



**Full Length Research Article**

**IMPACT OF FUTURES CONTRACT ON AGRICULTURAL COMMODITY PRICES: AN INDIAN PERSPECTIVE**

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**ABSTRACT**

The futures market can reduce volatility in the spot prices of the commodities and provide effective hedging of the price risk. The turnover of the commodity futures market has grown in a short span of time. The futures market can become an effective instrument of risk management and price discovery for the benefit of the producers, investors, consumers and companies. The competent authorities have over-looked the mechanism of checks and balances which can redistribute income from the small players to the big speculative financial market entities. The present study seeks to assess the role and significance of the Indian commodity futures market in the context of its efficient functioning. It is noted that instead of restricting the commodity futures market, it can be used successfully to strengthen the commodity market structure in India to achieve the broader target.

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**INTRODUCTION**

Agricultural commodities are vital for any developing country because they provide food, create income-generating opportunities and export earnings to the people involved in agricultural activities. Like other sectors, the agricultural commodity sector also experienced tremendous surge towards a more sophisticated structure during the last decade. The Government intervention has entered into the marketing of major agricultural products, which includes the Minimum Support Price (MSP) for specific commodities, regulation of various activities of marketing, such as transportation, storage, credit supply and international trading. However, the Government intervention has significantly declined after the initiation of liberalisation and economic reforms starts in 1991. Several market-based instruments, involved in the commodity price risk, focus on the introduction of derivatives on several commodities. In other words, it is widely proposed to set-up an efficient derivative market for commodities to strengthen the agricultural commodities market. If the derivatives market functions properly, one of the important policy goals regarding the price volatility of agricultural commodities can be addressed.

The basic need, to trade in commodity derivatives in general and commodity futures in particular, arises essentially to get the necessary support from any variation in the commodity prices. This is commonly referred to as hedging. Hedging has been defined as the required amount of counter position (buy or sell) in the futures contract against the corresponding position (sell or buy) of the related underlying commodity. This counter position helps to off-set the loss expected in the near future arising out of the adverse price movement of the underlying commodity. Thus, it is important to develop futures and other forms of derivative trading in commodities which are vulnerable to large and erratic price fluctuations.

**Turnover of Commodity Futures Market**

The commodity futures market facilitates the price discovery process and provides a platform for the price-risk management in commodities. The turnover in commodity futures market from 2010-11 to 2012-13 is given in Table 1.

As shown in the table, the year 2012-13 witnessed a decline in the total value of trade compared to the corresponding period of the preceding year. The present study seeks to ascertain the relationship between spot and futures prices of the Indian agricultural commodities traded in the national level commodity exchanges and to examine the influence of futures contract on the spot prices.

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**Table 1. Turnover in Commodity Futures Market (Volume of trading in lakh tonnes, value in Rs. crores)**

Commodity	2010-11		2011-12		2012-13 (Up to 30-11-12)	
	Volume	Value	Volume	Value	Volume	Value
Agricultural commodities	4168 (32.6)	1456390 (12.2)	4942 (35.24)	2196150 (12.12)	3113 (30.77)	1536268 (13.21)
Bullion	7.38 (0.05)	5493892 (46.0)	10.27 (0.07)	10181957 (56.17)	5.02 (0.05)	5363816 (46.13)
Metals	1410 (11.0)	2687673 (22.5)	1388 (9.9)	2896721 (15.98)	1046 (10.33)	2157139 (18.55)
Energy	7220 (56.4)	2310959 (19.3)	7686 (54.8)	2851270 (15.73)	5954 (58.85)	2569619 (22.1)
Others		29.04		6.45		1.28
Total	12806	11948942	14026	18126104	10119	11626842

Source: Economic Survey (2012-13), Ministry of Finance (Government of India)

Note: Figures in brackets are the percentage to the total volume and value of trade of the respective group.

### Relevant Concepts in Commodity Futures Contract

A 'futures contract' is an agreement to buy or sell a certain quantity of an underlying asset, at a certain time in the future, at a predetermined price. It is a standardised financial contract traded in a recognised commodity exchange. The price at which the contract is traded in the futures market is called the futures price. The futures contract has one-month, two-month or three-month expiry cycles and usually expires on the last Thursday of the respective month. There are three types of the participants in the futures market: (1) Speculators, who bet on the future movement of the price of an asset, (2) Hedgers, who try to eliminate the risks involved in the price fluctuations of an asset by entering into the futures contract, and (3) Arbitrageurs, who try to take advantage of the discrepancy between the prices in different markets. While hedgers participate in the market to off-set the risk, speculators make it possible for hedgers to do so by assuming the risk. Arbitrageurs ensure that the futures and the cash markets move in the same direction. The risks of physical commodity losses due to fire, theft, accidents, etc., are covered by insurance. However, the risk of value depreciation resulting from adverse price variations is not insured by insurance. Although hedging is the practice of off-setting the price risk in any cash market position by taking an equal but opposite position in the futures market.

However, the hedger avoids buying the physical commodity to prevent the blocking of funds and does not want to incur large holding costs. For instance, a wheat miller enters into a contract to sell flour to a bread manufacturer four months from now. The price is agreed upon today though the flour would be delivered after four months. A rise in the price of wheat during the course of the next four months would result in loss to the miller. To safeguard against the risk of increasing prices of wheat, the miller buys wheat futures contracts that call for the delivery of wheat in four months time. After the expiry of four months, as feared by the miller, the price of wheat has risen. The miller then purchases the wheat in the spot market at a higher price. However, since he has hedged in the futures market, he can now sell his contract in the futures market, at a gain, since there is an increase in the futures price as well. Hedging, thus, offsets loss from the purchase of wheat at a higher cost through the sale of the futures contract, thereby ensuring the profit on the sale of the flour. An important part of understanding futures and cash price dynamics is being able to explain and anticipate basis movement. The basis is normally calculated as cash price minus the futures price. A positive basis indicates a futures discount ('backwardation') and a negative basis means a futures premium ('contango').

When the spot price is higher than a particular futures contract, it is said to be trading at backwardation. It is usual for a contract maturing in the peak season to be in backwardation during the lean period. Contango means a situation where futures contract price is higher than the spot price. It arises normally when the contract matures during the same crop season. In a well-integrated market, contango is equal to the cost of carry (interest rate on investment, loss on account of the loss of weight or deterioration in quality).

### Earlier Studies

There are numerous studies, both theoretical and empirical, that analyse the efficiency of commodity futures market and some of the popular studies on commodity futures market are briefly reviewed below. Ghoshray (2007) noted that Durum wheat was one of the commodities for which there was intense trade competition between the USA and Canada. He examined the relationship between Canadian and the USA durum wheat prices using co-integration and an asymmetric error correction approach. The results suggested that the USA price responded to restore the equilibrium relationship with the corresponding Canadian price, while the Canadian price evolved independently. Lingareddy (2008) observed that futures trade in agricultural commodities in the modern exchange era had, so far, proven beneficial only in the cases of a few commodities that fulfill the basic criteria of stringent and regulatory actions and further innovation in domain knowledge is needed to devise additional regulatory mechanisms and instruments to tackle the specific problems associated with sensitive commodities, if the exchanges and the regulator wanted to extend futures contract in all the commodities.

Nath and Lingareddy (2008) observed that the argument of futures activity causing an increase in price volatilities was found to be true in the case of urad though enough statistical evidence to that extent could not be found in case of gram. Although there was a mild spillover of volatilities from urad to food grains, the flow did not seem to extend to all commodities. Hence, the proposition of futures trading contributing to an increase in inflation (WPI) appeared to have no merit, considering the absence of a direct causal relationship between prices of pulses (urad and gram) and all commodities. Sen (2008) concluded that futures trading in India, in the modern exchanges era, has led to an increase in volatilities in majority of the largely traded commodities during the period of excess liquidity (in relation to their total market size). Further, a uni-directional increase in prices was also observed in the cases of commodities with small market

size and scarce deliverable supplies in the market. It proved the point of the earlier committees that under scarce supply situations, futures trading may fuel an increase in prices as everyone expects prices to rise. Srinivasan *et al* (2009) analysed the impact of underlying spot market volatility after the introduction of futures and options trading in India by using standard EGARCH (1, 1) model. The data retrieved from the NSE website for daily closing price series of the S&P CNX Nifty spot index for the period from January 1, 1996 to March 31, 2009. The findings suggested that the futures and options trading improved the speed and quality of information flowing in spot market. As a result, it increased the market liquidity and reduced informational asymmetries which compressed spot market volatility in India.

Gilbert (2010) found little direct evidence that demand for grains and oilseeds as bio-fuel feed-stocks was a cause of the price spike. He concluded that by investing across the entire range of commodity futures, index based investors appear to have inflated food commodity prices. Kumar (2010) analysed, with the use of the NCDEX data, Soybean market in Dhar (Madhya Pradesh), interviewed with soybean traders and mandi traders who believed that the price of soybean on the NCDEX was a result of speculative activity rather than an interaction of market forces. Thus, recent studies have shown mixed results suggesting that a future trading has either driven up or brought down volatility in spot prices depending on the commodities and underlying market conditions.

### Evolution of Commodity Futures Market

Futures trading in commodities had its genesis in Japan in the 17th century where silk and rice was underlying commodities for a futures contract. The Dojima Rice Exchange in Osaka, Japan, is said to be the world's first organised futures exchange, where trading started in 1710. In the USA, the Chicago Board of Trade (CBOT) was established by 83 merchants to facilitate trade in forward contracts on April 3, 1848. It was only in 1865 that standardised futures contracts were introduced. The Chicago Produce Exchange was established in 1874 and the Chicago Butter and Egg Board in 1898. In 1919, it was re-organised to enable futures trading and it was named as Chicago Mercantile Exchange (CME). It is believed that the commodity futures have existed in India for thousands of years. Kautilya's *Arthashastra* also referred to the market operations similar to modern futures markets.

India had experienced its first futures market for cotton in Mumbai in 1875. Subsequently, futures trading started for oilseeds (Mumbai, 1900), jute (Calcutta, 1912), wheat (Hapur, 1913) and bullion (Mumbai, 1920). After a few years of trading, the markets underwent rapid growth between the two World Wars. As a result, before the outbreak of the Second World War, a large number of commodity exchanges, trading futures contract in several commodities, such as cotton, jute, oilseeds, groundnut, wheat, rice, sugar, silver and gold, flourished at various locations across the country. However, the futures trading in some commodities during the World War II was prohibited by the Defense of India Act, 1943. After India's Independence, on the recommendations of the Forward Market Commission (FMC), futures trading were initiated on various commodities in the latter half of 1950s. However, this

growing status of commodity futures market in India could not last for long. In the wake of recurring agricultural shortages, rising prices, and a growing apprehension that speculating activities on commodities through futures trading may fuel inflation in Indian economy, then, the Central Government banned the futures trading in most of the commodities. Even if the Dantwala Committee (1966) recognised the benefits of commodity trading even at the time of commodity scarcity, the recommendations were ignored by the authorities. This banning process continued till the 1970s, it was followed by the setting up of the Khusro Committee in the year 1980; the recommendations of this committee supported the revival of futures trading in most of the major commodities, including potatoes and onions. However, the ban on all other commodities still continued with the misconception that speculative futures trading destabilises the prices of commodities. During the new era of liberalisation in the 1990s, the Government appointed another committee in 1993, under the chairmanship of Prof. Kamal Nayan Kabra to have another look on the necessity of commodity futures in the Indian economy. The Kabra Committee (1994) recommended the re-introduction of futures trading in a wide number of commodities and the up-gradation of existing commodity exchanges to facilitate futures trading at the international level. The Government of India accepted and implemented the majority of recommendations of the Kabra Committee. This eagerness to stimulate commodity futures trading in India not only led to recognising and strengthening of various regional commodity exchanges, but also to build up national-level, multi-commodity exchanges.

### Regulation of Commodity Futures Market

The Forward Contracts (Regulation) Act, 1952 (FCRA) was passed to regulate this market with FMC which was set up in 1953 in Mumbai as the regulator. Commodity derivatives were banned in the late 1960s, but were revived again in the 1980s. After the successful equity market reforms in the 1991, the Government of India tried to replicate similar reforms for the commodity derivatives market and in 1999 suggested that the MSP as a price-hedging instrument could be used for the derivatives market. National-level multi-commodity exchanges were set up on conditions of being backed by internationally prevailing best practices of trading, clearing and settlement. The national commodity exchanges follow electronic, transparent trading and clearing with innovation, similar to the equity market.

According to Nair (2004), the major obstruction in the development of commodity futures market in India is the fragmented physical or spot market with government laws and various taxes that disturb the free movement of commodities. The Ministry of Consumer Affairs made attempts in the past to amend the FCRA, 1952. The Forward Contracts (Regulation) Amendment Bill, 1998, lapsed because it was not passed by the Lok Sabha. After the liberalisation of commodity futures market at the beginning of 2003, the need for a comprehensive amendment to the Act came up with the establishment of three national online exchanges and a host of complex trading systems and practices which showed that the existing regulatory capacity was insufficient to cater to the need of exponentially growing market. The Ministry of Consumer

Affairs came up with the Forward Contracts (Regulation) Amendment Bill, 2006, but this failed again to sail through before the dissolution of the Lok Sabha. This was replaced by the Forward Contracts (Regulation) Amendment Bill, 2010, which is now pending with the Parliament. The bill proposes to empower the commission and transforms it to a powerful independent regulator. This is critical to commodity futures market in general and the farm sector in particular for many reasons. It is risky for a country with a dominant farm sector to liberalise internal trade in commodities without a powerful regulator in place. Inadequately developed spot markets and spurious price discovery in excessively speculative futures markets (commodities in which open positions are excessively larger than their actual production figures are considered to be speculative) can distort the market prices of commodities and jeopardise investments in agriculture.

A major obstacle to growth of agriculture is inadequate formal institutional credit, particularly to the rural farm sector. Lending institutions in India do not consider commodities as a standard asset class because of the lack of back-end infrastructure and well-regulated liquid market. More importantly, the proposed opening up of multi-brand retail can attract foreign direct investment (FDI) to build infrastructure in the commodities supply chain, especially in storage and collateral management, only if there is an effective regulator that ensures integrity and investor confidence in the marketplace. An active regulator is very useful in the formative stage of markets, particularly to ensure they have the best practices and procedures for trading, margining, clearing, market monitoring and surveillance, risk control, settlement, and delivery. If the contracts are well formulated, and the delivery modalities provide an effective line of defense against manipulation, the regulator has to only act as an off-site watchdog. (Sahadevan 2002).

### Benefits of Commodity Futures Contract

The commodity futures markets have been developed because of its potential contribution to price stability, Poverty reduction and economic development and some of them are given below in the form of benefits.

**Benefits to Investors:** All participants in the commodity markets ecosystem across the value chain of different commodities are exposed to price risk. These participants buy and sell commodities and the time lag between subsequent transactions result in exposure to price risk. Commodity derivatives markets enable these participants to avoid price risk by utilizing hedging techniques.

**Benefit to Producers:** The commodity trade is useful to the producer because he can get an idea of the price likely to prevail on a future date and therefore can decide between various competing commodities, the best that suits him. Farmers, for instance, can get assured prices, thereby enabling them to decide on the crop that they want to grow. Since there is transparency in prices, the farmer can decide when and where to sell, so as to maximise his profit.

**Benefit to Consumers:** The commodity trade benefits the consumer because he gets an idea of the price at which the

commodity would be available at a future point of time. He can do proper financial planning and also cover his purchases by making futures contract.

**Benefit to Companies:** Corporate entities can benefit by hedging their risks if they are using some of the commodities as their raw materials. They can hedge the risk even if the commodity traded does not meet their requirements of exact quality or technical specifications.

### Commodity Exchanges in India

As on September 1, 2013, there are five on-line national exchanges and 16 regional exchanges that are permitted to offer futures in 113 commodities, including agriculture, metals, energy and plastics. Though the FMC has notified 113 commodities under Section 15 of the FCRA, 1952, exchanges have not offered futures in all of them. For example, the Multi Commodity Exchange (MCX), which had 82 per cent of the total value of trade during 2010-11, trades only in 52 commodities. (Annual Report 2011-12, FMC). However, there are three major National Level Exchanges in India. Due to a large number of commodities traded in these exchanges and the importance they are gaining lately, these three exchanges are explained below: National Multi Commodity Exchange of India Ltd. (NMCE) was promoted by commodity relevant public institutions namely 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). Punjab National Bank (PNB) took equity of the Exchange to establish the financial linkage. NMCE, the first state-of-the-art demutualised multi-commodity exchange, commenced futures trading in 24 commodities on November 26, 2002 on a national scale.

National Commodity and Derivatives Exchange Limited (NCDEX) is a professionally managed on-line multi-commodity exchange promoted by ICICI Bank Limited, Life Insurance Corporation of India (LIC), National Bank for Agriculture and Rural Development (NABARD) and National Stock Exchange of India Limited (NSE). NCDEX is a nation-level, technology-driven, de-mutualised online commodity exchange with an independent Board of Directors and professional management. It commenced operations on December 15, 2003. MCX is an independent and de-mutualised multi-commodity exchange, promoted by major financial institutions like Financial Technologies Ltd., State Bank of India and its associates, NABARD, NSE, Corporation Bank, Union Bank of India, Canara Bank, Bank of India, Bank of Baroda, HDFC Bank and SBI Life Insurance Co. Ltd. MCX is India's largest independent and de-mutualised multi-commodity exchange. It was inaugurated on November 10, 2003 and has permanent recognition from the Government of India for facilitating online trading, clearing and settlement operations for commodities futures market across the country.

### Effect on Broking Firm

Commodity broking firms have witnessed the doubling of income from the institutional investors in 2012. A meltdown

in the equity market in the first half of 2012 made the commodity segment attractive for institutional investors. Base metals, edible oil, spices and pulses have been the hottest picks among them. The broking firms might try to lure more institutional investors in the coming days and they are setting up special business development cells for this drive.

### Policies supporting Commodity Futures Contract

In October, 2012, the Financial-Sector Legislative Reforms Commission, headed by Justice B. N. Srikrishna, recommended that a super regulator should be created to merge Securities and Exchange Board of India (SEBI), Insurance Regulatory and Development Authority (IRDA), Pension Fund Regulatory and Development Authority (PFRDA), FMC in itself. The finance ministry already accepted the recommendations and it is now working out a plan on how to implement it. The commission also recommended bringing the FMC under the finance ministry and the regulator for commodities futures trading struggles to contain the payments crisis at the National Spot Exchange Limited (NSE). The finance ministry is of the view that if the commodities regulator, which is currently under the consumer affairs ministry, is brought under its ambit then it can be merged with the SEBI.

### Conclusion

The futures markets in commodities, which are nearly eight-years old, are here to stay and should be allowed to grow with the regulatory measures. Contrary to the thinking in certain areas, futures prices should be used as a signaling device for the government policy. The regulators ought to ensure that there is no scope for manipulation of markets and the prices behave in a well-manner. Higher spot-prices, caused by economic fundamentals and the price volatility, has come down in the post-futures trading era. A large number of commodities user, especially the farmers who would be benefitted from such markets. In fact, markets should be allowed to grow rather than restrained. Markets world over seek to provide efficient solutions, which is also the requirement in India.

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