



## PERFORMANCE ANALYSIS OF INDIAN AGRO COMMODITIES

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### ABSTRACT

India is predominantly an agriculture economy, one of the top farm producing nations in the world. Since most rural population is depending on agriculture for employment. Agricultural commodity futures are market-based instruments used for risk management. The Indian commodity derivative sector remained underdeveloped because of intervention of government in controlling prices of commodity markets. The production, supply and distribution of many agricultural commodities are still governed by the state. The five selected commodities are cardamom, cotton, CPO, menthe oil and Kapas. The tool used is Cuddy-Della Valle Instability index. The present study is an investigation of agricultural commodity markets in India. The value of trade has decreased from Rs 13407150.72 crore in 2013-14 to Rs 11652928.96 crore in 2014-15. It indicates a negative growth in the agricultural commodity market in India. But, the value of trade increased to Rs 12573513.97 crore in 2015-16.

### KEYWORDS :

### INTRODUCTION

In India, commodities market has very long history. The impact of economic liberalization helped government to understand the importance of commodity trading. commodities futures contracts and the exchanges are governed by the Forward Contracts (Regulation) Act, 1952. In 2002, the Government of India allowed the re-introduction of commodity futures in India.

India is predominantly an agriculture economy, one of the top farm producing nation in the world. Since most rural population is depending on agriculture for employment. Agricultural commodity futures are market-based instruments used for risk management and they establish efficient agricultural markets. Future markets are used to hedge commodity price risks. They also serve as a low cost, very efficient and transparent medium for price discoveries in the future by allowing a forum for exchanging information about supply and demand conditions. The functions of future market - hedging and price discovery promotes better and efficient production, inventory, marketing and agro-processing operations and help in improvement in overall agricultural marketing performance.

While maintaining pace with the growing population, the growth in agricultural production for the past several decades has thrown up major challenges in marketing, as well as supply, storage, and distribution of goods. The highly fragmented markets and volatile commodity prices is a challenge to ensure a 'fair' and 'remunerative' price for the Indian farmer. Keeping these in mind, the government has implemented a number of reforms. In regard to this, the reforms to strengthen existing institutions for spot and derivative trade has become crucial as commodity markets do influence the lives of millions of stakeholders in the country's diverse and large commodity ecosystem.

Although India has a long history of trade in commodity derivatives, this sector remained underdeveloped because of intervention of government in controlling prices of commodity markets. The production, supply and distribution of many agricultural commodities are still governed by the state. Essential Commodities Act (ECA), 1955 and Agriculture Produce Marketing Committees (APMC) Acts of various State Governments restrict the free trade in agricultural commodities. Till April 2003, Forward Contracts (Regulation) Act (FCRA), 1952 limited the forward and futures contracts to only a few commodity items. However, in 2003, GOI removed all restrictions on commodities that were traded on commodity exchanges.

Currently, in India there are 25 commodity exchanges in operation

that allow futures trading in as many as 81 commodity items. Many of these exchanges are regional and commodity specific exchanges. In 2003, National Multi Commodity Exchange (NMCE) status has been accorded to four commodity exchanges, viz., Mumbai and Multi Commodity Exchange (MCX), Mumbai, National Multi Commodity Exchange (NMCE), Ahmadabad, National Board of Trade (NBOT), Indore, National Commodity Derivative Exchange (NCDEX). The Forward Markets Commission (FMC), developed under the Forward Contracts (Regulation) Act, 1952 is the agency which regulates commodity derivatives trading in India like SEBI regulates the securities markets.

### OBJECTIVES OF THE STUDY

- To study the performance of selected agricultural commodities in India.

### REVIEW OF LITERATURE

Riju koruth and Mohamed zeyavudheen (2012)<sup>1</sup> studied the agriculture commodity financialisation in India. The research was to identify the growth and performance of derivative commodity market, performance of agriculture commodity financialisation and price movements, relationship between spot price and future price. Analysis conducted during 2012 states that the volume of commodity future trading in India increased to 883%. To identify the price discovery mechanism, the sample of nine commodities was traded actively on NCDEX for the period of 1<sup>st</sup> April 2012 to 31<sup>st</sup> march 2013. The study revealed that changes in spot prices also affect the change in future prices. The author concluded that derivative provides hedging opportunity and also help in price discovery. This market provides the possibility of price rise in spot market, leads to price volatility. The studies implies that growing commodity financialisation make spot market volatility and also cause inflation.

Neeti Agarwal and Gurbandini Kaur (2013)<sup>2</sup> studied the importance of commodity future trading and its implication on the commodity market. The study aims to identify the growth of the commodity market in India, price volatility and arbitrage opportunity of agricultural future commodity market. The study used the secondary data. The study used various parameters like price volatility, market efficiency, Efficient Market Hypothesis and arbitrage opportunity. The study attempts in finding out the gaps in commodity market revealed mixed view and uncertainty prevailing in the market during the study period.

Sendhil et al., (2013)<sup>3</sup> studied the profile and growth of agriculture commodities futures in India. They researched top 20 agricultural commodities in the trade value of NCDEX for the agricultural year

2009-10 were selected for the research. They collected various data like quantity traded and its value, lot size and date of commencement of trading were collected from the NCDEX portal for 2009-10. Compound growth rate and Cuddy-Della Valle instability index were computed to examine the growth and instability in selected commodities. The author concluded that futures trading exhibited significant positive growth coupled with instability in pepper and cotton in agricultural commodity trade.

Prashanta athma and K.P Venugopalarao(2013)<sup>4</sup> studied the relationship between the spot and the future price of the commodity market. The three day moving average, cross correlation function, multiple regression and granger causality test were used to analyse the collected data for a period from 2005 to 2012 from COMDEX. Comdex is the combination of both perishable and non-perishable commodities. Multiple regression imply that future price had a stronger influence in predicting spot price. The author concluded that market is efficient in the price formation and transmission of information of both Comdex and NSE. The availability of Comdex trading can enable the market participants to hedge their risk.

Shree Bhagwat et al,(2015)<sup>5</sup> studied the performance and organizational structure of the commodity exchange in India. In India, there are 22 recognized commodity exchanges, of which the six national level electronic multi-commodity exchanges are: NMCE, (Ahmedabad); MCX, (Mumbai); NCDEX, (Mumbai); ICEX, (Mumbai); ACE, (Ahmedabad); and UCX, (Mumbai). They used Secondary data collected from books, journals, magazines websites of Forward Markets Commission (FMC) and national level commodity exchanges in India for the period 2009-10 to 2013-14. The turnover of the commodity exchanges and the value of each commodity were analyzed. The author concluded that Indian producers as well as consumer have always concerned about the commodity price instability.

Dr. S. Rajamohan (2015)<sup>6</sup> et al., studied the commodity market trading mechanism and trading performance of the agricultural commodities in multi commodity exchange. In their research, they considered the trading volume of commodities for the period of 2004-2015. Percentage analysis, mean, standard deviation, covariance and growth rate were used to analyse the data. The author concluded that the growth rate of agricultural commodities has been consistently increased during the period of 2009- 2012. The range of agricultural commodities trade performance has been attained the highest growth of rate of trade history from 10.29 per cent to 103.14 percent which has constant improvement.

Angad Singh Maravi (2015)<sup>7</sup> studied the development and performance of agricultural commodity market in India and identified the share of agricultural commodities in commodity futures market for period (2009-10 to 2013-14). Agricultural sector plays a key role in the economy to provide food security to the trillions of people. The data was based on secondary a source, which has been collected from commodity exchanges. The performance is evident in the spread of commodity market network as well as in value of trade. The value of trade has increased from Rs 1217949.04 crore in 2009-10 to Rs 2196149.50 crore in 2011-12. It indicates a positive growth in the agricultural commodity market in India. The value of trade decreased from Rs 2155700.42 crore in 2012-13 to Rs 1602401.96 crore in 2013-14. The decreased in the value of trade is due to volatility in prices in domestic market.

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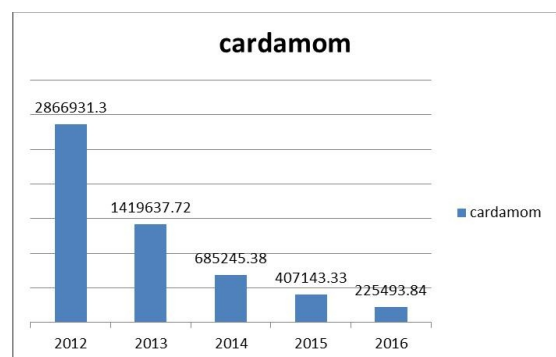
### Research Methodology

The present study is conducted on agricultural commodity market in India. This study is descriptive in nature. The data is based on the secondary sources like www.mcxindia.com for the period of 2012 to 2016. The collected data are five agriculture commodities such as cardamom, cotton, KAPAS, Mentha oil and Crude Palm Oil. The tool used for analysis is a compound growth rate, standard deviation, Mean, Skewness, Kurtosis and Cuddy-Della Valle Instability index.

### Data Analysis

#### Cardamom:

Small cardamom is grown in India, commercially in plantations, under the shade of tall forest trees at moderately high altitudes in the evergreen forests of the Western Ghats. Cardamom is popularly known as the 'Queen of spices' as it is one of the most exotic and highly prized spices. There are three distinctive types of cardamom grown in India Malabar, Mysore and Ceylon. The Malabar type traded as Alleppey Green Caradamom is considered as best in the world. India is the second largest producer, consumer as well as exporter of cardamom in the world. Cardamom futures contract was launched on MCX platform during (2006) and has witnessed considerable volatility since its launch.



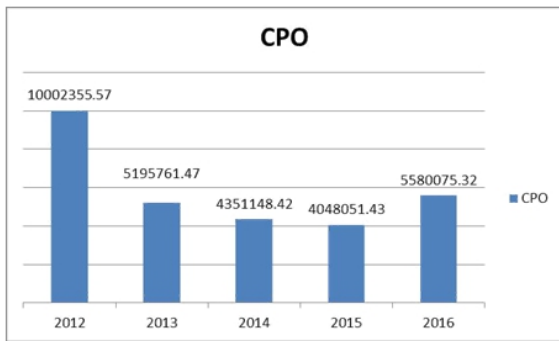
Cardamom exhibited a negative growth pattern during the period 2012-2016. The value of cardamom was gradually decreased. The instability index of cardamom was high during the period 2012-2016. Compound growth rate is also decreased. Skew value shows that the cardamom value is positively right skewed. The kurtosis value is less than 3. It is called platykurtic.

#### Kapas:

Kapas is unginned cotton or the white fibrous substance covering the seed that is obtained from the cotton plant. Ginning separates the lint (about one-third in weight) from the seed (two-thirds in weight). Lint is the raw material used for manufacturing of cotton yarn or thread, which is further woven to make fabrics. Cotton seed is crushed to make cottonseed cake, which is used in livestock feed; and cottonseed oil which is the 5th major edible oil consumed in the world

Kapas exhibited a negative growth pattern during the period 2012-2016. The value of kapas was gradually decreased during the period

2012-2016. The instability index of kapas was highest among other selected commodities. Compound growth rate is also in negative. Skew value shows that the Kapas value is positively right skewed. The kurtosis value is less than 3. It is called platykurtic.



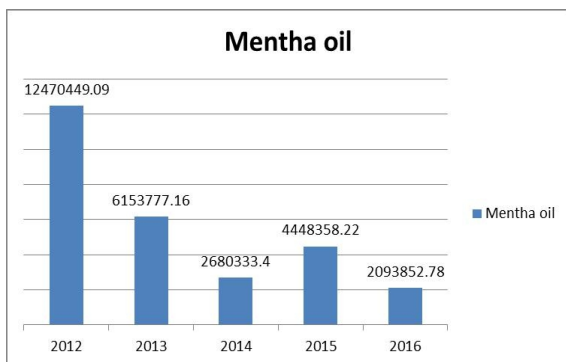
**Crude Palm Oil:**

Crude Palm oil is an edible vegetable oil derived from the mesocarp (reddish pulp) of the fruit of the oil palms. The consumption trend in India is marked not just by rising overall consumption, but by changing patterns of consumption as well. Non-traditional imported oils now account for more than half the oil consumed in India, filling a gap arising from increasing demand and static domestic oil seed production.

CPO exhibited a gradually increase and decrease in growth pattern. The value of CPO was gradually increased during the period 2015-2016. The instability index of cpo was lower than other commodities. Compound growth rate is also in negative. Skew value shows that the CPO value is positively right skewed. The kurtosis value is greater than 3. It is called leptokurtic.

**Mentha Oil:**

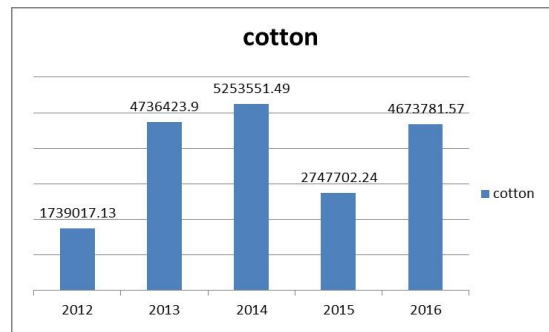
Mentha is an aromatic herb. Mentha oil and its derivatives are extensively used in food, pharmaceutical, perfumery, and flavoring industry. Much of the increase in mentha oil production, particularly its exports, came in after 2004, after the introduction of futures contracts based on mentha oil as the underlying. India is the largest producer and exporter of mentha oil and its derivatives. Mentha oil prices have always been quite volatile



Mentha Oil exhibited a negative growth pattern during the period 2012-2016. The value of mentha oil was gradually decreased during the period 2012-2016. The instability index of mentha oil was highest among other commodities. Compound growth rate is also in negative. Skew value shows that the Mentha Oil value is positively right skewed. The kurtosis value is less than 3. It is called platykurtic

**Cotton:**

Cotton is essentially grown for its fibre, which is used the world-over to make textile. Cotton fibre is one of the most important textile fibers, accounting for around 35% of the world's total textile fibre used. Global trade is particularly important for cotton. In addition to around 30% of the global cotton fibre produced being traded, it is also traded indirectly as yarn, fabric and clothing.



Cotton exhibited a positive growth pattern during the period 2015-2016. The value of cotton was gradually decreased during the period 2014-2015. The instability index of cotton was lowest among other commodities. Compound growth rate is also in positive. Skew value shows that the cotton value is negative and left skewed. The kurtosis value is less than 3. It is called platykurtic.

The overall performances of the commodities were increased during the period of 2015-2016. Cotton is highly growing commodity among the others.

**CONCLUSION**

After the establishment of organized commodity exchanges in 2003, growth in volume and value of traded agricultural commodities picked momentum and was more pronounced till 2006. Later it declined sharply due to the ban imposed on few commodities owing to fear of inflation and other market sentiments. The growth regained its momentum till now due to strong economic fundamentals in the commodity sector. This increased the variability in the trade volume and value and is reflected explicitly in the Instability Index. Instability analysis indicated that variation is higher for Kapas and cardamom. This is due to fluctuations in the global and domestic markets. Commodity futures markets have a crucial role in the price risk management especially in agriculture. A healthy and vibrant commodity futures market has an enormous impact on any economy. Unlike other financial markets, commodity market place has a purpose and a role in enabling entrepreneurs to take risks without bothering about price volatility in raw materials, encourage a farmer to be sure of the price he is going to get when he harvests his crop and a miner to dig for minerals assuring that he shall be able to sell it at a price, which is discovered by an efficient market. Commodity is a hedgers market, and in India, so far the dream of bringing genuine hedgers on to this platform has not been fulfilled due to the lack of products and depth in the market. Indian commodity market had acquired the reputation of a speculators' market and every industry organization has lobbied against listing of some commodity at some point of time without understanding the implications or the benefits. Commodity market has an important role of setting up efficient market space for the agricultural produce, on which a large percentage of the population depends. An efficient market place reduces the middlemen and passes the best possible price, and also provides signals through future prices to the farmers early enough to plant the crop, which is in demand or short in supply, helping them in crop selection and naturally adjusting the demand and supply of various products.

**Annexure:**

**Growth, instability and descriptive statistics for agricultural commodity futures**

Commodity	CGR	S.D	Mean	Skewness	Kurtosis	Instability
cardamom	-0.40	10769013	5604451.57	1.40	1.52	19.22
cotton	0.22	15086126	19150476.33	-0.75	-1.78	7.88
KAPAS	-0.78	241977.22	9385562	1.18	0.32	25.78

Mentha oil	-0.30	4172794.2	27846770.65	1.50	2.25	14.98
Crude Palm Oil	-0.11	2410158.9	29177392.21	1.88	3.73	8.26

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