Introduction

This chapter introduces the readers to the concept of commodity markets and commodity exchanges where futures trading of commodity takes place. It is organized into four sections. The first section delves into an overview of commodity markets and commodity futures contracts and trading. Global commodity markets are discussed in section two of the chapter followed by Indian commodity derivatives market in section three. This section is further subdivided into various sub-sections to cover the national commodity exchanges in details and operational aspects including warehousing industry of India. The last section provides a justification to this study.

1.1 Commodity markets

Commodity market is a place where trading in commodities takes place. It is similar to an equity market, but instead of buying or selling shares, in a commodity market, one buys or sells commodities. These commodities are agricultural products and other raw materials like wheat, barley, sugar, maize, cotton, cocoa, coffee, milk products, pork bellies etc.; metals like copper, aluminum, steel, gold, silver, etc.; and energy commodities like natural gas, oil, electricity etc. Other sophisticated products include interest rates, environmental instruments, swaps, weather derivatives, or ocean freight contracts.

1.1.1 Types of commodity markets

The commodities market exits in two distinct forms namely the Over the Counter (OTC) market and the exchange based market. As in equities, these markets are also referred to as spot markets and the derivatives markets respectively.

(i) OTC markets: These are essentially spot markets and are localized for specific commodities. Almost all the trading that takes place in these markets is delivery based. The buyers as well as the sellers have their set of brokers who negotiate the prices for
them. This can be illustrated with the help of the following example: A farmer, who produces castor, wishing to sell his produce would go to the local ‘mandi’. There he would contact his broker who would in turn contact the brokers representing the buyers. The buyers in this case would be wholesalers or refiners. In event of a deal taking place the goods and the money would be exchanged directly between the buyer and the seller. The participation is restricted to people who are involved with that commodity say the farmer, processor, wholesaler etc.

(ii) Exchange-traded markets: These are essentially only derivative markets and are similar to equity derivatives in their working i.e., everything is standardized and a person can purchase a contract by paying only a percentage of the contract value. A person can also go short on these exchanges. Also, even though there is a provision for delivery, most of the contracts are squared-off before expiry and are settled in cash. As a result, one can see an active participation by people who are not associated with the commodity. Majority of the derivative trading takes place through exchange-based markets with standardized contracts and settlements etc.

1.1.2 Differences between the physical and futures markets

The physical markets for commodities deal in either cash or spot contract for ready delivery and payment within 11 days, or forward (not futures) contracts for delivery of goods and/or payment of price after 11 days. These contracts are essentially party-to-party contracts, and are fulfilled by the seller giving delivery of goods of a specified variety of a commodity as agreed to between the parties.

Contracts for actual/physical delivery are rarely allowed to be settled otherwise than by issuing/giving deliveries. Such situations may arise when unforeseen and uncontrolled circumstances prevent the buyers and sellers from receiving or taking deliveries. The contracts may then be settled mutually in cash.

Unlike the physical markets, futures markets trade in futures contracts which are primarily used for risk management (hedging) on commodity stocks or forward (physical market) purchases and sales. Futures contracts are mostly offset before their maturity and, therefore, scarcely end in deliveries. Futures contracts are exchange-
traded derivatives. Speculators use these futures contracts to benefit from changes in prices and are hardly interested in either taking or receiving deliveries of goods. Various types of commodity linked contracts are depicted in Box 1.

**Box 1: Commodity-linked contracts**

| **Spot (or cash):** Contracts for the purchase or sale of a commodity with immediate delivery (i.e., within a few days). |
| **Forward:** Contracts for the purchase or sale of a commodity with deferred or future delivery. |
| **Futures:** Standardized forward contract which represents an obligation to make or take delivery of a fixed quantity and quality of a commodity at a specific location. Contrary to forwards, futures contracts do not often result in physical delivery as they can be offset by an equal and opposite contract before the delivery date. |
| **Options:** A contract giving the right, but not the obligation, to buy or sell a futures contract at a specified price at or before some later date. To obtain such a contract, the buyer needs to pay a premium— the maximum loss is limited to this premium. The seller of an option receives the premium, but the potential loss is theoretically unlimited. |
| **Swaps:** An exchange of future payment streams between two counterparties. |

### 1.1.3 Commodity exchange trading

An 'exchange' is a regulated organization, association or group which provides or maintains a marketplace where securities or commodities can be traded and which is accompanied by standard procedures for settling trades. Commodity exchanges are essentially institutions that are adjunct to the physical market, and are supposed to perform complementary functions to improve commodity transactions in the various nodes of the value chain. (Pavaskar, 2004)
Today, most of the futures commodities trading exchanges are set up in a similar way. Members of the exchange do the actual trading on the floor. Stock stands for equity in a public company, and can be held as long as you want, whereas commodity futures trading contracts have a specified life. In the past, people used commodity futures trading methods generally to hedge risks and fluctuation in prices, or to take advantage of them, and not for actually buying into the commodity. The person buying the commodity futures trading contract agrees to buy the specified commodity at a fixed price on a certain date. The person selling the commodity futures trading contract agrees to sell the commodity at a certain price on a certain date. With the passage of time, the contract price fluctuates, and this brings about profit and loss in the trade. It is to be noted, however that, the delivery generally doesn’t take place. The contract is usually liquidated before its expiry. The entire trade is based on the idea that there will be no delivery, but one can speculate on the price of the underlying commodity at a future time to make money. Commodity futures trading is done all over the world now. (UNCTAD, 2006)

Futures markets help to manage risk of price variation associated with over supply of commodities viz-a-viz demand and at other times vice versa. The major function of the futures market is the transfer of risk, and increased liquidity between traders with different risk and time preferences, for instance from a hedger to a speculator. Futures trading is a method used to eliminate or minimize risks that occur when the prices in the market fluctuate.

At present, more than 100 commodities are traded on the exchanges. The main categories of commodities are agricultural products, base metals, precious metals, and energy. Recently commodities like electricity, crude oil, carbon credits have also come on the exchange for trading. However each exchange specializes and focuses in a select few commodities depending on the local market, demand/supply factors, expertise of the exchanges and other related factors.
1.1.4 Opportunities provided by commodity derivatives

Futures contract in the commodities market, similar to equity derivatives segment, will facilitate the activities of speculation, hedging and arbitrage to all class of investors. This has been described briefly below:

**Speculation**: It facilitates speculation by providing opportunity to people, although not involved with the commodity, to trade on the views in the movement of commodity prices. The speculative position is taken with a small margin amount that is paid to the exchange, and the contract can be squared-off anytime during the trading hours. Speculators are interested in making a profit by predicting market moves and buying a commodity "on paper" for which they have no practical use. For example, commodities in the market can be bought today at today's price, with the speculation of selling them at a higher price in the future.

**Hedging**: For people associated with the commodities, the futures market can provide an effective hedging mechanism against price movements and fluctuations. This protection is made by allowing the risks of price changes to be transferred to professional risk takers. For instance, a manufacturer can protect itself from price increases in raw materials they need by hedging in the futures market. Hedgers are interested in the underlying commodity and are seeking to hedge out the risk of changes in price.

Hedging is of two types - hedge sale and hedge purchase. A person can buy a commodity and sell futures at the same quantity as protection against fluctuation in prices when he is still holding the stock.

**Arbitrage**: Traders may exploit arbitrage opportunities that arise on account of different prices between the two exchanges or between different maturities in the same underlying commodity.

1.1.5 Components of a commodity futures exchange

Figure-1.1 below shows the basic elements of a commodity futures market organized into an exchange.
Starting with the producer, who produces some commodities that, at some future date, will be delivered to a destination, typically an exchange designated warehouse. A trader or a broker will contract with the producer for that product, to be delivered at a future date. The nominal owner, or the one who will own the product once the delivery date arrives, can go to an exchange and initiate a contract on the exchange for that product and initiate trading.

A producer can be a trader, who in turn can be a broker. Generally they are separate entities. The exchange is a business: it has owners and provides a service. The service provided is a venue where authorized brokers can come together to buy and sell.

Figure -1.1: Components of a commodity futures exchange

Appropriate Legal and Regulatory

Supervision and Oversight

End of Contract

Buyer and Seller on the margin

Clearing

Commodity

Trader

Trades

Trader

Trader

Trader

Warehouse

Source: USAID, 2007

The exchange writes the standardized contracts that will be used. The only element the participants add to the contract is the price. The exchange distributes price information about the trades. It provides appropriate controls so that all parties can safely, reliably,
and efficiently trade with confidence. That confidence is based on the assurance that trading is fair, orderly, and transparent. The execution of the trade also requires confidence in a settlement process.

In the figure above, the appropriate legal and regulatory environment and the supervision and oversight of the market, where the government should be the primary actor, are provided. Nevertheless, the mentality and operations of the government should not be to control the market, but to let the market function as it should while maintaining legality, fairness, transparency, and freeness. In addition, the market requires ancillary services, such as those illustrated below:

Service Providers

Warehouses

Assayers

Depository Participants

Clearing Houses

R&T Agents

Logistics Providers – transporters

Among the activities provided by the market, or provided by other businesses in conjunction with market operations, are:

• Product selection
• Contract development
• Risk management and surveillance
• Management of support technology (such as electronic access to the market)
• Warehousing and assaying
• Insurance
1.1.6 Participants in commodity futures market

The main participants in futures market are (Refer Figure- 1.2):

- Farmers/ producers – end sellers of their commodities
- Merchandisers/ traders – buy and sell commodities but do not produce/consume
- Importers – import commodities from outside
- Exporters – sell commodities outside the country
- Consumers/ Industry – end users/consumers of commodities
- Commodity financers – facilitating agencies who finance other participants
- Credit agencies – mainly banks who provide credit for liquidating sales
- Corporate - having price risk exposure in commodities

![Figure 1.2: Main participants in a futures market](image)

Source: Researcher
However, it should be noted that while a commodity exchange reduces market inefficiencies, it does not override the market - it cannot be a tool for any group to impose certain price levels. A commodity exchange reflects supply and demand conditions and allows market participants to respond better and earlier to changes in these conditions, but does not change the underlying market fundamentals. Furthermore, while an exchange can shift some market power from traders to farmers, it does not necessarily shift international market power. (UNCTAD, 2005)

1.2 Commodity exchanges - Global overview

Achieving a holistic perspective on market development remains an important challenge in the post-reform era. With the liberalization of agricultural trade and the withdrawal of government support to agricultural producers outside the OECD (Organization for Economic Co-operation and Development), there is in many countries a new need for price discovery and even physical trading mechanisms, a need that can often be met by commodity exchanges.

Commodity exchanges historically have had tremendous power to transform markets when appropriately designed and implemented. Hence, over the past decade, a large number of new exchanges have been established in developing countries, and while many have not survived, others have come to occupy significant positions in the market. These exchanges have proved to be an important corollary to efficient domestic liberalization of the commodity sector, and an important contributor to the competitiveness of a country's agricultural industry.

Global commodity futures and options trading have continued to grow at a healthy rate. Over the years, there has been a complete reversal of old, negative images of commodity exchanges in some countries, and emergence of a new partnership-oriented approach between the private sector and exchange regulators. Recent years have seen the rapid creation of new commodity exchanges and the continuing expansion of existing ones. At present, there are successful commodity futures exchanges in over 20 countries, including the United States, China, Japan, the United Kingdom, India, South Africa, Malaysia and Brazil.
The first ever commodity exchange of the world was Chicago Board of Trade (CBOT) established in as early as 1848 with 83 traders. The only other exchange that came up in that century was New York Merchantile Exchange (NYMEX) in 1882. Over the 20th and 21st centuries, a lot of permutations and combinations had occurred in-between the exchanges resulting into mergers, acquisitions, buy outs etc. During February 2008, New York Stock Exchange (NYSE) agreed to buy a 5 percent stake in Multi Commodity Exchange of India (MCX), aiming to obtain a slice of the commodities boom in India. However still major exchanges of the world like London Metal Exchange (LME) remain independent and operate independently.

A chronology of important consolidation moves by commodities and energy markets worldwide is captured in Annexure -I.

Below is the list of major exchanges which are still independent:

- LME - Industrial metals and plastics
- Kansas City Board of Trade - Winter wheat
- Minneapolis Grain Exchange - Spring wheat
- Shanghai Metal Exchange (SHME) - Non-ferrous metals
- Dubai Mercantile Exchange (DME) - Oil futures and options
- Dubai Gold & Commodities Exchange (DGCX) - Precious metals

1.3 Commodity exchanges: Indian overview

For decades, Indian commodity exchanges have remained shackled in regulations. India's dominance in agri-production makes trading in it only natural. Thus, primary production regions of key agri-commodities developed into trading centers, creating regional commodity exchanges.

India does not have a large nation-wide commodity market, but isolated regional commodity markets. In parallel with the underlying cash markets, Indian commodity futures markets too are dispersed and fragmented, with separate trading communities in
different regions and with little contact with one another (Youssef, 2000). Traditionally commodity exchanges in India have been product specific.

The Government issued notifications on April 1, 2003 permitting futures trading in commodities. By 2003, there were 21 regional commodity exchanges with National Board of Trade (NBOT) in Indore leading the industry with more than 50 percent share. However, recurring bans on futures trading and fragmented liquidity across regional exchanges (in the absence of a national platform) suppressed industry growth. With the issue of these notifications, futures trading was not prohibited in any commodity. Options trading in commodities is, however, presently prohibited.

Indian exchanges offer trade in contracts for more commodities than any other commodity exchange in the world. Many of these contracts have been launched for the first time in India. Moreover, contracts that have struggled to gain liquidity elsewhere—such as steel or potato—have often been launched with some degree of success in India. This brings the benefits of commodity futures markets to numerous commodity sectors and producer communities. However, new product and service development is constrained by an Indian regulatory regime that does not yet permit options, index trading and trading in other “intangibles”. (UNCTAD, 2009)

One outcome of the recent boom-bust cycle has been that mergers and acquisitions have gained speed and the biggest beneficiaries will likely be large companies from historically conservative countries, like India. This phase is likely to propel India into the international big league on a firmer footing. It would seem that the alignment of growth with commodities is the most likely outcome to underline the changing world economic order. (Manglik, 2009)

1.3.1 Market size of physical trade

The market size of physical trade has been represented below (See Figure -1.3). The figure below depicts that commodities are majorly split into 4 sub-heads under agriculture, base metals, energy, precious metals.
It clearly is evident that agri-commodities alone constitute 20 percent of Indian Gross Domestic Product (GDP)

1.3.2 Characteristics of Indian market

- Over 7800 mandis
- Leading producer of 17 agro-commodities and trading in 140 crops
- Largest importer of gold and second largest consumer of edible oils
- Farmers, licensed traders, brokers, and wholesale dealers
- Mandi inspectors issue type & quantity certificate
- Mandi fees: varies between 4 percent and 12 percent
- Governance: State Agricultural Marketing Boards (SAMB), Mandi Board (Farmers, Traders, State); Agricultural Produce Market Committee (APMC) secretaries; inspectors
- Issues in price dissemination, standards, certification and warehousing
1.3.3 Indian commodity ecosystem

The Ecosystem for Indian commodity exchanges has been represented in Figure-1.4.

Figure-1.4: Indian commodity ecosystem

Source: www.mcxindia.com

There are various players that actively participate in a commodity transaction – both on the commodity exchange as well as outside the exchange to facilitate proper execution of the futures contract resulting in deliveries.

The players directly involved with the exchange are producers, corporate houses, cooperatives, Government agencies, farmers and traders who come on to the exchange.
and trade in various commodities. They are termed as the 'Users'. 'Support Agencies' like warehousing companies help the 'Users' to trade on the exchanges and also indirectly support the facilitating agencies. These facilitating agencies provide a host of services to the players for smooth execution of the contracts. These agencies include:

- Storage and bulk handling services
- Preservation and protection services
- Information services
- Trade consultancy and support services
- Testing and certification services
- Risk mitigation services
- Collateral Management Services
- Warehouse Receipt Financing

To enhance the functioning of the exchanges, 'Spot Markets' come into play by providing a real time pricing to the 'Users'. Various banks and financial institutions act as lending agencies who offer credit facilities to small time 'Users' through the 'Warehouse Receipt System'.

1.3.4 Trading in stock exchanges vs commodity exchanges

Economic Theory distinguishes two 'basic' types of investment. In the first place, there is the 'financial investment' that can be defined as an investment in various kinds of 'financial investment instruments'.

The other is referred to as the real investment which is represented by the purchase and temporary possession of tangible (real) assets, a significant part of which is commodities (Rejnus, 2006). Table -1.1 below provides a comparative analysis of commodity markets with equity markets.
Table 1.1: Comparative analysis of commodity and equity exchanges

<table>
<thead>
<tr>
<th>Factors</th>
<th>Commodity Markets</th>
<th>Equity Markets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage Returns</td>
<td>Gold gives 10-15 percent returns on the conservative basis.</td>
<td>Returns in the range of 15-20 percent on annual basis.</td>
</tr>
<tr>
<td>Initial Margins</td>
<td>Lower in the range of 4-5-6 percent</td>
<td>Higher in the range of 25-40 percent</td>
</tr>
<tr>
<td>Arbitrage Opportunities</td>
<td>Exists on 1-2 month contracts. A small difference in prices makes a huge difference.</td>
<td>Significant arbitrage opportunities exist.</td>
</tr>
<tr>
<td>Price Movements</td>
<td>Purely based on the supply and demand.</td>
<td>Based on the expectation of future performance.</td>
</tr>
<tr>
<td>Price Changes</td>
<td>Due to policy changes, changes in tariff and duties.</td>
<td>Due to Corporate actions, dividends, bonus shares / stock splits.</td>
</tr>
<tr>
<td>Future Predictability</td>
<td>Not in control due to factors like failure of monsoon and formation of El-ninos at Pacific.</td>
<td>Reasonably high, which is supplemented by the history of management performance.</td>
</tr>
<tr>
<td>Volatility</td>
<td>Lower volatility</td>
<td>Higher volatility</td>
</tr>
<tr>
<td>STA Application</td>
<td>Not applicable to commodity futures trading.</td>
<td>Applicable to equity markets trading.</td>
</tr>
</tbody>
</table>

Source: www.stockmarketsreview.com

While the stock markets have always created bubbles at regular intervals, leading to depressions and recessions when the bubbles burst, commodity markets have by and large been free of such speculative bubbles. The only exception was perhaps the Tulipmania in the 17th century. This was the first and last crash in commodity markets. Not that derivative contracts in commodities were not cornered or squeezed, but such manipulations were invariably short-lived, and disappeared soon after maturity of the contracts. Commodity exchanges have grown over the years through all the five continents to promote economic growth and development. (Kshirsagar, 2009)
Because buyers need not take physical delivery of stock in order to trade, stocks may trade several times before they leave the storage site. Equity shares are off the market if the issuing company buys them back. Commodities, on the other hand, are extinguished due to consumption, the perishable nature and exports. (USAID, 2007)

1.3.5 Structure of commodity futures market in India

The commodity futures market in its new electronic avatar is almost ten years old now and comprises six national-level exchanges and eighteen commodity-specific (regional) commodity exchanges. The first three national exchanges operating in the Indian commodity futures market were the Multi-Commodity Exchange of India (MCX), National Commodity and Derivative Exchange of India (NCDEX) and National Multi Commodity Exchange of India (NMCE). One new national exchange, Indian Commodity Exchange Limited (ICEX) has been given permission in 2009 to start and another regional exchange Ace Commodity Exchange (ACE) has been permitted to upgrade to a national exchange. (Manglik, 2009). Universal Commodity Exchange (UCX), a joint initiative by IFFCO and IDBI Bank Ltd, among others, is the newest exchange to start operations.

Indian commodity exchanges have grown on the back of improving participation facilitated by electronic trading, streamlining of national exchanges (and consolidation of liquidity), and regulatory reforms. These developments have given Indian commodity exchanges a new structure, making it a true marketplace. MCX, NCDEX, NMCE and NBOT contribute to more than 99 percent of the total traded volumes (Vora and Nangalia, 2009). In line with its modern financial infrastructure; India is one of the few countries worldwide to have commodities' delivery in electronic (de-materialized) form.

India's six national and eighteen regional commodity futures exchanges are a crowd and not just pose a regulatory challenge but also raise the prospect of some going bust, although they boast of unprecedented growth. The U.S. has eight commodity exchanges, most of them specializing in specific commodities, but in Asia, China has only three, while Dubai and Singapore have two each. A list of the exchanges which are currently in operation has been presented in Annexure- 2.
1.3.5.1 National exchanges in Indian commodity futures market

The national exchanges operating in the Indian commodity futures market are:

1). National Multi Commodity Exchange (NMCE):

Ahmedabad's National Multi Commodity Exchange (NMCE) was first to get national status in India. NMCE has not enjoyed similar levels of success since volumes fell as trade shifted to the Mumbai based exchanges. NMCE has been promoted by commodity-relevant public institutions, viz., Central Warehousing Corporation (CWC), National Agricultural Cooperative Marketing Federation of India (NAFED), Gujarat Agro-Industries Corporation Limited (GAICL), Gujarat State Agricultural Marketing Board (GSAMB), National Institute of Agricultural Marketing (NIAM), and Neptune Overseas Limited (NOL).

While various integral aspects of commodity economy, viz. warehousing, cooperatives, private and public sector marketing of agricultural commodities, research and training were adequately addressed in structuring the exchange, however, finance was still a vital missing link. Punjab National Bank (PNB) took equity of the exchange to establish that linkage.

Today, NMCE is the only exchange in India to have such investment and technical support from the commodity relevant institutions. These institutions are represented on the Board of Directors of the exchange and also on various committees set up by the exchange to ensure good corporate governance. Some of them have also lent their personnel to provide technical support to the exchange management.

NMCE is unique in many other respects. It is a zero-debt company; following widely accepted prudent accounting and auditing practices. It has robust delivery mechanism making it the most suitable for the participants in the physical commodity markets. The exchange does not compromise on its delivery provisions to attract speculative volume. Public interest rather than commercial interest guide the functioning of the exchange. It has also established fair and transparent rule-based procedures and demonstrated total commitment towards eliminating any conflicts of interest. It is the only commodity
exchange in the world to have received ISO 9001:2000 certification from British Standard Institutions (BSI).

2) National Commodities and Derivatives Exchange (NCDEX):

Mumbai’s National Commodities and Derivatives Exchange (NCDEX), with its focus broadly on agriculture, has seen volume growth since its inception. In 2003, the exchange traded an annual 50 million contracts in only its second full year of operations - a remarkable achievement enabling it to become already the world's sixth largest commodity exchange by volume and the third largest agricultural futures exchange after DCE and CBOT. Pulses like chana, urad, tur are most actively traded here. Other commodities like jeera, pepper, mentha oil, guar and wheat, etc are actively traded.

NCDEX products include cashew, castor seed, chana, chilli, coffee - arabica coffee - robusta, common raw rice, common parboiled rice, crude palm oil, cotton seed, oilcake expeller, mustard oil, grade a parboiled rice, grade a raw rice, groundnut (in shell), groundnut expeller oil, guar gum, guar seeds, gur, jeera, jute sacking bags, lemon, tur. Indian parboiled rice, Indian raw rice, Indian 28 mm cotton, Indian 31 mm cotton, Maharashtra lad tur, mosoor grain bold, medium staple cotton, mentha oil, mulberry green cocoons, mulberry raw silk, mustard seed, pepper, raw jute, rapeseed-mustard seed, oilcake, rbd, palmolein, refined soy oil, rubber, sesame seeds, soyabean, sugar, yellow-soybean meal, turmeric, urad, v-797 kapas wheat, yellow peas, yellow red maize under agri-products; electrolytic copper cathode, mild steel ingots for base metals; and gold and silver for precious metals.

3) Multi Commodity Exchange of India (MCX):

Multi Commodity Exchange of India (MCX), also located in Mumbai was formed in Nov 10, 2003. MCX is an independent and de-mutualised multi commodity exchange in India and has permanent recognition from the Government of India for facilitating online trading, clearing and settlement operations for commodities futures market across the country. Today, MCX features amongst the world's top three bullion exchanges and top four energy exchanges.
MCX offers a wide spectrum of opportunities to a large cross section of participants including producers/processors, traders, corporate, regional trading centre, importers, exporters, co-operatives and industry associations amongst others. The exchange has also affected large deliveries in domestic commodities, signifying the efficiency of price discovery.

Being a nation-wide commodity exchange having state-of-the-art infrastructure, offering multiple commodities for trading with wide reach and penetration, MCX is well placed to tap the vast potential poised by the commodities market. The exchange has developed its reputation for trading in bullion, crude oil and mentha oil. Volume was more evenly distributed across the agriculture, metals and energy sectors, but in turnover terms, however, the majority of MCX's trading has been concentrated in base metals, bullion and crude oil.

The average daily turnover traded has increased by 57 percent to Rs. 50,313.21 crores in FY 2011-12 from Rs. 32,056.94 crores in the last fiscal year 2010-11. The total number of commodity futures contracts traded on the exchange for the year ended March 31, 2012 increased by 83 percent to 389.85 million from 212.79 million in last fiscal. As per Forward Market Commission (FMC), value of turnover traded represents 86 percent for fiscal 2012 and 82.4 percent for fiscal 2011 of the Indian commodity futures industry in terms of the commodity futures contracts traded during this period.

Based on FIA Annual Survey released in March 2012, MCX moved from being the 5th largest commodity exchange futures in the world to 3rd largest in terms of number of futures contracts traded in CY2011. MCX moved from being the world's 2nd largest exchange in gold to the world's largest exchange in terms of number of gold futures contracts traded. Exchange also retained its leadership as the world's largest exchange in silver, second largest in natural gas and third largest in crude oil with respect to the number of futures contracts traded. (FIA, 2012)

4) Indian Commodity Exchange Ltd. (ICEX):

Another new exchange has been added to the list of National Commodity Exchanges, Indian Commodity Exchange Ltd. (ICEX) which started trading operations on
November 27, 2009. ICEX, based in Gurgaon, is a screen based on-line derivatives exchange for commodities and has established a reliable, time tested, and a transparent trading platform.

ICEX is in the process of putting in place robust assaying and warehousing facilities in order to facilitate deliveries. It has Reliance Exchange Next Ltd. as anchor investor and has MMTC Ltd., Indiabulls Financial Services Ltd., Indian Potash Ltd., KRIBHCO and IDFC among others, as its partners. It posted a turnover of 1364.25 billion rupees ($27.5 billion) in its first year of operation (2009/10). Top listed contracts were gold, crude oil, copper cathode, silver. Most traded contracts were gold, crude oil and copper cathode.

5) Ace Commodity Exchange (ACE):
Ace Commodity Exchange (ACE), earlier known as Ahmedabad Commodity Exchange Ltd, started futures operations in 2010, but has been in the commodity trading business more than 50 years. The Kotak group is a majority stake holder. ACE was established in 1952. It has its registered office in Ahmedabad and the exchange is recognized under Forward Contracts Act, 1952 for futures trading since 1952, regulated by Forward Market Commission.

The exchange has the reputation of being first in the country to have the highest volume in castor-seed trading. Previously, cottonseed and groundnut oil were traded. At present the exchange is recognized for trading castor-seed, cottonseed, cottonseed oil & oilcake. It has recently applied for re-recognition of groundnut oil, and application for recognition of kapas and mustard/raida have also been submitted to the government. Trading is done on an outcry system in the trade ring. The exchange has agreed for tie up with Ahmedabad Stock Exchange for on-line trading which is likely to be implemented shortly.

The all-electronic market is 51 percent owned by Kotak Mahindra Group, an Indian banking and financial services firm. Other investors include The Haryana State Cooperative Supply & Marketing Federation Ltd. (HAFED), Bank of Baroda, Corporation Bank and Union Bank. The exchange opened with 230 registered members.
The exchange opened, offering contracts on soybeans, soya oil, rape mustard seed, castor seed and chickpeas with plans to offer other contracts such as energies, metals and spices. ACE's launch, which was the first time a regional Indian market was upgraded to a national market.

The exchange lists a host of commodity products, some of which are offered, others which are planned for launch. ACE’s agriculture contracts include: castor seed, mustard seed, soybeans, refined soya oil, rape mustard seed and chickpeas or Chana and sugar. It also lists turmeric, a staple spice used in India. Among the non-agricultural contracts announced by the exchange are: gold, silver, copper, zinc, nickel, crude oil and natural gas. Mr Dilip Bhatia, CEO of the exchange was of the view that the exchange has already got approval from the FMC for nine more contracts in various commodities, including gold, silver and copper, which will be flagged off in early 2013.

1.3.5.2 Regional exchanges and other commodity markets

There are eighteen (18) regional exchanges actively trading commodity futures contracts in India. The largest of the traditional Indian commodity exchanges is the NBOT situated in Indore, with trade focused on oilseed futures. Two of the other better known traditional commodity exchanges are the Bombay Commodity Exchange (formerly the Bombay Oilseeds and Oils Exchange), founded in 1950, and the International Pepper Futures Exchange, in 1997.

Next to the officially approved exchanges, there are many havala markets. Most of these unofficial commodity exchanges have operated for many decades and have built up a reasonable reputation in terms of integrity and liquidity. Some unofficial markets trade 20-30 times the volume of the “official” futures exchanges. They are often localized in close proximity to the official exchanges. They offer not only futures, but also option contracts. Transaction costs are low, and they therefore attract many speculators and the smaller hedgers. Absence of regulation and proper clearing arrangements, however, mean that these markets are mostly “regulated” by the reputation of the main players.

Many market participants feel that as this system has worked well for a long time, there
is no reason to fear a breakdown of this system based on trust. However, this clearly cannot be the base for government policy, which has a duty to protect the public against the risks that use of these markets pose.

1.3.5.3 National multi commodity exchanges vis-a-vis regional commodity exchanges

The comparison between working of a national commodity exchange and regional commodity exchange can be done based on the below points:

- Better reach in all parts of the country
- Wider base for speculators from other markets including securities market
- Broad basing of the underlying commodity
- Industry diffused in several parts of the country may also directly participate
- Few commodities can be projected viable for an international futures contract, with participation from global player
- Novation of all open positions in the market by the exchange
- Best management practices, end of day mark to market, online margining and surveillance, daily pay-in & pay-out are some of the features to woo the players

While the electronic platform provided by national level exchanges has been a key factor driving liquidity, the basket of commodities (oriented towards global commodities) being offered has also played an important role. National-level electronic platforms have facilitated uniform price discovery, leading to better transparency and thereby higher participation. This is in sharp contrast to the pit based physical trading in regional commodity exchanges (which is still existent). (www.mexindia.com)

In addition, the national-level commodity exchanges are demutualized organizations unlike the regional commodity exchanges that are mutual entities. MCX, NCDEX and NMCE have strong corporate backing, which brings further order to the industry earlier dominated by unorganized players. Such consolidation of liquidity is important to create the minimum critical mass of participants. (Vora and Nangalia, 2009).
1.3.6 Types of commodities

There are many types of commodities that are traded on Indian commodity exchanges. These can be very broadly categorized into the following as shown in Table-1.2. Annexure-3 shows the chronology in which the number of commodities to be traded increased on Indian exchanges.

Table-1.2: Types of commodities traded on Indian commodity exchanges

<table>
<thead>
<tr>
<th>Commodities</th>
<th>Non-Agricultural</th>
<th>Agricultural</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Energy</strong> (Crude Oil, Brent Crude Oil, Furnace Oil, Natural Gas, coal, electricity)</td>
<td><strong>Pulses</strong> (Chana, Masoor, Moong, Tur, Urad, Yellow Peas)</td>
<td></td>
</tr>
<tr>
<td><strong>Precious Metals</strong> (Gold, Silver)</td>
<td><strong>Grain</strong> (Barley, Parboiled Rice, Basmati Rice, Wheat)</td>
<td></td>
</tr>
<tr>
<td><strong>Base Metals</strong> (Aluminum, Copper, Lead, Nickel, Tin, Zinc)</td>
<td><strong>Oils and oilseeds</strong> (Castor Oil, Coconut cake and Oil, Cotton seed and oil, Groundnut seed and oil, Mentha Oil, Mustard Seed and Oil, Palmolein, Soya Bean and Soya Oil, Sesame Seeds)</td>
<td></td>
</tr>
<tr>
<td><strong>Ferrous Metals</strong> (Steel, Sponge iron)</td>
<td><strong>Spices</strong> (Cardamom, Chilli, Cumin/Jeera seeds, Jaggery/Gur, Pepper, Sugar, Turmeric)</td>
<td></td>
</tr>
<tr>
<td><strong>Polymers</strong> (Polyethylene, Polypropylene, Polyvinyl Chloride)</td>
<td><strong>Non-edible Agriculture</strong> (Cotton and Cottonseed Oils, Guar Seed and Guar Gum, Mulberry Cocoons and silk, Raw Jute and Jute Bags, Rubber)</td>
<td></td>
</tr>
<tr>
<td><strong>Biofuel</strong></td>
<td><strong>Others</strong> (Cashew, Coffee, Potato)</td>
<td></td>
</tr>
<tr>
<td><strong>Freight</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Weather</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sources: MCX, IDFC-SSKI India, FMC (www.fmc.gov.in)
1.3.7 Performance of the national commodity exchanges

The Indian commodity exchanges landscape is fairly consolidated with MCX and NCDEX controlling 98 percent of the business. Currently, 113 commodities are notified for futures trading of which 50 are actively traded in five national and eighteen commodity specific exchanges. Agricultural commodities, bullion, energy, and base metal products account for a large share of the commodities traded in the commodity futures market. The total value of trade in the commodity futures market rose significantly in 2011 compared to that of the previous year due to increased awareness, the advent of new commodity exchanges, increase in global commodity prices, and improved regulation.

During the year 2011-12 (up to January 2012), in value terms, bullion accounted for the maximum share of traded value among the commodity groups (57.7 percent) followed by energy (15.9 percent), metals (15.2 percent), and agricultural commodities (11.2 percent). However, in quantity terms, trade in energy accounted for 57.5 percent followed by agricultural commodities (33.2 percent), metals (9.3 percent), and bullion (0.1 percent).

It is important to note that volumes on regional exchanges have sustained and not migrated to national exchanges. Instead, the national exchanges have driven improved participation, which in turn has led to expansion in the industry size. (Vora and Nangalia, 2009).

1.3.8 Indian warehousing industry

Warehousing is an emerging business. Both the public sector and the private sector have a significant presence. However, if warehousing is described as an industry, the Government of India and the State Governments are the dominant players. Private sector warehousing amounts to just about 21 percent of total storage capacity available, is highly fragmented, lacks scale, and is unorganized and geographically scattered. (See Figure-1.5)
The government has 55 million tonnes of food stocks and will have to raise that to 100 million tonnes over a period of time to ensure food security. This will require warehouses and quality grading and such other services as will grow with it, as banks are more comfortable in funding against food stocks if they are certified for quality and proper electronic warehouse receipts are issued against these. Lack of required warehouse facilities is causing a big loss to the government and system.

The total preventable post-harvest losses of food grains in the commodity value chain are estimated at 20 million tonnes a year, which amount to nearly 10.5 percent of the total production (Reuters, 2011). Warehousing is a western concept and though it was introduced in India by RBI several years ago, it exists at few places for big farmers only. Simultaneously, while the agricultural sector has increased manifold, storage facilities have not increased proportionately, resulting in massive wastage. An estimated annual loss is about Rs 60,000 crores due to this.

The existing storage capacity is pegged at 83.1 million tonnes. A shortage of 38 million tonnes (approximately) of capacity as of 2007 called for additional investment to meet the space shortage. Of this, the 11th Five Year plan budgeted an investment outlay of US$500 million for the construction of additional storage capacity of 6.67 million tonnes. Thus, a shortage of warehousing space of 59 million tonnes (approximately) remains to be tapped by private players.
Public sector domination

Currently, a three-tier system exists in the Indian public sector warehousing infrastructure space. The Central Warehousing Corporation (CWC) provides warehousing facilities at centers of national importance and the State Warehousing Corporations (SWC) and the state governments at centers of states and district level importance. Annexure -4 shows storage capacity with Food Corporation of India (FCI) as on 01 April '11. Annexure - 5 shows storage capacity available with different storage agencies in India during 2009-10.

Problems

In practice, five major problems constrain the development of viable storage:

- Government intervention in market prices can reduce incentives for private storage and crowd out private participation.
- Distrust or absence of the legal and regulatory mechanisms necessary to ensure confidence in local warehouses.
- High cost of financing can make it unattractive for farmers, traders, and speculators to store.
- Inadequate or low quality infrastructure makes warehouses unreliable in maintaining the value of a crop.
- Warehouses are often not spread throughout the grain-producing areas and so transportation costs become excessively high for distant producers.

1.3.9 Warehouse Receipts

Warehouse Receipts that are negotiable instruments backed by the underlying commodities form integral part of the marketing and financial system of most industrialized countries.

Limitations of Warehouse Receipts: There are a few limitations of using the warehouse receipts. These can be summarized as:

- institutional and structural shortcomings;
- under-developed / unreliable private warehouse industry;
➢ limited familiarity of commercial community with warehouse receipts;
➢ absence of a national grading system for independent determination and certification of the quantity and quality;
➢ difficulty in splitting, risk of forgery/theft/mutilation in paper based warehouse receipts
➢ lack of negotiability;
➢ difficulty in disposal of security in case of default; and
➢ absence of electronic warehouse receipt.

Benefits of Warehouse Receipts: The benefits of warehouse receipts are summarized as below in Table – 1.3:

<table>
<thead>
<tr>
<th>Result from Use</th>
<th>Secured product, inspected warehouses*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost-Effective Screening of Willingness to Pay</td>
<td>Secured product, legal receipts*</td>
</tr>
<tr>
<td>Expanded Collateral</td>
<td></td>
</tr>
<tr>
<td>Appropriate terms, conditions</td>
<td>Receipts enable longer storage, delayed sales</td>
</tr>
<tr>
<td>Increased Yields</td>
<td>Reduced spoilage</td>
</tr>
<tr>
<td>Lower Costs</td>
<td>Sight unseen transactions, fungible product</td>
</tr>
<tr>
<td>Higher Product Prices</td>
<td>Bulk sales, extend sale season*</td>
</tr>
<tr>
<td>Standards and Efficient Sales</td>
<td>Sight unseen transactions through standards and security*</td>
</tr>
<tr>
<td>Market Access</td>
<td>Systematic through upgraded marketing process*</td>
</tr>
<tr>
<td>Technical Services</td>
<td>None</td>
</tr>
</tbody>
</table>

* Items in italics are particular benefits

Source: www.microlinks.org/usaids rf
1.3.10 Future potential of Indian commodity exchanges

A near US$500 trillion – 10 times world's GDP – is the turnover on global exchanges today. The nascent Indian exchange landscape is evolving from 'only equity' into an inclusive blend of asset classes (commodities, forex, power, etc) with underlying physicals, warranting a 2.5 times growth in industry turnover to US$10 trillion by 2014-15 primarily spear-headed by the nascent but high-potential commodity exchanges. (See Table- 1.4)

Table- 1.4: Industry potential of Indian exchanges

<table>
<thead>
<tr>
<th>Turnover (US$bn)</th>
<th>FY09-10</th>
<th>Size by FY14-15E</th>
<th>5-year CAGR (%)</th>
<th>Basis of estimates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commodity</td>
<td>1,050</td>
<td>4,184</td>
<td>32</td>
<td>50 percent discount to global multiple of futures to underlying physical market</td>
</tr>
<tr>
<td>Equity</td>
<td>3,042</td>
<td>5,256</td>
<td>12</td>
<td>25 percent discount to global average for value traded to GDP</td>
</tr>
<tr>
<td>Currency</td>
<td>240</td>
<td>960</td>
<td>32</td>
<td>50 percent discount to global average of OTC:Exchange derivative markets</td>
</tr>
<tr>
<td>Total</td>
<td>4,332</td>
<td>10,400</td>
<td>19</td>
<td></td>
</tr>
</tbody>
</table>

Source: IDFC – SSKI India

Till late 2009, the exchanges were dominated with equity trading enjoying 70 percent of the market. Government reforms as well as increase in awareness of farmers, producers and traders have led to a slow but steady rise in share of commodities on these exchanges. Share of commodity trading is expected to increase from 24 percent in 2009 to 40 percent in 2014 as depicted in below Figure -1.6.
India is foreseen to become one of the largest consumer, producer, exporter and importer of commodities. Also a large size of intermediaries has and will be penetrating the commodities market. Banks are seen to play a vital role in financing commodities and taking the futures on a secured route. Presently RBI permits banks to hedge their bullion risk through futures exchange and very soon other commodities shall follow. Using of exchange network for various products and services shall be the future practice. With a projected US$ 600 billion opportunity and new class of commodity traders and value investors, India may emerge as a hub of global trading in commodities apart from being the hub for value added services and food processing.

Having undergone a swift evolution and leveraging the strong US$320 billion physical commodities market (valued at 45 percent of India’s GDP), Indian commodity derivative exchanges have finally overridden structural inefficiencies and are heading towards growth and scale. They have seen a 40 times growth in turnover over the first five years of their inception in 2003 with traded values increasing to US$1.1 trillion in 2009-10.
As per experts of MCX, the future of commodity trading is depicted in Figure- 1.7 below:

Figure- 1.7: Future of commodity trading

Source: www.mcxindia.com

With over 1,000 members and around 5,000 trading terminals, new commodities are continually being added to the exchanges to allow further expansion and penetration of this market in remote areas. MCX expects exponential growth in volume in the coming years.

1.3.11 Challenges and outlook

There is an urgent need to focus on more research as well as address the challenges of the agriculture sector through comprehensive and coordinated efforts. Renewed attention needs to be paid to improving farm production and productivity, better utilization of agricultural inputs, proper marketing infrastructure and support, stepping up investment in agriculture with due emphasis on environmental concerns and efficient food management. (Economic Survey, 2009-2010). Consistent decline in the share of private sector investment in the agriculture sector is a matter of concern. The
issue of efficient food stocks management and offloading of stocks in time needs urgent attention.

When one combines the volumes of all futures exchanges and spot exchanges, one finds that the Indian commodities market is gearing itself for the next phase of growth. Further, the amendment in several Acts will augment growth and prepare it for the big leap. It is believed that in the coming two years, the cumulative volume on the Indian commodities exchanges would be somewhere between 1,10,000 and 1,30,000 crores per day. Retail traders and investors should take advantage by being a part of this story. They should diversify at least 15 percent to 20 percent of their total portfolio in commodities.

1.4 Justification of the study

Traditionally commodity exchanges in India have been product specific. However, the need for a national multi-commodity exchange is now well articulated and accepted. But the mere setting up of a multi commodity exchange has not resulted in a vibrant and liquid commodities derivatives market. There are a host of issues which need to be addressed along with the setting up of multi commodity exchange in order to develop the markets.

Of the many ‘facilitating issues’ facing a multi commodity exchange, the ‘warehousing issues’ and ‘standardization and grading of commodities’ enjoy the top two positions. For commodity markets to work efficiently it is essential to have a sophisticated, cost-effective, reliable and convenient warehousing system in the country. A lack of quantity and quality warehouses is a major drawback in Indian commodity markets. There are less than 200 warehouses in the country affiliated to the multi commodity exchanges and the facilities available for storage and gradation are very poor.

Commodity exchanges will be required to significantly enhance the scope, efficiency and transparency of the commodity derivatives markets in order to enhance participation and bring liquidity. Some of the key issues that will need to be addressed relate to (a) putting in place appropriate and efficient market structures such as a demutualised exchange, nation-wide automated trading system, (b) work to strengthen...
related market structures such as spot market and info dissemination, quality standards and assurances, certified warehouses and (c) work towards replacing physical settlements with warehouse receipts based settlement systems.

This research attempts to understand the operational aspects of national multi commodity exchanges of India and the operational hiccups faced by our commodity exchanges especially during physical deliveries. It also goes deep into the warehousing aspect of commodity exchanges. Further it analyzes the acceptability and adequacy of existing facilities; explores options to improve and enhance the physical deliveries on these exchanges and the benefits it could provide to the users of the exchanges.

The study also focuses on the current satisfaction level and expectations of potential users of the exchanges with the objective of making recommendations to realize the ultimate goal of Participants, Administrators, and Banks in enhancing the overall working efficiency of the national multi commodity exchanges of India.