

IMPACT OF GOLD ON INDIAN STOCK MARKET

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Abstract

One of the most difficult issues for traders is the interconnection of financial and commodities markets. A shift in one segment might have an effect on the price indices of that other. The purpose of this research is to examine the impact of gold and oil on stock market indexes. Gold and crude oil prices were used as explanatory variables in the correlation and regression analyses, while the Nifty 50 spot price index was the dependent variable. The results obtained show that the factors analysed are stable in the long term and that the Nifty 50 stock market indices reach their long-term equilibrium position at a daily rate of change of 1.2 per cent following the impact of the values of the oil and commodity market and their volatility.

Keywords: Gold price; Oil price; Indian Stock price, Nifty 50

Introduction

Price of commodities like Gold and Crude Oil have far-reaching macro-economic consequences for economic transactions and all industries of the Indian economy. This effect is immediately evident in utilisation, factory output, and financing across the financial and real estate sectors; in which volatility in oil and gold prices influences stock prices, creating some potential ramifications in India's stock exchange and implicitly manifesting itself in wage hikes and joblessness.

The primary influence on the price of Oil is the consequence of socio-political and environmental variables, which can cause unanticipated swings in supply as well as demand, resulting in price fluctuations. Recognizing crude oil price fluctuation is crucial as it can induce uncertainties in many different industries and contribute to economic turbulence across both oil importing and exporting nations. The volatility of oil prices puts commercial manufacturers and customers at risk; they are unable to offer reasonable costs for their merchandise and services due to their sectors' reliance on petroleum and its derivatives. Since the value of a commodities is dependent on a prospective claim that is altered by fluctuation, fluctuations in oil prices impacts derivative marketplaces as well. Moreover, fluctuations in oil prices leads to increased wage growth and inflation levels.

Gold is a valuable metal that is both a commodities and a market-oriented. It acts as an accumulation of capital, a measure of value, and a means of trade. Gold is easily convertible into cash and a desirable metal used to produce jewellery. Historically, gold has served as an indication of future inflation, a hedging against rising prices, an essential commodity in portfolio management, and significant role during crisis was played by it. Since gold generates a hedge to diversification the industry's growing risk due to economic as well as financial crisis. Gold is held in considerable quantities by federal reserve and banks worldwide for diversifying and financial stability.

Literature Review

The link between the gold standard, the financial industry, and oil, as well as economic indicators (among others; 2018 Mukhuti; 2018; Al-Ameer et al. 2018; Bhunia and Mukhuti, 2013).

According to Mukhuti (2018), crude prices have a major impact on stock prices and the US industry overall. In market efficiency, the price of crude oil and share value are historically linked, indicating that the stock values of oil-using companies will decline if the price of crude oil rises (Kumar et al., 2021). Oil cost improvements would adjust by negating cost improvements for inventories in an imperfect market (Mukhuti, 2018). From 1947 to 1991, according to Bhunia and Mukhuti (2013), the price of oil had no effect on real stock returns. Singh (2014) evaluated the impact of an undefined oil cost on an oil group's equity costs. Using the VAR model, they looked at the stock values of three oil companies and found a link between market returns and one-day advances in international oil returns. Kumar, Kumar and Singh (2022) use non-linear coupling to examine how oil prices affect real stock values; He found that the rate of return on a stock index affects the volatility of the price of crude oil.

Cai et al. (2001) investigated the relationships between GDP, increased inflation, and crude prices changes. They concluded that variations in exchange rate yields were significantly influenced by GDP and price increases. According to Capie et al. (2005), gold can be employed as a mitigate against currency fluctuations. Baur and McDermott (2010) examined how commodity prices influenced the stock market from 1979 to 2009 and determined that gold is utilised as a security and security base in Indian stock markets as well as the totality of European markets. Gold price changes, according to Batten et al. (2010), have a considerable influence on stock investment outcomes. Mensi et al. (2013) explore the link and movement of market volatility in regard to commodities such as oil and gold. As according their research, the value of the S&P 500 impacts the price of oil and gold. Bhunia (2013) used the Granger test to investigate the relationship here between provincial cost of gold and the expected splitting return and observed a two-way connection in between expense of gold and supplying price yielding. Arouri et al. (2015) used a VAR-GARCH model to examine how variations in gold prices influenced yields on Chinese stock markets from 2004 to 2011. They discovered that swings in gold prices had a substantial impact on Chinese investment outcomes.

Research Methodology

3.1 Data

Statistics on Indian crude-oil spot prices (in US dollars for each share) were obtained from Statista for a 15-year period (Jaganmohan, 2022). The market index for the Nifty 50 was calculated using the everyday adjusted closing price from the Yahoo Finance website (NIFTY 50, 2023). Gold historical spot prices (INR per 10 grams) were obtained from the BankBazaar website (Bankbazaar, 2023). Volatility indices for gold and oil sequence have indeed been published since 2008 and are derived as a return on prior year prices. The analysis examined yearly values and indices from January 1, 2008 through December 31, 2022.

3.2 Data Analysis Technique

The data was analysed using a variety of statistical approaches, including descriptive as well as analytical statistics. Descriptive analyses were used to analyse the factors used for this investigation. In analytical statistics, correlation has been used to determine the level and orientation of the link between the specified variables. On the other hand, as a part of analytical analysis, regression analysis was performed to assess the direct or indirect impact of the independent factors on the dependant variable in order to generate a linear equation. The Nifty 50 market indicator in India was used as the dependant variable in this study. The prices for crude oil and gold, on the other hand, were selected as predictor variables. To eliminate anomalies in the dataset, the value of each parameter is transformed to be retrieved and stated in digits (up to three decimals).

Analysis

Descriptive Analysis

Table 1: Descriptive Analysis

Descriptive Analysis			
	<i>Gold price</i>	<i>Nifty 50</i>	<i>Crude Oil</i>
Mean	0.118	0.105	0.014
Median	0.087	0.105	(0.023)
Standard Deviation	0.149	0.147	0.269
Kurtosis	0.170	0.967	0.690
Skewness	0.876	(0.646)	0.585
Minimum	(0.059)	(0.246)	(0.451)
Maximum	0.427	0.314	0.628

The above table shows that the monthly average return of gold during the past 15 years is 0.118 or 11.8%. On the other hand, Nifty 50 has recorded average monthly return of 10.5%. Lowest return has been recorded for Crude oil at 1.4%. The median value of return from gold is 0.087, which is lower than the mean value. This

signifies that maximum return is at upper value. On the other hand, Nifty 50 has shown same value for mean and median. Crude Oil's median value is -0.023, which is 2.64 times lower than the mean value. This implies that the data for crude oil return is positively skewed. This further implies that although the bulk of values are located on the left side of the dataset, a small number of bigger values are inclined to pull the average to the right.

The value of standard deviation has been observed higher than the mean value. This signifies that all three variables gold, nifty 50 and crude oil are highly volatile. The value of Kurtosis of all three variables are lower than 1. This signifies that data is symmetric and there is presence of less outliers within the dataset. The value of Skewness has been recorded positive for gold return and it is between 0.5 and 1. This signifies that the data for Gold is symmetric. On the other hand, both nifty 50 has recorded negative skewness, which implies that maximum value at lower side of the data set. The minimum return recorded for Gold is -5.9%, while it Nifty 50 has recorded -24.6% return as the lowest. Crude oil has recorded -45.1% as the lowest return.

The highest return for gold is 42.7%, and nifty 50 has recorded the highest return of 31.4%. On the other hand, Crude Oil has recorded the highest return of 62.8%. Since, crude oil has recorded both highest and lowest return; it can be commented that the price of Crude Oil is highly volatile among other securities.

Correlation analysis

Table 2: Correlation Analysis

Correlation			
	<i>Gold price</i>	<i>Nifty 50</i>	<i>Crude Oil</i>
Gold price	1.000		
Nifty 50	(0.343)	1.000	
Crude Oil	0.130	(0.084)	1.000

The correlation analysis shows both gold and nifty 50 have negative correlation. However, the value of correlation is lower than 0.5. Hence, a weak correlation between both variables have been estimated. On the other hand, both crude oil and nifty 50 have also recorded negative correlation at -0.084. The value of correlation near to 0 signifies that there is no correlation between crude oil and nifty 50.

Regression Analysis

Table 3: Regression Analysis

ANOVA^a					
Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	.036	2	.018	.811	.467 ^b
Residual	.266	12	.022		
Total	.302	14			

a. Dependent Variable: Nifty 50

b. Predictors: (Constant), Crude Oil, Gold price

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	.144	.050		2.901	.013
Gold price	-.334	.270	-.338	-1.236	.240
Crude Oil	-.022	.149	-.040	-.146	.886

a. Dependent Variable: Nifty 50

The regression analysis table shows that ANOVA is not significant at 5% level. This signifies that selected regression model does not fit the dependent variable. On the other hand, coefficient table also shows that value of p is above 0.05. This demonstrates that the dependent variables are not linked with independent variables. As a result, the prices of gold and crude oil have really no effect on the Nifty 50. (market index).

Conclusion

Oil and gold, as well as price volatility, have a significant influence on India's fiscal and economic activity. The long-run significant impact of commodities such as oil and gold on the Indian Nifty 50 stock market value indicator was explored in this article.

Due to the influence of oil and gold rates, in addition to their instability, the data demonstrate that the Nifty 50 correlates to its long-run mean. Although each of the determinants have a long-run influence on the Nifty 50 global equity price, the gold spot price has the greatest long-run and short-run effect on stock prices, which has serious implications for investors. Stockholders can react to gold price changes by understanding that gold is an ideal alternative for stock; because it is more widely obtainable as well as insulate itself from increasing inflation, gold price swings have always had the biggest impact on the stock market. Short-term volatility in oil and gold has little influence on the Nifty 50 equities market. Market players may be reluctant to shift investment to certain other sectors in the short to medium term, but in the long run, they respond to the volatility of oil and gold values. The results also emphasized the short-run influence of crude price swings on stock prices, given that the renewable energy makes for a sizable percentage of the Nifty 50 capital markets. Any increase in the price of oil and gold would improve the stock prices of these companies.

The extensions of this research will investigate the influence of the aforesaid factors on the various industries in the Nifty 50 financial markets, which implies on industrial stocks, oil stocks, and aviation share prices, resulting in a very comprehensive and beneficial policy proposal.

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