

# A Review of Agricultural Commodity Financialisation in India

Riju koruth and J. Mohamed Zeyavudheen

Department of Economics, Jamal Mohamed College, Bharathidasan University, Tiruchirappalli - 620 020

**Abstract-** In an agriculture based economy like India, farmers face several risks in the agricultural process such as rise in prices and low yield. The present study is an attempt to overview agriculture commodity financialisation in India by taking into account, various results and findings of studies on agriculture commodity financialisation. This study has been classified into three sections i.e. growth and performance of the derivative commodity market, agriculture commodity financialisation and price movements in India and relationship between spot market prices and future prices. The paper brings out the growth in agricultural commodity financialisation in India and how the agricultural commodity financialisation influences the price movements and also shows a relationship between future prices and spot market prices.

**Index Terms-** Agricultural commodity financialisation, derivative market, Spot Market, Price Discovery, Risk Management.

## I. INTRODUCTION

Commodity markets touch the lives of all citizens of the country, either as producers or as consumers (FMC Annual Report, 2012-13). It is an important constituent of the financial markets of any country. Commodity means all kinds of movable property other than actionable claims, money and securities. It is the market where a wide range of products, viz. precious metals, base metals, crude oil, energy and agricultural commodities, etc. are traded (<http://www.slideshare.net>). India being an agriculture based economy has a surplus agriculture production. During the year 2012-13 the value of agricultural commodity trading was ₹21.56 lakhs crores whereas agricultural commodities contribute 13 per cent to the total trade of the commodities (Harwinder Pal Kaur and Dr. Bimal Anjum feb.2014). It is important to develop a vibrant and liquid commodity market. This would help investors hedge their commodity risk, take speculative positions in commodities and exploit arbitrage opportunities in the market (<http://www.slideshare.net>).

With the increasing volatility of the market, investors are interested in diversified investment avenue that reduce the risk of investment. Derivative or financialisation is used as a tool for managing risk in the market. Greta Krippner of the University of Michigan has written that financialisation refers to a "pattern of accumulation in which profit making occurs increasingly through financial channels rather than through trade and commodity production." (<http://en.wikipedia.org/wiki/Financialization>). A commodity futures market can be defined as a place where buyers and sellers of the commodities enter into an agreement

(contract) to exchange the commodity at predetermined price for delivery on a future date. Commodity futures perform two economic functions that is Price discovery<sup>1</sup> and Price risk management<sup>2</sup> (Harwinder Pal Kaur and Dr. Bimal Anjum 2014).

## Structure of derivative market in India

Commodity financialisation is a risk management tool that existed in India for more than a century. Commodity financialisation or Commodity derivative market is organised in such commodities as are permissible by the government. Since April 2003, commodity financialisation or future trading was permitted in all commodities by government of India. There is a three tier regulatory structure of future trading in India-Government of India, Forward market commission and commodity exchanges and also a two tier structure for commodity exchanges-regional and country wide exchanges. (Harwinder Pal Kaur and Dr. Bimal Anjum 2013). At present, 113 commodities are traded in Indian commodity future market on 6 national commodity exchanges and 13 commodity specific exchanges. (Harwinder Pal Kaur and Dr. Bimal Anjum feb.2014). The total number of commodities traded on Futures Exchanges are categorized into two major groups, viz., Agricultural Commodities and Non-Agricultural Commodities. In 2010-11, bullions occupied the first position with 45 per cent share followed by metals with 24 per cent and energy with 19 per cent. The share of agricultural commodities in futures trading has come down to the level of 12 per cent. This paper is an attempt to review the literature and key findings on agricultural commodity futures in India. This paper is divided in to three different sections. Section 1 includes introductory part i.e. meaning, definition and structure of commodity financialisation, In Section 2, growth and performance of commodity futures market in India has been discussed. Section 3 explains the literature on Agricultural commodity financialisation and price movements in India. While Section 4, describes the relationship between spot market price and future prices in India and Section 5, concludes the paper by identifying problems of agricultural commodity futures.

<sup>1</sup> **Price discovery** refers to the act of determining the proper price of a security, commodity, or good or service by studying market supply and demand and other factors associated with transactions. Price discovery has been defined as revealing information about future cash market prices (spot market) through the futures market. There is a relationship between the futures price of a commodity and the price that market participants expect to prevail at the time of delivery of the futures contract. Hence, futures prices help market participants make better estimates of future prices, so that they can make their consumption and investment decisions more optimally

<sup>2</sup> Risk management is the process of identifying the desired level of risk, identifying the actual level of risk and altering the latter to equal the former. This process can fall into the categories of hedging and speculation.

## II. GROWTH AND PERFORMANCE OF DERIVATIVE COMMODITY MARKET

Gaurav Raizada & Gurpreet Singh Sahi (2006) pointed out that in 2002-03, the government of India took two steps that gave a fillip to the commodity markets i.e. setting up of nationwide demutualised multi commodity exchanges and expansion of list of commodities permitted for trading. In May 2006 the commodity futures markets have average daily volumes of more than ₹4000 crores. The total volume of commodity futures trading in the country has reached ₹190000 crores during the first quarter of the 2006-07, showing a significant growth of 800 per cent as per the statistics by FMC.

Gopal Naik, Sudhirkumar Jain (2002), explained that the performance of Indian commodity futures market varies on commodities, exchanges and contracts. However it reveals the potential for performing the functions of price discovery and risk management.

Rajnarayan Gupta (2011) indicated that the total value of trade in the Commodity Futures Market has risen substantially in the last few years. Total value of trading in the commodity futures market rose from ₹34, 84,485 crore in 2006 to ₹94, 94,725 crore in 2010, i.e. nearly 367 per cent. The growth could be attributed to larger participation in the market, increase in global commodity prices, the advent of new commodity exchanges and the restoration of trade in some of the suspended agricultural commodities.

Harwinder Pal Kaur and Dr. Bimal Anjum (2013) pointed out that Indian economy has witnessed mini resolution in commodity Future market since 2003 as a result of the revival of commodity futures in a big way. Commodity futures perform two vital functions of the economy that is Price discovery and Risk management. Advance price signals help the farmers and traders of the agricultural commodities to grab superior price to earn more profit and price risk management enables the farmers to avoid price fluctuations. It provides liquidity to the participants and trading can be done in multi commodities at a single point of time.

Narender.L.ahuja (2006) reported that Since 2002, the commodities futures market in India has experienced an unprecedented boom in terms of the number of modern exchanges, number of commodities allowed for derivatives trading as well as the value of futures trading in commodities, which might cross the \$ 1 Trillion mark in 2006. While in year 2000, futures trading was allowed in only 8 commodities, the number jumped to 80 commodities in June 2004. The value of trading in local currency saw a quantum jump from about ₹350 billion in 2001-02 to ₹1.3 Trillion in 2003-04.

Dr. Kedarnath Mukherjee (2011) studied that the cumulative value of commodity trading in India during April to December 2010, as reported by FMC, is ₹82.71 lakh crore with a growth of 49.66 per cent from the same period in the last year. Even if the growth in all commodities is quite significant, the growth in agricultural commodities in India for the same period is found to be only 7.48 percent.

Meenakshi Malhotra (2012) studied that the volume of commodity futures trading in India has increased from ₹20.53 trillion in 2006 to ₹181.26 trillion in 2011-12 i.e. a growth of nearly 883 per cent. In spite of fast growth, the commodity

markets have gone through tumultuous times especially after independence.

## III. AGRICULTURAL COMMODITY FINANCIALISATION AND PRICE MOVEMENTS

Dr. Kedarnath Mukherjee (2011) made an attempt to revalidate the impact of futures trading on agricultural commodity market in India. He has used the daily price information in spot and futures markets, for a period of 7 years (2004 – 2010), for 9 major agricultural commodities (Spices, Pulses, Cereals, Oil and Oil Seeds, and Others) was extracted from NCDEX data base and are incorporated into various econometric models, such as Multiple Regression, Vector Auto Regression, Granger Causality Test, GARCH model to test the concerned objective. His study exhibited the inflationary pressure on commodities, especially agricultural commodities, i.e. prices have gone up sharply after the introduction of commodity futures contracts and it led to spot market volatility.

Ms. Shalini H.S & Dr. R. Duraipandian (2014) studied that the price discovery mechanism is quite effective for most commodities but may not be very effective for some commodities. The sample used in the study consists of nine agricultural commodities which are actively traded on NCDEX in the study period of 1st April 2012 to 31st March 2013, selected according to the availability of data. In particular, causality in commodities markets can be used to either hedge or speculate price movements: if changes in spot prices drive changes in futures prices, efficient hedging strategies can be formulated; whereas if changes in futures prices drive changes in spot prices, efficient speculation strategies can be formulated. Further, causality can be used in forecasting commodity spot and futures prices.

Madan Sabnavis & Shilpa Jain (2007) provided clarification with both facts and global parallels. The study reveals that price volatility for a comparable period (Annual Average Price Volatility of 2001-04 and 2004-06) before and after futures trading<sup>3</sup> shows that price volatility has actually decreased after futures trading. Annual volatility has been defined as the standard deviation of the daily percentage changes in prices. Higher prices in the cash markets have been caused by economic fundamentals like supply shortages and there is evidence to show that price volatility has come down in the post futures trading era (after 2003). Futures prices have been defined as spot prices plus cost of carry. Futures prices also reflect the expectations of production and hence, supply flows. Spot prices depend upon actual demand-supply balances in the country and hence, are quite divorced from the futures markets. Econometric analyses of these relationships have been inconclusive but there is evidence to show that higher spot prices have been associated with supply shortages in the last two years or so (before 2007).

Tulsi Lingareddy (2008) indicated that the 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. Further, a uni-directional increase

<sup>3</sup> In 2003, with the announcement of New Agricultural Policy ban from commodity trading has been removed and trading was permitted in all the commodities. After 2003 is the post future trading era.

in prices was also observed in the cases of commodities with small market size and scarce deliverable supplies in the market. The price analysis using both monthly and weekly wholesale price index data was carried out for 21 commodities. Under scarce supply situations, futures trading may bud an increase in prices as everyone expects prices to rise.

Gaurav Raizada & Gurpreet Singh Sahi (2006) studied the commodity futures market efficiency in India and only 3 month wheat futures at NCDEX have been included in this study. Daily spot market rate and futures prices from Jan 2004 to July 2006 provided by NCDEX online database have been used for this study. The study stressed that the commodity futures markets is not efficient even in the short-run. The social loss<sup>4</sup> statistic also indicates poor price discovery. The growth in commodity futures markets volumes also has a significant impact on the inflation in the economy.

Himadri bhattacharya (2007) traces the evolution and development of the commodity derivatives market in India. It pointed that the rising prices of farm goods or essential commodities is politically sensitive. Worse, there is no guarantee that the benefit of high prices will go to the primary producer or grower to any significant extent. Indeed, most farmers continue to get the minimum support price or thereabouts as they do not have facilities to warehouse the produce and sell as and when they want to. By allowing more money to flow into the commodity market, there is the danger of rising prices without corresponding benefits flowing back to those in the farm sector. Intermediaries -traders, speculators- make money. Under Indian conditions, supply response to prices is limited.

Golaka C Nath & Thulasamma Lingareddy (2008) studied the impact of futures trading in three important commodities which were banned by the government from trading in futures and their impact on spot prices. The study covers three important commodities: *urad, gram and wheat* and the Wholesale Price Index (WPI) series, compiled and published by the Central Statistical Organisation (CSO), were taken. This study cover a period from January 2001 to August 2007. Apart from prices, commodity-wise futures volumes were collected from the websites of the respective exchanges and the forward Markets Commission (FMC). Linear regression analysis was carried out to test the statistical significance of the apparent impact of futures trading on spot prices of urad, wheat and gram. They analysed that futures were increased volatilities in the spot market for some of the commodities. The price volatility increased significantly during the period when futures were allowed and fall in volatility after the ban of futures.

#### IV. SPOT MARKET PRICE AND FUTURE PRICE

Ms. Shalini H.S & Dr. R. Duraipandian (2014) found that the commodities that showed contango<sup>5</sup> to a marked extent, with average spot prices significantly lower than average futures

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<sup>4</sup> Social loss is the social cost imposed by a monopoly. In other words, it is the net economic burden that a monopoly imposes on the public.(Due to a lack of competition, a monopoly increases its profits by reducing its output and raising the price).

<sup>5</sup> Contango means the situation in a futures market where prices for future delivery are higher than prices for immediate (or nearer) delivery.

prices, were as follows: Chana (57.83%), rubber (90.67%), soya bean oil (57.73%), but the difference in their average spot prices and their average futures prices was not statistically significant. On the other hand, the commodities that showed significant backwardation<sup>6</sup>, with average futures prices significantly lower than average spot prices, were as follows:- jute (57.33%), mentha oil (91.63%). It was found that some commodities, viz. crude palm oil, wheat, potato, cardamom showed mixed tendencies of contango and backwardation, with no significant difference in average spot prices and average futures prices.

Harwinder Pal Kaur & Dr. Bimal Anjum (2014) made an attempt to differentiate between commodity futures and spot prices of wheat by analysing the relationship between both the prices. The period of study was from January 2006 to December 2011. The result had shown that the significant correlation between both of the prices of Wheat and the reason behind the similarity is the demand for wheat. Wheat being a major crop is in demand throughout the year by the farmers, consumers, traders and processors for different purposes. It implies that there is a linear relationship between spot and future prices of wheat in India. An increase in the spot prices of the selected commodities resulted into corresponding increase in the futures prices of the selected commodity and on the other hand a negative trend in the commodity futures market has resulted into a decreasing trend in the prices in the commodity futures market. The reason behind this behaviour is the dependence of futures market on the spot market has been found. Futures market basically depends on spot market for the determination of price. Spot prices have the impact on the commodity futures markets.

Himadri Bhattacharya stressed that the derivative market cannot exist without an underline spot market. Hence, what is needed most is a vibrant physical market on which a dynamic and transparent futures market can be built. Future price is at a premium to the spot price, representing the cost of carry while the far futures are at discount to the spot price and there is high correlation between futures and spot prices.

Dr.kedarnath mukerjee found the interdependence between the spot and future market in agricultural commodity sector in Indian commodity market. He used the daily price information in spot and futures markets, for a period of 7 years (2004 – 2010), for 9 major agricultural commodities, taken from different categories of Agricultural products, are incorporated into various econometric models to test the concerned objective. He studied that there is strong bi-directional interdependence between the spot and futures market in terms of returns and, the volatility interdependence, irrespective of the significant contemporaneous relation, is almost unidirectional from spot to futures market.

Nandini H.D and Dr.mahadevappa studied Price Discovery Dynamics of Wheat in Indian Futures and Spot Market. The study considers futures and spot price of wheat. A sample of twenty six months data i.e. from Jan 2005 to Feb 2007 is taken for the study. The data collected from Multi Commodity Exchange (MCX). Regression and Correlation Analysis has been used to analyse the relationship and influencing factor between futures and Spot prices of wheat. It shows that there is high

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<sup>6</sup> Backwardation means that the situation in a futures market where prices for future delivery are lower than prices for immediate (or nearer) delivery. Generally arising from a near term shortage of a commodity.

significant correlation between futures and spot market and both influence each other.

## V. CONCLUSION

Commodity financialisation has been growing at a very high pace in India. Derivatives provide hedging opportunities and also help in price discovery. But there are a lot of problems in developing countries like India because of the deficiencies in infrastructure, management, linkages with financial institutions, dominance of speculators and efficient information system which discourage market players. The argument of price discovery, hedging of price risk, risk sharing etc. as the important functions of derivative market, there is possibility of price rise in spot market and inflation, leading to spot market volatility and it shows that there is significant relationship between the spot and futures prices. By allowing more money to flow into the commodity market, there is the danger of rising prices without corresponding benefits flowing back to those in the farm sector. The studies shows that the growing commodity financialisation make spot market volatility and also causes to inflation so commodity market in India need government intervention in every aspects.

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## AUTHORS

**First Author** – Dr. J. Mohamed Zeyavudheen, Email id. [riju.koruth123@gmail.com](mailto:riju.koruth123@gmail.com), Mobile no. 09497360916

**Second Author** – Riju koruth, Research scholar, Department of Economics, Jamal Mohamed College, Bharathidasan University, Tiruchirappalli-620020, Email id: [zeyajmc@yahoo.co.in](mailto:zeyajmc@yahoo.co.in)