



“A STUDY ON AN INTERDEPENDENCE RELATIONSHIP BETWEEN GOLD, SILVER, CRUDE OIL AND SENSEX”

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ABSTRACT

Commodity market and Stock market are the two main pillars of financial system of any country. A commodity market is based on governing trades in primary economic sector. Gold, Silver & Crude oil are also traded in to the commodity market. The main objective behind to select this topic is to know the interdependence relation between gold, silver, crude oil and Sensex. This research is based on secondary data from the year 2012 to 2016. We found that there is interdependence between gold, silver, crude oil and Sensex.

KEYWORDS : Commodity market, Gold, Silver, Crude oil & Sensex

1. Introduction:

Commodities markets and stock market have tremendous economic impact on nations and people in historical and modern era. How commodity markets impact on history, it was not fully known by anyone, but it has been suggested that rice futures may have been traded in China from 6,000 years ago. The shortages were found during the wars throughout history such as in World War II. When Japan undertaking into foreign lands to secure oil and rubber, at that time oversupply impact on a region by devaluing the prices of core commodities.¹

Energy commodities like; crude oil, gasoline, heating oil and natural gas are going to be observed by the different countries, corporations and consumers. Overseas consumer can become significantly impacted by high crude prices. Alternatively, oil-producing countries in the Middle East countries can become adversely affected by low crude prices. Unusual trouble caused by the weather or natural disasters and that cannot be the reason price volatility but can also cause because of regional food shortages.

The regulatory body of Forward Markets Commission (FMC) was set up in 1953. As of September 2015 FMC, is merged with the Securities and Exchange Board of India, SEBI. In India, Commodity trading started before it was started in many other countries. At present, apart from various regional exchanges, India has six national commodity exchanges likely; ACE Derivatives exchange (ACE), Indian Commodity Exchange (ICEX), Multi Commodity Exchange (MCX), National Commodity and Derivatives Exchange (NCDEX), National Multi-Commodity Exchange (NMCE) and the Universal commodity exchange (UCX).

Gold has always fascinated people and gold is certainly one of the very first metals known. Nobody knows who picked up a gold nugget first, but it would have been because it was shiny. Gold was highly valued from the earliest recorded times in history. It gives the impression that the Egyptians developed gold melting before the 5600 years ago. By using clay blowpipes to heat the smelter contents. Egyptian labels courting back to 2600 BC describe gold. Gold workers from Mesopotamia (now known as Iraq) made one of the earliest known pieces of gold jewelry. Gold is mentioned before the several times at the old evidence and Tutankhamun's funeral mask is one of the most iconic gold pieces. It was made around 1223 BC. It is a stunning piece of ancient gold craftsmanship.

The silver market, according to the report, realized an annual physical deficit for the third consecutive year in 2015. The market's deficit of 129.8 million ounces was more than 60% larger than the previous year's deficit of 78.6 million ounces and the third largest on record, the survey recorded. Silver prices averaged \$15.68/oz, down 17.8% from 2014, the fourth consecutive annual drop. Prices were pushed lower by investor expectations for an interest rate hike in the

United States and a weakening Chinese economy.

India ranks among the top 10 largest oil-consuming countries. Oil accounts for about 30 per cent of India's total energy consumption. The country's total oil consumption is about 2.2 million barrels per day. India imports about 70 per cent of crude oil from its total oil consumption and it makes no exports. India faces a large supply deficit, as domestic oil production is unlikely to keep pace with demand. India's rough production was only 0.8 million barrels per day. The oil reserves of the country (about 5.4 billion barrels) are located primarily in Mumbai High, Upper Assam, Cambay, Krishna-Godavari and Cauvery basins.

Indian stock market marks to be one of the oldest stock market in Asia. It dates to the close of 18th century when the East India Company used to transact loan securities. In the 1830s, trading on corporate stocks and shares in Bank and Cotton presses took place in Bombay. Though the trading was started, but the brokers were hardly half dozen during 1840 and 1850. An informal group of 22 stockbrokers began trading under a banyan tree opposite the Town Hall of Bombay from the mid- 1850s, each investing a (then) princely amount of Rupee 1. This banyan tree still stands in the Horniman Circle Park, Mumbai. In 1860, the exchange flourished with 60 brokers.

2. Literature Review:

Madhusudan Karmakar & Malay K. Roy, (1996) were discussed the level of stock market volatility. It has increased over time, the steps to be taken to improve stock market efficiency, etc. The study surveyed the academic evidence of different facts of current stock market volatility in order to generate information helpful for decision making.

Sehaiah S. Venkata, (2003) examined the impact of inflation and exchange rates on gold, silver and stock returns before and after liberalization. They found that over the longer period of time, positive real rate of return was being provided by stocks after liberalization, by gold in both periods, but in short run the real return of stocks was often negative. Negative real rate of return was being provided by silver in both the periods.

Krishna Reddy, (2010) studied the movements in BSE Sensex in relation to FII investments and identified that FIIs are significant factor determining the liquidity and volatility in the stock market prices.

Ray Sarapriya, (2013) covered for a period, 1990-91 to 2010-11. The findings specified that there exists no significant causal relationship between industrial production and share price in India. The result of regression, of course, suggests that there may have been positive relation between stock price and real industrial production. The

increase in production of industry can enhance stock price and vice versa.

Ciner (2001) examined the long run trend in prices of gold and silver futures contracts listed on the Tokyo Commodity Exchange. Using daily closing prices from 1992 to 1998, the results indicated that the long run stable Journal of Finance and Accountancy Price volatility, relationship between gold and silver future prices had speared. Govind L. and Mihir dash, (2012) considered macroeconomic variables like exchange rates, crude oil prices, interest rates, gold prices and FIIs to be analyzed along with the movements of S&P CNX Nifty. Using vector autoregressive techniques and Granger causality tests, the study determined whether each of the factors have a significant impact on market volatility.

3. Research Methodology:

The main objective behind this research is to check interdependence between Gold, Silver, Crude oil and Sensex. The descriptive method of research was taken under study. Since descriptive research studies are concerned with describing the characteristics of an individual, or of a group, the same is used for studying the performance of the different prices in the market. Secondary data were taken from the year 2012 to 2016. We used Descriptive statistics, co-relation and regression for this study.

4. Data Analysis and Interpretation:

4.1 : Descriptive Statistics:

Table - 1 Descriptive statistics of Gold, Silver, Crude oil and Sensex

	Gold	Silver	Crude oil	Sensex
Mean	82.23	1.034	9345.42	23140.66
Standard Error	0.47	0.0080	32.45	118.99
Median	79.01	0.93	9065.9	24469.57
Standard Deviation	16.094	1.28	1120.77	4109.93
Sample Variance	259.018	0.078	1256133.454	16891550.66
Kurtosis	-0.16	1.57	-0.18	-1.517
Skewness	0.724	0.803	0.787	-0.155
Range	71.356	1.44	5051.37	14041.21
Minimum	55.52	0.64	7389.21	15640.56
Maximum	126.88	2.08	12440.58	29681.77
Sum	98095.46	1233.7	11149088.96	27606807.53

During the period from 2012 to 2016 Gold, Silver, Crude oil and Sensex the values of the mean and median are not the same, Skewness shows the deviation from a normal distribution. Standard deviation is not at 0. Kurtosis is a sign of flatterting of a distribution. Here the value of Kurtosis is less than 3. Skewness is zero, so it can be said that the data is normally distributed.

4.2 : Co-relation:

Table – 2: Co-relation of Gold, Silver, Crude oil and Sensex

	Gold	Silver	Crude oil	Sensex
Gold	1			
Silver	0.307025	1		
Crude oil	-0.12548	-0.07463	1	
Sensex	-0.32909	-0.13104	0.755761	1

Above table shows that co-relation between Gold, Silver, Crude oil and Sensex. Above data relieved that Crude oil has high co-relation (75.58%) with Sensex with compare Silver (-7.46%) and Gold (-12.55%). Co-relation between Gold with Silver is (30.70%) and with Sensex (-32.91%) and between Silver and Crude oil is (-13.10%). It is concluded that there is a positive co-relation between Crude oil & Sensex and Gold & Silver.

4.3 : Regression Analysis:

Table – 3: Hypothesis of Regression Analysis

Sr No	Null Hypothesis	R-square	Significance	Result
H01	There is no significance impact of Gold on Sensex.	10.83%	0.00	Rejected
H02	There is no significance impact of Silver on Sensex.	17.17%	0.00	Rejected
H03	There is no significance impact of Crude oil on Sensex.	57.11%	0.00	Rejected

Interpretation:

H01: To study whether there is a significant impact of Gold on Sensex. Its shows that there is a significance impact of Gold on Sensex, F (1, 1191) =144.65, p = 0.00. R-square shows that Gold has 10.83% impact on Sensex.H02: To study whether there is a significant impact of Silver on Sensex. Its shows that there is a significance impact of Silver on Sensex, F (1, 1191) =20.81, p = 0.00. R-square shows that Silver has 17.17% impact on Sensex.H03: To study whether there is a significant impact of Crude Oil on Sensex. Its shows that there is a significance impact of Crude Oil on Sensex, F (1, 1191) =1586.36, p = 0.00. R-square shows that Crude Oil has 57.11% impact on Sensex.

Conclusion:

From the above research study, we conclude that there is interdependence relation between Gold, Silver, Crude Oil and Sensex. The research shows that from the co-relation analysis, we can conclude that there is positive co-relation between Gold & Silver and Crude oil & Sensex. It shows the negative co-relation between Gold & Crude oil, Gold & Sensex and Silver & Sensex. Also, from the regression analysis, we conclude that there is an impact of Gold, Silver and Crude oil on Sensex. If the person wants to take risk than crude oil Portfolio is the best and the person don't want to take much more risk than gold and silver portfolio is best for an investment purpose.

REFERENCES

1. Beyza Mina Ordu, and Ugur Soyta(2016), "The Relationship Between Energy Commodity Prices and Electricity and Market Index Performances: Evidence from an Emerging Market", Emerging Markets Finance & Trade, 52:2149-2164.
2. Govind L., Mihir Dash, 2012, A Study of Granger Causality of Macroeconomic Factors on Indian Stock Markets, SSRN.
3. I.M Pandey, "FINANCIAL MANAGEMENT" Ninth Edition Vikas Publishing House Pvt. Ltd.
4. <https://www.thebalance.com/what-are-commodities-356089>.
5. Krishna Reddy Chittedi (2009), "Volatility of Indian Stock Market and FIIs", Journal: European Business Review. Vol.15, pages 22-34.
6. Madhusudan Karmakar and Malay K. Roy, 1996, Stock Price Volatility and its Development Implications – Indian Experiences, Finance India, X (3), September, 585-603.
7. Pethe, A. and Karnik, A. (2000). Do Indian Stock Market Matters? Stock Market Indices & Macroeconomic Variables, Economic and Political Weekly, 35 (5): 349-356.
8. Ray Sarapriya (2013) "Towards Examining the Relationship between Industrial Production and Stock Price in India" United States of America Research Journal (USARJ) Vol. 1 (03): 36-45.
9. Seshaiiah S. Venkata, Ganesh S. Mani and Srivally Vuyyuri, 2003, Effect of Exchange Rates and Inflation on Stock Returns, The ICFAI Journal of Applied Finance, 9(4), July, 51-60.
10. Security Analysis and Portfolio Management –Donald E. Fischer, Ronald Jordan Portfolio management - Kevin.