CARDAMOM FUTURES AND SPOT MARKETS - BEHAVIOR OF TRADERS AND PRICE VOLATILITY

By

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DECLARATION

DECLARATION

I, hereby declare that this project report entitled " **Cardamom futures and spot markets – behavior of traders and price volatility"** is a bonafide record of research work done by me during the course of project work and that it has not previously formed the basis for the award for me for any degree/diploma, associate ship, fellowship or other similar title of any other University or society.

Vellanikkara

30-10-2017

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CERTIFICATE

CERTIFICATE

Certified that this project report entitled **"Cardamom futures and spot markets – behavior of traders and price volatility"** is a record of project work done independently by **Mr. Akhil U** under my guidance and supervision and that it has not previously formed the basis for the award of any degree, fellowship or associateship or other similar title to them.

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DESIGN OF THE STUDY

Chapter 1

DESIGN OF THE STUDY

1.1 Introduction

Cardamom (small) is known as the 'Queen of Spices'. From time immemorial, India is renowned as the 'home of cardamom'. Till 1979-80, India was the largest producer and exporter of cardamom in the world. However, Guatemala has pushed India to the second position.

Traditionally, cardamom has been marketed through auction system conducted under the regulation of the Spices Board. According to the Cardamom (Licensing and Marketing) Rules, 1987, planters can sell cardamom only through licensed auctioneers or licensed dealers and only licensed auctioneers and dealers can trade in cardamom.

Cardamom spot market is characterized by high price volatility and absence of transparency. Price stability is important for all players in the commodity value chain. The price of cardamom fluctuates from time to time depending upon demand and supply. While the demand side is influenced by money and other factors which include the overall economic development, the supply side is influenced not only by economic factors but also by agro-climatic, biotic, and abiotic stress factors in the growing regions. The planters may hold the produce for a while for better price and sometimes it would adversely affect them if the prices fall.

In order to bring in price stability, ensure efficient price discovery, and to provide price signals to the farmers, future trading in cardamom was launched by the Multi Commodity Exchange in 2006. The futures trading in cardamom has brought in several changes in the marketing ecosystem and marketing behavior of various constituents of the marketing value chain system of cardamom.

India is known as the home of spices and produces a wide range of spices and holds a prominent position in world spice production. Because of the varying climates - from tropical to sub-tropical to temperate, almost all spices grow splendidly in India. Out of the 109 spices recognized by the International Organization for Standardization (ISO) world over, 52 are grown in India and promoted by the Spices Board.

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Among the spices, Cardamom of commerce, popularly known as "Queen of Spices" is the dried fruit of tall perennial herbaceous plant *Elettaria cardamomum* Manton belonging to the ginger family Zingiberaceae and grows from a thick rootstalk up to around 6-10 feet. It is indigenously grown in the evergreen forests of the Western Ghats in South India. It is one of the most highly priced and exotic spices in the world. Cardamom oil is a precious ingredient in food preparations, perfumery, health foods medicines and beverages.

Based on the nature of panicles, three varieties are recognized viz. Malabar with prostrate panicle, Mysore with erect panicle, and Vazhukka with semi-erect panicle. Indian cardamom is offered to the international markets in different grades: 'Alleppey Green Extra Bold' (AGEB), 'Alleppey Green Bold' (AGB) and 'Alleppey Green Superior' (AGS) are names that register instant appeal worldwide.

1.2. Statistics of Cardamom production in India

The global production of small cardamom was approximately 60,000 tonnes, concentrated mainly in India and Guatemala. India is now the second largest producer of cardamom in the world.

India has been the largest producer, consumer and exporter of cardamom till 1980, but thereafter its position was overtaken by Guatemala. In Guatemala, the crop was introduced in 1920, and its production considerably expanded after World War II due to high market prices and the drop in coffee prices. There is no domestic consumption of cardamom in Guatemala and, therefore, the entire produce is exported. From the past two decades, Indian cardamom is facing serious threat in the world market from Guatemala, which has slowly and steadily encroached into the traditional Indian export markets. Currently, Guatemala has emerged as the top producer and exporter of cardamom in the world with an average production of around 36,000 tonnes during the year 2016-17 (https://guatemalacardamom.wordpress.com) and India has been relegated to the second position with an annual production of 19,625 tonnes during 2016-17(www.indianspices.com). And the cost of production of cardamom in India is

relatively higher when compared to Guatemala, while it costs around Rs. 350 to Rs. 400 in India , it costs only Rs. 150 to Rs. 200 in Guatemala to produce 1 kg of cardamom.

Table No. 1.1 Area Production and Productivity of Cardamom in India

Year	Area (In Hectares)	Production (In Tonnes)	Productivity (Kg/Ha)
2007-08	73112	11800	161.3962
2008-09	71170	11000	154.5595
2009-10	71110	10075	141.6819
2010-11	71012	10380	146.1725
2011-12	71285	15000	210.423
2012-13	69870	14000	200.3721
2013-14	69970	16000	228.6694
2014-15	69970	18000	257.2531
2015-16	70080	23890	340.8961
2016-17	70080	19625	280.0371

Source: www.indianspices.com

The above table shows the area, production and productivity of cardamom during the period from 2007-08 to 2016-17 in India. The production and productivity of cardamom showed a fluctuating trend over the years. Productivity which was more or less stagnant around 161 kg /ha in the 2009-10 has declined to 141 kg / ha and has improved to the level of around 257 kg per hectare by 2014-15 and increased to 340 kg/ha in 2008-09 and then declined to 280 Kg/ha in 2016-17. Area of cultivation remains almost the same for most of the years. However, in recent times the productivity has increased marginally.

The total cardamom cultivating area still remains almost the same with only a marginal variation. However, over the period of 10 years the cardamom cultivation in the country has declined from 73112 ha to 70080 ha.

1.3. Cardamom Marketing in India

Before independence, there was no organized system of marketing for cardamom. The planters, mostly small holders, used to sell their produce to private traders who fixed the price arbitrarily. Admittedly, it was an imperfect market system with no element of competition among the buyers and as such the planters were placed in a very perilous position particularly in the years of surplus crop. The marketing system was more or less identified with unfair practices to the planters and underweight of cardamom offered for sale. After independence (1947), the need to develop and protect spices crops and the plantation sector in India was felt by the Planning Commission in 1951. It recommended the setting up of a committee by the Ministry of Food and Agriculture to consider specific measures for increasing the production and marketing of spices. The Spices Enquiry Committee thus set up in 1954-55 recommended the formulation of schemes for research, development and marketing of spices. As a result Ministry of Food and Agriculture introduced auction system (manual) for cardamom trading in 1955-56.

In 1966, the All India Spices Development Council, Spices Export Promotion Council and Cardamom Board were established by Government of India to promote the export of spices from India. It helped to boost the foreign exchange earnings from export of spices. For promoting cultivation and marketing of Cardamom, the Government of India constituted a Cardamom Development and Marketing Advisory Committee in 1963 and the Cardamom Board in 1966 under the Cardamom Act, 1965.In 1977 the Cardamom (Licensing and Marketing) Act was passed which brought different functionaries like Auctioneers, Dealers and Exporters under the control of the Board. The three market functionaries via, Auctioneers, Dealers and Exporters have to take licenses from the Board to function. However, Cardamom Board was abolished and Government constituted a new Board for all Spices including Cardamom in 1985 under Spices Board

Act and all the activities performed by the Cardamom Board and Spices Export Promotion Council are brought under the purview of the Spices Board. Thus, Cardamom, at present, is having a regulated market by restricting the entry of different functionaries with a view to ensuring fair prices and timely payment of the sale proceeds to the growers.

The Spices Board felt the panacea for all the problems in the marketing of the cardamom was the introduction of auction system. Spices Board enacted cardamom (Licensing and Marketing) Rules 1987, to establish auction (manual) platforms and to regulate the conduct of the various market players. As per the Cardamom (Licensing and Marketing) Rules, 1987 only the authorized dealers can distribute Cardamom. The Board grants permission for dealing in Cardamom both for internal and export trade. No producer of Cardamom shall sell his produce otherwise than through a Licensed Auctioneer or a Dealer licensed to purchase Cardamom from producer. The aforesaid dealers alone can deal in the distribution of Cardamom in India and abroad. The License holders are exporters, Dealers, Auctioneer and RCM Licensees (Registration Membership Certificate and it enables them to get incentive while exporting cardamom). Dealers are simply license holders, having the right to purchase cardamom from growers or from auctioneers. Contrary to the expectation the manual auction system, did not result in healthy competition at auction hall.

To overcome the problems inherent in the manual auction and also on the appeal of cardamom planters, the Spices Board decided to replace the manual auction system with e-Auction system.. E-Auction is defined as the buying and selling or exchange of commodities through electronic platforms. It aggregates buyers and sellers in electronic marketplace and create value for both buyers and sellers. In India, the first e-Auction centre for cardamom was introduced in Tamil Nadu on 23rd August 2007 at Bodinayakanur with 40 buyer terminals and the first e-Auction centre in Kerala was inaugurated by the Union Minister of State for Commerce, Mr. Jairam Ramesh at Vandenmedu in Idukki district on 28th December 2007. This e-Auction centre has 60 buyer terminals. All the manual auction centres hitherto operating in Kumily, Nedumenkandam, Puliyanamala and Thekkady were converged into one single common auction centre at Vandenmedu where auctioneers are held on five days in a week. E-

Auction is beneficial to both cardamom growers and traders by promoting healthy competition among bidders. Trading is electronically monitored and the minimum price is discovered through competitive bidding. The software developed by Tata Consultancy Services is used for e-Auctioning.

In Kerala, the cardamom e-Auction is conducted at Vandenmedu three days a week (Tuesday, Thursday and Saturday). In Vandenmedu e-Auction centre, six auctioneers are licensed to conduct the auction. The auctioneers include one Co-operative society, two public limited companies and three private limited companies from various parts of the state.

The e-Auction centres at Bodinayaknur (Tamil Nadu) functions on three days (Monday, Wednesday and Friday) and the auction is conducted by 6 registered auctioneers. They are Vandenmedu Green Gold Cardamom Producer Co. Ltd., Sugandhagiri Spices Promoters & Traders Pvt. Ltd., Vandenmedu, Idukki Dist. Traditional Cardamom Producer Co. Ltd., Vandenmedu, Cardamom Growers Federation, Bodinayakanur, State Trading Corporation, Bodinayakanur, Cardamom Planters Association-Santhanparai. Manual auction system still prevails in Karnataka, Mumbai and Kolkata. In Karnataka, cardamom auction is held at Saklespur, Sirsi and Mercara on six days from Monday to Saturday. In total, there were 10 licensed auctioneers in Karnataka. The manual auction centres at Mumbai (Saturday) and Kolkata (Sunday) functions only for one day in a week.

1.4. e - Auction of cardamom

Spices Board had introduced e-Auction of Cardamom in Bodinayakanur, Theni Dist, Tamilnadu in Aug 2007. This e-Auction centre has forty buyer terminals. The second e-Auction centre was established in Vandanmettu, Idukki, Kerala in Dec 2007 with sixty terminals.

The e-Auction had replaced the traditional outcry auctions of Cardamom in Kerala and Tamilnadu. In the new system, licensed dealers are provided with a user id and password. The dealers have to log into the system to participate in an Auction. A bid is made with key depressions using a normal computer keyboard. Identity of bidders is protected during the auction process. Highest bidder's name is displayed only on the Auction

Masters' terminal. There is a main display board showing lot no, quantity, number of bags and current highest bid of each lot kept in the Auction.
The e-Auction system has brought transparency in the auction process. The system is running successfully in both centres.

1.5. Commodity futures

Commodities futures are agreements to buy or sell a raw material at a specific date in the future at a particular price. The contract is for a set amount. Buyers use futures contracts to fix the price of the commodity they are purchasing. That reduces their risk that prices will go up. Sellers of these commodities use futures to guarantee they will receive the agreed-upon price. They remove the risk that the prices will drop. That because the prices of commodities change on a weekly or even daily basis. Contract prices change as well.

If the price of the underlying commodity goes up, the buyer of the futures contract makes money. He gets the product at the lower, agreed-upon price and can now sell it at the today's higher market price. If the price goes down, the futures seller makes money. He can buy the commodity at today's lower market price, and sell it to the futures buyer at the higher, agreed-upon price. If commodities traders had to deliver the product, few people would do it. Instead, they can fulfil the contract by delivering proof that the product is in the warehouse. They can also pay the cash difference, or by provide another contract at the market price.

The safest ways to invest in commodities futures are through commodity funds. They can be commodity exchange-traded funds or commodity mutual funds. These funds incorporate the broad spectrum of commodities futures that occur at any given time. Trading in commodity futures and options contracts is very complicated and risky. Commodities prices are very volatile. Commodities futures accurately assess the price of raw materials because they trade on an open market. They also forecast the value of the commodity into the future. The values are set by traders and their analysts. They spend all day every day researching their particular commodity. Forecasts instantly incorporate

each day's news. The cardamom trade contracts for futures trading are available at commodity exchanges like MCX and NMCE

1.6. Price volatility

The term "price volatility" is used to describe price fluctuations of a commodity. Volatility is measured by the day-to-day percentage difference in the price of the commodity. The degree of variation, not the level of prices, defines a volatile market. Since price is a function of supply and demand, it follows that volatility is a result of the underlying supply and demand characteristics of the market. Volatility provides a measure of price uncertainty in markets. Therefore, high levels of volatility reflect extraordinary characteristics of supply and/or demand. Volatility indicates the pricing behavior of the commodity and helps estimate the fluctuations that may happen in a short period of time. If the prices of a commodity fluctuate rapidly in a short time span, it is termed to have high volatility. If the prices of a commodity fluctuate slowly in a longer time span, it is termed to have low volatility.

1.7. Statement of the problem

Price variability is the most important problem faced by traders, manufacturers and consumers. The commodity market is a very unstable market with even substantial dramatic volatility. Reasons can be numerous such as non-diversifiable homogeneous products, non-predictable natural catastrophes, exploitation of new resources, international as well as national political and economic pattern changes, global war, etc. commodity derivative were introduced with the main objective of providing hedging for producers and traders with the elimination of risk and estimation of the future spot price.

Futures trading have been recognised as an effective vehicle for controlling agricultural price and as a hedging tool. There have been mixed opinions indicating that futures trading have either driven up or brought down volatilities in spot prices, better price discovery and risk management in various countries depending on the commodities and underlying market conditions

The Futures market in respect of agricultural commodities has led to increase the exposure of agricultural produce to price and other market risks. The study focused on

analysing the behaviour of traders both in e – auction and cardamom futures. Price volatility of cardamom was also analysed in the study.

1.8. Objectives of the study

i) To analyze the behavior cardamom traders both in e - auction and cardamom futures.

ii) To analyze the price volatility of cardamom futures price.

1.9. Methodology

This part of analysis deals with the description of the study area, sampling procedure adopted, method of survey, nature and sources of data and various techniques employed for analysing the data.

1.10.1. Study Area

The study was undertaken in Idukki district, the major cardamom growing district in Kerala, which accounts for about 90 per cent of the total area and 70 per cent of the total production in India.

1.10.2. Period of Study

The period of the study was from July 21st 2017 to October 19th 2017.

1.10.3. Data collection

The information pertaining to the study were collected both from primary and secondary sources to accomplish the various objectives of the study.

a) Primary Data

Primary data were collected through administering a structured Interview Schedule from cardamom traders.

b) **Secondary Data**

The secondary data were collected from Spices Board, Spices Park, and also from various articles, journals and MCX website

1.10.4. Sampling design

To understand the behaviour of traders participating in e - auction and cardamom futures a sample of 30 cardamom traders were chosen from Kumily, Vandanmedu, Anakkara, Kattappana and Nedungandam regions.

Snowball sampling technique was used to identify the sample cardamom traders in Idukki district.

1.11. Scope of the study

The study explored on the price volatility of cardamom over the past ten years and how the traders managed the risk. The study also analysed whether cardamom traders were using cardamom futures to hedge price risk. The study also threw light on various other risk mitigation methods taken by traders to offset price risk.

1.12. Limitations of the study

The pattern of study undertaken in Idukki District of Kerala may not hold good for other states. Because of time and resource constraint, a large sample could be selected for the study. The small sample size would be affecting the validity of the generalizations. The personal bias of the auctioneers might have influenced the findings.

1.13. Organization of the study

The report is organized into five chapters including introductory chapter which features the cardamom economy, price volatility, statement of the problem, objectives, methodology, scope and limitation of the study. The second chapter attempts a comprehensive review of the available literature. The third chapter presents overview of cardamom futures. The fourth chapter discusses the results and discussion. The fifth chapter gives findings, conclusion and suggestion for improvement.

REVIEW OF LITERATURE

CHAPTER II

REVIEW OF LITERATURE

The available literatures are categorized under the following heads.

2.1 Futures trading in agricultural commodities.

2.2 Price volatility of commodity futures.

2.1 Futures trading in agricultural commodities

A well developed and effective commodity futures market facilitates price discovery and thereby, helps in minimizing the price risk associated with seasonal variations in the demand and supply of commodities. As part of Agreement on Agriculture (AOA) under the World Trade Organization (WTO), Government had to withdraw from the role of fixing prices in agricultural sector and assign a new market mechanism i.e., futures market, for price discovery based on diverse domestic as well as international market information, such as price, demand and supply, climatic conditions, etc., and also a tool for hedging risk for various groups such as farmers, traders and exporters. Review of studies on futures trading in agricultural commodities in general, in India and in other countries, are the content of this section.

Gosh et al. (1987) suggested a well-developed and effective commodity futures market, unlike physical market, which facilitates offsetting the transactions without impacting on physical goods until the expiry of a contract. Futures market attracts hedgers who minimize their risks, and encourages competition from other traders who possess market information and price judgment. While hedgers have long term perspective of the market, the traders, or arbitragers as they are often called, hold an immediate view of the market. A large number of different market players participate in buying and selling activities in the market, based on diverse domestic and global information, such as price, demand and supply, climatic conditions and other market related information. All these factors put together result in efficient price discovery as a result of large number of buyers and sellers transacting in the futures market.

In the study conducted by Frank (1992) the introduction of an agricultural commodity futures market in South Africa was considered. A futures market can be used by both buyers and sellers of a commodity to significantly reduce price uncertainty. Theoretical arguments were used to show that the futures and cash prices should be very close, if not equal, at expiration and that the current futures price should be a good forecast of the cash price at expiration. The study revealed that speculators play an important role by providing liquidity to the futures market, but it is possible that they can distort prices. For a futures market to be a success in South Africa, it was suggested that, there needs to be a free cash market, adequate liquidity and well informed traders.

A computer-based trading system is an improvement on the traditional floor trading system mainly because prices are more likely to reflect the underlying supply and demand conditions. Akiyama et al. (1993) investigated into the ability of food-deficit developing countries to import food at stable prices. This paper examined the possibility of using commodity futures for the purpose of price smoothing of food imports for small developing countries. A tighter integration between the theoretical work on the competitive storage model and the role of futures in providing greater stability in imported food prices was presented, as an illustration of the approach using a simple model essentially based on the competitive storage theory. The paper begins by presenting a welfare analysis of stable imported food prices. Recent findings on spot and futures price behavior relevant to import food price stabilization were reviewed followed by empirical confirmation of these findings in the context of world wheat markets. An import food grain price stabilization programme using futures is presented with advantages of a futures programme over a buffer-stock programme.

A study by Backenhogg (1993) revealed that agricultural reforms will make prices of main farm products fall and fluctuations in prices increase in nearly all agricultural markets. The case was put forward for the development of futures markets for farm products in Germany. Such markets existed to a limited extent from the early 1900s but ceased to be necessary when Common Agricultural Policy (CAP) provided a safe market for most farm products. The function of futures markets in improving price information

and reducing risks is explained and their possible benefits in Germany under conditions of CAP reform and agreement on GATT are discussed.

Link (1993) suggested various ways in which German farmers can protect themselves against price fluctuations with the advantages and disadvantages of each of these. The operation of a commodity futures market is explained and the effects of hedging operations on profits are illustrated for cases of rising and falling prices of potatoes and of pigs.

Pavaskar et al. (1993) opined that there is a lively debate amongst economists about the nature and practice of hedging in commodity futures markets. The paper examined the debate, not with a view to sharpen the area of disagreement among rural economists, but to demonstrate that the differences are superficial rather than real, and that, underlying the diverse concepts and views, there is a consensus though unacknowledged, on a single, uniform concept of hedging. The agreement simplifies the task of measuring the economic efficiency of hedging. Subsequently, the paper examined the nature of risks and returns involved in hedging practices in order to ascertain theoretical efficiency of the futures market for the purpose of hedging. The analysis disclosed the principal economic determinants of hedging decisions, the character of hedging in future markets and its efficiency.

Morgan et al. (1994) found that the inability of individual developing nations to provide wide scale commodity price support and the continual recognition of international commodity agreements have engendered a search for alternative mechanisms to reduce price volatility for soft commodities. One possibility is the use of futures market. The authors selected four commodities, viz., cocoa, coffee, sugar and wheat and analyzed the efficiency of associated futures market in terms of price discovery and risk reduction. All four markets exhibited efficiency and therefore provided, in theory, a viable policy alternative for developing economies. The study also briefly reviewed the work indicating why there has been a move away from international commodity agreements towards the use of futures market as a means of managing price risk in the phase of price volatility. The study also discussed the relationship between instability and futures trade lag. The last part of the study examined the price discovery and risk management

functions for the futures market for the four commodities. According to the authors, futures trading provide an alternative to forward contracting or government intervention as a means of managing the risk associated with producing and trading in soft commodities. The effectiveness of futures market is dependent on the ability on that market to provide a forum for price discovery. The study suggested that the futures markets for four widely traded soft commodities perform the forward pricing function adequately and can thereby facilitate decision making by agents with respect to production, sale, purchase and storage. Evidence on short run basis and spot price variability suggested that the markets could facilitate risk management through hedging.

Morgan et al. (1994) identified that output and price variability were inherent features of temperature and tropical soft commodities. The author examined the role of futures markets in providing a means of reducing the instability associated with a perishable soft commodity, namely potatoes. The context for the analysis was the gradual reduction in the extent of market intervention and in particular, the lifting of import restrictions. A general overview of the potato market in the UK is presented, and relationship between trade liberalization, instability and futures trading ids examined. The role of futures market in providing a reduction in price instability by focusing specific attention on both the price discovery and risk management functions of the market is examined. Forward contract had a history within the agricultural sector for guaranteeing a certain price for a certain quantity, but in the context of reducing instability such contract have the disadvantage of lacking flexibility. The alternative was futures trading that provide a more flexible and liquid means of managing the problems of instability within an agricultural commodity market.

Link (1996) illustrated the principles of hedging by an example of a maize futures contract at the Chicago Board of Trade (CBOT). The method by which a German maize producer could reduce risk from fluctuating prices by selling through futures market and the cost of the process are outlined.

Uhlmann (1996) outlined the principles on which commodity futures trading works and the advantages of hedging in reducing risks for raw material producers and purchasers. 12

The essential role of speculators in carrying the risk and that of international merchants and processors in developing the trade is described.

Graf (1997) explained the way in which milling firms would be able to use the market to hedge against falling or rising prices of cereals with examples.

Penning and Meulenberg (1997) opined that agribusiness companies and farmers must cope with the risk of price changes when buying or selling agricultural commodities. Hedging price risk with agricultural commodity futures offers a way of minimizing this risk. Because many new agricultural futures markets, especially those in Europe, are thin markets, hedgers face liquidity risks which have to be taken into account while evaluation hedging effectiveness.

Tomek (1997) proposed that futures markets provide contemporaneous price quotations for a constellation of contracts with maturities of thirty or more months in the future. Futures markets simultaneously determine a price level. Futures price can efficiently reflect a complex set of factors but still provide poor forecasts. According to the author, forecasts based on quantitative models cannot, however, improve on efficient futures prices as forecasting agents, empirical models provide as poor, if not poorer, forecasts.

The purpose of the study by Manfredo and Libbib (1998) was to apply the concept of index futures contracts to the produce industry by developing indexes based on prices of fruits and vegetables and to determine the hedging effectiveness of potential futures contracts written on these indexes. Twenty representative fruits and vegetables were chosen to compile indexes for fruits, for vegetables, and for fruits and vegetables together using a trade-weighted arithmetic average of 1989-92 wholesale prices of selected commodities traded on the Dallas Wholesale Fruit and Vegetable Market. The indexes were then tested by simulating a short and long hedge of a portfolio of commodities and by cross hedging selected individual New Mexico and California produce commodities with the indexes. US fruit and vegetable industry did not have a risk management instrument or a well-structured price discovery system, such as commodity futures contracts, to aid in the marketing and management of its price risk. Since the 1980"s financial futures contracts based on indexes of stocks, commodities and currencies have been used to hedge these groups of assets.

Carter (1999) described the main contributions in the literature on commodity futures markets and attempts to determine potential gaps in the literature. It was argued that modern studies have focused primarily on technical questions, with insufficient economic content. More research needs to be directed towards understanding fundamental economic issues such as why so few farmers hedge, the impact of government farm programmes on commodity futures, and the market impact of commodity pools. The literature has failed to explain the prevalence of inverted markets in grains and oilseeds, and there is unexplainable price volatility in markets such as pigs and orange juice.

Naik and Jain (2000) assessed the performance of Indian futures markets in terms of risk management and price discovery functions. The usefulness of futures markets in risk management was evaluated by analyzing the risk involved in the spot, futures, and basis of commodities, while their role in price discovery was evaluated by examining forward pricing ability through tests of co-integration between cash and futures prices and tests for efficiency and lack of bias. Data used in this study pertain to the period 1990-200 for castor seed, pepper, turmeric, potato and gur, and for 1993-2000 for Hessian. It was concluded that the Indian futures markets for agricultural commodities are yet to develop fully as efficient mechanisms of risk management and price discovery. In spite of the high volume of domestic and international trade in physical markets and the high price volatility of many commodities traded, the use of futures markets is relatively low as reflected in the volume of transaction.

Booth and Ciner (2001) investigated about alternative explanations of long term co-movements among the prices of agricultural commodity futures contracts. An analysis of Tokyo Grain Exchange future prices for maize, red bean, soybean and sugar (during the period of July 1993- March 1998) supported the common economic fundamentals or heard behavior by market participants.

Dalhlgran (2001) developed a general model of cash and futures markets for a storable commodity. The cash market model was characterized by the" incorporation of long-hedge to establish contractual claims against existing inventories, which may be either short-hedged or un-hedged. The futures market model incorporates outright speculation as well as spread speculation. The paper then examined through mathematical analysis

the characteristics these markets must possess if they are efficient in information flow, if they are conformable for testing price discovery, and if they are integrated in the short or long run. Results indicated that efficient futures markets were characterized by any one of five conditions, viz., perfectly inelastic utilization demand, perfectly inelastic speculation of infinitely elastic utilization demand, and perfectly inelastic speculation. These conditions further imply that if futures market is efficient in information flow, their prices are not determined simultaneously with cash prices. The extreme assumptions associated informational efficiency highlight the deficiency of the concept.

Hamloch et al. (2001) examined the experience of the commodity futures exchange in Hannover, Germany. This exchange commenced trading in 1998, following moves to establish futures markets in Germany in the mid-1990s. With pricing becoming less of an agricultural policy instrument, and less administrative influence on markets, planning risks are increasing. Futures trading can help maintain security of planning.

Morgan (2001) reviewed the arguments for utilizing futures markets in less developed countries (LCD"s) as an instrument of risk reduction and examined the reasons underlying the review of price risk in internationally traded commodity markets by a World Bank task force. The authors concentrated on issues like, why there is currently an interest in the use an establishment of futures markets, what role a futures market can be expected to perform and to what extent producers in LCDs can be helped. The extent and scale of futures market usage across the world was illustrated. It was clear that there is a concentration of exchange is developed market economies rather than in LCDs, and that there is perhaps little cross-linkage between the two sets of market.

Yoon and Broresen (2001) revealed that as opposed to a normal market, an inverted market has a negative price of storage or spread. Market inversions in nearby spreads rarely occur during early months of the crop year since stocks are usually abundant after harvest. However, market inversions frequently occur when the spreads rarely occur during early months of the crop year since stocks are usually abundant after harvest. However, market inversions frequently occur when the spreads are observed across crop years near the end of the crop year. The regressions of spreads on the logarithm of US quarterly stocks showed that there exists a positive relationship between the spread and

the level of stocks, and further implies that when stocks are scarce, markets will be inverted. Simulations were conducted to determine whether a market inversion is a signal to sell the stocks. The results of the paired-difference tests revealed that as the crop cycle advances towards the end of the crop year, market inversions clearly reflect the markets signal to release stocks in anticipation of new crop supplies. The regressions of actual returns to storage on predicted returns to storage clearly showed that a market is a signal to sell. The results supported the behavioral finance hypothesis that producers are choosing to hold excess stocks because of some type of biased expectations.

Bryant and Haigh (2002) investigated issues of recent interest and controversy regarding bid-ask spreads in commodity futures markets. First, they applied competing spread estimators to open outer transactions data and compared resulting estimates to observed spreads. This enables market microstructure researchers, regulators, exchange officials, and traders, the opportunity to evaluate the usefulness and accuracy of bid-ask estimators in markets that do not report bid and ask data, providing an idea of the "worst-case" transaction costs that are likely to be incurred. They also compared spreads observed before and after trading was automated on commodity futures markets, and discovered that spreads have generally widened since trading was automated, and that they have an increased tendency to widen in periods of high volatility. Their findings suggested that commodity futures markets an inherently different character than financial futures markets, and therefore merit separate investigation.

2.2 Price volatility of commodity futures.

Samuelson (1965) postulates, volatility of futures price is a negative function of Time to Maturity (TTM). More specifically, as the futures contracts approaches maturity or the time left for maturity declines, the volatility of futures prices enhances. This proposition by Samuelson is commonly known as *Samuelson Hypothesis* or *Maturity Effect*. When the maturity date approaches, the same news affects futures price in a different way depending on the moment it becomes known. It is important to examine the behaviour of the volatility of futures contract prices near the maturity date because it has important repercussions on the participants involved in the futures markets. On the basis of the relationship between volatility and maturity, hedgers can select futures contracts with a

short or long TTM accordingly to reduce the price volatility. Moreover, if the maturity effect holds, as larger volatility entails greater short term profit opportunities, then the speculators can trade in futures contracts those are close to expiry. In this context, the main focus of the current study is to analyze the pattern of price volatility of cardamom futures over the last ten financial years.

Understanding relationship among volatility, return, information and volume is considered as the central point to understand commodity market and its microstructure. It is widely acknowledged that the arrival of new information induces trading in assets markets and subsequent revisions of expectation by investors. When new information comes to the market, agents respond by trading until prices arrive at a revised and post-information equilibrium. The two popular well-accepted hypotheses explain information-volume-volatility relationships are 'Mixture of Distribution Hypothesis' (MDH) and the 'Sequential Information Arrival Hypothesis' (SIAH). According to MDH (Clark, 1973; Epps and Epps, 1976; and Tauchen and Pitts, 1983), returns series are produced by mixture of distribution in which the rate of information arrival is the general directing or mixing variable. Return series can be viewed as stochastic process, conditional on the information inflow, with changing second moment reflecting the intensity of information arrival. As a result, when new and unexpected information arrives, both volume and volatility change positively and contemporaneously to new information. Commodities are considered as a separate asset class in the domain of all assets. In order to attain the economic exposure associated with commodities by the use of commodity derivatives, futures contracts are considered as one of the most important hedging instruments. Among several functions performed by commodity futures market, risk transfer and price discovery are considered as the two most important contributions towards the economic activity (Garbade and Silber, 1983). The quintessence of price discovery is to create a competitive reference price from which the future spot price can be derived. An efficient futures market should not only have a close relation with the spot market and thereby helps hedging through a process of arbitrage between both the markets, but it should also acts as a forum whose prices should be taken as a 'reference price' for the future spot prices by the market functionaries. This service of 'reference pricing' is popularly known as 'price discovery'. According to Working, 1948, price discovery means the entire

mechanism by which markets integrate all available information to reach at the equilibrium price. Thus, futures markets serve as a mechanism to reduce the price risk associated with commodities by revealing the information about future spot market prices. In the literature, a pre-condition for identifying market efficiency is the convergence of both futures and spot prices across the market spectrum. It indicates how fast one market assimilates information compared to the other, and also shows the level of integration between the two markets as well as the efficiency of their functioning.

Copeland's (1976) SIAH proposes that new information is distributed sequentially to the market participants. Traders, who are not yet informed properly, cannot infer perfectly. Therefore, the sequential arrival of new information to the market creates both trading volume and price changes. In addition to trading volume, open interest is also an important indicator of trading activity and an imperative source of market information. Open interest explains the depth and confidence of the market. Both volume and open interest data indicates trading activity and distinguishing effects that are generated by market participants. Volume is suitable to capture the daily activity of a particular group of traders who are informed and trades with a short time frame; and can be used as the proxy for capturing the trading behavior of day traders/speculators. Open interest can be used as a proxy for measuring hedgers' trading activities who are basically uninformed traders.

A well organized and effective commodity futures market assists the price discovery and thus, facilitates in reducing the price risk associated with the seasonal fluctuations in the demand and supply of commodities. Commodity futures market has enormous potential for serving the economy as they alleviate the intensity of price variations, helps in multifaceted production decisions, bring a balance between demand and supply, and perform as a price barometer to the market participants besides encouraging competition. The main rationale of introducing futures instruments is to condense the spot price volatility through better price discovery (Stein, 1987). Even though, risk transfer and price discovery are generally considered as the imperative roles of commodity futures market, several critics also opine that the excessive speculative trading activities in the commodity futures market influence spot market price volatility, especially for the

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agricultural commodities. The opponents of commodity futures market argue that with the arrival of any negative information in the commodity market, speculators have a tendency to corner the essential commodities in the futures market and thus artificially enhance the prices of the underlying commodity in the spot market. In India as well, the effect of excessive speculative futures trading on spot market prices is one of the most controversial issues among policymakers and researchers. Responding to the concerns expressed at various forums, Government of India appointed an Expert Committee under the Chairmanship of Prof. Abhijit Sen in March 2007, to inspect the impact of futures trading activity on the sudden increase in the prices of agricultural commodities. The committee submitted its report in April 2008, but failed to arrive at a unanimous conclusion. Given the context, the study aimed to understand the effect of such situation on the cardamom traders.

Generally, in a perfect frictionless and efficient market, there should be a concurrent movement of futures price and spot price with no lead-lag in the movements of prices (Quan, 1992). However, due to institutional factors associated with futures market like lower transaction costs, high liquidity, and inherent leverage etc. futures market processes information faster than the underlying spot market. This leads to an empirical lead-lag relationship among price changes in the spot and futures markets. If the price change is occurring first in the futures price due to new information arrival in the market and it is reflected subsequently in spot price, futures price is considered as leading the spot price. It indicates that futures market executes price discovery function and it is generally considered as the most important indicator for judging the efficiency of the futures market. The extent to which futures market performs this function well can be determined from the inter-temporal causal relationship among futures and spot markets. The price discovery and market efficiency are considered as the pillars of market microstructure design and having paramount significance to regulators, academicians and practitioners. In this context, the present study aimed to analyse the difference in MCX spot market price and e-auction prices of cardamom and to know which price is leading the other.

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OVERWIEW OF FUTURE MARKET

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Chapter-3

OVERVIEW OF FUTURE MARKET

3.1 Introduction

Commodities are products that can be bought, sold or traded in different kinds of markets. Commodities are the raw materials that are used to create products which are consumed in everyday life around the world, from food products in India to building new homes in Europe or to running cars in the US.

There are two main types of commodities:

- Soft commodities – agricultural products such as corn, wheat, coffee, cocoa, sugar and soybean; and livestock.
- Hard commodities – natural resources that need to be mined or processed such as crude oil, gold, silver and rubber.

Throughout history, commodities have played a major role in shaping the global political economy and have affected the lives and livelihoods of people. History is replete with examples of how shortage of critical commodities sparked huge public outcry and social unrest. Of late, the world community is concerned over the environmental and health costs of production and consumption of certain commodities and impact on society

Commodity futures were re-introduced in India in a formal manner in 2002, with an aim to improve the efficiency, effectiveness and governance in commodities trading. Futures trading were intended to bring symmetry information across market participants. Resultantly, it is expected that the planters would be able to fetch a better price for their output, by deciding the best time to sell their harvest and also ease the channels of credit to the planter through effective implementation of warehouse receipt financing. Also, exporters would be able to hedge against input price fluctuations, get standardized input of specified quality and quantity at the right time. Overall, the power of information with middlemen has to come down resulting in reduced supply chain margins.

With cardamom futures trade having existed for almost a decade, it is worthwhile to assess the impact trading in cardamom futures has had on different participants in the cardamom value chain.

3.2 Economic perspective of commodity future market

- Price Discovery
- Price risk management
- Import-Export management
- Predictable pricing
- Benefits for farmers & agriculturalist
- Credit accessibility
- Improved product quality

The buyer and seller at the future exchange conduct trading based on their assessment of input regarding specific market information, expert's view and comments, the demand & supply equilibrium, government policies, inflation rates, Whether forecasts, market dynamics, hopes and fears which transforms into a continuous price discovery mechanism. The execution of trades between buyers and sellers leads to assessment of the fair value of a particular commodity that is immediately disseminated on the trading terminal.

Hedging is the most common method of price risk management. It is the strategy of offsetting price risk that is inherent in a spot market by taking an equal but opposite position in the future market. Future markets are used as a mode by hedgers to protect their business from adverse price changes, which could dent profitability of their business. Hedging benefits all participants who are involved in trading of commodities i.e. manufacturer, exporters, importers, farmers etc.

The exporters can hedge their price risk and improved their competitiveness with the help of future market. Most of the buyers intend to buy forwards if they are involved in

physical trade internationally. For example, The Indian textile mills exports three months forwards since their buyer needs this security. Also in the 20 oilseed sector the international buyer prefer to buy at least one year forward. Normally, exporters who enter into such forward contract do not possess the entire stock required. The purchases would have to be made from the physical market, which would expose them to the risk of price risk resulting to losses. To safeguard against such risk, the exporters might have to refuse demand for long period contracts thereby hurting their own competitive position or hold inventory that is more than required. The existence of a future market would allow the exporters to hedge their propose purchase by temporarily substituting for an actual purchase till the time is ripe to buy in the physical market. Without future market this can only be possible by a meticulous, time consuming and costly timing of their physical transactions. A future market would allow the processor & oilseeds crushers to cut down the marketing and processing margin thus enabling them to compete effectively with the now free imports of edible oils. Similarly, reduced margins will enable the crushers to offer high prices to oilseed growers.

The demand for certain commodities like edible oils is highly price elastic. The manufacturers thus have to ensure that the prices are stable in order to protect their market share with the free entry of imports. Future contract will enable predictability in domestic prices. As a result, the manufacturer can smooth out the influence of change in their input prices very easily. With no future market, the manufacturer can be caught between sever short term price movement of oil and the necessity to maintain price stability, which could only be possible through sufficient financial reserves that could otherwise be utilize for making other profitable investments.

Future market would be beneficial for the farmers as well as to those who do not use them directly. Price instability has a direct bearing on farmers in the absence of future market. There would be no need to have large reserves to cover against unfavorable price fluctuations. This would reduce the risk premium associated with the marketing or processing margins enabling more return on the produce storing more and being more active in the market. The price information accessible to the farmers determines the extent to which traders or processor 21 increase prices to them. Since one of the

objectives of the future exchange is to make available these prices as far as possible, it is very likely to benefits the farmers.

Due to the time lag between planning & production, the market determined price information disseminated by the future exchanges would be crucial for their production decision.

The absences of proper risk management tool would attract the marketing and processing of commodities to high risk exposure making it a risky business activity to fund. Even a small movement in prices can eat up a huge proportion of capital own by trader, at times making it virtually impossible to pay back the loan. There is a high degree of reluctance among banks to fund commodity traders, especially those who do not manage price risks. If in case they do, the interest rate is likely to be high and the terms and conditions very stringent. This poses a huge obstacle in the smooth functioning and competition of the commodities market. Hedging, which is possible through future markets, would cut down the discount rate in commodity lending.

The existence of warehouses for facilitating delivery with grading facilities along with other delivery related Benefits provides a very strong reason to upgrade and enhance the quality of the commodity to a grade that is acceptable by the exchange. It ensures uniform standardization of commodity trade, including the terms of quality standard. The quality certificates that are issued by the exchange certified warehouses have the potential to become the norms for physical trade.

3.3 Price volatility in commodity market.

The sharp upward or downward movement in prices (in other words, price volatility) is one of the key problems associated with commodities. Price volatility can result from irregular production and harvests as well as from swings in demand and supply. Volatility evokes risks for both producers and consumers. Volatile prices can have a devastating impact on economies. For instance, if higher prices for imported oil continue for a prolonged period of time, it can generate serious payments problems, as was witnessed in India during the 1990-91 period. On the other hand, lower prices can lead to less income for commodity exporting countries. A sharp increase in global food and fuel prices during

2007-08 resulted in food riots in many developing countries. It also contributed to a worsening of the trade balance and current account deficits in many oil-importing and food importing developing countries. It posed new challenges for reducing poverty, preserving food security, controlling inflation and maintaining macroeconomic stability. This prompted policy makers to put the issues of commodity price volatility and the price formation on commodity derivatives markets high on the global policy and financial reform agenda.

There is no denying that the rapid growth in production and consumption of China and India has contributed to a massive surge in demand for commodities from energy to minerals in recent years. In addition, intense speculative activity by financial players, geo-political factors and tight supply capacities have also significantly affected commodity prices and volatility.

3.4 Commodity exchanges

A commodity exchange is an association or a company where various commodities and derivatives products are traded for which license has been granted by regulating authority. Most commodity markets across the world trade in agricultural products and other raw materials like wheat, barley, sugar, maize, cotton, cocoa, coffee, milk product, pork bellies, oil, metal, etc. and contract based on them. These contracts can include spot forward, future etc.

A big difference between a typical auction, where a single auctioneer announces the bids and the exchange is that people are not only competing to buy but also to sell. By exchange rules and by law, no one can bid under a higher bid, no one can offer to sell higher than someone else's lower offer. This keeps the market as efficient as possible, and keeps the traders on their toes to make sure no one gets the purchase or sell before they do.

3.5 Benefits of trading in commodity derivatives

Future markets provide a platform for risk mitigation, price discovery, arbitrage and clearing and settlement. It helps sellers and buyers hedge against future price risk. It

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provides liquidity by bringing together the buyer and the seller of agricultural produce and enabling traders to quickly transact their business at a fair price. Finally offers an opportunity for financial leverage for speculators, hedgers, and other traders trading in the futures markets. In a future exchange, traders are made and prices are discovered on the basis of current market information and expectations of future price movements. Futures markets are barometers. They enable the market to reach the equilibrium price. Futures market prices have become the most widely used pricing reference in agricultural markets. Futures exchanges act as a magnet, attracting risk avoiders (hedgers) and risk takers (speculators) alike. A key advantage of futures contracts is that the exchange provides a guarantee system that protects futures users from contract default.

Price Risk Management

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.

Price Discovery

This is the mechanism by which a "fair value price" is determined by the large number of participants in the commodities derivatives markets. This is the result of automation and electronic trading systems established on the commodities derivatives exchanges.

Commodities as an Asset Class for Diversification of Portfolio Risk

Commodities have historically an inverse correlation of daily returns as compared to equities. The skewness of daily returns favours commodities, thereby indicating that in a given time period commodities have a greater probability of providing positive returns as compared to equities. Another aspect to be noted is that the Sharpe ratio of a portfolio consisting of different asset classes is higher in the case of a portfolio consisting of commodities as well as equities. Even with a marginal distribution of funds in a portfolio

to include commodities, the Sharpe ratio is greatly enhanced, thereby indicating a decrease in risk.

Commodity Derivatives Markets are Extremely Transparent

The manipulation of prices of a commodity is extremely difficult due to globalization of economies, thereby providing for prices benchmarked across different countries and continents.

High Financial Leverage

High financial leverage is possible in commodity markets. With futures contracts, the investor trades in the expectation of the price at a later date. This is possible with a margin deposit, which is usually between 5% and 10% of the value of the commodity. Whereas the margins required for equity futures contracts are higher, due to higher volatility in equity markets as compared to commodities futures contracts.

An Option for High Networth Investors

With the rapid spread of derivatives trading in commodities, the commodities route too has become an option for high net worth investors.

Useful to the Producer

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 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 maximize his profits.

Useful for the Consumer

Commodity trade is useful for 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 costing/financial planning and also cover his purchases by making forward contracts. Predictable pricing and transparency is an added advantage.

Useful to Exporters

Future trading is very useful to the exporters as it provides an advance indication of the price likely to prevail and thereby help the exporter in quoting a realistic price and thereby secure export contract in a competitive market.

Benefit to Corporate Entities

They 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/technical specifications.

Improved Product Quality

Since the contracts for commodities are standardized, it becomes essential for the producers/sellers to ensure that the quality of the commodity is as specified in the contract. The advent of commodities futures markets has also enabled defining quality standards of different commodities.

Credit Accessibility

Buyers and sellers can avail of the bank finances for trading in commodities Nationalized banks and private sector banks have come forward to offer credit facilities for commodity trading.

3.6 Role of commodity exchanges

Future markets provide a platform for risk mitigation, price discovery, arbitrage and clearing and settlement. It helps sellers and buyers hedge against future price risk. It provides liquidity by bringing together the buyer and the seller of agricultural produce and enabling traders to quickly transact their business at a fair price. Finally offers an opportunity for financial leverage for speculators, hedgers, and other traders trading in the futures markets. In a future exchange, traders are made and prices are discovered on the basis of current market information and expectations of future price movements. Futures markets are barometers. They enable the market to reach the equilibrium price. Futures market prices have become the most widely used pricing reference in agricultural

markets. Futures exchanges act as a magnet, attracting risk avoiders (hedgers) and risk takers (speculators) alike. A key advantage of futures contracts is that the exchange provides a guarantee system that protects futures users from contract default.

General benefits and other advantages for all players

A) Improved Product Quality: since the contracts for commodities are standardized, it becomes essential for the producers/sellers to ensure that the quality of the commodity is specified in the contract.

B) Credit Accessibility: buyers and sellers can avail of the bank finances for trading in commodities. As mentioned here, some nationalized banks and some banks in the private sector have come forward to offer credit facilities for commodity trading. More and more banks are likely to fall in line looking at the huge potential that commodity market offers in India.

3.7 The Multi Commodity Exchange of India Limited (MCX)

India's first listed exchange, is a state-of-the-art, commodity futures exchange that facilitates online trading, and clearing and settlement of commodity futures transactions, thereby providing a platform for risk management. The Exchange started its operations in **November 2003**, operates within the regulatory framework of the Forward Contracts Regulation Act, 1952. MCX offers trading in more than 30 commodity futures contracts across segments including bullion, ferrous and non-ferrous metals, energy, and agricultural commodities. The exchange focuses on providing commodity ecosystem participants with neutral, secure and transparent trade mechanisms, and formulating quality parameters and trade regulations, in conformity with the regulatory framework. The Exchange has an extensive national reach, with over 2100 members, operations through more than 400,000 trading terminals spanning over 1770 cities and towns across India. MCX is India's leading commodity futures exchange with a market share of 87.3 per cent in terms of the value of commodity futures contracts traded in FY 2012-13. The Exchange was the third largest commodity futures exchange in the world, in terms of the number of contracts traded in 2012, based on the Futures Industry Association's annual

volume survey released in March 2013. Moreover, as per the survey, during 2012, MCX was the world's largest exchange in silver and gold futures, second largest in copper and natural gas futures, and the third largest in crude oil futures. "The Exchange offers facilities such as calendar-spread facility, EFP (Exchange of Futures for Physical) transactions which enables participants to swap their positions in the futures/ physical markets. The exchange's flagship index, the MCXCOMDEX, is a real-time composite commodity futures price index which gives information on market movements in key commodities. Other commodity indices developed by the exchange include MCX Agri, MCX Energy, and MCX Metal. MCX has been certified to three ISO standards including ISO 9001:2000 quality management standard, ISO 27001:2005 information security management standard and ISO 14001:2004 environment management standard. MCX has forged strategic alliances with leading international exchanges such as CME Group, London Metal Exchange (LME), Shanghai Futures Exchange (SHFE) and Taiwan Futures Exchange (TAIFEX) with an aim to integrate with the global commodities ecosystem. The Exchange has also tied-up with various trade bodies, corporates, educational institutions and R&D centers across the country. These alliances enable the Exchange in improving trade practices, increasing awareness, and facilitating overall improvement of commodity futures market. MCX"s ability to use and apply technology efficiently is a key factor in the development of its business. The exchange's technology framework is designed to provide high availability for all critical components, which guarantees continuous availability of trading facilities. The robust technology infrastructure of the exchange, along with its with rapid customization and deployment capabilities enables it to operate efficiently with fast order routing, immediate trade execution, trade reporting, real-time risk management, market surveillance and market data dissemination. The Exchange is committed to nurturing communities that are vital for the development of its business. To achieve their goal of inclusive growth, they collaborate with diversified partners. Gramin Suvidha Kendra, their social inclusion program in partnership with India Post, seeks to enhance farmers" value realization from agricultural activities. MCX has been continuously raising the bar through effective research and product development, intelligent use of information and technology, innovation, thought leadership and ethical business conduct.

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The MCX Cardamom futures contract is one of the most liquid contracts on the Exchange based on compulsory delivery. As the cardamom crop is highly sensitive to weather, and subject to high price fluctuation, the contract can be effectively used by the cardamom value chain – growers, planters, traders, exporters, and even retailers to hedge price risks. With production being centered in South India, and buyers are largely in North India. MCX platform gives excellent opportunity for buyers in North India to buy their stock requirement sitting in their office knowing the best competitive price. MCX, through its warehouse arm, National Bulk Handling Corporation Pvt. Ltd. (NBHC), has the best warehouse practices ensuring quality of the crop. The underlier of the MCX Cardamom contract is Elettaria cardamom, also known as small green cardamom, grown in the southern states of Kerala, Tamil Nadu and Karnataka. Amomum cardamom, also known as black cardamom grown in North Eastern states is not tradable on the MCX platform.

While keeping pace with the increasing population, the growing agricultural production over the past several decades has thrown up major challenges in marketing, as well as supply, storage, and distribution. With highly fragmented markets and volatile commodity prices, it is a challenge to ensure a 'fair' and 'remunerative' price for the Indian farmer. Keeping these in mind, the government introduced a number of reforms. In all this, the strengthening of existing institutions in 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.

3.8 Market share of various Commodity Exchanges in India

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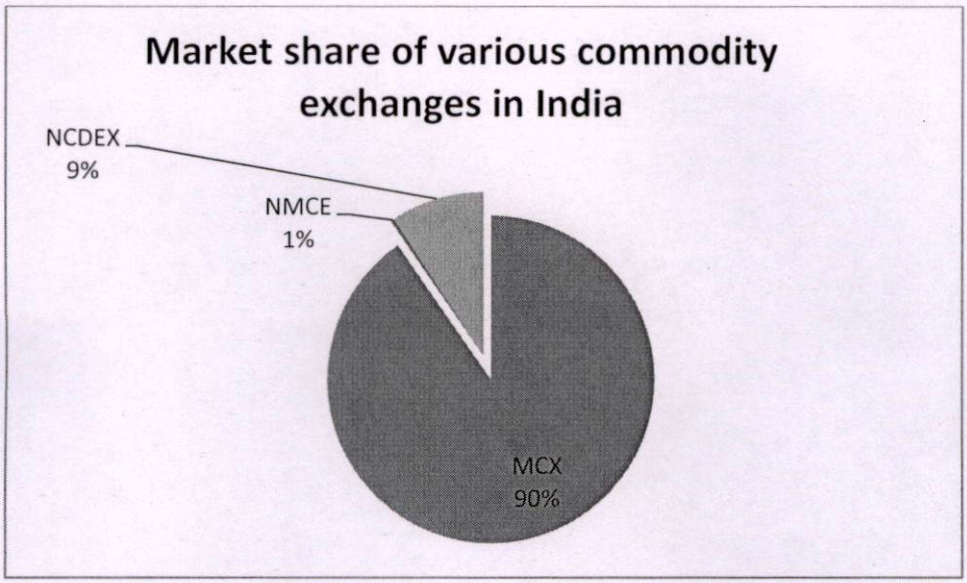

MCX it market leader in terms of market share in commodity future with 90 percent share in FY2016-17 followed by NCDEX and NMCE with 9 and 1 per cent share respectively.

3.9 Factors Influencing the Market

- Freshness, colour, aroma, and size of the crop
- Production in competing countries, mainly Guatemala
- Annual production in India
- Year-ending stocks at India and Guatemala
- Seasonal variations and time of arrival of new crop in the market
- Domestic consumption, which is influenced by festivals

In the market, risk management techniques are critical for key stakeholders of cardamom, such as producers, exporters, marketers and processors. Given an uncertain future, modern techniques and strategies, including market-based risk management financial instruments, such as 'Cardamom Futures', offered on the MCX platform can improve efficiencies and consolidate competitiveness through price risk management.

3.10 Contract specifications of MCX cardamom

The underlier of the MCX Cardamom contract is Elettaria cardamom, also known as small green cardamom, grown in the southern states of Kerala, Tamil Nadu and

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Karnataka. Amomum cardamom, also known as black cardamom grown in North Eastern states is not tradable on the MCX platform.

Symbol	CARDAMOM
Description	CARDAMOMMMYY
Contract Listing	All 12 calendar months
Contract Start Day	Contract launch date shall be the 16th day of contract launch month. If 16th day is a holiday then the following working day
Last Trading Day	15th of the contract expiry month. If 15th is a holiday then preceding working day.
TRADING	
Trading Period	Monday to Friday:10.00 am to 5.00 pm
Trading Unit	100 KG (1 quintal)
Quotation/Base Value	₹ /Kg
Price Quote	Ex- Vandanmedu, Dist. Idukki, Kerala (exclusive of all tax and levies)
Maximum Order Size	5000 KG (50 quintals)
Tick Size	10 paisa/Kg

Daily Price Limits	**Initial slab** 3% **Enhanced slab** 1% **Total DPL** 4% DPL shall have two slabs – Initial and enhanced slab. Once the initial slab limit is reached in any contract, then after a period of 15 minutes this limit shall be increased further by enhanced slab, only in that contract. The trading shall be permitted during the 15 minutes period within the initial slab limit. After the DPL is enhanced, trades shall be permitted throughout the day within the enhanced total DPL of 4%.
Initial Margin	Minimum 5% or based on SPAN whichever is higher
Maximum Allowable Open Position*	For individual clients: 160 MT For a member collectively for all clients: 1600 MT or 15% of the market wide open interest, whichever is higher **Near Month Limits** For individual clients: 40 MT For a member collectively for all clients: 400 MT or 15% of the market wide open interest, whichever is higher.
DELIVERY	
Delivery Logic	Compulsory
Staggered Delivery	The staggered delivery tender period would be the last 10 days (including tender period expiry day) of the contracts. If 5th of the month happens to be a holiday or Saturday at the Exchange, the period would start from the next trading day. During the tender period, each day sellers' (short holders) shall have options to give

	delivery intention accompanied with valid quality certificate and proof of deposit of goods in the accredited warehouse/ cold storage.
Delivery Centre(s)	At Exchange designated warehouse at Vandanmedu in Idukki Dist of Kerala State
Delivery Unit	100 Kg, and direct multiples thereof

Source: MCX website

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RESULTS AND DISCUSSIONS

Chapter 4

Results and discussions

4.1. Personal profile of the licensed traders.

In order to figure out the personal profile of the respondents, data were collected with regard to selected personal variables such as age, educational qualification, experience in trading, status of the firm, area of operation etc.

4.1.1. Age of Licensed Traders.

The licensed traders are classified into five age groups and are given in Table 4.1.The traders include two categories: those participating only in e - Auction (80 per cent) and traders who also procure cardamom directly from farmers as hand purchase (20 per cent).

Table 4.1.1. shows the age-wise classification of traders.

SI. No.	Age (year)	No. of traders
1	Below 30	2 (7.0)
2	30-40	4 (13.0)
3	40-50	12 (40.0)
4	50-60	10 (33.0)
5	Above 60	2 (7.0)
	Total	**30 (100)**

Source: Primary data

Note: Figures in the bracket indicate percentage to the total

From Table 4.1.1 it is evident that around 73 per cent of the traders belonged to the 40-60 age group. Traders in the age group below 30 years and above 60 years constituted seven per cent each of the sample. Traders in the age class of 30-40 years formed 13 per cent of the sample. Traders in the 40s and 50s formed the majority of the sample.

4.1.2. Educational Qualification of the Licensed Traders

Table 4.1.2. shows the educational qualification of the licensed traders.

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SI. No.	Qualification	No. of traders
1	Higher Secondary	6 (20.0)
2	Graduation	16 (53.0)
3	Post-graduation	8 (27.0)
	Total	**30 (100)**

Source: Primary data

Note: Figures in the bracket indicate percentage to the total.

The table shows that 80 per cent of the traders were either graduates (53 per cent) or post graduates (27 per cent). The remaining 20 per cent had Higher Secondary education. The results indicate that majority of the licensed traders are well educated.

4.1.3. Involvement in Other Type of Business

Table 4.1.3. discloses the traders involvement in businesses other than cardamom trading. The engagement of selected traders in other business is presented in Table 4.4.

SI. No.	Engagement in other business	No. of traders
1	No other business	8 (27.0)
2	Trading in other spices	16 (53.0)
3	Trading in shares	6 (20.0)
	Total	**30 (100)**

Source: Primary data

Note: Figures in the bracket indicate percentage to the total

From the table it is clear that 53 per cent of the licensed traders were trading in other spices. It is obvious that only 27 per cent were full time cardamom traders. Traders who had trading in shares formed 20 per cent of the sample. Out of the 30 traders, 13 traders were cultivators of cardamom too. The results indicate that vast majority (73 per cent) of the licensed traders had some other business along with cardamom trading

4.1.4. Experience in Cardamom Trading

Table 4.1.4. captures the experience of traders in cardamom trading.

SI. No.	Experience (year)	No. of traders
1	1-5	4 (13.0)
2	5-10	8 (27.0)
3	>10	18 (60.0)
	Total	**30 (100)**

Source: Primary data

Note: Figures in the bracket indicate percentage to the total

From the table it is clear that 60 per cent of the licensed traders had 10 or more years of experience in cardamom trading. The remaining 27 per cent had 5-10 years of experience. Traders with 1-5 year experience constituted 13 per cent of the sample. The results show that the selected licensed traders had long years of experience in cardamom trading.

4.1.5. Legal Status of the Licensed Traders

Table 4.1.5. shows the legal status of the licensed Traders.

SI. No.	Legal status	No. of traders
1	Proprietary	22 (73.0)
2	Partnership	3 (10.0)
3	Private limited companies	5 (17.0)
	Total	**30 (100)**

Source: Primary data

Note: Figures in the bracket indicate percentage to the total

The table indicates that 73 per cent of the traders were sole proprietorship and 17 per cent were private limited companies. The remaining 10 per cent were partnership firms. The results indicate that cardamom trade is dominated by proprietary firms (73 per cent).

4.1.6. Geographical Location of the Licensed Traders

Table 4.1.6 shows the place of trade of the selected traders.

SI. No.	Place of operation	No. of traders
1	Nedumkandam	3 (10.0)
2	Kattapana	3 (10.0)
3	Vandenmedu	5 (17.0)
4	Kumily	5 (17.0)
5	Puttady	3 (10.0)
6	Puliyanmala	1 (3.0)
7	Bodinaikkannur	9 (30.0)
8	Ernakulam	1 (3.0)
	Total	**30 (100)**

Source: Primary data.

Note: Figures in the bracket indicate percentage to the total

The table indicates that 30 per cent of the licensed traders were from Bodinayakannur. Another 17 per cent each were from Vandenmedu and Kumily. Licensed traders from Nedumkandam, Puttady and Kattappana formed 10 per cent each of the sample. The remaining three per cent each were from Puliyanamala and Ernakulam.

4.2 Behavior of the traders in spot market

This section explains about the behavior of the traders in the spot price.

4.2.1. Satisfaction with the Quality of Cardamom Received

From the survey it was found that 70 per cent of the licensed traders were satisfied with the quality of cardamom they bought from e-auction. The remaining 30 per cent were not satisfied with the quality.

4.2.2. Grading of Cardamom Before selling.

All the licensed traders undertook grading of cardamom before sales.

4.2.3. Major markets catered by the Licensed Traders

Table 4.2.1 exhibits the major markets catered by the licensed traders.

SI. No.	Market	No. of traders
1	Within Kerala	7 (23.0)
2	Other states	21 (70.0)
3	Foreign markets	2 (7.0)1
	Total	**30 (100)**

Source: Primary data

Note: Figures in the bracket indicate percentage to the total

The table shows that vast majority (70 per cent) of the traders were selling cardamom outside Kerala and only 23 per cent were selling in Kerala. The remaining seven per cent traders exported cardamom to foreign markets.

4.2.4. Benefits of Grading Cardamom Before Selling.

Table 4.2.2. Benefits of Grading Cardamom Before Sales.

SI. No.	Benefits	No. of traders
1	Better price for higher grades	19 (63.0)
2	Meeting specifications of customers (order)	11 (37.0)
	Total	**30 (100)**

Source: Primary data

Note: Figures in the bracket indicate percentage to the total

The table shows that around 63 per cent of the licensed traders reported that grading of cardamom before selling enabled them to fetch better price for higher grades. The remaining 37 per cent opined that it helped them in meeting the specifications of customers better.

4.2.5. Difference between spot price of MCX and e-auction price

Table 4.2.3 discloses the magnitude of difference between spot price of MCX and e-auction price.

SI. No.	Price difference	No. of traders
1	No difference	3 (10.0)
2	Below Rs. 50	6 (20.0)
3	Rs. 50-200	18 (60.0)
4	Above Rs. 200	3 (10.0)
	Total	**30 (100)**

Source: Primary data

Note: Figures in the bracket indicate percentage to the total

The table shows that 60 per cent of the traders had the opinion that there was a difference of 50-200 Rs between MCX spot price and auction price. Another 20 per cent opined that the difference was below Rs.50. Traders who reported price difference above Rs. 200 formed10 per cent of the sample. 10 per cent of the traders observed that there was no difference between the spot price and the auction price. The spot price of MCX was always more than e – auction price. Majority of the traders had negative perception regarding the cardamom futures.

4.2.6. Need for additional infrastructure development

In the survey the traders pointed out that there was adequate marketing infrastructure in the cardamom producing, trading areas. Therefore there was no need for additional marketing infrastructure in the area.

4.2.7. Loan from financial institutions against cardamom stocks.

From the survey it was understood that 57 per cent had not availed any loans against the stock of cardamom. However 43 per cent had availed loans and among them 80 per cent availed loans from various NBFCs and the remaining 20 per cent from commercial

banks. The interest rate charged by commercial banks varied from 10.5 -12.0 per cent and 14.5 -17.0 per cent in NBFCs. The tenure of the loans was less than I year.

4.2.8. Price risk mitigating strategies adopted by traders.

Table 4.2.4. Discloses price risk mitigating strategies adopted by traders

SI. No.	Precautions	No. of traders
1	Purchase against firm order	12 (40.0)
2	Sell the commodity within a short period	8 (27.0)
3	Hold the commodity till the price improve	2 (7.0)
4	No specific methods	8 (27.0)
	Total	**30 (100)**

Source: Primary data

Note: Figures in the bracket indicate percentage to the total

Table 4.2.4. shows that 40 per cent of the traders bid in auction against firm orderd received. Another 27 per cent each either sold the cardamom immediately or adopted no specific methods. Six per cent of the traders held the stock till the prices improved.

4.3 Behavior of traders in cardamom futures

This section disclose the specific behavior of traders involved in the cardamom futures trading

4.3.1. Awareness of Licensed Traders about Cardamom futures

All the selected licensed traders were aware about cardamom futures. But majority of them (57 per cent) lacked deeper knowledge about cardamom futures. Majority of them (83 per cent) were not using futures price as a benchmark to bargain with exporters or retailers. It was mainly due to the fact that many traders were small traders and had no money power to bargain with wholesale traders. Some of them were even working as agents to big traders. They either procured cardamom based on firm orders from customers or used to sell the cardamom immediately after purchase without stocking, at a reasonable margin.

4.3.2. Participation in Cardamom Futures.

During the survey it was found that 16 (53 per cent) licensed traders participated in cardamom futures. The remaining traders were aware about cardamom futures but were not trading in futures. Traders who didn`t participate in cardamom futures felt that cardamom futures was not profitable to them.

4.3.3. Frequency of Trading by Licensed Traders in Cardamom Futures.

Table 4.3.1 shows the frequency of trading in cardamom futures by the licensed traders.

(N = 16)

SI. No.	Frequency	No. of traders
1	Rarely	1 (6.0)
2	Daily	7 (44.0)
3	Once in a month	2 (13.0)
4	More than twice in a month	6 (37.0)
	Total	**16 (100)**

Source: Primary data

Note: Figures in the bracket indicate percentage to the total

The table discloses that 44 per cent of the licensed traders traded daily in cardamom futures and 37 per cent more than twice a month. Licensed traders who traded once in a month accounted for 13 per cent of the sample. One trader traded rarely.

4.3.4. Improvement in Grading Facilities since the Advent of Cardamom Futures

About 80 per cent of the licensed traders reported that there was improvement in grading facility since the advent of the cardamom futures. On the other hand, 20 per cent stated that it had not made any improvement in the grading infrastructure.

4.3.5. Benefits of Cardamom Futures to Farmers (Perception of Traders)

In the survey, 70 per cent of the traders opined that cardamom futures was beneficial to the farmers. On the other hand, 30 per cent opined that cardamom futures was not beneficial to the farmers.

Table 4.3.2. outlines the benefits of cardamom futures to farmers.

SI. No.	Benefits	No. of traders
1	Enabled to realize better price	6 (29.0)
2	Helped to lock in price	13 (62.0)
3	Gave price signals	2 (9.0)
	Total	**16 (100)**

Source: Primary data

Note: Figures in the bracket indicate percentage to the total

From Table 4.9 it is clear that 62 per cent of the traders opined that cardamom futures helped the farmers to manage price risk by locking in a suitable price in the futures platform. Another 29 per cent stated that futures ensured better price to the farmers. The remaining nine per cent opined that it gave clear signals regarding the direction of prices.

4.3.6. Benefit of the Cardamom Futures to Licensed Traders.

The study shows that 83 per cent of the licensed traders held the opinion that cardamom futures was not beneficial to the licensed traders.

4.3.7. Major Problems Faced by Licensed Traders in Cardamom Futures Trading.

Table 4.3.3. exhibits the problems faced by the licensed traders in cardamom future trading.

(N = 16)

SI. No.	Problems	No of traders
1	Biased spot price fixation by MCX	3 (19.0)
2	Higher quality parameters	5 (31.0)
3	Lower tolerance rate	2(12.0)
4	Availability of only one grade - 7 mm	6 (38.0)
	Total	**16 (100)**

Source: Primary data

Note: Figures in the bracket indicate percentage to the total

According to the table, 38 per cent of the licensed traders flagged the availability of only one grade (7 mm) for trading as the main problem in cardamom futures trading. For 31 per cent of the sample, high quality parameters were the major problem. This could be another reason for the low participation of traders in cardamom futures. Some traders alleged bias in the fixation of spot price by MCX. According to them, the spot price of cardamom was fixed by MCX by collecting price data from a few selected traders to help some operators. Lower tolerance for defected and lower size seeds was pointed out by 12 per cent of the traders.0

4.3.8. Awareness of Financial Institutions (which lent against cardamom stocks) about Cardamom Futures.

The traders told that about 85 per cent of the financial institutions which lent against cardamom stock were aware of cardamom futures. However, 15 per cent opined that financial institutions were not aware of.

4.3.9. Awareness about Schemes which Provided Loan Against Trading in Futures

The study revealed out that majority (73 per cent) of the licensed traders were unaware of schemes which provided credit against sales in futures. The remaining 27 per cent were aware about it.

4.3.10. Loan Against Trade in Futures

The survey indicated that 27 per cent of licensed traders availed loan against sales in cardamom futures. The remaining 73 per cent were not even aware about such lending schemes.

4.3.11. Benefits of Cardamom Futures to the Ecosystem

Table 4.3.4. Changes in the Cardamom Ecosystem After the Advent of Cardamom Futures.

SI. No	Change	No. of traders
1	Increased efficiency in price discovery	5 (16.0)
2	Opportunity to hedge against price fall	7 (24.0)
3	Brought in quality consciousness in the value chain	6 (20.0)
4	Grading of cardamom before selling increased	9 (30.0)
5	Gave signals about the price trend	3 (10.0)
	Total	**30 (100)**

Source: Primary data

Note: Figures in the bracket indicate percentage to the total

From the table it is clear that 30 per cent of the traders indicated that grading of cardamom before selling had increased with the advent of future trading. When 24 per cent pointed out that it created opportunity to hedge against price fall, 20 per cent indicated that futures brought in quality consciousness along the value chain. Around 16 per cent hinted that futures resulted in efficient price discovery.

4.3.12. Suggestions to Make Cardamom Future More Attractive.

Table 4.3.5. outlines the Suggestions to Make Cardamom Futures More Attractive.

SI. No.	Suggestion	No. of traders
1	Introduce a separate contract for 6 mm grade	8 (26)
2	Include weather contracts	2 (7)
3	More flexibility on the quality parameters	5 (17)
4	Raise the tolerance limit for seeds	3 (10)
5	Gain the trust of traders	10 (33)
6	Reduce the contract period	2 (7)
	Total	**30 (100)**

Source: Primary data

Note: Figures in the bracket indicate percentage to the total

Table 4.15 indicates that 33 per cent of the licensed traders had the opinion that MCX should gain the trust of traders (educate them about the benefits of futures). In Nedumkandam region, a case was reported that a trader had committed suicide a few years back due to huge loss in futures trading. Several traders had pointed out such cases known to them. Many traders were scared of futures due to such causalities. There were several other criticisms like spot price fixed arbitrarily by MCX. They also suggested that MCX should send an officer to the e - Auction centre to understand the pulse of the spot market which will help MCX in getting the realistic picture of the market and remove ambiguity among traders. Another criticism was that the North Indian lobby was controlling the cardamom futures market. When 27 per cent of the traders suggested MCX to introduce a separate contract for 6 mm bold grade, 17 per cent wanted relaxation in the high quality parameters of MCX. Certain traders (10 per cent) indicated the need for increasing the tolerance limit for defected or lesser size seeds in the delivery. Six per cent each wanted to reduce the contract period from 3 months to 2 months or 1 month (reducing the contract period can prevent degradation in the freshness of cardamom) and introduction of weather contracts respectively.

4.4 Price volatility of cardamom

This section explain the performance of MCX cardamom, comparison of price volatility of spot price of MCX and e – Auction price and price volatility of MCX cardamom over the last few years.

4.3.1. Performance of MCX cardamom from 2010-17

Table 4.3.1 Performance of MCX cardamom from 2010-2017

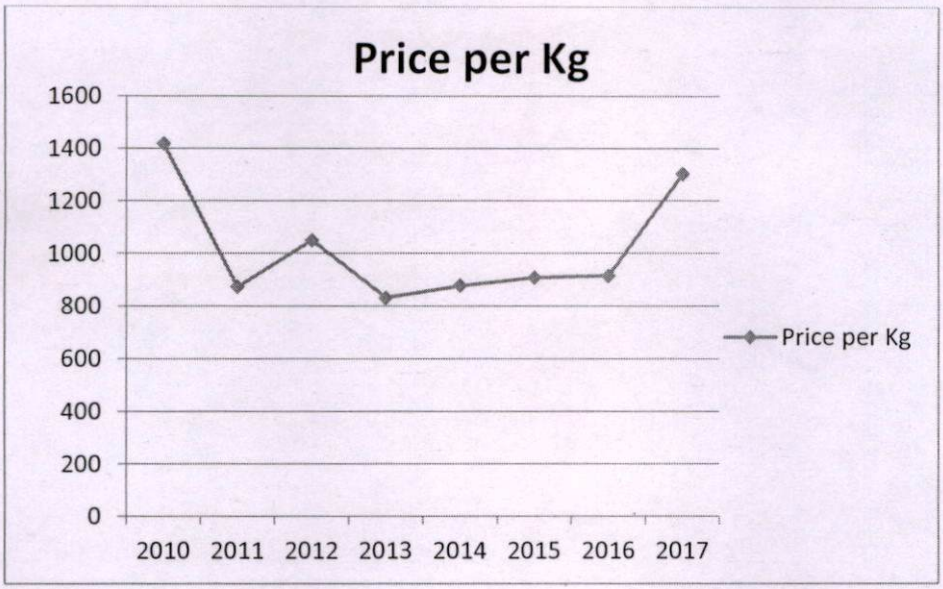
Year	Traded contracts in lots	Quantity (In 000's)	Total Value (In Lakhs)	Unit price
2010	635749	63574.9	901410.5	1417.87
2011	1074014	107401.4	936781.27	872.22
2012	2731827	273182.7	2866931.3	1049.46
2013	1708176	170817.6	1419637.72	831.08
2014	782373	78237.3	685245.38	875.85
2015	448680	44868	407143.33	907.42
2016	264695	26469.5	242076.16	914.55
2017	67659	6749.6	87837.21	1301.37
Total	7713173	771301	7547063	8169.83

Source: MCX website

From the table it is evident that in terms of no. of contracts traded, the highest performance was in 2012 (27,31,827) followed by 2013 (17,08,176). A steady decline in cardamom futures (contracts) was visible from 2013 onwards the no. of contracts declined from 17,08,17(2013) to 67,659 (2017). In terms of quantity traded and value also the best performance was in 2012. The quantity and value also showed a steady decline from 2013.

However, the unit price (average price) excibited a fluctuating(high volatility) trend. The price recorded the highest (Rs. 1,417.87) in 2010 and lowest in 2013 (Rs. 831). Size of one market lot traded in futures contract is 100 Kg.

The chart 4.3.1. Price movement of MCX cardamom from 2010 – 17



The X- axis shows the year and Y-axis shows the price in Rs.

4.3.2. Price Volatility of e-Auction centre, Puttady and the spot price of MCX during the Financial Year 2016-17

In order to calculate the price volatility of e-Auction price and MCX spot price, price of cardamom at auction centre and the MCX spot price during the Financial Year 2016-17 were taken. Price volatility means the degree of change in the price over time. Table 17 shows the price volatility of e-Auction price and MCX spot price of cardamom for the financial year 2016-17.

Table 4.3.2. Shows the volatility of e-Auction price and MCX spot price of cardamom for the financial year 2016-17

Sl. No.	Month	Futures Price	e-Auction Price	Difference (Positive)
1	April 2016	749.78	587.92	161.86
2	May 2016	783.1455	696.63	86.51
3	June 2016	820.22	733.78	86.44
4	July 2016	886.2	790.67	95.53
5	August 2016	995.85	921.54	74.31
6	September 2016	1114.01	952.99	161.02
7	October 2016	1141.244	1026.62	114.62
8	November 2016	1324.819	1245.90	78.91
9	December 2016	1350.686	1191.56	159.12
10	January 2017	1430.471	1243.38	187.09
11	February 2017	1473.411	1316.24	157.17
12	March 2017	1438.827	1184.35	254.47
Average Price		1125.72	990.965	134.76
Annual Standard deviation		14.45%	16.23%	

Source: www.mcxindia.com and e-Auction center Puttady

From the above table it is clear that the average price of MCX spot market (Rs.1125.72) was higher than the average price at auction center (Rs. 990.96). the average price difference between them was Rs. 134.75. It may also be observed that the futures price was higher than the e-Auction price in all the months.

The annual standard deviation was calculated to measure the price volatility. e-Auction price had the higher annual standard deviation (16.23 per cent) when compared to annual

standard deviation of MCX spot price (14.45 per cent) for the financial year 2016-17. Higher annual standard deviation means price volatility is higher. Therefore, e-auction price is more volatile than MCX spot price.

As the price volatility of e-auction center is higher than MCX, it is more efficient in price discovery than futures market.

4.3.3. Price volatility of MCX spot price for the past 10 financial years (2007-2016)

Table 4.3.3 shows the volatility of e-auction price of cardamom and MCX spot price for the last ten financial years (from 2007-08 to 2016-17)

Sl. No.	Year	Average Price	Annual Standard deviation
1	2007-08	561.17	4.20
2	2008-09	626.59	2.84
3	2009-10	919.72	11.19
4	2010-11	1319.96	14.32
5	2011-12	816.17	9.55
6	2012-13	1084.12	9.58
7	2013-14	763.67	2.66
8	2014-15	949.71	5.23
9	2015-16	781.07	3.45
10	2016-17	1156.44	14.45

Source: MCX website

From the above table it is clear that the year (2016-17) witnessed high price volatility with an annual standard deviation of 14.45 followed by the year 2010-11 with an annual standard deviation of 14.32 and 2009-11 with an annual standard deviation of 11.12. During the 2013-14 and 2008-09 the standard deviation was the least 2.65 and 2.83 respectively

SUMMARY OF FINDINGS, SUGGETION AND CONCLUSION

CHAPTER-5

FINDINGS, SUGGESTION AND CONCLUSION

A. SUMMARY OF FINDINGS.

In this section the summary of major findings of the qualitative and quantitative dimensions of the study are stated.

5.1. Personal profile of the traders.

This section covers the summary of findings of personal profile of the traders

5.1.1. Age of sample traders.

It was observed that majority (73 per cent) of the traders were in the 40-60 age group. Around 13 per cent of the sample belonged to 30-40 age group. Traders in the age group below 30 years and above 60 years contributed 7 per cent each of the sample.

5.1.2. Educational qualification of traders

Majority (80 per cent) of the sample were either graduates (around 53 per cent) or post graduates (around 27). The remaining 20 per cent had secondary education.

5.1.3. Experience in cardamom trading

It was observed that the selected traders have long years of experience in cardamom trading. Majority (60 per cent) of the traders had 10 or more years of experience in cardamom trading. 27 per cent had 5-10 years of experience. The remaining 13 per cent had 1-5 years of experience.

5.1.4. Other business

It was observed that majority (53 per cent) of the traders were trading other spices and 27 per cent had no other business. The remaining 20 per cent traders who had other business like trading in shares etc.

5.1.5. Legal status of the traders

Majority (73 per cent) of the traders were sole proprietorship and 17 per cent traders were private limited company. The remaining 10 per cent of them were partnership firms.

5.1.6. Location of the traders

It was observed that 30 per cent of traders were from Bodinaikannur. 17 per cent each of the traders were from Vandenmedu and Kumily. 10 percent each of the traders were from Nedumkandam, Puttady and Kattappana. The remaining 6 per cent were from Puliyanamala and Ernakulam

5.2 Behavior of the traders in spot market

This section discloses the summary of findings of traders in the spot market

5.2.1. Satisfaction on the quality of cardamom received

It was observed that 70 per cent of the traders were satisfied with the quality of cardamom they were getting. The remaining 30 per cent are not satisfied with the quality.

5.2.2. Grades cardamom before selling.

It was observed that all the traders undertake grading of cardamom before they sell.

5.2.3. Benefits of grading cardamom before selling.

Majority (63 per cent) of the traders believe that grading of cardamom before selling helps to fetch better price for higher grades. The remaining 37 per cent have the opinion that it helps in delivering orders according to required specifications.

5.2.4. Major markets catered by traders.

Majority (70 per cent) of the traders are selling cardamom outside Kerala and only 23 per cent are selling in the Kerala market. The remaining7 per cent trader's markets cardamom in foreign countries.

5.2.5. Price difference between spot price and future price

It was observed that 60 per cent of the sample had the opinion that there was the difference of 50-200 Rs between future price and spot price. Another 20 per cent opined that the difference was below 50 Rs. Traders who reported price difference above Rs. 200 formed to 10 per cent of the sample. The remaining 10 per cent of the sample indicated there was no difference between the spot price and future price.

5.2.6. Need for additional infrastructure development

It was observed that adequate marketing infrastructure in the cardamom producing areas. No additional infrastructural development is required for now.

5.2.7. Loan from financial institutions against cardamom stocks.

It was observed that 57 per cent had not availed any loans against the stocked cardamom. Only 43 per cent have availed loans and among 80 per cent of them avail loans from various NBFCs and rest from commercial banks. The interest rate in commercial banks varied from 10.5 -12 per cent and 14.5 -17 per cent in NBFCs. The tenure of the loans is less than I year.

5.2.8. P rice risk mitigation strategies adopted by the traders.

The major strategy to offset risk was hedging in futures. There are some other methods which are undertaken by traders. It was observed that 40 per cent of the traders bid at auction against the demand received. Another 27 per cent each either sold the cardamom immediately or took no specific methods. The remaining 6 per cent will hold the commodity until better price was realized.

5.3. Behavior of traders involved in cardamom future trading.

This section discloses the specific findings on the behavior of traders involved in cardamom futures trading.

5.3.1. Awareness of traders about cardamom futures

It was observed that all the selected traders were aware about the future trading in cardamom. Everyone had heard about cardamom futures. But not all had deeper knowledge about future trading. They were not using future price as a benchmark price to bargain with exporters or retailers.

5.3.2. Participation in futures trading.

It was observed that about 53 per cent of the traders were involved in cardamom futures trading. The remaining 47 per cent of the traders were not involved in cardamom futures

5.3.3. The frequency of trading by traders in cardamom futures.

It can be inferred that 44 per cent of the trader`s trade daily in futures. Around 37 per cent traders trade more than twice a month. 13 per cent of the traders trade once in a month and 6 per cent trade rarely.

5.3.4. Improvement in grading facilities since the advent of Cardamom futures

Majority 80 per cent of the traders believe that there was improvement in grading facility since the advent of the cardamom futures. Only 20 per cent have the belief that it had created no improvement in grading facilities.

5.3.5. The benefits of cardamom future to the farmers

In the survey it was observed that majority (70 per cent) of the traders opined that cardamom future was beneficial the farmers had the opinion that cardamom future is beneficial to farmers. Majority (62 per cent) of the traders expressed the opinion that cardamom futures help the farmers to lock in the price. Another 29 per cent believed that it ensured better income to the farmers. The remaining 9 per cent opined that it gave price signals.

5.3.6. Benefit of cardamom futures to traders.

Majority 83 per cent of the traders have the opinion that cardamom futures are not beneficial to traders. The remaining 17 per cent traders believes that its beneficial to them.

5.3.7. Problems faced by cardamom traders in future trading.

It was observed that 38 per cent of the traders raised lack of different grades available for trading as a problem. 31 per cent of the sample indicated high quality parameters was a problem. Another 19 per cent pointed out that biased spot price fixation as a problem.

The remaining 12 per cent indicated lower tolerance rate of defected and lowers size seeds was a problems.

5.3. 8. Awareness of financial schemes which lend against cardamom stocks about future trading.

Majority (85 per cent) of the traders opined that financial institutions which lent against cardamom stock were aware of future trading. However, 15 per cent believed that they were not aware of.

5.3.9. Awareness about financial mechanisms which lend against trading in futures

It was observed that 73 per cent of the traders were unaware about financial schemes of financial institutions which provide credit against future trading. The remaining 27 per cent were aware about it.

5.3.10. Loan against trade in futures

The survey infers that 63 per cent of traders availed loan against trade in futures. The remaining 37 per cent were not aware about such lending schemes.

5.3.11. Benefits of Cardamom Futures to the Ecosystem

It was inferred from the survey that around 30 per cent of the traders indicated grading the cardamom before selling was the major change with the advent of future trading. Another 24 per cent pointed out it introduced an opportunity to hedge against price risk. 20 per cent indicated it brought in quality consciousness in the value chain. Around 16 per cent hinted about increase efficiency in price discovery. The remaining 10 per cent had the opinion that it gave signals about the price trend.

5.3.12. Suggestions to make cardamom future more attractive.

It was observed that 33 per cent of the traders had the opinion that MCX should gain the trust of traders. There were several criticisms like spot price fixed arbitrarily, north Indian lobby is controlling the future price etc. 27 per cent wanted MCX to include a separate contract for 6 mm bold category. 17 per cent wanted the relaxation in the high quality parameters of MCX. 10 per cent traders indicated the need for increasing the tolerance rate defected or lesser size seeds. 6 per cent each wanted reduction in contract period from 3 months to a lower time period and inclusion of contract for weather hedging.

5.4. Price volatility of cardamom.

This section discloses the summary of findings related to price volatility of cardamom.

5.4.1 Performance of MCX cardamom from 2010-17

In the year 2012 the number of traded contracts in lots (2731827), quantity traded (273182.7), total value (2866931.3) was comparatively high, follwed 2013 were the the number of traded contracts in lots were 1708176, quantity traded was 170817.6, total value was 2866931.3.

During the year 2010 the unit price was Rs. 1417.87, which was the highest value, followed by 2017 with Rs. 1301.36.

5.4.2. Comparison between the price of cardamom sold through auction centre and the spot price of MCX during the Financial Year 2016-17

The average price of MCX spot market (Rs.1125.72) was higher than the average price at auction center (Rs. 990.96). The average price difference between them was Rs. 134.75. It may also be observed that the futures price was higher than the e-Auction price in all the months. The annual standard deviation was calculated to measure the price volatility. e - Auction price had the higher annual standard deviation (16.23 per cent) when compared to annual standard deviation of MCX spot price (14.45 per cent) for the financial year 2016-17. Higher annual standard deviation means price volatility is higher. Therefore, e-auction price is more volatile than MCX spot price. As the price volatility of e-auction center is higher than MCX, it is more efficient in price discovery than futures market.

5.4.3. Price volatility of MCX spot price for the past 10 financial years (2007-2016)

During the year 2016-17 witnessed the high price volatility with an annual standard deviation of 16.45 followed by the year 2010-11 with an annual standard deviation of 14.32 and 2009-11 with an annual standard deviation of 11.12. During the 2013-14 and 2008-09 the standard deviation was the least 2.65 and 2.83 respectively.

B. SUGGESTIONS

- From the survey it was clear that all the selected traders were aware about the future trading in cardamom. Everyone had heard about cardamom futures. But not all had deeper knowledge about future trading. Adequate awareness initiatives are to conducted in order to attract more trader into future trading
- From the survey 47 per cent of the sample traders were not involved in cardamom futures. The main reason for not participation were insufficient awareness about the benefits of future trading, fear due to bitter experience of others, misbelief about futures that it involves lots of arbitration and lobbying. These kind of perceptions should be taken away by strong interactions.
- A good number of traders are using futures only for hedging. The actual delivery given and taken very less.
- It was observed that 60 per cent of the sample had the opinion that there was the difference of 50-200 Rs between future price and spot price. Measures should be taken to reduce the gap between spot price and auction price.
- About 83 per cent of the traders have the opinion that cardamom futures are not beneficial to traders. Among them 38 per cent of the traders raised lack of different grades available for trading as a problem. 31 per cent of the sample indicated high quality parameters was a problem. Another 19 per cent pointed out that biased spot price fixation as a problem. The remaining 12 per cent indicated lower tolerance rate of defected and lowers size seeds was a problems. By addressing these issues efficiently can change the mind-set of traders.
- It was observed that 57 per cent had not availed any loans against the stocked cardamom. It was observed that 73 per cent of the traders were unaware about financial schemes of financial institutions which provide credit against future trading. Ease of getting bank credit or adequate knowledge of such credit schemes which lend against cardamom stock could increase traders participation in futures trading.
- From the study it was clear that 33 per cent of the traders had the opinion that MCX should gain the trust of traders.. 27 per cent wanted 6 mm bold category to

be included in trading and special contract facility for it should be included. 17 per cent wanted the relaxation in the high quality parameters of MCX. 10 per cent traders indicated the need for increasing the tolerance rate defected or lesser size seeds. 6 per cent each wanted decrease in contract period from 3 months to a lower time period and provision for weather hedging.

C. CONCLUSION

Cardamom traders are one of the major players in the cardamom economy. They ensure the flow of cardamom from farmers to the end consumers. Cardamom traders may be of different kinds based on their size large, medium and small, based on their nature of business like normal traders, stockiest etc.

All the selected traders were aware about the future trading in cardamom but not all had deeper knowledge about future trading. In the survey it was observed that majority of the traders opined that cardamom future was beneficial due to certain factors like cardamom futures help the farmers to lock in the price, it ensured better income to the farmers and it gave price signals. However, majority of the traders had the opinion that cardamom futures are not beneficial to traders due to certain factors like lack of different grades available for trading as a problem, high quality parameters was a problem, biased spot price fixation as a problem, lower tolerance rate of defected and lowers size seeds was a problems. The traders believes that there were some changes in cardamom ecosystem after the advent of future trading and these changes were grading the cardamom before selling, it introduced an opportunity to hedge against price risk, it brought in quality consciousness in the value chain, increase efficiency in price discovery and it gave signals about the price trend. Majority of the traders believe that grading of cardamom before selling helps to fetch better price for higher grades and it helps in delivering orders according to required specifications. It was observed that only 43 per cent had availed any loans against the stocked cardamom and 80 per cent of them avail loans from various NBFCs and rest from commercial banks. The interest rate in commercial banks varied from 10.5 -12 per cent and 14.5 -17 per cent in NBFCs. The tenure of the loans is less than I year. Majority of the traders were unaware about financial schemes of financial institutions which provide credit against future trading.

The traders took some precautions against price risk by certain ways like bid at auction against the demand received, sold the cardamom immediately after the purchase. The traders also pointed out some suggestions in order to make cardamom futures more attractive like MCX should gain the trust of traders, 6 mm bold category to be included in

trading and special contract facility for it should be included, relaxation in the high quality parameters of MCX, increasing the tolerance rate defected or lesser size seeds, decrease in contract period from 3 months to a lower time period and provision for weather hedging.

The average price of MCX spot market (Rs.1125.72) was higher than the average price at auction center (Rs. 990.96). The average price difference between them was Rs. 134.75. It may also be observed that the futures price was higher than the e-Auction price in all the months. e - Auction price had the higher annual standard deviation (16.23 per cent) when compared to annual standard deviation of MCX spot price (14.45 per cent) for the financial year 2016-17. Higher annual standard deviation means price volatility is higher. Therefore, e-auction price is more volatile than MCX spot price. As the price volatility of e-auction center is higher than MCX, it is more efficient in price discovery than futures market. During the year 2016-17 witnessed the high price volatility with an annual standard deviation of 14.45 followed by the year 2010-11 with an annual standard deviation of 14.32.

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APPENDIX

APPENDIX - 1

Economic Benefits of Cardamom Futures

Interview Schedule for Cardamom Traders

(Information collected through the survey is meant only for study purpose)

A. Demographics

1. Name:
2. Age:
3. Gender:
4. Address:
5. Experience in cardamom trading (in years):

B. Details of Traders

6. Name and address of the firm:
7. Area of operation:
8. Are you aware of cardamom futures and prices?

   Yes ☐ No ☐

   If yes, do you bargain with exporters/retailers on the basis of futures price?

   Exporters : Yes ☐ No ☐

   Retailers : Yes ☐ No ☐

9. Do you trade in futures?

   Yes ☐ No ☐

   If yes, frequency of trading.

   Daily ☐ More than once in a month ☐

   Once in a month ☐ Once in 3 months ☐ Rarely ☐

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10. How much is the normal difference between spot price and future price of Cardamom?

11. Is cardamom futures good for farmers?

Yes No

If yes, what are the benefits.

12. What are your suggestions to improve the participation of farmers in future?

13. Is cardamom futures beneficial to traders like you?

14. What are the problems you face in future trading?

15. What are the changes that came in the cardamom ecosystem due to the advent of future trading?

16. Are you satisfied with the quality of cardamom which you get?

Yes ☐ No ☐

Which market you prefer?

17. Have the grading facilities improved since the advent of Cardamom futures?

Yes ☐ No ☐

18. Do you go for grading cardamom before selling?

Yes ☐ No ☐

19. What are the benefits of grading cardamom before selling?

20. Do you avail loan against cardamom stocks from banks or financial institutions?

Yes ☐ No ☐

If yes, (if trader willing to divulge)

Bank / financial institutions:

Loan amount:

Interest rate:

90

Tenure of loan:

How much is the scale of finance?

21. Do banks which lend against cardamom stock aware of futures trading?

Yes ☐ No ☐

If yes, do they take futures price as reference price?

Yes ☐ No ☐

22. Are you aware of any financing scheme of banks which lend against sale in future market?

Yes ☐ No ☐

If yes have you ever availed it?

Yes ☐ No ☐

23. Do you feel that any additional infrastructural development is required?

Yes ☐ No ☐

If yes, what are they.....

24. What are the precautions taken by you to offset the price risk in cardamom trading?

25. What are the suggestions to make Cardamom futures more effective?