



An Analysis of the Price Volatility of Commodities: Gold, Silver, Aluminum, Copper, and Zinc with Particular Reference to MCX

Sanjana Ramesh

Kristu Jayanti Autonomous College, India

DOI: <https://doi.org/10.55248/gengpi.5.0224.0628>

ABSTRACT

The purpose of this study is to evaluate the price volatility of particular commodities. In the commodity market, price volatility is important. Weather patterns, natural disasters, and changes in the population are the causes that lead to price volatility. With particular reference to the MCX market, this study evaluates the price volatility of a few commodities, including zinc, Mentha oil, crude oil, MCXBULDEX, MCXENRGDEX, gold, lead, aluminum, copper, silver, and natural gas.

The Multi Commodity Exchange of India, or MCX, has been selected solely for research purposes. Getting a foundational understanding of commodity markets and the regulator that oversees them is the goal of this subject. To comprehend the idea of price volatility and examine commodity price volatility. To research the relationship between commodities and their potential price with various economic factors. Using returns computed from various future contract prices of commodities, the study's data analysis involves the computation of historical price volatility. The investor benefits from price volatility when making investment-related decisions.

Key Words: - Commodity market MCX, Volatility, Futures Contract Price, Spot Prices, economic parameters, NCDEX.

Introduction

The history of goods in India is longstanding. Contracts for commodity futures allow traders to purchase any certain quantity of a chosen commodity at a later time. These days, commodities are regarded as actual assets alongside stocks, bonds, and shares. Investors buy commodities at a specified price prior to the asset being created since commodity futures are offered at a forward price, allowing them to minimize future risk. In the past, institutions or huge sectors with the means to sell commodities more wisely would have acquired or purchased them. Nevertheless, circumstances have changed, and even tiny investors are now buying commodities like stocks in relation to stock markets. One well-known futures contract trading platform on the SENSEX and NIFTY stock exchanges is MCX. The futures contracts for the many commodities traded on the MCX assist investors in price discovery as well as risk hedging and portfolio diversification. The price volatility of future commodity contracts is highly beneficial for investors seeking to make short-term profits, as the commodities market in India is closely linked to numerous other industries. Consequently, these are the driving forces behind the growth in the Indian commodity market.

Review of literature

Numerous studies in the fields of finance and risk management have examined the commodities market and its effects on a range of other growth and development characteristics. The study indicates that the commodity market is crucial to the growth of the economy. The experts have determined certain benchmarks that the commodity market met in order to arrive at its current state. Additionally, a number of research were conducted to comprehend the various approaches used to calculate volatility. A multitude of studies have been conducted to determine the commodities' volatility. There are various methods for calculating volatility and applying volatility metrics to investing decisions and portfolio diversification. To verify the price fluctuations, numerous authors examined the GARCH models, the Phillips-Pearson (PP) test, and the Augmented Dickey Fuller (ADF). Numerous studies have also examined the relationships between commodities such as crude oil, gold and silver, and other economic variables, providing a detailed grasp of how the connection between two variables operates. As a result, the literature review aids in acquiring a thorough understanding of the various aspects that influence commodity pricing as well as the operation of the commodity market. The cost of carry and risk premium theories are examined by Chow-Foon et al. (2019) in order to comprehend the pricing of forward and future contracts. The study looked at the convenience yield and the cost of carry model to understand why forward and spot prices differed. There are two methods that have been researched for pricing off or ward contracts. Two methods of approaching the subject include the portfolio, which aids in comprehending the risk premium received from a big and diverse portfolio, and the impact of hedgers and speculators on future prices. (Foon Chow, 2019) The impact of oil price shocks on the volatility of the US stock market was examined by

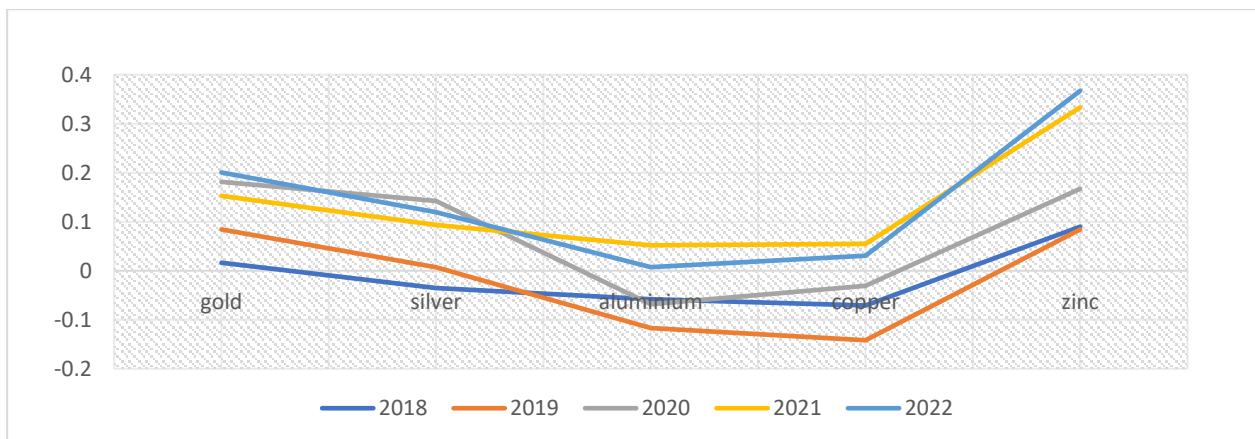
Bastian and Manera (2017). Three distinct oil markets are analyzed: aggregate needs, oil supply, and demand shocks specific to a given oil. The study found that while unanticipated changes in the demand side drive an increase in oil price volatility, the effect of volatility on the supply side is negligible. (In & Manera, Bastian) The impact of liquidity risk on return and volatility co-movement in the commodity futures market was examined by Ding and Shange (2017). The study's findings demonstrated that the common random element influencing both return and volatility is the liquidity risk. The dynamics of the cross-sectional correlation are also impacted by the liquidity spillover. (Zang and Ding, 2017) In a 2016 study, Joseph et al. examined how interest rates affect commodity price correlation and volatility. The study's data came from the commodities traded at the Chicago Board of Trade (CBT), London Metal Exchange, and New York Metal Exchange, as well as the Federal Reserve Bank of Cleveland.

Objectives of the study

1. To comprehend the regulatory environment and the expansion of the commodities market.
2. To comprehend the idea of volatility and how the Indian MCX operates.
3. To examine the varied returns and price volatility of commodities traded on the MCX in India.
4. To investigate how various economic characteristics relate to commodity futures pricing.

TABLE: AVERAGE RETURN OF THE SELECTED COMMODITIES FOR THE PERIOD OF 2018-2022

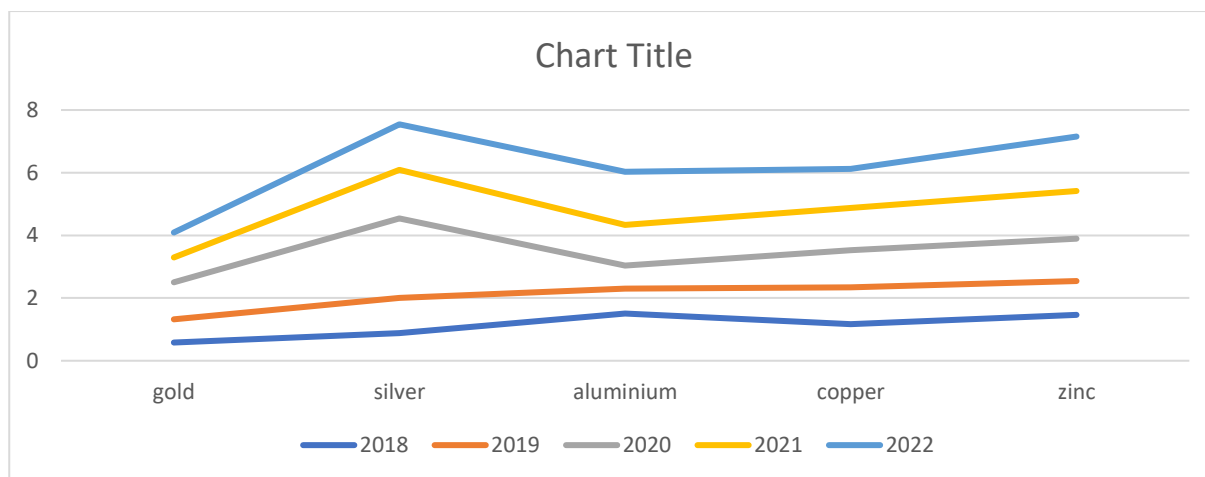
commodities	2018	rank	2019	rank	2020	rank	2021	rank	2022	rank
gold	0.016261	2	0.067651	1	0.097469	3	-0.02862	5	0.047967	1
silver	-0.03567	5	0.042957	2	0.13507	1	-0.04922	4	0.026551	3
aluminium	-0.05808	4	-0.05911	4	0.048722	5	0.1203	3	-0.04454	4
copper	-0.07098	3	-0.07098	3	0.110957	2	0.086012	2	-0.02469	5
zinc	0.089747	1	-0.00564	5	0.082763	4	0.166412	1	0.033854	2



Interpretation: - The highest average return on zinc (0.089747) was recorded in 2018. The highest average return on gold was recorded in 2019 (0.067651). The highest average return on silver occurs in 2020 (0.13507). The highest average return on zinc (0.166412) occurs in 2021. The highest average return on gold (0.047967) occurs in 2022.

TABLE: STANDARD DEVIATION OF THE SELECTED COMPANY FOR THE PERIOD OF 2018-2022

commodities	2018	rank	2019	rank	2020	rank	2021	rank	2022	rank
gold	0.581055	5	0.740732	5	1.181128	3	0.79252	5	0.797039	5
silver	0.881907	4	1.120697	2	2.538502	1	1.549853	1	1.45189	3
aluminium	1.506084	1	0.791514	4	0.741731	5	1.296712	4	1.692243	2
copper	1.172066	3	1.172066	1	1.184382	2	1.341691	3	1.250132	4
zinc	1.46537	2	1.077305	3	1.353226	4	1.524991	2	1.734059	1



Interpretation: The aluminum standard deviation is at its highest (1.506084) in 2018. The largest copper standard deviation (1.172066) was recorded in 2019. The greatest silver standard deviation (2.538502) occurs in 2020. The silver standard deviation reaches its maximum value of 1.549853 in 2021. The zinc standard deviation reaches its maximum value (1.734095) in 2022.

Conclusion

The commodity market plays a major role in the Indian economy. Since many other firms are also involved in the commodities, the pricing of the commodity will have a role in deciding the cascade effect on other associated goods. One important indicator of economic growth is the commodity market. Through online trading in a range of commodities, the Multi Commodity Exchange of India enables investors to diversify their portfolios, increase the size of their investment horizon, and reduce their risk of loss. Furthermore, the investors had better invest opportunities because to the All rights reserved understanding of numerous economic indices and other associated elements. Therefore, understanding commodities, their market, and how their prices fluctuate enables investors to make wiser decisions and incur less losses.

References

- Aggarwal N, J.S. (2014). Do futures markets help in Price Discovery and Risk Management for Commodities in India? Indira Gandhi Institute of Development Research, Mumbai, Mumbai.
- Algieri, B. (2016). Conditional price volatility, speculation, and excessive speculation in commodity markets: sheep or shepherd behavior? *International Review of Applied Economics*, 30(2)
- Ambries, Singh, A. (2015). Basics of Investment in Commodity Market in India. *International Journal of Multidisciplinary Approach and Studies*, angel broking. (n.d.). Commodity Trading in India: Basics. Retrieved from [angelbroking.com: https://www.angelbroking.com/knowledge-center/commodities-trading/basics-of-commodity-trading-in-india](https://www.angelbroking.com/knowledge-center/commodities-trading/basics-of-commodity-trading-in-india)
- B Batavia, N. P. (2012, January). Portfolio Diversification in extreme environment: Are there benefits from adding commodity futures indices *European Research Studies*.
- Babette V, B. P. (2018, December). An analysis of Existence of Convergence between spot and futures prices in selected agricultural commodities. *Indian Journal of Research in Capital Markets*.
- Baffles, J., & Cotised. (2014). Commodity Market Outlook. *Global Economic Prospects*.
- Bajpai, P. (2020, April 20). Top factors affect the prices of oil. Retrieved from [investopedia.com: https://www.investopedia.com/articles/investing/072515/top-factors-reports-affect-price-oil.asp](https://www.investopedia.com/articles/investing/072515/top-factors-reports-affect-price-oil.asp) 8. Bansal R, D.V. (2014, August). *Indian*
- Commodity Market: A Performance Review. *International Research Journal of Marketing and Economics*.
- Bastianin, A., & Manera, M. (2017). How does Stock Market Volatility react to oil price shocks? *Macroeconomic Dynamics*.
- Bathala, S. (2012). Volatility in Agriculture Commodity Price in India: Impact and Macroeconomic, Sector Specific Policy Responses. *Erasmine*. Dublin.
- Bhagwat S, M. A. (2015, March). A study of Historical Background of Indian Commodity Market. *EPRA International Journal of Economic and Business Review*, 3(3).
- Bhagwat, D. S., Maravi, A. S., Orme, R., & Chand, D. (2015, March). A Study of Historical Background of Indian Commodity Market. *EPRA International Journal of Economic and Business Review*, 3(3), 12.

- Bhattacharya, S., & Gupta, P. (2016). Modeling Time-Varying Volatility in Indian Commodity Futures Return: Some Empirical Evidence. *The IUP Journal of Financial Risk Management*, 13(4).
- Bhowmik, D. (2013). Stock Market Volatility: An Evolution. *International Journal of Scientific and Research Publications*, 3(10).
- Bhowmik, D. D. (2013, October). Stock Market Volatility: An Evaluation. *Internal Journal of Scientific and Research Publication*, 3(10), 18.
- Brooks, C., & Protopunk, M. (2013). The dynamics of commodity prices. *The Quantitative Finance*, 13(4).
- Business News: Basis Risk. (2016, February). Retrieved from *The Economic Times*: <https://economictimes.indiatimes.com/b/basis-risk/articleshow/50996597.cms>
- Business Standard. (2020). Multi Commodity Exchange of India Ltd. (MCX)-Company History. Retrieved from <https://www.business-standard.com/>: <https://www.business-standard.com/company/multi-comm-exc-25746/information/company-history>
- Centre for Advance Trade Research. (2019, May 30). Are Indian Agricultural Prices Co-integrated with global prices? Retrieved from [tpci.in](https://www.tpci.in/): <https://www.tpci.in/blogs/are-indian-agricultural-prices-co-integrated-with-global-prices/>
- Chakraborty, R., & Das, R. (2015). A Multivariate Multiscale Entropy Approach to Testing Commodity Market Efficiency. *The IUP Journal of Financial Risk Management*, 12(3).
- Chow Foon Y, M. M. (2019, April). Pricing of Forward and Futures Contract. *Journal of Economic Survey*, 14(2). Company 5161 *Journal of Positive School Psychology* © 2021 JPPW. All rights reserved History: Multi Commodity Exchange of India. (n.d.). Retrieved from *Economic Times*: <https://economictimes.indiatimes.com/multi-commodity-exchange-of-india-ltd/infocompanyhistory/companyid-16571.cmsand-ConvergenceinIndianCommodityMarket.IndianGrowthandDevelopmentReview>.
- J, S. (2014, March). Interest Rates, Commodity Prices and The Cost of Carry Model. *The Journal of Risk Finance*, 11(2).
- Jaiswal, B., & Manoj, S. (2015). An Analysis of Gold Price Variation and Its Impact on Commodity Market in India. *A Journal of Economics and Management*, 4(7).
- Joseph, A., Sisodia, G., & Tiwari, A. (2014). A frequency domain causality investigation between futures and spot prices of Indian commodity markets. *Economic Modeling*.
- Joshi, A., & Acharya, D. (2011). Commodity Prices and Domestic Inflation in India. *Global Journal of Emerging Market Economies*, 3(2).
- Kaur, H.P., & Anjum. (2013, November). Commodity Derivatives Market in India. *International Research Journal of Business and Management*, 5, 10.
- Kathua, M.B. (2007). Regulatory framework for the commodity futures market: An Indian Perspectives. *United Nation Conference on Trade and Development*, (p. 49).
- Knittel, C. R., & Pin Dyck, R. S. (2013). The simple Economics of Commodity price speculation. *MIT Centre for Energy and Environment Policy Research*.
- Kumar, K., Kumar, k. R., Ashrit, R., Deshpande, N., & Hansen on, J. (2014). Crop Climate Relationship in India. *International Journal of Climatology*, 24(11) 1375-1393).
- Kumar, S., Lagash, M., & Salena, N. (2012). Trade Liberalization and Price Volatility: An Econometric Investigation. *Asia-Pacific Journal of Management Research and Innovation*, 8(4).
- Lagash M A, K. M. (2014, October). Commodity Futures Indices and traditional assets markets in India: DCC evidence for portfolio diversification benefits.
- Lee, & Zhang. (2009, July). Evidence on Normal Backwardation and Forecasting Theory in Futures Market. *Journal of Derivatives and Hedgefunds*.