Nanotechnology Perceptions
ISSN 1660-6795
www.nano-ntp.com

Employing Technology for Development: Examining the MCX Agricultural Commodities Market in India

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The Multi Commodity Exchange (MCX) Agricultural Commodities Market in India plays a pivotal role in the country's economy, contributing significantly to its agricultural sector. This paper aims to examine the dynamics, trends, and challenges faced by the MCX Agricultural Commodities Market, shedding light on its structure, participants, and regulatory framework. The paper begins by providing an overview of the MCX Agricultural Commodities Market, highlighting its importance in India's agricultural landscape. It explores the various agricultural commodities traded on the exchange, including grains, pulses, spices, oilseeds, and others, elucidating their significance in domestic and international markets. Furthermore, the paper delves into the key drivers influencing price movements and volatility in the MCX Agricultural Commodities Market. Factors such as weather conditions, government policies, global demand-supply dynamics, and market speculation are analyzed to understand their impact on price discovery and market behavior.

Keywords: Multi Commodity Exchange (MCX),Agricultural Commodities Market, Regulatory Framework,global demand-supply.

1. Introduction

The Indian commodity market stands as a critical pillar of the nation's economy, serving as a hub for trade, price discovery, and risk management across various sectors. Among its diverse segments, the Multi Commodity Exchange (MCX) Agricultural Commodities Market occupies a significant position, particularly in the context of India's agricultural sector. [1].

This paper presents a comprehensive study of the Indian commodity market, with a special emphasis on the MCX Agricultural Commodities Market, aiming to explore its intricacies, trends, and implications[2].

India, with its vast agricultural landscape, is a global powerhouse in the production and export of various agricultural commodities. The agricultural sector not only sustains livelihoods for millions but also contributes significantly to the country's GDP. In this context, the commodity market emerges as a crucial platform for agricultural producers, traders, and consumers to manage price risks, ensure market efficiency, and facilitate trade[3].

The MCX Agricultural Commodities Market, within the broader spectrum of the Indian commodity market, represents a focal point for the trading of agricultural commodities such as grains, pulses, spices, oilseeds, and more. Its significance lies not only in providing a marketplace for price discovery but also in offering avenues for investment and speculation, thereby influencing market dynamics and agricultural policies[4].

This study seeks to delve into various aspects of the Indian commodity market, starting with an overview of its historical evolution and regulatory framework. By tracing the development of commodity trading in India, including the establishment of exchanges like MCX, we aim to contextualize the current state of the market and its significance in the country's economic landscape. Furthermore, we will examine the structure and functioning of the MCX Agricultural Commodities Market, analyzing the commodities traded, trading mechanisms, and participation of various stakeholders[5]. Understanding the roles of farmers, traders, processors, exporters, and investors in this market ecosystem is essential to grasp its dynamics and implications. Moreover, the study will explore the drivers influencing price movements and volatility in the MCX Agricultural Commodities Market. Factors such as weather conditions, government policies, global demand-supply dynamics, and market sentiment play crucial roles in shaping price trends and market behavior, necessitating a thorough analysis. Additionally, this work will discuss the challenges and opportunities confronting the MCX Agricultural Commodities Market, including regulatory issues, market infrastructure, technological advancements, and international trade dynamics[6].

By identifying key challenges and proposing strategic interventions, we aim to contribute to the resilience and sustainability of the market.;

Commodity exchanges facilitate the buying and trading of agricultural, precious metal, basic metal, and energy-related hard core commodities. Among the many goods traded on commodity exchanges are Brent crude oil, natural gas, turmeric, wheat, rice, silver, copper, zinc, and a host of others[7]. Anyone interested may trade on the commodities exchange via the member businesses that support the transaction. Commodity prices are dictated by market forces of supply and demand, which are regulated by commodity exchanges. Within a certain time frame, all product trading occurs on the commodities exchange floor, often called a pit. Floor brokers, floor traders, and potential commission merchants are required by the Security Exchange Commission (SEC) to register[8].

With its formation in 1875, the Bombay Cotton Trade Association marked the beginning of a 125-year legacy of organized commodity trade. The Gujarati VyapariMandli was established in 1900 to facilitate the future trade of groundnut, cotton, and castor seed oil.

In 1913, wheat futures were first traded in Hapur; in 1920, bullion in Mumbai; in 1927, raw jute; and in 1957, spices. While the world was at war in the second world, commerce could not continue. The "Stock Exchanges and Futures Markets" section was added to the

constitution's union list after the country's independence. It was in 1952 that the Forward Contract (Regulation) Act was enacted. By 1953, the Forward Markets Commission had been established[9].

War, natural disasters, speculation, and a scarcity of goods brought an end to the prosperous trade that had been underway since the mid-1960s. After the Khusro Committee recommended it, the Indian government brought back futures trading for cotton, raw jute, jute products, and potatoes[10]. In 1991, a new committee was formed to study the forward markets, with Prof. K.N. Kabra at the helm. In 2000, the government initiated the National agriculture Policy to support and strengthen the agriculture industry. There are now 22 regional commodities exchanges operating in India, with seven further regional exchanges in the works. There are also six national level commodity exchanges.[11]

2. Evolution and Regulatory Framework of Futures Markets

It is believed that the Dojima Rice market in Osaka, Japan, which began trading in 1710, was the first structured futures market in the world, and that this practice originated in Japan in the seventeenth century. In order to make trading in spot product and forward contracts easier, eighty-three merchants formed the Chicago Board of Trade (CBOT) on April 3, 1848. Standards for futures contracts were not established until 1865. In 1874, the Chicago Produce Exchange and the Chicago Butter and Egg Board were both founded. Renamed the Chicago Mercantile Exchange in 1919, it underwent a reorganization to facilitate future trade. The main goal of the Exchange is to facilitate the discovery of spot prices by bringing together many buyers and sellers on a single platform, and to guarantee the timely delivery of commodities purchased and sold on the Exchange, protecting traders from counterparty risk[12].

It wasn't until the Forward Contracts (Regulation) Act of 1952, a defining piece of legislation, and the subsequent passage of the Constitution that the necessary legal framework was put in place to recognize exchanges and organize forward trading. A number of commodities were excluded from forward trading by a notice issued on June 27, 1969, by the central government utilizing the powers granted to it by the Securities Contracts Regulation Act 1956[13]. Only seven commodities remained available for forward trading. As a consequence, stock market trading volumes fell, and in 1972, the Bombay Stock Exchange developed an informal system of advance trading. But this resulted in frequent payment issues. The selling of some commodities, including castor seed, potatoes, and gur (jaggery), was legalized in the 1980s. Futures trading in hessian became legal in 1992. After then, in 19941, the Kabra Committee's suggestions brought some respite. Several additional expert panels, such as the Dantwala Committee, the Khusro Committee, and the Shroff Committee, established the groundwork for futures trading to be revived. After that, futures trading in sugar was legalized in May 2001, and futures trading in a number of edible oilseed complexes was allowed in April 1999. The announcement of the national agriculture strategy in July of the year 2000 was another watershed moment. It acknowledged the usefulness of the forward and futures markets in managing price risk and discovering prices. Also, commodities futures have this level of support. Futures trading is crucial for managing price risk and promoting agricultural products, according to the Expert Committee (Guru Committee) on Strengthening and Developing Agricultural Marketing (Govt. of India (GOI), 2001).

In India, the individual states are responsible for regulating the physical exchange of agricultural goods. Commerce in tangible goods is governed by the Agricultural Produce Market Committee (APMC) Acts, which are state-specific. Participants in the market are obligated by the APMC Act to congregate in licensed market yards. A market committee oversees each controlled market yard and is responsible for helping farmers find competitive prices. When a region is officially recognized as a market committee by the state government, wholesale trade in that region may only take place at the authorized regulated market yard.

The paper titled "Final Report of Committee State Ministers, In-Charge of Agricultural Marketing to Promote Reforms" (2013) highlights the inadequacy of APMCs to produce a competitive market.

In the past, the Forward Markets Commission (FMC) was in charge of overseeing commodity futures trading and the operations of commodity exchanges, much as the Securities Exchange Board of India (SEBI) is responsible for the capital market. Nevertheless, since 2015, when FMC merged with SEBI, the commodities derivatives market in India is currently regulated by SEBI. The commodities derivatives markets in India are open to both futures and options at the moment. Of the ninety-one commodities that have been notified for derivatives trading, the commodity derivatives exchanges now provide contracts for around forty of those commodities. In the Indian commodity futures market, there are now 23 regional commodity specialized exchanges in operation, in addition to 6 national commodities exchanges. After that, SEBI made a ton of improvements to the commodities market.

3. Related Works

Ding et al. (2021) investigated how commodities' financialization affects the volatility of CM and how these factors are dynamically linked to the stock market. When that happened, resource management became an exercise in using this model to assess price fluctuations. From January 1992 to August 2020, data was gathered daily. Also, the CM and stock market were brought closer together using a GARCH model with Dynamic Conditional Correlation (DCC), which demonstrated how commodities have grown financially reliant. The findings demonstrated that various CMs provided the mechanisms for the unequal capital. Wheat, sugar, and gold markets were the most volatile, whereas liquidities impacted other CMs via spillover effects.

The financialization of China's futures market was found by Yang et al. (2020). They also examined the integration between the CM and financial capital markets. Information for this model was retrieved from the wind dataset. This time around, we used the multivariate GARCH model to examine the outcome. The results showed that the energy futures market in China's CFmarket is experiencing financialization. It was also determined that the energy futures market had a significant influence in the integration of the CM and stock markets.

A study conducted by Ma et al. (2021) investigated the elements that support the dynamics of return co-movement in the global CM. This review focused on 21 commodities from the agricultural, energy, and metal CMs. For the DCC-GARCH standard to be upheld. In order to illustrate the return co-movement across commodities, Spanning Tree (MST) was used. According to the results, the connections between energy commodities were greater when

compared to agricultural or metal commodities. Consequently, the non-fundamental components of CM financialization and market sentiment played critical roles in achieving return co-movement over the study period.

The high correlations between CMs and the US financial markets from 1992 to 2017 were examined using a non-linear framework (NgaNguyen et al., 2020). We used a local Gaussian correlation to measure the asymmetric dependency, thus, negative and positive local dependency from one another. Afterwards, the contagion texts were used to ensure a consistent result. The results demonstrated the existence of the financialization phenomena between CMs and stock markets after the 8/2008 break date, particularly over the negative return distribution.

Hu et al. (2020) investigated the effects of liquidity variables on CM-stock market risk transfers. Five different types of liquidity metrics were used, together with a composite liquidity index, to evaluate the outcome. Aside from the Russell 3000 Index and the GSCI, a data was gathered in a preliminary form. Findings indicated a positive correlation between liquidity shocks and post-2000 CM and stock market co-movements. Since this financialization increased cross-market linkages, the structural shift indicated that.

4. Methodology

Indian economy has witnessed an uprising in the futures market since 2003 as a result of government removing the ban on futures trading. There are a range of reasons responsible for the unproductive growth of commodity futures market in India. But one among the major reason is price risk in commodity market, especially towards agriculture commodity. The production, supply and distribution of many agricultural commodities are restricted by the government and futures trading are allowed in certain agriculture commodity. Instability in prices of agriculture commodity is a major issue of the producers as well as the end users in an agriculture subjugated country like India. Generally, traders are interested to trade on instruments that provide safe returns for their investment. The thumb rules of the market are low risk will provide low return. But now diversification of portfolio helps to reduce risk and increase return. Commodity market has attracted many investors, producers and farmers to trade and hedge their risk.

Since one of the objectives of futures exchange is to make accessible these prices as much as possible, it is very likely to give a helping hand to the farmers. The current scenario clearly shows that farmers in rural areas are unable to reap the benefits of commodity futures market due to the unorganized methods of price discovery and risk management and higher government intervention. The present study will help us to know the impact of spot price and futures price in an organized method and its effect on commodity market for selected commodity. It has been carried out to identify the further reasons that are initially hidden to the previous researchers. In order to examine the effect of spot and futures price in the commodity market, it is of considerable interest to know:

i) How spot price of commodities is derived in National commodity and derivative exchange?

ii) How commodity futures impact on the efficiency and growth of Indian commodity market?

iii) What is the level of influence of spot market on futures Indian commodity market?

The present research is exploratory and empirical in nature with descriptive statistics based on the time series data of daily Spot and Futures price of agricultural commodities. Using purposive sampling method, ten commodities like Barley, Chana, Cotton Seed Oilcake, Mustard seed, Soy Bean, Castor Seed, Turmeric, Coriander and Jeera and Guar Seed 10 MT which are highly liquidated and continuously traded in the NCDEX (National commodity Derivative Exchange from 2008 to 2018 are considered for the study. Null hypotheses have been framed to find out the answer for study objectives. They are (i) there is no cointegration between selected agricultural commodities futures and spot market. (ii) selected agricultural commodities spot price does not Granger cause futures price and (iii) volatility from one agriculture futures market does not spill over to the spot market are tested. In present study, only futures areconsidered to represent the commodity derivatives. The study tries to examine the casual relationship between futures prices (independent variable) and spot prices (dependent variable). The data are analyzed using various statistical as well as accounting tools to measure the price volatility in commodity derivative and its impact on selected commodity. In order to analyze and reach concrete conclusion from the data collected, the following test models are used. They are Modelling of Volatility, Market Efficiency Modelling, Time Series Modelling (Univariate and multivariate), Test Modelling (Stationary Test, Normality Test, Vector Autoregressive Model, ARCH & GARCH Models, Causality Test, OLS Regression Analysis).

The tools such as Mean, Max, Standard deviation, Coefficient of variance, Augmented Dickey Fuller Unit Root Test, Granger Causality, Johansen co-integration test, ARCH, GARCH, MGARCH model have been used to describe the effect of spot and futures price by using E-views software (Version 9)

Parameter and Key Variables of the Study

The chief purpose of the current study is to examine the price fixation mechanism in Indian Commodity Market for selected Agricultural Commodities. The Table 1. depicts the specifications and parameter considered for achieving the objectives of the study.

Table 1.

Sr. No.	Concept	Specification	Parameter
1	Commodities	Selected Commodities	Spot price corresponding to Futures price
2	Commodity Derivatives	Futures Trading	Futures‘ Price
3	Price Behavior	Unexpected behavior of Futures Prices	Unexpected component of residuals in Futures PriceSeries

5. Conclusion

The MCX Agricultural Commodities Market plays a crucial role in India's economy, where agriculture is a significant contributor to GDP and employment. The market serves as a vital platform for farmers, traders, and other stakeholders to hedge against price volatility and manage risk.the MCX Agricultural Commodities Market in India serves as a vital platform for price discovery, risk management, and investment in agricultural commodities. While facing

challenges, the market holds significant potential for growth and development, supported by technology adoption, regulatory oversight, and strategic initiatives by market participants and policymakers.

Conflicts of Interest

The authors declare that they have no competing interests.

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