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A Study on Price Volatility of Agricultural Commodities Traded on NCDEX

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ABSTRACT

This research aims to assess the price volatility of agricultural commodities traded on the Indian Commodity Exchange Market, specifically focusing on NCDEX. The objectives include analyzing the traded agricultural products, investigating the relationship between the future and spot prices to calculate beta coefficients for selected commodities, and examining the daily volatility of the selected products. Crude oil, Wheat, and Maize were chosen for the study. Daily closing prices of these commodities were utilized to calculate the returns. Data analysis involved descriptive statistics. Descriptive statistics provided insights into data distribution, including mean, standard deviation and Beta coefficients. Standard deviation measured variations from the mean values, while beta coefficients assessed the risk percentage associated with expanding the investment portfolios. Beta coefficients were generally low, except for Wheat and Maize, indicating their higher volatility. This volatility is manifested in the commodities' price fluctuations.

Keywords: Price volatility, agricultural commodities, standard deviation, commodity exchange market, beta coefficients.

1: INTRODUCTION

1.1 BACKGROUND OF THE STUDY

Commodity exchanges have emerged as the primary and fastest-growing industry in India recently. Derivatives have grown in popularity in a number of ways since they were introduced in 2003. The markets have seen substantial fluctuations in commodity prices as well as an increase in worldwide risk as a result of globalization. The biggest issue confronting commodities manufacturers is the unpredictability of commodity prices. Splitting demand and supply mismatches from the cycle of the economy (as in the instance of metals, energy goods, and agricultural goods) or volatile political conditions and erratic weather patterns are the main sources of price volatility in these markets. Futures trading in the commodities market typically attract risk-averse hedgers and foster competition among dealers who possess pricing insights and market knowledge. While traders often referred to as arbitrageurs, focus exclusively on the market's perspective, hedgers have a long-term viewpoint for the market. A vast array of market players participate in the buying process and provide different kinds of assistance for the sales operations in the market, such as information on pricing, demand, weather, and various other trade-related factors. Because there are many buyers and sellers in the market, all these elements work together to provide effective pricing.

1.2 OBJECTIVES OF THE STUDY

- To ascertain fluctuations in commodity pricing and returns.
- To identify and analyze agricultural commodities that are traded on Indian commodity market places.
- To investigate the potential spot and future market price volatility of the chosen products.

2: REVIEW OF LITERATURE

Kushankur Dey, Debasish Maitra, 2012 conducted a study on pepper. In this paper, co-integration and the error correction model were used to analyze the price discovery process using Granger causality. The results showed a unidirectional causal relationship between futures and spot prices.

Sanjay Sehgal, Namita Rajput, Rajeev Kumar Dua, 2012 studies on the Indian commodity markets' price discovery function found that an effective price discovery procedure is in place. Additionally, it suggested strengthening the framework governing market regulation. The independence of the Forwards Market Commission was emphasized. The study also demonstrated the necessity of established market connections and warehouses.

Jabir Ali, Kriti Bardhan Gupta, 2011 when it comes to the long-term relationship between agricultural commodity futures and spot prices, a study on commodities including corn, chickpeas, black lentils, pepper, cassava seed, soybeans, and sugar was done and the results showed co-integration between the two. Additionally, there was a short-term correlation between them, and the futures markets could forecast the spot prices of sugar, castor seed, soybeans, and chickpeas. Additionally, a bidirectional interaction between the black lentil, pepper, and maize was discovered in the short run.

Sen and Paul, 2010 according to a study on price discovery and volatility, trading in agricultural goods, particularly food items, on futures has neither led to price discovery or decreased volatility in food prices. Additionally, a sharp rise in spot prices is noted for significant food products and a Granger causal relationship between futures and spot prices for commodities that are traded on futures.

Vishwanathan and Archana, 2010 Using two-regime threshold vector autoregression (TVAR) and two-regime threshold auto-regression method, an analysis was done on the role of futures markets in terms of price discovery process and rate of convergence of information from one market to another, taking six commodities: gold, silver, nickel, copper, and Gram (Chana). The findings confirmed the presence of a price discovery process in Indian commodity exchanges, with a high rate of information convergence observed in the case of metals and a sluggish rate of information convergence observed in the case of agricultural commodities across various marketplaces.

3: RESEARCH METHODOLOGY

This research examines at the agricultural commodities that are exchanged in the Indian commodities exchange market. Three commodities—Crude oil, wheat, and maize—have been considered for this study, which is focused on the NCDEX commodity exchange market. This study includes the years 2020–2022. The selected commodities' daily closing future and spot prices are included in the data. The information was gathered from NCDEX's official website. Mean, Standard Deviation and beta coefficient are used to analyze the data.

Hypotheses of the Study:

Null hypothesis (Ho): There is no change in the commodities prices and returns.

Alternative hypothesis (Ha): There is a change in the commodities prices and returns.

Null Hypothesis (Ho): There is no price volatility of the future and spot markets of the commodities.

Alternative Hypothesis (Ha): There is a price volatility of the future and spot markets of the commodities.

4: ANALYSIS AND INTERPRETATION

TABLE 1: MEAN RETURN OF THE SELECTED COMMODITIES FOR THE PERIOD 2020-2022

	2020	**2021**	**2022**
Crude oil	0.0619	0.0267	0.0414
Wheat	0.0030	0.0215	0.0649
Maize	0.0289	0.0629	0.1657

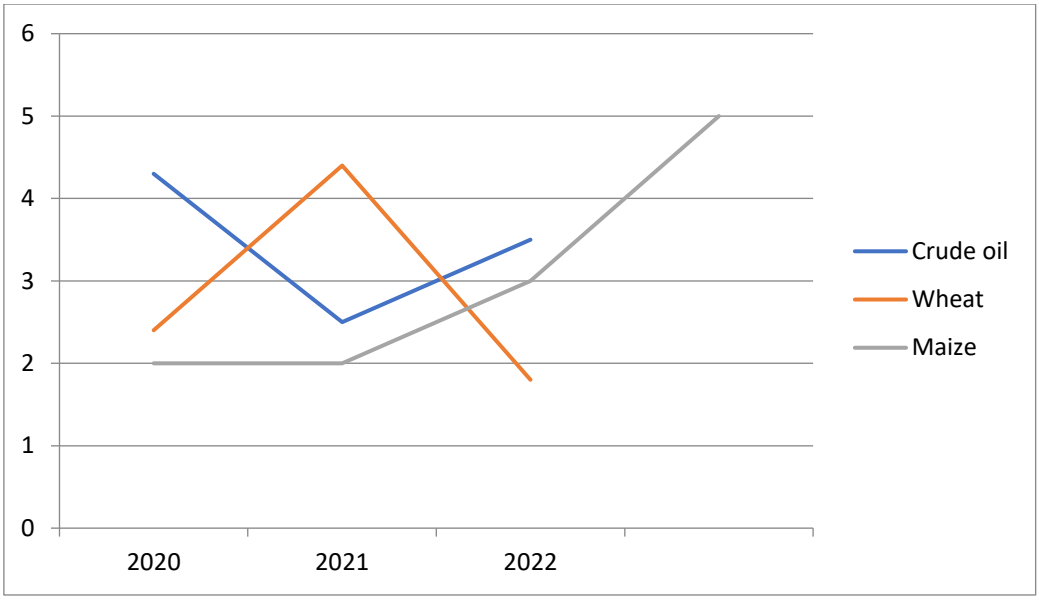

FIGURE 1: Mean Return of the selected commodities

INTERPRETATION: The average return of the daily closing prices of the commodities is shown in the table and figure above. According to the data in the table and figure above, maize has the best return in 2021 and 2022 (0.0629 and 0.1657, respectively) and Crude oil has the highest average return for 2020 (0.0619).

TABLE 2: STANDARD DEVIATION OF THE SELECTED COMMODITIES FOR THE PERIOD 2020-2022

	2020	**2021**	**2022**
Crude oil	3.782	2.700	3.355
Wheat	1.874	0.920	0.832
Maize	3.083	2.409	6.018

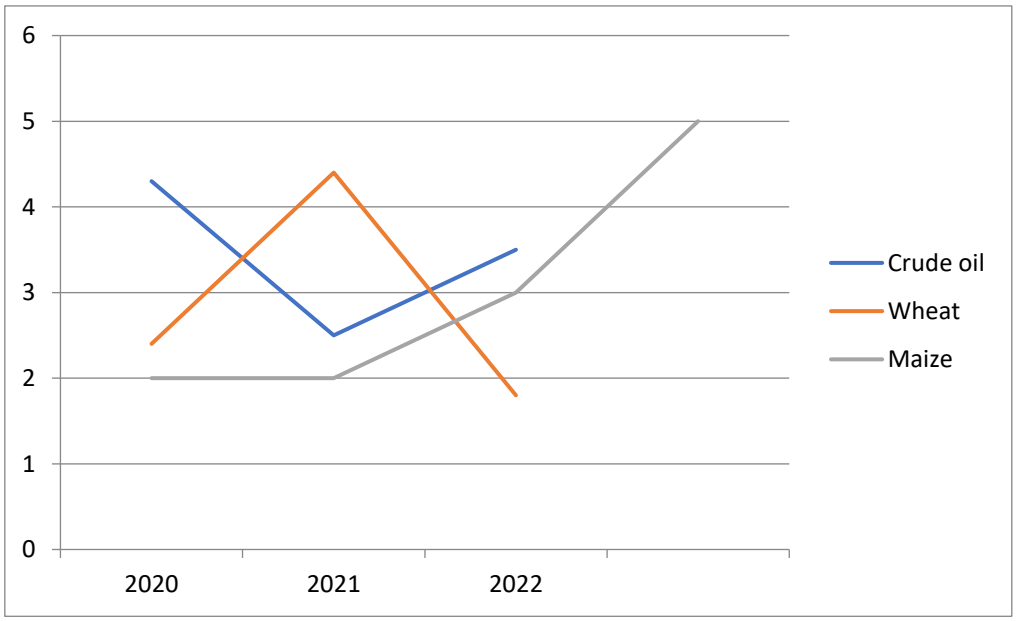

FIGURE 2: Standard Deviation of the selected commodities

INTERPRETATION: The daily closing prices of the commodities for the years 2020–2022 are used to calculate the Standard Deviation. The findings indicate that there was significant price variation in every year, indicating a high level of commodity price volatility.

TABLE 3: BETA COEFFICIENT OF THE SELECTED COMMODITIES

	2020	**2021**	**2022**
Crude oil	-0.4354	0.0264	-0.0160
Wheat	0.1543	0.0120	0.0559
Maize	-0.0633	0.0643	-0.1434

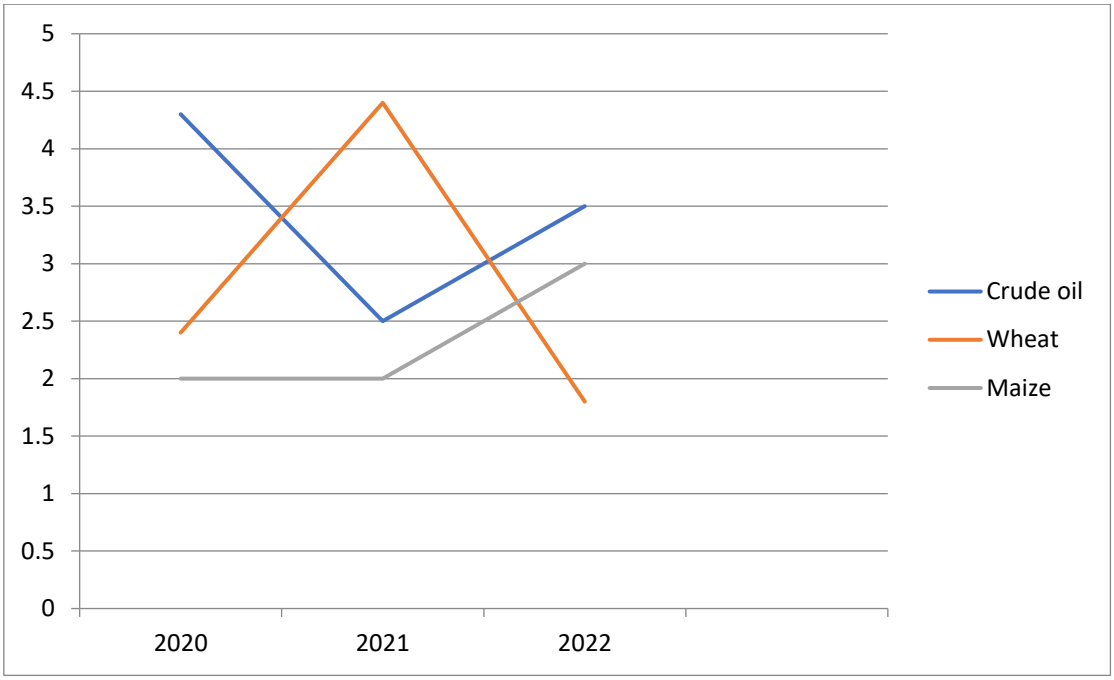

FIGURE 3: Beta Coefficient of the selected commodities

INTERPRETATION: The table and figure above demonstrate that, in comparison to the other two commodities, Crude oil and maize, wheat has the greatest beta coefficient in 2020, or 0.1543. The highest value of beta, or 0.0643, is found in maize in 2021, and the highest value of beta, or 0.0559, is found in wheat in 2022.

5: FINDINGS AND CONCLUSION

FINDINGS:

Based on the statistical analysis done for the study, we were able to determine the average return for each of the three commodities. The results showed that, in 2020, crude oil had the highest average rate of return, while maize had the highest rate of return in 2021 and 2022. This suggests that the price of both crude oil and wheat is highly volatile. Over time, the prices of all three commodities have fluctuated significantly, as indicated by the standard deviation of all the commodities, which indicates price volatility. Based on the computation of beta value, it was found that out of the three commodities, the greatest beta value was found in 2020 for Wheat, followed by the highest values for Crude oil and Maize in 2021 and 2022, respectively. Commodities with high beta values are associated with high risk, whereas those with low beta values are associated with low risk.

CONCLUSION:

The expansion of Indian Commodity Exchanges appears to be going well. Numerous researches demonstrate that commodity prices are discovered as a result of the product markets. The commodity market is said to have the ability to drastically change an investor's holdings. Therefore, having a thorough understanding of the market has become important.

REFERENCE

- Samal, G. P., Swain, A. K., Shoo, A., & Soni, A. (2015). Market efficiency of agricultural commodity futures in India: A case of selected commodity derivatives traded on NCDEX during 2013. *International Journal of Business and Management Invention*, *4*(1), 32-49.
- Dey, K., & Maitra, D. (2012). Price discovery in Indian commodity futures market: An empirical exercise. *International Journal of Trade and Global Markets*, *5*(1), 68-87.

- Shakeel, M., & Purankar, S. (2014). Price discovery mechanism of spot and futures market in India: A case of selected agri-commodities. *International Research Journal of Business and Management*, *8*(8), 50-61.
- Ali, J., & Bardhan Gupta, K. (2011). Efficiency in agricultural commodity futures markets in India: Evidence from cointegration and causality tests. *Agricultural Finance Review*, *71*(2), 162-178.
- Sen, S., & Paul, M. (2010). *Trading in India's commodity future markets*. Institute for Studies in Industrial Development.
- Iyer, V., & Pillai, A. (2010). Price discovery and convergence in the Indian commodities market. *Indian Growth and Development Review*, *3*(1), 53-61.