumer Affairs, Food and Public Distribution). All the Exchanges, which permit forward contracts for trading, are required to obtain certificate of registration from the Central Government. The other legislations which have relevance to commodity trading are the Companies Act, Stamp Act, Contracts Act, Essential Commodities Act 1955, Prevention of Food Adulteration Act, 1954 and various other legislations, which impinge on their working.

Forward Markets Commission provides regulatory oversight in order to ensure financial integrity (i.e. to prevent systematic risk of default by one major operator or group of operators), market integrity (i.e. to ensure that futures prices are truly aligned with the prospective demand and supply conditions) and to protect and promote interest of customers/ non-members. Some of the regulatory measures by Forward Markets Commission include:

1. Limit on net open position as on the close of the trading hours. Some times limit is also imposed on intra-day net open position. The limits are imposed member- wise and client wise.

2. Circuit-filters or limit on price fluctuations to allow cooling of market in the event of abrupt upswing or downswing in prices.

3. Special margin deposit to be collected on outstanding purchases or sales when price moves up or down sharply above or below the previous day closing price. By making further purchases/sales relatively costly, the price rise or fall is sobered down. This measure is imposed by the Exchange (FMC may also issue directive).

4. Circuit breakers or minimum/maximum prices: These are prescribed to prevent futures prices from falling below as rising above not warranted by prospective supply and demand factors. This measure is also imposed on the request of the exchanges (FMC may also issue directive).

5. Stopping trading in certain derivatives of the contract, closing the market for a specified period and even closing out the contract. These extreme measures are taken only in emergency situations.

Besides these regulatory measures, a client's position cannot be appropriated by the member of the Exchange. No member of an Exchange can enter into a forward contract on his own account with a non-member unless such member has secured the consent of the non-member in writing to the effect that the sale or purchase is on his own account. The FMC is persuading increasing number of exchanges to switch over to electronic trading, clearing and settlement, which is more safe and customer-friendly. The FMC has also prescribed simultaneous reporting system for the exchanges following open out-cry system. These steps facilitate audit trail and make it difficult for the members to indulge in malpractices like trading ahead of clients, etc. The FMC has also mandated all the exchanges following open outcry system to display at a prominent place in exchange premises, the name, address, telephone number of the officer of the commission who can be contacted for any grievance. The website of the commission also has a provision for the customers to make complaint and send comments and suggestions to the FMC. Officers of the FMC meet the members and clients on a random basis, visit exchanges, to ascertain the situation on the ground to bring in development in any area of operation of the market.

10.2 Rules Governing Trading On Exchange

The Forward Markets Commission (FMC) is the Regulatory Authority for futures market under the Forward Contracts (Regulation) Act 1952. In addition to the provisions of the Forward Contracts (Regulation) Act 1952 and rules framed thereunder, the exchanges and participants of futures market are governed by the Rules and Bye laws of the respective exchanges, which are published in the Official Gazette and Regulations if any (all approved by the FMC). In this section, we shall have a brief look at the important regulations that govern NCDEX (Exchange). For the sake of convenience, these have been divided into two main divisions pertaining to trading and clearing. The detailed Rules, Bye-laws and Regulations are available on the NCDEX website home page.

10.2.1 Trading

The NCDEX provides an automated trading facility in all the commodities admitted for dealings on the derivative market. Trading on the Exchange is allowed only through approved workstation(s) located at locations for the office(s) of a trading member as approved by the Exchange. The LAN or any other mode of connectivity to other workstations at any place connecting an approved workstation of a trading member shall require an approval of the Exchange.

Each trading member is required to have a unique identification number which is assigned by the Exchange and which will be used to log on (sign on) to the trading system. Trading member has a non-exclusive permission to use the trading system as provided by the Exchange in the ordinary course of business as trading member. He does not have any title rights or interest whatsoever with respect to the trading system, its facilities, software and the information provided by the trading system.

For the purpose of accessing the trading system, the member will install and use equipment and software as specified by the Exchange at his own cost. The Exchange has the right to inspect equipment and software used for the purposes of accessing the trading system at any time. The cost of the equipment and software supplied by the Exchange, installation and maintenance of the equipment is borne by the trading member.

Trading members and users

Trading members are entitled to appoint, (subject to such terms and conditions, as may be specified by the relevant authority of the Exchange) from time to time -

- Authorised persons
- Approved users

Trading members have to pass a certification program, which has been prescribed by the Exchange. In case of trading members, other than individuals or sole proprietorships, such certification program has to be passed by at least one of their directors/ employees/ partners / members of governing body.

Each trading member is permitted to appoint a certain number of approved users as notified from time to time by the Exchange.

The appointment of approved users is subject to the terms and conditions prescribed by the Exchange. Each approved user is given a unique identification number through which he will have access to the trading system. An approved user can access the trading system through a password and can change the password from time to time.

The trading member or its approved users are required to maintain complete secrecy of its

password. Any trade or transaction done by use of password of any approved user of the trading member, will be binding on such trading member. Approved user shall be required to change his password at the end of the password expiry period.

Trading days

The Exchange operates on all days except Sunday and on holidays declared from time to time. The types of order books, trade books, price limits, matching rules and other parameters pertaining to each or all of these sessions are specified by the Exchange to the members via its circulars or notices issued from time to time. Members can place orders on the trading system during these sessions, as permitted under the Bye-laws and Regulations prescribed by the Exchange.

Trading hours and trading cycle

The Exchange announces the normal trading hours/ open period in advance from time to time. In case necessary, the Exchange can extend or reduce the trading hours by notifying the members. Trading cycle for each commodity/ derivative contract has a standard period, during which it will be available for trading.

Contract expiration

Derivatives contracts expire on a pre-determined date and time up to which the contract is available for trading. This is notified by the Exchange in advance. The contract expiration period will not exceed twelve months or as the Exchange may specify from time to time.

Trading parameters

The Exchange from time to time specifies various trading parameters relating to the trading system. Every trading member is required to specify the buy or sell orders as either an open order or a close order for derivatives contracts. The Exchange also prescribes different order books that shall be maintained on the trading system and also specifies various conditions on the order that will make it eligible to place it in those books.

The Exchange specifies the minimum quantity for orders that will be allowed for each commodity/ derivatives contract. It also prescribes the number of days after which `Good Till Cancelled' orders will be cancelled by the system. The Exchange also specifies parameters like lot size in which orders can be placed, tick size in which orders shall be entered on the trading system, position limits in respect of each commodity etc.

Failure of trading member terminal

In the event of failure of trading member's workstation and/ or the loss of access to the trading system, the Exchange can at its discretion undertake to carry out on behalf of the trading member the necessary functions which the trading member is eligible for. Only requests made

in writing in a clear and precise manner by the trading member would be considered. The trading member is accountable for the functions executed by the Exchange on its behalf and has to indemnity the Exchange against any losses or costs incurred by the Exchange.

Trade operations

Trading members have to ensure that appropriate confirmed order instructions are obtained from the constituents before placement of an order on the system. They have to keep relevant records or documents concerning the order and trading system order number and copies of the order confirmation slip/modification slip must be made available to the constituents.

The trading member has to disclose to the Exchange at the time of order entry whether the order is on his own account or on behalf of constituents and also specify orders for buy or sell as open or close orders. Trading members are solely responsible for the accuracy of details of orders entered into the trading system including orders entered on behalf of their constituents.

Trades generated on the system are irrevocable and `locked in'. The Exchange specifies from time to time the market types and the manner if any, in which trade cancellation can be effected. Where a trade cancellation is permitted and trading member wishes to cancel a trade, it can be done only with the approval of the Exchange.

Margin requirements

Every clearing member, has to deposit a margin with the Exchange in respect of the trades to which he is party, in the manner prescribed by or under the provisions as contained in the Exchange Bye-laws and Regulations as may be in force, .

The Exchange prescribes from time to time the commodities derivative contracts, the settlement periods and trade types for which margin would be attracted. The Exchange levies initial margin on derivatives contracts using the concept of Value at Risk (VaR) or any other concept as the Exchange may decide from time to time. The margin is charged so as to cover one-day loss that can be encountered on the position. Additional margins may be levied for deliverable positions, on the basis of VaR from the expiry of the contract till the actual settlement date plus a mark-up for default.

The margin has to be deposited with the Exchange within the time notified by the Exchange. The Exchange also prescribes categories of securities that would be eligible for a margin deposit, as well as the method of valuation and amount of securities that would be required to be deposited against the margin amount.

The procedure for refund/ adjustment of margins is also specified by the Exchange from time to time. The Exchange can impose upon any particular trading member or category of trading member any special or other margin requirement. On failure to deposit margin/s as required under this clause, the Exchange/clearing house can withdraw the trading facility of the trading member. After the pay-out, the clearing house releases all margins.

Unfair trading practices

No trading member shall buy, sell, deal in derivatives contracts in a fraudulent manner, or indulge in any market manipulation, unfair trade practices, including the following:

- Effect, take part either directly or indirectly in transactions, which are likely to have effect of artificially, raising or depressing the prices of spot/ derivatives contracts.
- Indulge in any act, which is calculated to create a false or misleading appearance of trading, resulting in reflection of prices, which are not genuine.
- Buy, sell commodities/ contracts on his own behalf or on behalf of a person associated with him pending the execution of the order of his constituent or of his company or director for the same contract.
- Delay the transfer of commodities in the name of the transferee.
- Indulge in falsification of his books, accounts and records for the purpose of market manipulation.
- When acting as an agent, execute a transaction with a constituent at a price other than the price at which it was executed on the Exchange.
- Either take opposite position to an order of a constituent or execute opposite orders which he is holding in respect of two constituents except in the manner laid down by the Exchange.

10.2.2 Clearing

National Commodity Clearing Limited (NCCL) as the clearing house, undertakes clearing of trades executed on the NCDEX platform. All deals executed on the Exchange are cleared and settled by the trading members on the settlement date by the trading members themselves as clearing members or through other professional clearing members in accordance with the Regulations, Bye laws and Rules of the Exchange.

Last day of trading

Last trading day for a derivative contract in any commodity is the date as specified in the respective commodity contract specifications. If the last trading day as specified in the respective commodity contract is a holiday, the last trading day is taken to be the previous working day of Exchange.

For contracts with Sellers option & Intention matching contract, the trading members/ clearing members have to give delivery information as prescribed by the Exchange from time to time. If a trading member/ clearing member fail to submit such information as permitted by the Exchange, the deals have to be settled in accordance with the settlement calendar applicable for such deals, in cash together with penalty as stipulated by the Exchange.

For contracts having compulsory delivery, all the open positions at end of trading hours on the expiry date of the contracts, will crystalise in to delivery obligations and the members have to meet the obligation as per the settlement calendar notified by the Exchange by giving or taking delivery as the case may be, of the commodity.

Delivery

During the specified period as per settlement calender, the Exchange provides a window on the trading system to submit delivery information for all open positions for contracts having Sellers option & Intention matching contract. For contracts having compulsory delivery, all the members having open positions at the end of trading hours on the expiry date of the contracts, will have to give or take delivery as the case may be.

After the trading hours on the expiry date, based on the available information, the matching for deliveries takes place. Matching done on the basis of procedure of the Exchange is binding on the clearing members. After completion of the matching process, clearing members are informed of the deliverable / receivable positions and the unmatched positions. Unmatched positions have to be settled in cash.

The cash settlement is only for the incremental gain/ loss as determined on the basis of the final settlement price. All matched and unmatched positions are settled in accordance with the applicable settlement calendar.

The Exchange may allow an alternate mode of settlement between the constituents directly provided that both the constituents through their respective clearing members notify the Exchange before the closing of trading hours on the expiry date. They have to mention their preferred identified counter-party and the deliverable quantity, along with other details required by the Exchange. The Exchange however, is not responsible or liable for such settlements or any consequence of such alternate mode of settlements. If the information provided by the buyer/ seller clearing members fails to match, then the open position would be treated in same way as other open positions and are settled together with penalty (If any) as may be stipulated by the Exchange.

The clearing members are allowed to deliver their obligations post expiry of the contract, but before the pay in date as per applicable settlement calendar, whereby the clearing house can reduce the margin requirement to that extent.

The Exchange specifies the parameters and methodology for premium/ discount, as the case may be, from time to time for the quality/ quantity differential, sales tax, taxes, government levies/ fees if any. Pay in/ Pay out for such additional obligations are settled through supplemental settlement date as specified in the settlement calendar.

Procedure for payment of sales tax/VAT

The Exchange prescribes the procedure for sales tax/VAT settlement applicable to the deals culminating into sale with physical delivery of commodities.

All members have to ensure that their respective constituents, who intend to take or give delivery of commodity, are registered with sales tax authorities of the State/s where the delivery center for a particular commodity is situated and where delivery is allocated. Members shall have themselves registered with the respective Sales Tax/VAT authorities for giving or taking delivery on his own account and shall have to maintain records/details of sales tax registration of each of its constituent giving or taking delivery and shall furnish the same to the Exchange as and when required.

The seller is responsible for payment of sales tax/VAT, however the seller is entitled to recover from the buyer, the sales tax and other taxes levied under the local state sales tax law to the extent permitted by law. In no event shall the Exchange/ clearing house be liable for payment of Sales Tax/ VAT or any other local tax, fees, levies etc.

Penalties for defaults

In the event of a default by the seller in delivery of commodities, the Exchange closes out the derivatives contracts and imposes penalties on the defaulting seller. In case of default by a buying member penalty as prescribed by the Exchange is levied on the member till such time that the buyer does not bring in the funds. However it may be noted that buyers default are not permitted by Exchange and amount will be recovered as pay-in shortages together with penalty. It can also use the margins deposited by such clearing member to recover the loss.

Process of dematerialization

Dematerialization refers to issue of an electronic credit, instead of a vault/ warehouse receipt, to the depositor against the deposit of commodity. Any person (a constituent) seeking to dematerialize a commodity has to open a demat account with an approved Depository Participant (DP). The Exchange provides the list of approved DPs from time to time. In case of commodities (other than precious metals), the constituent delivers the commodity to the Exchange-approved warehouses. The commodity brought by the constituent is checked for the quality by the Exchange-approved assayers before the deposit of the same is accepted by the warehouse. If the quality of the commodity is as per the norms defined and notified by the Exchange from time to time, the warehouse accepts the commodity and sends confirmation in the requisite format to the Registrar & Transfer (R&T) agent who upon verification, confirms the deposit of such commodity to the depository for giving credit to the demat account of the said constituent.

In case of precious metals, the commodity must be accompanied with the packing list / shipping certificate. The vault accepts the precious metal, after verifying the contents of the certificate

with the precious metal being deposited. On acceptance, the vault issues an acknowledgement to the constituent and sends confirmation in the requisite format to the R&T agent who upon verification, confirms the deposit of such precious metal to the depository for giving credit to the demat account of the said constituent.

Validity date

In case of commodities having validity date assigned to it by the approved assayer, the delivery of the commodity upon expiry of validity date is not considered as a good delivery and such commodities are suspended from delivery. The clearing member has to ensure that his concerned constituent revalidates the commodities for all such commodities to make them deliverable on the Exchange.

Final Expiry Date (FED)

All the commodities deposited in the warehouse are given an FED. The commodities can not be revalidated after the FED.

For the depository, commodities, which have reached the FED, are moved out of the electronic deliverable quantity. Such commodities are suspended from delivery. The constituent has to rematerialize such quantity and remove the same from the warehouse. Failure to remove commodities after FED from the warehouse may be levied a penalty as specified by the relevant authority from time to time.

Process of rematerialisation

Re-materialization refers to issue of physical delivery against the credit in the demat account of the constituent. The constituent seeking to rematerialize his commodity holding has to make a request to his DP in the prescribed format and the DP then routes his request through the depository system to the R&T agent, R&T issues the authorisation addressed to the vault/ warehouse to release physical delivery to the constituent. The vault/warehouse on receipt of such authorization releases the commodity to the constituent or constituent's authorised person upon verifying the identity.

Delivery through the depository clearing system

Delivery in respect of all deals for the clearing in commodities happens through the depository clearing system. The delivery through the depository clearing system into the account of the buyer with the DP is deemed to be delivery, notwithstanding that the commodities are located in the warehouse along with the commodities of other constituents.

Payment through the clearing bank

Payment in respect of all deals for the clearing has to be made through the clearing bank(s); provided however that the deals of sales and purchase executed between different constituents

of the same clearing member in the same settlement, shall be offset by process of netting to arrive at net obligations.

Clearing and settlement process

The relevant authority from time to time fixes the various clearing days, the pay-in and pay-out days and the scheduled time to be observed in connection with the clearing and settlement operations of deals in commodities futures contracts.

1. Settlement obligations statements for TCMs: The Exchange generates and provides to each trading clearing member, settlement obligations statements showing the quantities of the different kinds of commodities for which delivery/ deliveries is/ are to be given and/ or taken and the funds payable or receivable by him in his capacity as clearing member and by professional clearing member for deals made by him for which the clearing member has confirmed acceptance to settle. The obligations statement is deemed to be confirmed by the trading member for which deliveries are to be given and/ or taken and funds to be debited and/ or credited to his account as specified in the obligations statements and deemed instructions to the clearing banks/ institutions for the same.
2. Settlement obligations statements for PCMs: The Exchange/ clearing house generates and provides to each professional clearing member, settlement obligations statements showing the quantities of the different kinds of commodities for which delivery/ deliveries is/ are to be given and/ or taken and the funds payable or receivable by him. The settlement obligation statement is deemed to have been confirmed by the said clearing member in respect of each and all obligations enlisted therein.

Delivery of commodities

Based on the settlement obligations statements, the Exchange generates delivery statement and receipt statement for each clearing member. The delivery and receipt statement contains details of commodities to be delivered to and received from other clearing members, the details of the corresponding buying/ selling constituent and such other details. The delivery and receipt statements are deemed to be confirmed by respective member to deliver and receive on account of his constituent, commodities as specified in the delivery and receipt statements.

On respective pay-in day, clearing members effect depository delivery in the depository clearing system as per delivery statement in respect of depository deals. Delivery has to be made in terms of the delivery units notified by the Exchange.

Commodities, which are to be received by a clearing member, are delivered to him in the depository clearing system in respect of depository deals on the respective pay-out day as per instructions of the Exchange/ clearing house.

Delivery units

The Exchange specifies from time to time the delivery units for all commodities admitted to dealings on the Exchange. Electronic delivery is available for trading before expiry of the validity date. The Exchange also specifies from time to time the variations permissible in delivery units as per those stated in contract specifications.

Depository clearing system

The Exchange specifies depository(ies) through which depository delivery can be effected and which shall act as agents for settlement of depository deals, for the collection of margins by way of securities for all deals entered into through the Exchange, for any other commodities movement and transfer in a depository(ies) between clearing members and the Exchange and between clearing member to clearing member as may be directed by the relevant authority from time to time.

Every clearing member must have a clearing account with any of the Depository Participants of specified depositories. Clearing Members operate the clearing account only for the purpose of settlement of depository deals entered through the Exchange, for the collection of margins by way of commodities for deals entered into through the Exchange. The clearing member cannot operate the clearing account for any other purpose.

Clearing members are required to authorize the specified depositories and DP with whom they have a clearing account to access their clearing account for debiting and crediting their accounts as per instructions received from the Exchange and to report balances and other credit information to the Exchange. TCM has to have pool accounts with both the depositories (NSDL and CDSL).

10.3 Rules Governing Investor Grievances, Arbitration

The Exchange has put in place a dispute resolution mechanism by way of arbitration for resolution of disputes between members or between a member and client arising out of transactions on the Exchange. The arbitration mechanism and procedure for reference of disputes to arbitration are detailed in the Exchange Bye-laws and Regulations.

Definitions:

- Arbitrator means a sole arbitrator or a panel of arbitrators.
- Applicant/Claimant means the person who makes the application for initiating arbitral proceedings.
- Respondent means the person against whom the applicant/claimant lodges an arbitration application, whether or not there is a claim against such person.

The Exchange may provide for different seats of arbitration for different regions of the country termed as Regional Arbitration Centres (RACs). The seat of arbitration shall be Mumbai where no RAC has been notified.

JURISDICTION

In matters where the Exchange is a party to the dispute, the civil courts at Mumbai shall have exclusive jurisdiction and in all other matters, proper courts within the area covered under the respective RAC shall have jurisdiction in respect of the arbitration proceedings falling/ conducted in that RAC.

PERIOD FOR REFERENCE OF CLAIMS/DISPUTES

All claims shall have to be referred within six months from the date on which such claim, dispute or difference arose. The time taken by the Exchange for administratively resolving the dispute shall be excluded for the purpose of determining the period of six months.

REFERENCE OF CLAIM

If the value of claim, difference or dispute is more than Rs.50 Lakh on the date of application, then such claim, difference or dispute are to be referred to a panel of three Arbitrators. If the value of the claim, difference or dispute is up to Rs.50 Lakh, then they are to be referred to a sole Arbitrator. Where any claim, difference or dispute arises between agent of the member and client of the agent of the member, in such claim, difference or dispute, the member, to whom such agent is affiliated, is impeded as a party. In case the warehouse refuses or fails to communicate to the constituent the transfer of commodities, the date of dispute is deemed to have arisen on

1. The date of receipt of communication of warehouse refusing to transfer the commodities in favour of the constituent; or
2. The date of expiry of 5 days from the date of lodgment of dematerialized request by the constituent for transfer with the seller;

whichever is later.

10.3.1 Procedure for Arbitration

The applicant has to submit to the Exchange application for arbitration in the specified form (Form No. I/IA) along with the following enclosures:

1. The statement of case (containing all the relevant facts about the dispute and relief sought).
2. The statement of accounts.
3. Copies of member - constituent agreement.
4. Copies of the relevant contract notes, invoice and delivery challan or any other relevant material in support of the claim.

The Applicant has to also submit to the Exchange the following along with the arbitration form:

1. A cheque/ pay order/ demand draft for the deposit payable at the seat of arbitration in favour of National Commodity & Derivatives Exchange Limited.

2. Form No. II/IIA containing list of names of the persons eligible to act as Arbitrators.

Upon receipt of Form No.I/IA, the Exchange forwards a copy of the statement of case along with its enclosures to the respondent. The respondent then has to submit Form II/IIA and also Form III/IIIA (reply) to the Exchange within 7 days from the date of receipt. If the respondent fails to submit the said Forms within the time period prescribed by the Exchange unless the time is extended by the Exchange on request, then the Arbitrator is appointed in the manner as specified Regulation 21 of the Regulations of the Exchange. The respondent has to submit the said Forms to the Exchange in three copies in case of sole Arbitrator to be appointed and five copies in case of panel of Arbitrators depending on the claim amount, along with the following enclosures:

- The statement of reply (containing all available defences to the claim)
- The statement of accounts
- Copies of the member constituent agreement
- Copies of the relevant contract notes, invoice and delivery challan
- Statement of the set-off or counter claim along with statements of accounts and copies of relevant contract notes and bills

The respondent has to submit to the Exchange a cheque/ pay order/ demand draft for the deposit payable at the seat of arbitration in favour of National Commodity & Derivatives Exchange Limited along with **Form No.III/IIIA**. If the respondent fails to submit Form III/IIIA within the prescribed time, then the Arbitrator can proceed with the arbitral proceedings and make the award ex-parte. Upon receiving **the documents as above** from the respondent, the Exchange forwards a copy of the reply to the applicant/claimant. The applicant should within seven days from the date of receipt of the same, submit to the Exchange, his reply including reply to counterclaim, if any, which may have been raised by the respondent in its reply to the applicant/claimant. The Exchange then forwards such reply to the respondent. The time period to file any pleading referred to herein can be extended for such further periods as may be decided by the Exchange in consultation with the Arbitrator depending on the circumstances of the matter. The manner of selection of Arbitrator is detailed in the Regulations of the Exchange.

10.3.2 Hearings and Arbitral Award

No hearing is required to be given to the parties to the dispute if the value of the claim difference or dispute is Rs.75,000 or less. In such a case, the Arbitrator proceeds to decide the

matter on the basis of documents submitted by both the parties provided. However, the Arbitrator for reasons to be recorded in writing may hear both the parties to the dispute.

If the value of claim, difference or dispute is more than Rs.75,000, the Arbitrator offers to hear the parties to the dispute unless both parties waive their right for such hearing in writing.

The Exchange in consultation with the Arbitrator determines the date, time and place of the first hearing. Notice for the first hearing is given at least ten days in advance, unless the parties, by their mutual consent, waive the notice. The Arbitrator determines the date, time and place of subsequent hearings of which the Exchange gives a notice to the parties concerned.

If after the appointment of an Arbitrator, the parties settle the dispute, then the Arbitrator records the settlement in the form of an arbitral award on agreed terms. All fees and charges relating to the appointment of the Arbitrator and conduct of arbitration proceedings are to borne by the parties to the reference equally or in such proportions as may be decided by the Arbitrator.

The costs, if any, are awarded to either of the party in addition to the fees and charges, as decided by the Arbitrator.

The Arbitrator may pronounce an interim arbitral award or interim measures. The arbitral award shall be made within 3 months from the date of entering upon reference by the Arbitrator. However the time limit may be extended by the Exchange for not exceeding 6 months.

CHAPTER 11: Implications Of Sales Tax/Value Added Tax (VAT)

11.1 Sales Tax/VAT

The implications of Sales Tax/Value Added Tax (VAT) for commodity futures are given below:

- Futures contracts are in the nature of agreement to buy or sell at a future date and hence are not liable for payment of VAT/sales tax.
- If the futures contract is closed out and settled between the Constituents prior to the settlement date without actually buying or selling the commodities, there is no liability for payment of VAT/sales tax.
- When the futures contract fructifies into a sale and culminates into delivery, there would be liability for payment of sales tax. This liability will arise in the State in which the warehouse (into which the goods are lodged by the Constituent) is situated when the commodities are delivered to the buyer.

11.2 Sales Tax/VAT Obligations

The Exchange prescribes procedure for payment of sales tax/VAT or any other mandi/state/ local/central tax/fee applicable to the deals culminating into sale with physical delivery of commodities. Members have to ensure that their respective constituents, who intend to take or give delivery of commodity, are registered with sales tax/VAT authorities in all such states, where the Exchange has a delivery center for a particular commodity in which the constituent has or is expected to have open positions. In case the members/constituents are not registered under relevant tax laws with the state in which delivery is affected, they can appoint a Carrying and Forwarding (C&F) agent who would undertake the activities related to the physical delivery of the commodity. Members have to maintain records/details of sales tax/VAT registration of each constituent/agent and furnish the same to the Exchange as and when required.

In the absence of any inter-state movement of commodities, all NCDEX transactions are treated as local sales transactions. The seller and the buyer are deemed to have given and taken deliveries at the delivery center (the warehouse accredited by the Exchange). The sales tax/ VAT of the state where the delivery center is located is applicable to the delivered quantity.

The seller is responsible for payment of sales tax/VAT to the local state government. However, the seller is entitled to recover the sales tax/VAT and other taxes levied under the local state sales tax/VAT law to the extent permitted by law from the buyer in case of sales tax/VAT exclusive contracts. Receiving clients will have to pay sales tax/VAT and other local state taxes to the delivering clients through clearing members. Under no circumstances, the exchange/ clearing house will be liable for payment of sales tax/ VAT or any other local tax, fees, levies

etc. If the buyer opts to move the commodity to a place outside the state of delivery, all necessary formalities have to be completed by the buyer on his own, including the payment of additional tax.

11.2.1 Settlement on account of Sales Tax/VAT

Settlement on account of sales tax/VAT for delivery contracts expiring on 20th of the month is discussed here in detail. Receiving clearing members are required to send sales tax/VAT information along with buying client details by 1500 hours on the next working day after the settlement day (E+3) as per settlement calendar. The data/information submitted by receiving clearing members is processed for accuracy and completeness.

If a receiving member fails to provide sales tax/VAT information within the stipulated time, it is assumed that the delivery is taken by the member himself and accordingly relevant information is provided to corresponding delivering members and the invoices are raised in the name of the receiving member.

Sales tax/VAT information for each delivery transaction submitted by the receiving clearing members is passed on by the Exchange to the concerned delivering clearing members. The buyer client details and sales tax/VAT information (exemption form numbers, if any) as provided in the report are passed on by the delivering clearing member to their seller clients for computing sales tax/VAT obligations and generating invoices. The exchange provides this report to the delivering clearing members by the evening of the next working day after the settlement date. The delivering clearing members are required to provide the information by 1500 Hours on or before the 2nd working day after the settlement date (E+4). Based on the sales tax/VAT information submitted by the delivering clearing member, sales tax/VAT settlement obligation is determined. Sales tax/VAT settlement of funds is completed on 3rd working day after the settlement date (E+5).

If the delivering member fails to submit sales tax/VAT information, it is assumed that there is no sales tax/VAT settlement to be carried out for deliveries made by him.

11.2.2 Sales Tax/VAT Invoice

After the sales tax/VAT obligations are determined, the seller clients have to raise the invoices. Sales tax/VAT will be based on quality/quantity delivered by seller. The Delivery value for sales tax/VAT is computed using the following formula:

Delivered quantity X (Final settlement price + or - Premium/discount for grade actually delivered).

The sales tax/VAT invoice should clearly specify, among other things, the delivery receipt number, the client name and address, the trading member-id of the seller member and buyer member and whether Composite Tax scheme availed. In the Invoice, the VAT component of

sale consideration must be clearly specified. Seller clients must generate and send the invoices through their members to buyer clients through their buying members within 8 business days of the settlement date. If the seller fails to deliver the invoice within the specified time, he will be charged a penalty of Rs. 5000 per month per buyer. If the buyer has availed exemption for payment of tax against the declaration/exemption form, he needs to forward the same to the seller through the clearing members within 5 business days after the sales tax/VAT settlement, that is, within 8 business days of the settlement date.

CHAPTER 12: Electronic Spot Exchange

Currently all agricultural commodities are traded in the physical markets or mandis. The regular practice followed is that on harvest the farmers bring their produce to these mandis and dispose of the same through either bilateral negotiations or through an auction process. Bilateral trade happens largely in those cases where the concerned farmer is indebted to a particular Arathiya or Commission agent. It is a known fact that the farmer gets only a small fraction of what ultimate consumer pays for agricultural commodities and a significant part of their income is consumed in servicing intermediaries in the form of commission, interest burden, transportation and warehousing charges etc. A major portion of the loss in value of commodities due to wastages, pest attack, transportation, storage, handling etc. is again borne by the farmer. Therefore, the NCDEX has taken up an initiative to launch NCDEX Spot Exchange (NSPOT) at the national level. The NCDEX Spot Exchange is a wholly owned subsidiary of the National Commodity & Derivatives Exchange Limited (NCDEX) which is an institutionally promoted, demutualised national level on-line commodity futures exchange. Such a national level platform would help transcend regional and state boundaries and pave the way for participation by concerned entities irrespective of geographical locations. The farmers would stand empowered by virtue of the electronic platform which would extend the reach to buyers across the length and breadth of the country.

12.1 Need For Electronic Online Spot Exchange

- The online, electronic spot market NSPOT will bring the buyers and sellers (Traders and Farmers) closer to each other and help in actual price discovery between the buyer and seller directly.
- NSPOT would facilitate
    a) Wider reach (Not only in the State of residence of farmers but throughout India as against presently local Mandis only). This is likely to fetch higher prices for producers/farmers.
    b) Liquidity - There will be large number of quotes from various buyers and sellers through out the country and hence enhance the liquidity of contracts. Any quantity of goods can be bought and sold instantly.
    c) Counter Party Guarantee-Risk Mitigation - Exchange stands guarantee for payment to seller and for delivery of goods to buyer.
    d) Timely settlement
- The warehousing and online electronic trade will help the buyers and sellers to manage their finances and inventory better. It also enhances holding power of farmers by

providing warehousing facilities at lower cost and also Bank loan facilities till goods are sold.

- NSPOT online electronic trading platform will therefore make the market a transparent, fair and objective marketplace.
- It will also enhance government revenues in the form of higher collection of Mandi Cess as possibility of manipulation and pilferage (lower billing / tempering of rates) is ruled out due to transactions being fully computerized without any human intervention.
- Cooperative movement will get boost as farmers can form cooperative marketing societies who will become members and sell the agriculture produce of small and marginal farmers through process of aggregation etc.

12.2 NCDEX Spot Exchange Ltd. (NSPOT)

NSPOT is a delivery based transparent, real time, online spot exchange of the country. It is established as per the guidelines of Ministry of Consumer Affairs, Government of India. NSPOT is a wholly owned subsidiary of NCDEX which is the leading Indian Agriculture Commodity Derivatives Exchange.

NCDEX SPOT derives its strength from its parent organization (i.e. NCDEX) in creating and managing electronic online trading along with the concomitant risk management system, clearing and delivery process which will immensely contribute building an active, liquid and a vibrant spot price delivery platform for agri as well as non-agri commodities at country level and also be a benchmark for pricing.

In agri-commodities, NSPOT has launched various successful contracts including Sugar-Kolhapur Delivery, Chana-Indore, Bikaner and Sriganganagar; Maize-Davangere, Tur- Gulbarga and Rape Mustard Seed contracts in Sriganganagar and Bikaner. It is in the process to launch the contracts in many other commodities. NSPOT is also one of the leading spot exchanges for trading of precious metals and ferrous metals such as gold, silver and steel.

12.2.1 Constitution of NCDEX Spot Exchange

NSPOT is a public limited company incorporated on 18th Oct 2006 under Companies Act, 1956. It operates under the supervision of an independent Board of Directors of its own and has well established accounting system. The Board of Directors consists of eminent professionals and businessmen from diverse fields and are well versed with working of on-line exchanges. The Board is committed to provide directions to market participants to trade in wide spectrum of spot market products driven by global practices, professionalism and transparency. The Exchange operations are regulated in each State by the rules of respective State Governments and respective APMC Acts apart from various other laws of the land such as Companies Act, Stamp Act, Contract Act etc.

Box 12.12: Commodity Markets

Organized marketing of agricultural commodities has been promoted in the country through a network of regulated markets. Most of the State and Union Territory Governments have enacted legislations (Agriculture Produce Marketing Committee Act) to provide for regulation of agricultural produce markets. There are 7,139 regulated markets in the country as on March 31, 2009. The country has 20,868 rural periodical markets, about 15 per cent of which function under the ambit of regulation.

Services offered by NSPOT

- Electronic spot trading facility in multiple commodities with specific delivery centers
- Grading, quality certification and standardization of commodities
- Facilitating collateral financing and borrowing against warehouse receipts
- Customized services relating to storage, transportation, logistics handling and shipment
- Procurement and disposal of commodities through online trading system
- Market Intelligence Reports

12.2.2 Trading

Various entities can participate on the NSPOT platform such as producers i.e. farmers, traders, bulk consumers, investors, arbitrageurs etc. Any participant desiring to sell or buy on the NSPOT will have to either become a member of NSPOT by complying with the eligibility and other prescribed norms or can opt to be a client with any of the NSPOT members and commence trading. Farmers can also be member themselves if they comply all the requirements or form Cooperative Marketing Societies who can be members and trade.

Trading Process

The participants will need to access the NSPOT trading system either as client through a member or as member of NSPOT.

In case the participant would need to sell, then he will have to deposit the goods in NSPOT pre-notified accredited warehouse before putting a sell order for the corresponding quantity in the NSPOT trading system. The commodity shall be assayed/ tested by the warehouse to ensure that the commodity is as per quality prescribed in the contract specification. The seller will have to specify the quantity and quality which he wants to sell to the Exchange who will after taking the goods in its control by demating electronically, exhibit through the internet on the computer screens throughout the country the quality, deliverable lots and place of delivery to all the members before commencement of trade.

In case any participant would like to buy, he will be required to deposit a margin, as prescribed for the relevant type of contract, with NSPOT through a member of NSPOT in one of the empanelled banks. All orders of sell and buy shall be matched online by process put in place-price time priority basis by NSPOT and all the outstanding trade position at the end of the day will result in delivery obligation on the settlement date which is usually same day, next day, third day and maximum up to 11 days (T,, T+1, T+2, T+3 and ---- Maximum T+11 days) depending on the contract specifications and nature of commodity.

On the settlement date NSPOT will conduct the settlement of contract. i.e. pay in and payout of funds and commodities which means the funds received from buyer will be transferred to seller and goods will be transferred to buyer who can then lift the same from warehouse after proper identification.

Trading Model of NSPOT

NSPOT marked its beginning in Dec 2007 by commencing trading of Sugar in Maharashtra followed by Chana in Madhya Pradesh, Pepper in Kerala, Tur Dal and Maize in Karnataka, Castor Seed in Gujarat and Rape-Mustard Seed in Rajasthan using Daily Net Settlement (DNS) system. NSPOT look forward to further extend its presence in many other States.

The company now provides a dynamic trading environment by offering following trading platforms:

1. **Continuous market:** A continuous market offers direct buying and selling opportunity during the trading hours on the spot exchange. Most of the trades on the continuous market at NCDEX Spot Exchange with Daily Net Settlement **(DNS)**. All contracts on NCDEX SPOT are compulsory delivery contracts.

2. **Electronic Auctions:** NSPOT offers a dedicated platform for electronic auctions that is different than the continuous market platform. The company offers electronic auctions with counterparty guarantee including clearing and settlement facilities.

3. **Discrete E-Markets:** NSPOT offers unique facility of discrete markets as per the needs of the organizations. e.g. 1. NSPOT developed a discrete market for FCI suiting OMSS scheme. 2. It has developed unique discrete markets for providing e-trading facility for Tur-Gulbarga Farmers. These markets fulfill the unique need of providing e-trade facility for non-standardized goods on NSPOT.

NSPOT is working in collaboration with various state governments and its agencies in establishing the e-trade spot market platform benefiting farmers, processors and other trade participants. NSPOT is working closely with various state governments for setting up e-spot markets in the country.

Table 12.1 highlights select collaborations of NCDEX SPOT with select government agencies:

Table 12.1 : NSPOT Collaborations

Organisation	Nature of Association
HAFED, Haryana	Develop HAFED-NCDEXSPOT e-spot market in Haryana
MSWC, Maharashtra	Provide e-markets to farmers in select districts in Maharashtra
FCI, New Delhi	Empanelled as an e-auction service provider under OMSS scheme
PEC, New Delhi	As a service provider for e-markets in Imported Pulses
Karnataka Govt. Agencies, MYRADA	Setting up e-spot markets to help Tur Growers in Gulbarga, Karnataka
MSAMB	Develop e-spot markets to help growers of Pulses in Maharashtra
Rajasthan State Govt.	Develop e-spot markets for helping Rajasthan Farmers

12.2.3 Membership

NCDEX SPOT memberships are spread all over the country. Its members are present in more than 15 states that covers majority of the key production and trading centers in the country.

NSPOT memberships are designed to encourage maximum participation. It offers the following memberships:

1. Trading and Clearing Members (TCM)
    a. These members can participate on their own account as well as clear trades on behalf of their associate members and clients
    b. Associate Members (AM): An associate member has trading rights only. An AM cannot clear trades on their behalf
2. Commodity Participants (CP)
    a. These memberships are suitable for physical market participants
    b. A CP can trade on their own account only and cannot make associate members/ clients

12.2.4 Advantages

NCDEX SPOT has a pan India presence through its representative offices, warehouse service providers, members and its collaborations with corporate and government agencies. NCDEX SPOT is present in close to 100 locations across 18 states in the country. It is in expansion

mode and would be covering more locations in the country. The benefits of the electronic spot exchange are listed below for select entities:

Benefits to Farmers

- Direct access to a national level transparent market, where direct selling to processors or end users would be feasible
- Realizing the best possible price at the time of sale for agricultural produces
- Counterparty guarantee (Trade and payment guarantee) in continuous markets
- Cost reduction in handling and other activities
- Increase in holding capacity due to availability of warehouse receipt financing
- Increase in bargaining power due to availability of an alternative market

Benefits to Trader

- Common national level platform for buying and selling of commodities
- No counter party risk in trade
- Procurement and disposal of huge quantity possible
- Benefits to Corporates/ Processors/ Exporters/ Importers
- Facilitates bulk procurement operations without counter party and quality risks
- Customized services relating to storage and logistics
- Availability of professional services for grading and standardization
- Complete avoidance of hassles relating to physical market operations

Benefits to Arbitrageurs

- Advantage of cash-future arbitrage electronically
- Disposal of deliveries received on futures market
- Jobbing and spread trading between cash and futures

Benefits to Futures Exchanges

- Transparent spot price available for Due Date Rate calculation
- Ease of moving towards compulsory delivery contracts through structured spot market
- Healthy growth of futures market ensured through development of the structured spot market

MODEL TEST PAPER

COMMODITIES MARKET MODULE

Q:1. Which of the following can be the underlying for a commodity derivative contract? [1 Mark]

(a) Interest Rate
(b) Euro-Indian Rupee
(c) Gold
(d) NIFTY

Q:2. Daily mark to market settlement is done _____. [2 Marks]

(a) Till the date of contract expiry
(b) As long as the contract makes a loss
(c) On the last day of week
(d) On the last trading day of the month

Q:3. _____ is the actual process of exchanging money and goods. [1 Mark]

(a) Transfer
(b) Settlement
(c) Netting
(d) Clearing

Q:4. _____ work at making profits by taking advantage of discrepancy between prices of the same product across different markets. [2 Marks]

(a) Arbitragers
(b) Speculators
(c) Exchange
(d) Hedgers

Q:5. A forward contract is an agreement between two entities to buy or sell the underlying asset at a future date, at today's pre-agreed price. [2 Marks]

(a) FALSE
(b) TRUE

Q:6. Options trading in commodity take place in Indian commodity exchanges. [1 Mark]

(a) TRUE
(b) FALSE

Q:7. Commodity exchanges enable producers and consumer to hedge their _____ given the uncertainty of the future. [1 Mark]

(a) seasonal risk
(b) profit risk
(c) production risk
(d) price risk

Q:8. Which of the following is not true about the national level exchanges? [2 Marks]

(a) Offers online trading
(b) Recognised on permanent basis
(c) Offers single commodity for trading
(d) Volumes higher than regional exchanges

Q:9. Which of the following Exchange does not offer derivative trading in Soybean? [2 Marks]

(a) LME
(b) NCDEX
(c) CBOT
(d) MCX

Q:10. _____ Exchanges provide real time, online, transparent and vibrant spot platform for commodities. [1 Mark]

(a) Electronic Spot
(b) Regional
(c) Futures
(d) Stock

Q:11. _____can only trade through their account or on account of their clients and however clear their trade through PCMs/STCMs. [1 Mark]

(a) Trading cum Clearing Member
(b) Trading Member
(c) Commodity Participant
(d) Associate Member

Q:12. Trading cum Clearing member can carry out transactions on their own account and also on their clients account. [2 Marks]

(a) FALSE
(b) TRUE

Q:13. The minimum networth requirement for PCM on the NCDEX is _____. [2 Marks]

(a) 50 Lacs
(b) 500 Lacs
(c) 5000 Lacs
(d) 5 lacs

Q:14. Members can opt to meet the security deposit requirement by way of _____. [2 Marks]

(a) Cash
(b) Bank Guarantee
(c) Fixed Deposit Receipts
(d) All of the above

Q:15. In the case of certain commodities llike gold and silver, delivery is staggered over last _____ days of the contract. [2 Marks]

(a) Two
(b) Three
(c) Five
(d) Thirteen

Q:16. The cash settlement is only for the incremental gain/ loss as determined on the basis of _____. [1 Mark]

(a) Final settlement price
(b) Average price for the day
(c) Opening price.
(d) Last traded price

Q:17. Unit of trading for Wheat at NCDEX is _____. [1 Mark]

(a) 1 MT
(b) 3 MT
(c) 1 kg
(d) 10 MT

Q:18. Some of the futures contract traded on NCDEX expires on day other than 20th of the month. [1 Mark]

(a) True
(b) False

Q:19. By using the currency forward market to sell dollars forward, an _____ can lock on to a rate today and reduce his uncertainty. [1 Mark]

(a) Importer
(b) Speculator
(c) Exporter
(d) Arbitrager

Q:20. _____ is the last day on which the futures contract will be traded, at the end of which it will cease to exist. [1 Mark]

(a) Redemption Date
(b) Expiry Date
(c) Exercise Date
(d) Maturity Date

Q:21. "A _____option gives the holder the right but not the obligation to buy an asset by a certain date for a certain price." [1 Mark]

(a) Put
(b) ITM
(c) OTM
(d) Call

Q:22. Forward contracts are bilateral contracts and hence exposed to counter party risk. [1 Mark]

(a) TRUE
(b) FALSE

Q:23. An _____ option is an option that would lead to a zero cash flow to the holder if it were exercised immediately. [1 Mark]

(a) In the money
(b) At the money
(c) Out of the money
(d) Put

Q:24. A call option with a strike price of 150 trades in the market at premium of Rs.12. The spot price is Rs.160. The time value of the option is Rs._____. [2 Marks]

(a) 12
(b) 10
(c) 2
(d) 8

Q:25. A put option with a strike price of 150 trades in the market at Rs.8. The spot price is Rs.160. The intrinsic value of the option is Rs._____. [2 Marks]

(a) 0

(b) 8

(c) 2

(d) 10

Q:26. A trader buys three-month put options on 1 unit of gold with a strike of Rs.17000/10 gms at a premium of Rs.70. Unit of trading is 1kg. On the day of expiration, the spot price of gold is Rs.16800/10 gms. What is his net payoff? [4 Marks]

(a) (+) 13,000

(b) (+) 20,000

(c) (-) 13,000

(d) (-) 20,000

Q:27. One unit of trading for Guar Seed futures is 10 MT and delivery unit is 10 MT. A trader sells 1 unit of Guar Seed at Rs.2500/Quintal on the futures market. A week later Guar Seed futures trade at Rs.2550/Quintal. How much profit/loss has he made on his position? [2 Marks]

(a) (-)5000

(b) (+)5000

(c) (+)50,000

(d) (-)50,000

Q:28. The _____ position is considered for exposure and daily margin purposes. [2 Marks]

(a) Short

(b) Long

(c) Net

(d) Open

Q:29. Whenever the futures price moves away from the fair value, there would be opportunity for arbitrage. [2 Marks]

(a) FALSE

(b) TRUE

Q:30. Consider a three-month futures contract on gold. The fixed charge is Rs.310 per deposit and the variable storage costs are Rs.52.5 per week. Assume that the storage costs are paid at the time of deposit. Assume further that the spot gold price is Rs.15000 per 10 grams and the risk-free rate is 7% per annum. What would the price of three month gold futures if the delivery unit is one kg? Assume that 3 months are equal to 13 weeks. [4 Marks]

(a) 15,27,491
(b) 16,24,511
(c) 17,41,200
(d) 15,00,200

Q:31. On the 15th of June a firm involved in spices exports knows that it will receive 3 MT of Pepper on August 15. The spot price of pepper is Rs.12680 per kg and the August Pepper futures price is Rs.13930. A unit of trading is 1 MT and the delivery unit is 1 MT. The exporter can hedge his position by _____. [4 Marks]

(a) Buying 3 unit of August pepper futures
(b) Buying 15 units of August Pepper futures
(c) Selling 3 unit of August Pepper futures
(d) Selling 15 units of August Pepper futures559.46

Q:32. A company knows that it will require 33,000 MT of Wheat in three months. The hedge ratio works out to be 0.75. The unit of trading is 10 MT and the delivery unit for wheat on the NCDEX is 10 MT. The company can obtain a hedge by _____. [4 Marks]

(a) buying 450 units of three-month wheat futures.
(b) selling 2475 units of three-month wheat futures
(c) selling 450 units of three-month wheat futures.
(d) buying 2475 units of three-month wheat future

Q:33. Gold trades at Rs.16000 per 10 gms in the spot market. Three-month gold futures trade at Rs.16150. One unit of trading is 1kg and the delivery unit for the gold futures contract on the NCDEX is 1 kg. A speculator who expects gold prices to rise in the near future buys 1 unit of gold futures. Two months later gold futures trade at Rs.15900 per 10 gms. He makes a profit/loss of _____. [2 Marks]

(a) (+)2500
(b) (+)25,000
(c) (-)2500
(d) (-)25,000

Q:34. When the futures price of a commodity appears underpriced in relation to its spot price, an opportunity for _____ arbitrage arises. [2 Marks]

(a) reverse cash and carry
(b) cash and carry

Q:35. A company that wants to sell an asset at a particular time in the future can hedge by taking short futures position. [2 Marks]

(a) TRUE
(b) FALSE

Q:36. A _____ order, is an order which is valid for the day on which it is entered. [1 Mark]

(a) Good till offset
(b) Good till day
(c) Good till filled
(d) Good till cancelled

Q:37. A Spread order is an order to buy or sell a stated amount of a commodity at a specified price, or at a better price, if obtainable at the time of execution. [1 Mark]

(a) FALSE
(b) TRUE

Q:38. CHARJDDEL is a symbol for the _____futures contract traded on NCDEX: [1 Mark]

(a) Copper
(b) Chilli
(c) Chana
(d) Crude Oil

Q:39. A trader sells 5 units of gold futures at Rs.16500 per 10 grams. What is the value of his open short position? Unit of trading is 1 Kg and delivery unit is one Kg. [2 Marks]

(a) Rs.82,500
(b) Rs.82,50,000
(c) Rs.8,25,000
(d) Rs.82,000

Q:40. The total number of outstanding contracts (long/short) at any point in time is called _____. [2 Marks]

(a) Hedge Limit
(b) Transaction Charge
(c) Delivery Lot
(d) Open Interest

Q:41. A trader has sold crude oil futures at Rs.3750 per barrel. He wishes to limit his loss to 20%. He does so by placing a stop order to buy an offsetting contract if the price goes to or above _____. [2 Marks]

(a) Rs.4650
(b) Rs.4500
(c) Rs.3825
(d) Rs.3925

Q:42. On introduction of new contracts, the base price is the _____ of the underlying commodity in the prevailing spot markets. [2 Marks]

(a) previous days' average price
(b) previous days' closing price
(c) price decided by pre-open auction
(d) price decided by the exchange

Q:43. A trader requires to take a long gold futures position worth Rs.85,00,000 as part of his hedging strategy. Two month futures trade at Rs.17000 per 10 gms. Unit of trading is 1Kg and delivery unit is one Kg. How many units must he purchase to give him the hedge? [2 Marks]

(a) 5 units
(b) 14 units
(c) 50 units
(d) 10 units

Q:44. A trading member has proprietary and client positions in a March Chilli futures contract. On his proprietary account, he bought 700 trading units at Rs.6000 per Quintal and sold 250 at Rs.6015 per Quintal. On account of client A, he bought 200 trading units at Rs.6012 per Quintal, and on account of client B, he sold 100 trading units at Rs.5990 per Quintal. What is the outstanding position on which he would be margined? [3 Marks]

(a) 750
(b) 950
(c) 450
(d) 850

Q:45. For Intention Matching and Seller's Right contracts traded at NCDEX, one of the components of the amount of penalty imposed on a seller in case of a delivery default would be____ percent of final settlement price. [2 Marks]

(a) 2
(b) 2.5
(c) 3
(d) 3.5

Q:46. A bread manufacturer bought five one-month wheat futures contracts at Rs.1155 per Quintal at the beginning of the day. The unit of trading is 10 MT and each contract is for delivery of 10 MT. The settlement price at the end of the day was Rs.1165 per Quintal. The trader's MTM account will show [4 Marks]

(a) (-)2500
(b) (+)2500
(c) (+)5000
(d) (-)5000

Q:47. Proprietary positions are netted at member level without any set-offs between client and proprietary positions. [1 Mark]

(a) TRUE
(b) FALSE

Q:48. If the value of claim, difference or dispute is more than _____on the date of application, then such claim, difference or dispute are to be referred to a panel of three arbitrators. [1 Mark]

(a) Rs.10 Lakh
(b) Rs.50 Lakh
(c) Rs.25 Lakh
(d) Rs.75 Lakh

Q:49. On respective _____ day, clearing members effect depository delivery in the depository clearing system as per delivery statement in respect of depository deals. [2 Marks]

(a) Pay-in
(b) Expiration
(c) Settlement
(d) Pay-out

Q:50. _____ refers to issue of physical delivery against the credit in the demat account of the constituent. [1 Mark]

(a) Securitisation
(b) De-materialisation
(c) Re-materialisation
(d) Liquidation

Q:51. Any person seeking to dematerialize a commodity has to open an account with an approved _____. [1 Mark]

(a) Clearing house
(b) Exchange
(c) Depository Participant
(d) Bank

Q:52. The commodities cannot be revalidated after the Final Expiry Date (FED). [1 Mark]

(a) TRUE
(b) FALSE

Q:53. Where a trade cancellation is permitted and trading member wishes to cancel a trade, it can be done only with the approval of the _____. [1 Mark]

(a) Clearing Corporation
(b) SEBI
(c) RBI
(d) Exchange

Q:54. If the last trading day as specified in the respective commodity contract is a holiday, the last trading day is taken to be the previous working day of the Exchange. [1 Mark]

(a) TRUE
(b) FALSE

Q:55. In the case of settlements culminating into delivery, sales tax at the rates applicable in the state where the _____ is located will be payable. [1 Mark]

(a) Buyer
(b) Delivery Center
(c) Seller
(d) Exchange

Q:56. After the sales tax/VAT obligations are determined, the seller client has to raise the _____. [1 Mark]

(a) Award
(b) Schedule
(c) Commodity
(d) Invoice

Q:57. In case the members/constituents are not registered under relevant tax laws with the state in which delivery is affected, they can appoint a Carrying & Forwarding (C&F) agent who would undertake the activities related to the physical delivery of the commodity. [1 Mark]

(a) FALSE
(b) TRUE

Q:58. The participants need to access the NSPOT trading system either as client through a member or as _____ of NSPOT. [1 Marks]

(a) Dealer
(b) Agent
(c) Member
(d) Contractor

Q:59. Electronic spot exchange benefits the farmers by way of providing _____. [1 Mark]

(a) counterparty guarantee
(b) direct access to a national level transparent market
(c) better holding capacity of the produce
(d) All of the above

Q:60. In case the participant would need to _____, then he will have to deposit the goods in NSPOT pre-notified accredited warehouse before putting an order for the corresponding quantity in the NSPOT trading system. [1 Mark]

(a) buy
(b) sell
(c) buy and sell
(d) all of the above

Correct Answers :

Question No.	Answers	Question No.	Answers
1	(c)	31	(c)
2	(a)	32	(d)
3	(b)	33	(d)
4	(a)	34	(a)
5	(b)	35	(a)
6	(b)	36	(b)
7	(d)	37	(a)
8	(c)	38	(c)
9	(a)	39	(b)
10	(a)	40	(d)
11	(b)	41	(b)
12	(b)	42	(b)
13	(c)	43	(a)
14	(d)	44	(a)
15	(c)	45	(b)
16	(a)	46	(c)
17	(d)	47	(a)
18	(a)	48	(b)
19	(c)	49	(a)
20	(b)	50	(c)
21	(d)	51	(c)
22	(a)	52	(a)
23	(b)	53	(d)
24	(c)	54	(a)
25	(a)	55	(b)
26	(a)	56	(d)
27	(a)	57	(b)
28	(d)	58	(c)
29	(b)	59	(d)
30	(a)	60	(b)

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