Chapter- I

Introduction
1.1 Introduction

Commodity derivative trading in India had been in existence since the late nineteenth century when Bombay Cotton Association Limited undertook organized derivative trading in cotton. Over a period of time other commodities were also inducted into commodity derivative markets. However the development of the commodity derivative market was constrained by many hurdles. State intervention was one of the major causes of the unsteady growth of this market.

One of the most debated aspects of the commodity derivative market is that it promotes excessive speculation resulting in price inflation of essential commodities. On this ground this market has been subjected to various restrictions and in an extreme reaction the Indian government banned commodity derivative trading in 1952.

Following the economic reforms initiated in 1991, the World Bank and United Nations Conference on Trade and Development (UNCTAD, 1991) submitted a joint report to the Government of India recommending revival of commodity derivative trading to make such commodities competitive in the world markets. Based on their recommendations, the Government of India constituted a committee under the chairmanship of Prof.K.N.Kabra (Ministry of Consumer Affairs, Food & Public Distribution, 1993) to review the operations of commodity derivative market and to reframe the role of the Forward Market Commission as an effective regulator of the commodity derivative market.

Acting on the recommendation of the Kabra committee the government lifted the ban on commodity derivative trading. However the liberalization initiated in the commodity derivative market in 1993 was short-lived and rising prices again prompted the government to impose a partial ban on the derivative trading of many
essential commodities. The issue in question is does commodity derivative trading significantly induces price inflation or is it a process that results in price discovery? To resolve the problem this core issue must be addressed.

The commodity derivative market is clearly demarcated from the capital market, with both functioning independently. However over the years there has been a growing demand for the integration of these two markets. Such a step involves serious implications in areas of operation, accountability and regulation. A comprehensive analysis is necessary to explore the benefits of integration so that it can be weighed against the costs that such a step is likely to entail.

Besides restrictive state intervention the development of the commodity derivative market is constrained by various factors including unviable market width, absence of commodity options, inadequate warehousing infrastructure and grading system, mutualised regional exchanges, inadequate liquidity, restrictions of institutional investors, fragmented spot market, non autonomous regulator, different regulators for spot and commodity derivative markets, and multiplicity in taxation. All these issues need to be analyzed and resolved for the smoother development of the commodity derivative market.

However the commodity derivative market holds great promise and has the potential to make significant contribution to the overall growth of the economy. It is imperative that specific areas of potential are explored and existing opportunities harnessed so that this market makes an optimal contribution to the national economy.
1.2 Conceptual Framework

Derivative is a financial instrument whose value is derived from some other asset called the underlying. Thus, derivatives have no value of their own and derive their value from underlying asset like securities, commodities, bullion, currency, interest rate, stock market index etc.

Commodity derivative markets are markets where basic and raw products are traded. These commodities are traded on regulated commodity exchanges, in which they are bought and sold in standardized contracts. Commodities Exchanges usually trade future contracts on commodities. A future contract is a standardized contract, traded on a future exchange, at a pre-set price. The future pre-set price is called the future price. The price of the underlying asset on the delivery date is called the settlement price.

One of the basic objectives of the Commodity Derivative Market is to minimize the risk associated with price fluctuation. Price risk arises when the value of a commodity fluctuates in the future due to supply or demand disturbance. Commodity derivatives which were traditionally developed for risk management purposes are now growing in popularity as an investment tool. At present participants in the form of speculators and arbitrageurs are operating to profit from the uncertainty that prevails in the Commodity Derivative Market. The operation of the various categories of participants results in many benefits for the economy, such as, risk minimization, price discovery, price stability etc.

Commodity derivative market enables participants insure against adverse price movements in future. Thus it allows risk averse players to offload the risk that they carry by entering into futures contract. Such risk averse players are referred to as hedgers as they minimize their risk by hedging it in the future market.
Another participant in the commodity derivative market is the speculator, who is willing to assume the risk of adverse price fluctuations that the hedgers desire to transfer. Speculators take a position in the Commodity Derivative Market by speculating on the future price movements of the commodity so as to make profit. Speculators facilitate hedging, provide liquidity and keep the market moving by bearing the risk of the market.

Commodity Derivative Market participants can also enter into simultaneously transactions in futures and spot markets to take the advantage of the discrepancy between prices in these two markets. This category of participants called arbitrageurs helps to keep both markets liquid, ensure price parity between them and promote price stability.

All three participants are indispensable for the efficient functioning of the commodity derivative market. A hedger buys or sells in the future market to secure the future price of a commodity intended to be sold at a later date in the cash market. This provides economic substance to this market and protection against price risk. Speculators provide liquidity and depth to the market. Arbitrageurs help in bringing about price uniformity and price discovery.

No risk can be eliminated, but the same can be transferred to someone who can handle it better or to someone who has the appetite for risk. In the Indian commodity derivative market commodity enterprises primarily face the following classes of risk. Namely: The price Risk, the quantity risk, the yield/output risk and the political risk, talking about the nationwide commodity exchanges, the risk of the counter party not fulfilling his obligations on due date or at any time therefore is the most common risk. This risk is mitigated by using the following instruments:-

- **Ordinary margins:** Ordinary margins are deposits to be paid by the members of the concerned association on the outstanding or open contracts
i.e. those that have been neither settled by entering into contracts of an opposite nature nor fulfilled by giving or taking delivery. The margins are payable at a specified rate for every unit of open position. These are collected from the members by the associations as a safeguard against a possible default on their part to pay their dues to others in case of adverse changes in the price of the commodity. The rates of ordinary margins are generally related to the price fluctuations between two clearings. The ordinary margins act as a restrain on over trading and holding of excessive open position by the members.

- **Special Margins:** Special Margins are levied when the futures prices are found to be moving sharply in any one direction and suspected that the movement is not entirely justified by the economic factors. In order to dissuade their buyers from increasing the purchase in times of short prices rise, or the sellers from increasing their sales in times of a sever price fall, these margins become operative. The special margins are related to a certain level of prices commonly known as 'Margin line', the movement beyond which is sought to be restrained by the levy of financial burdens on outstanding business.

- **With-holding of Outward Payment:** This is generally used to supplement the special margins during the situations when there are steep rise or fall in prices, the payment of profits arising out of futures transactions are withheld for a specified period.

- **Limits on Open Position:** A limit on open position is prescribed where operators in the futures markets are not allowed to hold or control an open position in excess of the prescribed limit. This is done before the commencement of trading in the contracts. Such limits, however, can be imposed during the currency of the contract and the operators are given a
specified time limit within which they should reduce their open position to the prescribed limits.

- **Suspension of Trading:** The governing bodies of the recognized associations and the Commission have, therefore, been authorized under the relevant bye-laws to suspend trading for a limited period. The Act also empowers the Central Government to suspend trading at recognized associations. Such a suspension of trading of a short period gives the regulating authorities sufficient time to devise corrective measures. It assists in the restoration of normalcy through enforcing a pause in the market activity.

- **Prohibition of fresh trading:** If serious difficulties are anticipated in a futures contract, the members are prohibited from entering into fresh commitments with each other, though; they are permitted to off-set their outstanding contracts.

- **Limits of Price fluctuation:** A limit on price fluctuations is imposed either on the price rise or on the price fall or on both, either on a daily or on a weekly basis. As a result, no operator can buy or sell in the futures market at a price higher or lower than the closing price of the previous day or the last day of the previous week by the amount of the limit fixed. The limit is generally fixed on the basis of the normal average price fluctuations in the market.

- **Maximum and Minimum prices:** With a view to restricting the movement of prices within specified levels, the FMC has very often enforced either a maximum price or a minimum price or both. This instrument is more effective if employed in conjunction with the other instruments.
➢ **Closure of Contracts:** In certain circumstances, none of the instruments of control may prove adequate to restore orderly and healthy trading conditions and it might become necessary to take the extreme step of stopping futures trading altogether and closing out the contracts outstanding in the markets at that time. The closing out of outstanding contracts raises the issue of the rate at which they should be close and hence such rate has to be fixed very carefully.

➢ **Security Deposits:** This instrument is employed to guard against the possibility of default in making the payment. The bye-laws of the recognized associations provide for security deposits from the operators/brokers. When the security deposits are raised, the operators are in a better position to meet their obligations. Further, the financial liquidity is reduced, thereby reducing the size of their holdings.

Broadly, there are two purposes which a scheme of regulation of commodity derivative trading aims at. These are

(i) To prevent or curb unhealthy speculation and manipulative tendencies;
(ii) To avoid risks of defaults

The instruments of regulation have to be very judiciously employed; else they will reduce the volume of transactions, cripple the market and break the nexus between the spot and futures prices. If such a situation arises the futures markets will not be able to perform their basic function, i.e. hedge against the fluctuations in the futures prices. At the same time, the regulatory measures will have to be employed to prevent or curb unhealthy speculation and manipulative tendencies. The regulatory measures are also required to avoid the risk of defaults.
Spot market activeness is the key to the existence of a successful Commodity Derivative Market. An active spot market enables a large number of market participants quote bids and offers daily. The more active a market the higher is its ability to attract hedgers and speculators. An active spot market variable predicts whether a commodity has a futures market or not.

A successful commodity derivative futures price converges to the spot price of the underlying commodity as the settlement or delivery for a future contract approaches. When the settlement point is reached, the future price nearly equals the spot price as traders tries to maximize their gain arising from the difference between future and spot prices. By harmonizing the future and the spot price commodity derivative market will produce market buffer and helps in checking market fluctuations.

The commodity derivative market is regulated by the Forward Contract Act 1952 whereas the capital market is regulated by the Securities Contract Act 1956. Although the two markets are segregated there is growing support for their integration. This is in consonance with international practices in institutions like Chicago Board of Trade (CBOT), London International Financial Futures Exchange (LIFFE), which indicates that markets are gradually converging not only across products but also across geographies. This is induced by changing perspectives in the financial and real sector and made possible by emerging technology and instruments.

The Indian commodity derivative market has been non-existent from 1952 (when commodity trading was banned), to 1990. The ban was imposed on the plea that speculation arising from commodity trading was detrimental to the healthy growth of the spot market in general and the farmers in particular. Under pressure from several sources the Government of India revoked the earlier ban and allowed commodity trading to resume in 1993.
In the year 2003, four national level commodity exchanges namely, National Multi Commodity Exchange of India (NMCE), the Multi Commodity Exchange (MCX), the National Commodity Derivatives Exchange of India (NCDEX) and the National Board of Trade (NBOT) are registered with the Forward Market Commission (FMC) for trading in future commodity derivative. However the National Board of Trade (NBOT) is yet to set up trading arrangements outside Indore. Apart from that there are 25 regional commodity derivative exchanges in India and derivative contracts on nearly 105 commodities are traded in these exchanges, and the volume of trade is booming as can be seen by the table-1 below.

Table: 1 National and regional commodity derivative exchanges trading Value and Volume since 2002-03

<table>
<thead>
<tr>
<th>Year</th>
<th>2002-03</th>
<th>2003-04</th>
<th>2004-05</th>
<th>2005-06</th>
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<tbody>
<tr>
<td><strong>Volume of Trading</strong>&lt;br&gt; (in trillion KG)</td>
<td>314.4&lt;br&gt;(44.4)</td>
<td>492.9&lt;br&gt;(56.7)</td>
<td>1942.1&lt;br&gt;(294)</td>
<td>6685.09&lt;br&gt;(244)</td>
</tr>
<tr>
<td><strong>Value of Trading</strong>&lt;br&gt; (Rs. In trillion)</td>
<td>0.66&lt;br&gt;(92.8)</td>
<td>1.29&lt;br&gt;(95.4)</td>
<td>5.71&lt;br&gt;(342.6)</td>
<td>21.34&lt;br&gt;(274)</td>
</tr>
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Note: Figure in bracket indicates percentage change over previous year.


The growth in commodity derivative trade has spawned an upsurge of interest in a number of associated fields, viz. research, education and training activities in commodity market, commodity reporting for print and visual media, collateral management, commodity finance, ware housing, assaying and certification, software development, electronic spot exchanges etc.
Commodity derivative contracts are available for major agricultural commodities, metal and energy. Commodity group wise value of trading since 2004-05 is given in table-2.

### Table-2: Commodity Group-wise Value of Trade

(Rupees Lakh Crores)

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<tr>
<td>Bullion &amp; other metals</td>
<td>1.80</td>
<td>7.79</td>
<td>21.29</td>
<td>26.24</td>
</tr>
<tr>
<td></td>
<td>(31.47)</td>
<td>(36.15)</td>
<td>(57.90)</td>
<td>(64.55)</td>
</tr>
<tr>
<td>Agriculture</td>
<td>3.90</td>
<td>11.92</td>
<td>13.17</td>
<td>9.41</td>
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<tr>
<td></td>
<td>(68.18)</td>
<td>(55.31)</td>
<td>(35.82)</td>
<td>(23.15)</td>
</tr>
<tr>
<td>Energy</td>
<td>0.02</td>
<td>1.82</td>
<td>2.31</td>
<td>5.00</td>
</tr>
<tr>
<td></td>
<td>(0.35)</td>
<td>(8.45)</td>
<td>(6.28)</td>
<td>(12.30)</td>
</tr>
<tr>
<td>Others</td>
<td>0.00</td>
<td>0.02</td>
<td>0.001</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>(0.00)</td>
<td>(0.09)</td>
<td>(0.00)</td>
<td>(0.00)</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>5.72</strong></td>
<td><strong>21.55</strong></td>
<td><strong>36.77</strong></td>
<td><strong>40.65</strong></td>
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<td></td>
<td><strong>(100.00)</strong></td>
<td><strong>(100.00)</strong></td>
<td><strong>(100.00)</strong></td>
<td><strong>(100.00)</strong></td>
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Note: Figures in parenthesis indicate percentage to total value


Although agricultural commodities led the initial spurt, and constituted the largest proportion of the total value of trade till 2005-06 (55.31 percent), this place was taken over by bullion and metals in 2006-07. The growth in 2006-07 was almost wholly (88.7 percent) accounted for by bullion and metals, with agricultural commodities contributing a small fraction (10.7 percent). This was partly due to the stringent regulations, like margins limits, imposed on agriculture commodities and the dampening of sentiments due to suspension of trade in few commodities. Futures market growth in 2006-07 appears to have bypassed agriculture commodities.
Moreover, there has been a very significant decline in volume of futures trade in agriculture commodities during the year 2007-08, by 28.5 percent. The overwhelming bulk of this decline is accounted for by Chana, Maize, Mentha Oil, Guar seed, Potato, Guar Gum, Chillies and Cardamom. Trade in these eight commodities, which accounted for 57.9 percent of total futures trade in agricultural commodities in 2006-07, declined by over 66.4 percent during 2007-08 compared to previous year.

The Government of India in 2007 and 2008 imposed a temporary ban on futures trading of red gram (tur), black gram (urad), chickpeas (channa), soybean oil, potato, rubber, wheat and rice in three phases to curb inflation. Four commodities wheat, rice, red gram and black gram have been held responsible in many circles for the recent general downturn in futures trading in agricultural commodities. But these four delisted commodities together accounted for only 6.65 percent of the total value of futures trading in all agricultural commodities in 2006-07. Thus, although this may have affected market sentiments adversely, the delisting did not have any major direct contribution to the decline in trading observed during 2007-08.

As per 2006-07, Economic Survey report the average daily turnover of 25 commodity exchanges put together barely crosses Rs.8000-9000 crore. Of this the share of fine cereal grains (wheat and rice) is insignificant, ranging below Rs.30 crore per day, while red gram, black gram, chickpeas brown, soyoil and potato accounted for the share below 15 percent. Given the insignificant volumes of trading in commodity futures of all the recently banned commodities it is widely argued that futures trading cannot and do not have any direct contribution to their price rise of such commodities. Thus out of the 70 million tonnes of wheat produce in India per year only 20000 tonnes are traded in the commodity derivative market. Hence it is highly improbable that commodity derivative trading could have any significant impact on price increase in wheat.
1.3 Review of Literature

The review of literature has been organized under four sub-sections
i) Future and spot prices in commodity derivative
ii) Commodity derivative market and capital market: the convergence debate
iii) Challenges and opportunities of Indian commodity derivative market
iv) International trends in the commodity derivative market.

i) Future and Spot Prices in Commodity Derivative

Existing literature based on several studies indicate that at the point of settlement, the future and the spot prices tend to converge. However opinions on the relationship between future and spot prices, especially regarding the impact of one on the other is mixed and inconclusive. Since both markets reflect the same fundamental supply demand conditions almost simultaneously, it is difficult to determine whether futures market affects spot prices or it is the other way round.

A FMC commissioned study report by the Indian Institute of Management, Bangalore (2008) pointed out that futures markets efficiency is contingent on the efficiency of spot markets. Efficient spot markets reduce the cost of future-spot arbitrage. Efficient spot markets in commodities would require integration of markets across geographical regions and quality. This reduces the basis risk in the use of futures contracts. Integration of the spot markets requires development of rural communication, transport and storage infrastructure. The study report is of the view that in order to expedite this, collections from transaction tax etc of future market should be earmarked exclusively for development of the required physical market infrastructure and any other steps necessary to increase farmer participation.
Prominent economists like Keynes (1930) and John Hicks (1939) pointed out that the future price and spot price moves in the same direction. If hedgers tend to hold short positions and speculators tend to hold long positions, it implies that the futures price of the commodity is expected to be below the spot price. The price difference constitutes the compensation for the risks borne by the speculators when they hold long positions. Potential reduction in income is acceptable for the risk adverse hedgers, as the futures contract eliminates the risk. Conversely, if hedgers tend to hold long positions while speculators hold short positions, the futures price will be above the expected spot price under the same rationale. Convergence of future and spot prices in commodity derivative market lead to better price discovery and also maintenance of buffer stock as a strategy to control price volatility (Asche, 2002). By taking a position in the derivative market, the producer can potentially offset losses in the spot market. However a study by Gilbert (1985) has indicated that an anti-price volatility instrument maintenance of buffer stock appears to be more efficient than future commodity market.

On the other hand, several studies have revealed the efficacy of commodity derivative market as an instrument of maintaining price stability. Newbery (1990) observed that since commodity derivative markets reduce risk, they encourage firms to supply more output and thus reduce the spot price in times of inflation. Whereas Turnovsky & Campbell (1985), asserts that since derivative markets reduce the price risk of holding inventories, larger inventories are held and prices tend to stabilize as a consequence. On the contrary, it is asserted that risk reduction encourages producers to undertake more risky investment projects, and risky investment destabilizes spot prices (Newbery, 1990).

Coinciding with policy developments favouring commodity derivatives trading, a revolution in information technology spurred the growth of risk management centers, especially in areas where market fragmentation impeded efficient pricing. UNCTAD
(2002) notes that well-organized commodity exchanges form natural reference points for physical trade, and help the price discovery process. If a commodity exchange manages to link different warehouses in the country, this allows trade to take place more efficiently. Historically, most commodity exchanges developed as physical transaction hubs where producers delivered and sold their crops to buyers with storage facilities. Because producers had little choice but to accept the spot offer price, most exchanges were buyers markets. Market fragmentation i.e., poor price correlation among the regional exchanges also characterized the exchange network. Electronic transaction models and instant price dissemination systems have transformed these traditional market arrangements. According to FAO report (2007) the new electronic exchanges broadcast multiple prices from various spot and future markets giving producers a range of seasonal and geographic options for storing or marketing their crops. By circulating a spectrum of instantly observable or transparent prices, these exchanges have conferred pricing power to the producer and aided institutional development, e.g., grading and warehouse receipt systems, supply chain integration and farm credit facilitation.

ii) Commodity Derivative Market and the Capital Market:

The Convergence Debate

The setting up of national exchanges in 2002 has enabled commodity trading to make enormous progress in terms of technology, transparency and the trading activity. And now the commodity derivative exchanges are looking for removal of restrictions on participation of other financial system players, particularly stock-brokers in commodity derivative trading (Venkatesh, 2005).

Entry of securities brokers in commodity derivative market could not be taken forward as the Rules 8 (1), of the Securities Contract (Regulation) Rules 1957
(SCRR) does not permit the engagement of securities brokers in any business other than that of securities.

The commodity and security market falls under the regulatory purview of separate regulatory authorities, to avoid regulatory oversight and possible regulatory overlap. The participation of security broker in the commodity market is envisaged through a separate legal entity, either subsidiary or otherwise. The Forward Market Commission (FMC), which is the regulatory body set up under the Forward Contracts (Regulation) Act, 1952 to monitor forward trading in various commodities, has also been requesting Securities Exchange Board of India (SEBI) to permit brokers in the securities market to take up membership of commodity exchanges and engage in the business of intermediation either through separate entity or otherwise in the commodity market as well.

The Ramamoorthy committee was constituted (Securities and Exchange Board of India, 2003) to examine the various aspects relating to participation of securities broker in the commodity derivative market, with specific focus on the following key issues-

(I) Securities brokers' participation in the commodities markets;

(II) Utilization of infrastructural facilities of stock exchanges by commodity exchanges; and

(III) The possibility of stock exchanges trading in commodity derivatives.

While the committee endorsed the first two issues, on the third issue, it opined that it could be taken up for consideration at a future date as the two markets mature further. Based on the recommendations of the Committee, the Government have issued a notification and amended the Securities Contract (Regulation) Rule (Security Contract Act, 1956) to permit securities brokers to participate in the commodities markets after constituting a separate legal entity. It would be necessary to explore if there are
different modalities of permitting the securities broker’s participation in the commodity derivative market so that it can be ensured that while the process of development is accelerated further, the changes are not abrupt resulting in avoidable disruption.

The inter-ministerial task force under Habibullah (Inter-Ministerial Task Force, 2003) was set up by Securities Exchange Board of India (SEBI); consider the modalities under two alternative models-

(I) Through a separate legal entity, distinct and separate from the securities market broking outfit and

(II) Through the existing broking entity itself, confirming to the regulatory prescriptions of both SEBI and FMC.

A study by Pattabiraman (2003) suggested that participation through the existing broking entity could allow a common set of brokers to intermediate in different markets leading to a more efficient use of capital, infrastructure, technology etc. The cost savings from such integrate arrangements could be passed on to the investors in the different markets. Shah (2007) observed that the number of brokers who would wish to actively participate in the commodity markets might be reduced drastically if securities brokers’ participation is permitted only through a separate legal entity, net worth and other regulatory prescriptions of FMC. A separate legal entity would also mean separate membership fee and other additional costs which will act as a deterrent to such brokers, which in turn will negate the very objective of enlarging the participation of intermediaries in the commodity market to give fillip to its future growth.
In contrast The Ramamoorthy Committee (Securities and Exchange Board of India, 2003) has found that The Ministry of Finance representatives expressed their reservations in adopting the second alternative on two counts-

(I) Inadequacies of existing exchange oversight systems in monitoring and regulating the activities of its membership, which currently number over 9000 and

(II) The imperative need to spell out the regulatory responsibility of enforcement of regulations relating to common brokers in the commodity and stock markets, to avoid any regulatory gap or overlap.

The representatives expressed their view that, it would be desirable to permit the securities broker’s participation in the commodity market through a separate legal entity, as articulated in the first alternative model. Such entity would fall under the regulatory supervision of Forward Market Commission and should conform to its regulatory prescriptions from time to time, with reference to capital adequacy, net worth, membership fee, margins, etc.

In this regard Nair (2004) observed that the commodities derivatives exchanges should be free to trade in either or both the categories of derivatives products, as in the case of major derivatives exchanges in the world such as Chicago Board of Trade (CBOT) and London International Financial Futures Exchange (LIFFE). Such a step would not only increase volumes, but would also benefit from economies of scale and also from specialized expertise in derivative trading.

Cuny, C.J. (1993) observed that commodity market by convergence with capital market could gainfully utilize the established securities brokers with adequate infrastructure and greater access to financial resources, as it would provide impetus to the commodities market and this in turn would generate higher volumes. Since the
functioning of commodity exchanges/markets is similar to that of stock exchanges/markets, securities brokers would be able to quickly adapt themselves to the needs of the commodities market and bring to play their skills and expertise, in developing the market.

A study by Singh (2004) has indicated that integration of the commodity derivative market and capital market is a highly significant move as access to commodity derivatives will enable capital market to gain access to alternative investments. Besides, these institutions will provide liquidity to the commodity derivatives market enabling the hedgers to efficiently control their price risk.

iii) Challenges and Opportunities of Indian Commodity Derivative Market

The history of organized commodity derivatives in India goes back to the nineteenth century when the Cotton Trade Association started futures trading in 1875, barely about a decade after the commodity derivatives started in Chicago. Over time the derivatives market developed in several other commodities in India. After Independence, the Parliament passed the Forward Contracts (Regulation) Act, 1952 (Department of Consumer Affairs, 1952) which regulates future contracts in commodities all over India. The Act applies to goods, which are defined as any movable property other than security, currency and actionable claims. Under the Act, only those associations/exchanges, which are granted recognition by the Government, are allowed to organize future trading in regulated commodities.

However, many feared that derivatives fuelled unnecessary speculation in essential commodities, and were ‘detrimental to the healthy functioning of the markets for the underlying commodities, and hence to the farmers’ (Jagadharani & Putran, 2006). With a view to restricting speculative activity in cotton market, the Government of Bombay prohibited futures trading in cotton in 1939. Later in 1943, futures trading
were prohibited in oilseeds and some other commodities including food-grains, spices, vegetable oils, sugar and cloth. By mid-1960s, the government went on to impose a blanket ban on future trading of the commodities. Nair (2004) observed that the extended period of the ban resulted in driving a part of the trade underground, whereas a large number of participants shifted to other professions, including securities market, which was functioning without restrictive state intervention. Commodity futures trading in India remained in a state of hibernation for nearly four decades, from 1950 to 1990 mainly due to doubts about the benefits of derivatives (Chitale & Rajendra, 2003).

The ban on future trading in commodities attracted severe criticism from commodity market participants. The main argument forwarded against such a policy was that fundamental inadequacies in the system cannot be covered by banning futures which seeks to protect the consumer at the expense of the farmer (Meswani & Philipose, 2007). Theoretically it is argued that if the future price is high and the present price is low, an arbitrager will buy today and sell in the future, eventually leading to parity between the two markets. The converse is also true, where a low future price will induce the arbitrageur to sell today and buy in the futures market. Thus commodity derivative trading, besides providing a mechanism to bring about parity between the future and the spot market, also benefits non-participants by leading to price discovery.

Bowing to the pressures from divergent sources the Indian government set up a committee (Ministry of Consumer Affairs, Food & Public Distribution, 1993) under the chairmanship of Prof. K. N. Kabra in 1993 to examine the role of futures trading in the context of the liberalization and globalization process. The committee recommended allowing futures trading and strengthening of Forward Market Commission. The Government accepted most of these recommendations and futures trading were permitted in all recommended commodities.
The process of liberalization initiated in 1993 was revised again on 2007 and 2008 when the Forward Market Commission (FMC) declared a temporary ban on futures trading of agricultural commodities red gram, black gram, chickpeas brown, wheat, rice, refined soybean oil, potato, and rubber citing futures trading as a source of inflationary pressure on spot prices.

However the expert committee set-up by the Government of India (Ministry of Consumer Affairs, Food & Public Distribution, 2008) to examine whether futures trade could have led to price rise in agricultural commodities or not, revealed that of the 43 agricultural commodities that have futures trading, 24 commodities accounted for 98.7 percent of total value of futures trading of agricultural commodities in 2006-07. A list of these commodities along with the volume and value of trade in the year 2006-07 is given in Table-3. It will be seen from Table-3 that, not only do these 24 commodities account for almost the entire volume of futures trading in agricultural commodities, just the top eight commodities account for about 84 percent of the total value of trade. However, among these 24 commodities with preponderant share in volume of futures trade, 3 do not feature in the WPI basket at all. Guar seed, Guar gum and Mentha oil having a share of 29.6 percent in value of total future trading in agricultural commodities are significant omissions in the WPI basket, and could not be used in the price analysis. This shows that a very significant share of futures trading in agricultural commodities is accounted for by commodities that are insignificant for the overall price level in the economy.

Sabnivas (2007) strongly refutes that banned by stating that prices of red gram and black gram have moved in accordance with the supply conditions. Red gram productions were lower in 2006 at 24.7 lakh tones as against 25.7 lakh tones in 2005, leading to higher prices. Also in the case of black gram (urad), black gram futures have been lower than spot prices for over three months just before the banned. If the logic that futures prices affect spot prices is true, then spot prices should have come
down, which did not happen as supplies are weak. In this regard Philipose and Meswani (2007) observed that of the four banned commodities chickpeas, refined soybean oil, potato and rubber in 2008, only the price of potato declined after the ban due to the bumper crop. Thus futures trading can’t be held responsible for inflation.

Table-3: Volume & Value of trading in major Agri-commodities (2004-05 to 2007-08)

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<td>Volume</td>
<td>Value</td>
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<td>Value</td>
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<td>Major Agricultural Commodities</td>
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<td>129522.98</td>
<td>1902.04</td>
<td>330439.50</td>
</tr>
<tr>
<td>2</td>
<td>Chana/Gram</td>
<td>108.42</td>
<td>16754.59</td>
<td>1240.27</td>
<td>234774.10</td>
</tr>
<tr>
<td>3</td>
<td>Soybean Oil</td>
<td>249.58</td>
<td>101276.67</td>
<td>297.69</td>
<td>110229.65</td>
</tr>
<tr>
<td>4</td>
<td>Pepper</td>
<td>11.63</td>
<td>8334.28</td>
<td>11.56</td>
<td>8029.83</td>
</tr>
<tr>
<td>5</td>
<td>Jeera</td>
<td>3.61</td>
<td>2945.06</td>
<td>17.77</td>
<td>11822.97</td>
</tr>
<tr>
<td>6</td>
<td>Black Gram</td>
<td>65.23</td>
<td>10277.49</td>
<td>769.81</td>
<td>196904.49</td>
</tr>
<tr>
<td>7</td>
<td>Mentha oil</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>8</td>
<td>Chillis</td>
<td>0.23</td>
<td>0.00</td>
<td>24.28</td>
<td>4787.16</td>
</tr>
<tr>
<td>9</td>
<td>Soy Seed</td>
<td>74.48</td>
<td>9797.15</td>
<td>111.53</td>
<td>13859.67</td>
</tr>
<tr>
<td>10</td>
<td>Mustard seed</td>
<td>107.42</td>
<td>19464.35</td>
<td>94.93</td>
<td>16631.52</td>
</tr>
<tr>
<td>11</td>
<td>Wheat</td>
<td>36.95</td>
<td>2839.31</td>
<td>194.26</td>
<td>15970.18</td>
</tr>
<tr>
<td>12</td>
<td>Potato</td>
<td>0.00</td>
<td>0.00</td>
<td>8.01</td>
<td>579.17</td>
</tr>
<tr>
<td>13</td>
<td>Turmeric</td>
<td>4.49</td>
<td>1111.09</td>
<td>15.97</td>
<td>3943.46</td>
</tr>
<tr>
<td>14</td>
<td>Castor seed</td>
<td>82.21</td>
<td>14327.34</td>
<td>73.17</td>
<td>11713.12</td>
</tr>
<tr>
<td>15</td>
<td>Sugar</td>
<td>41.01</td>
<td>7737.30</td>
<td>139.99</td>
<td>26759.68</td>
</tr>
<tr>
<td>16</td>
<td>Guaj Gum</td>
<td>28.83</td>
<td>13412.08</td>
<td>79.67</td>
<td>36986.05</td>
</tr>
<tr>
<td>17</td>
<td>Gur</td>
<td>68.14</td>
<td>7891.49</td>
<td>107.08</td>
<td>16441.32</td>
</tr>
<tr>
<td>18</td>
<td>Red Gram</td>
<td>0.37</td>
<td>60.47</td>
<td>231.19</td>
<td>41548.02</td>
</tr>
<tr>
<td>19</td>
<td>Kapas</td>
<td>192.05</td>
<td>33317.12</td>
<td>182.78</td>
<td>30808.44</td>
</tr>
<tr>
<td>20</td>
<td>Rubber</td>
<td>4.80</td>
<td>2744.71</td>
<td>7.05</td>
<td>4830.48</td>
</tr>
<tr>
<td>21</td>
<td>Cardamom</td>
<td>0.12</td>
<td>420.56</td>
<td>0.11</td>
<td>292.72</td>
</tr>
<tr>
<td>22</td>
<td>Maize</td>
<td>2.03</td>
<td>109.69</td>
<td>16.98</td>
<td>927.23</td>
</tr>
<tr>
<td>23</td>
<td>Raw jute</td>
<td>28.71</td>
<td>3747.53</td>
<td>39.07</td>
<td>5471.97</td>
</tr>
<tr>
<td>24</td>
<td>Rice</td>
<td>2.40</td>
<td>396.71</td>
<td>9.33</td>
<td>1471.05</td>
</tr>
<tr>
<td></td>
<td>Total Above</td>
<td>1911.80</td>
<td>386799.46</td>
<td>5581.20</td>
<td>1169455.27</td>
</tr>
<tr>
<td></td>
<td>Other Agri-Commodities</td>
<td>27.58</td>
<td>3388.90</td>
<td>237.60</td>
<td>22771.60</td>
</tr>
<tr>
<td>II</td>
<td>Bullion &amp; Metals</td>
<td>2.72</td>
<td>179671.1</td>
<td>58.45</td>
<td>779398.35</td>
</tr>
<tr>
<td>III</td>
<td>Energy</td>
<td>0</td>
<td>1908.14</td>
<td>908.96</td>
<td>181882.64</td>
</tr>
<tr>
<td>IV</td>
<td>Plastics</td>
<td>0</td>
<td>0</td>
<td>2.585</td>
<td>1614.16</td>
</tr>
<tr>
<td></td>
<td>Grant Total (I to IV)</td>
<td>1942.1</td>
<td>571759.6</td>
<td>6788.71</td>
<td>2155123.23</td>
</tr>
</tbody>
</table>

Source: Exchanges websites MCX, NCDX and NMCE
In this regard Abhijit Sen (Ministry of Consumer Affairs, Food & Public Distribution, 2008) observed that there has been a very significant decline in value of futures trade in agriculture commodities during the year 2007-08, to 23.15 percent as compared to 35.82 percent and 55.31 percent in 2006-07 and 2005-06. Four commodities (wheat, rice, black gram and red gram) were delisted for futures trading towards the end of financial year 2006-07. This delisting has been held responsible in many circles for the recent general downturn in futures trading in agricultural commodities. But these four delisted commodities together accounted for only 6.65 percent of the total value of futures trading in all agricultural commodities in 2006-07. Thus, this delisting has affected market sentiments adversely although the delisted commodities did not have a major share total trading. In fact, except chickpeas and black gram, the share of sensitive commodities in total value of futures trade in agricultural commodities has so far been quite insignificant. The combined share of other food grains (i.e. wheat, rice, maize and red-gram) peaked at 5.0 percent in 2005-06 and of sugar at only 2.2 percent. The reports conclude that delisting adversely affects market sentiment regarding futures trading and in the process causes significant damage the commodity derivative market and hence is critical on the stop-gap nature of government policy on the matter.

In contrast, the Standing Committee on Food, Consumer Affairs and Public Distribution (Ministry of Consumer Affairs, Food and Public Distribution, 2006-07) seeking amendment to the Forward Contract (Regulation) Act had stated that since small farmers do not participate in commodity futures trading, there is no need for these markets. Whereas Armesto and Gavin (2005) asserted that world over, futures market are used by large farmers, traders, banks and insurance companies are allowed to participate in futures markets, they can hedge their exposure to farmers and give better terms to them. Thus farmers can also benefit from price discovery that emanates from commodity derivative trading.
On the other hand, several studies have revealed the scope for considerable improvement in the regulation of the commodity derivative market to curb excessive speculative activity. In this sense, Lokare (2007) notes that before listing of new products on futures market, a rigorous examination is essential to find if they are going to be beneficial to the public and the wide spectrum of stakeholders. Broad-based consultations with various interest groups should be done, though it is recognized that some groups interested in status quo will oppose the launch of the product. It will help to address their opposition as also to handle later criticism if the product is launched with thorough research and wider consultations. It is noted that even now products are launched after research and consultation but these efforts need to be strengthened further, particularly at the level of regulatory approval of contract design. In this context Nath and Ligareddy (2008) pointed that particular emphasis needs to be put in avoiding approval of such contracts where basis risk is likely to exceed spot price risk so that approved futures contracts are less subject to the valid criticism of favour only speculators and not those who wish to hedge their trading in physical markets. However, once the contract designs have been properly formulated, frequent changes in them or in the regulatory measures should be avoided. Frequent changes in designs and regulations generate their own regulatory risks. All these require regulatory rules and procedures that should be framed with due care and in-depth study, keeping in view the demands of the market.

However Chandrasekhar (2006) observed that currently Indian commodity derivative markets seem to be loaded with too many speculators and far too less hedgers for whose benefit the system of trading was started. There is a definite need to distinguish between hedger and speculators, and treat them differently in terms of margins and other requirements.
iv) International Trends in the Commodity Derivative Market

Price volatility is the most pressing issue facing the producers of primary commodities. While these producers are not exclusively in less developing countries (LDCs), the impact of volatility specially on agricultural producers is much greater in less develop countries than it is for those in developed market economies (Sapsford and Morgan, 1994).

The traditional high volatility of international commodity prices can be attributed to several demand and supply factors. However Pal and Wadhwa (2007) observed a distinguishing feature of international agricultural trade is that only a limited number of exporting countries dominate international trade. Even for a widely produced crop like rice, the share of the top five exporters is more than 76 percent and for all cereals the share of the top five is almost 75 percent. The supply side scenario is further complicated because exports of some major agricultural commodities are dominated by a few large-scale multinational “grain majors” and export state trading enterprises (single-desk sellers)\(^1\). Any disturbance affecting these suppliers tends to have an exaggerated reaction on commodity prices at the international level (Nath and Lingareddy, 2008).

According to Chakrabarti and Ghosh (2009) whenever producers as well as consumers face price risk, conventional attempts to stabilize prices in the wake of price volatility are dealt mainly with government funds and governmental intercessions. These involved measures like buffer stocks, buffer funds, commodity agreements, or government intervention in commodity markets. However in the World Bank report (1999) revealed that internationally, there is little evidence of the success of such schemes. Buffer funds have gone bankrupt, as evidenced in Australia and Papua New Guinea. Buffer stocks have not proven effective, as can be seen by

\(^1\) An independent statutory authority has the power to export in commodities.
the large accumulations under the United States of America and European Union farm programmed in the late 1980s. International commodity agreements have lapsed, as in the cases of coffee, cocoa, tin, and sugar. And government intervention has been costly, with unintended consequences, thereby placing unnecessary pressure on the government exchequer.

In the Indian context Raipuria (2003) pointed that, buffer funds that were aimed to help growers when prices declined and to obtain contributions when prices rose, in practice, had allegedly caused instability and generated crises in the linked sectors, may be in the plantations themselves, by generating false indicators of risk. The same has also been emphasized by the World Bank and UNCTAD report, (UNCTAD, 1996) which has categorically mentioned that government funds and interventions cause market distortions in agricultural trade.

Ideally, commodity futures exchanges integrate the futures and cash prices, thereby leading to overall efficient price formation. Because futures are traded on exchanges that are anonymous public auctions with prices displayed for all to see, the markets perform the important function of price discovery. Around the world, many such prices in agricultural commodities fixed in the Chicago Board of Trade (CBOT) are taken as the reference price for trading. Incidentally, it may be observed that soybean oil futures contract at National Board of Trade (NBOT) in Indore follows the soybean oil futures contract at the CBOT.

Various commodity exchanges around the world have emphasized their roles in price discovery either at the international or at the local level. Such attempts have been well-documented for Dalian Commodity Exchange (DCE) in China, Bursa Commodity Exchange in Malaysia which is often claimed to have discovered the prices of Malaysian palm oil, and Tokyo Commodity Exchange (TOCOM) which
provides a benchmark for price discovery in Middle East Crude Oil (Pavaskar and Ghosh, 2008).

Agricultural producers are prone to several risks such as price, crop and weather and climatic variations and other natural disasters, which could be devastating to their anticipated income and could have negative effects on the standard of living, ability to build capital and ability to access credit and repay debts. Hazel and Marinda (1999) asserted that to deal with the risks, several countries have attempted to guarantee commodity prices and provide crop insurance.

However in India there are yet no examples of successful crop insurance programme that was sustainable without heavy reliance on Government subsidies. In this regard Gilbert (1996) pointed that to minimize the risk it is required to develop aggregate intervention policies such as International Commodity Agreement and the large scale international financing schemes such as the International Monetary Fund’s Compensatory Finance Fund.

Several studies have revealed the scope for considerable improvement in the regulation of the commodity derivative market in India. In France, the Council on Forward Contracts vested with the authority for regulating the future contracts was established in the year 1983. The function assigned to the Council on future contracts show that they are similar to the function performed by the FMC.

In the international domain in US and other Western countries, derivatives trading is allowed in a range of commodities including live cattle, hogs, pork bellies, fluid milk, rubber, coffee, wool and industrial metals and even in a number of non-commodities such as weather derivative contracts, insurance contracts etc. providing the holder
In this regard Kabra (Ministry of Consumer Affairs, Food & Public Distribution, 1993) observed that while futures trading in a number of countries has over a period of time, evolved various instruments such as commodity bonds and loans and range forward, these are not being used in India, where the non-transferable specific delivery (NTSD) contracts, transferable specific delivery (TSD) contracts and futures contracts are in vogue, primarily on account of the relative narrowness of our commodity markets.

Furthermore, in some of the major derivative exchanges in the world such as Chicago Board of Trade (CBOT), London International Futures and Options Exchange (LIFEE) etc, there is convergence between the commodities and securities derivatives markets. There is also a view that the Indian commodity derivative market will get a further fillip if the participation is extended to all segments of the securities market by way of convergence of the two (Minister of Consumer Affairs, Food and Public Distribution, 2003).

The convergence of these markets has a potential of providing growth impetus to commodity derivatives and opening new avenues of business opportunities to the securities market participants.
1.4 Objectives of the study

The study has been undertaken with the following objectives:

- To undertake a historical review of the development of Indian commodity derivative market.

- To analyse the working of the Indian Commodity Derivative market.

- To analyse the impact of policy intervention on the commodity derivative market and assess potential effects of possible future state policies.

- To evaluate the possibilities of extending the reach of the commodity derivative market by integrating it with the capital market.

- Identify weaknesses in the commodity derivative market and offer policy prescriptions to correct them.

1.5 Research Hypothesis

The research tests the following two null hypotheses-

- Future prices in commodity derivative market do not affect price in the spot market.

- International price movement in the commodity derivative market do not affect prices in the domestic derivative market.
1.6 Research Questions

The study also seeks to answer the following research questions:

- Does commodity derivative trading result in greater price parity between spot and futures markets?
- Would an integration of commodity derivative market and capital market result in more optimal functioning of the two markets?

1.7 Methodology

1.7.1 Coverage:
The area of study will be the commodity derivative market of India. Price fluctuations in the derivative market and spot market are considered for the country as whole. For international comparisons prices in Commodity Metal Exchange Incorporation (COMEX), USA is considered.

1.7.2 Data Collection:
The study is based on secondary data. Secondary information is collected from both published and unpublished sources.

The various sources of published data are:

• Publications of autonomous bodies and private institutes; such as reports of the various commodities association.
• Financial and economic journals such as Indian Economic Review, Business World, Commodities & Derivatives.
• Publications brought out by various autonomous Research Institutes and Scholars such as International Research Journal of Finance and Economies, New-Delhi, International Conference of Asia-pacific Association of Derivatives (APAD), Bangalore. Reports and officials publications of various commodity exchanges such as the special commodity report and journal of MCX, NMCE, NCDX.

Unpublished data are collected from the various sources such as records maintained by the various Government offices, studies made by research institutions, scholars etc.

1.7.3 Data Analysis:
Linear regression models are tested to determine the relationship between spot prices and future prices of gold, refined soybean oil, wheat and rubber.

Stationary test of time series data of spot and future prices are undertaken using the Augmented Dickey-Fuller test.

Similarly a regression analysis is run to determine the relationship between the price movements in Indian and international derivative markets based on the data of gold prices of MCX and COMEX. The Augmented Dickey-Fuller test is repeated on the relevant data to test whether the series is stationary or not.
1.8 The Chapterization Plan

The thesis has been presented in seven chapters.

Chapter – I: Introduction

Chapter – II: Historical review of the Indian commodity derivative market

Chapter – III: Operational issues in Indian Commodity Derivative market

Chapter – IV: Policy intervention in Indian commodity derivative market

Chapter – V: A case for Integration of Indian commodity derivative and capital market: An analysis

Chapter – VI: The Indian commodity derivative market: A SWOT analysis

Chapter – VII: Summary of the findings and conclusions