

Impact of Gold Price on India Stock Market – An Empirical Study

Saravanan R^{1,a}

Assistant Professor

¹*School of Management, Sri Krishna College of Technology, Coimbatore, Tamil Nadu, India*

Karthikeyan N^{2,b}

Assistant Professor

²*School of Management, Sri Krishna College of Technology, Coimbatore, Tamil Nadu, India*

Abstract

The impact of the increase in international gold prices is reflected in its domestic prices as well. Although, in India, the recent price rise, demand for gold has sustained, not only as a part of safe investments but as well due to its societal and cultural significance. Therefore, gold price movements in India are of excited interest to every section of the people who wants to invest. Gold price rise are a good indicator of how healthy the Indian economy is. Investors congregate towards gold when they are defending their investments from either a crisis or inflation and when the price of gold falls which generally means the market is strong and healthy because investors have gone to gold for other, more profitable investments i.e. stocks, bonds, real estate business and other investments. From the strategy point of view, increase of gold prices has raised a concern as to whether a coming fall in gold prices would have economic stability inferences. The study has been carried out by taking 5 years data into consideration to determine the impact of gold price on stock price indices.

Keywords: *Impact, Gold, Price Rise, Stock price indices*

I. INTRODUCTION

Stock market plays a vital role in the financial sector of every economy. An efficient capital market drives the economic growth by stabilizing the financial sector. In an efficient capital market, stock prices adjust swiftly according to the new information available. The stock prices reflect all information about the stocks and also the expectation of the future performance of corporate houses. As a result, if stock prices reflect these assumptions in real, then it should be used as a major indicator for the economic activities. Hence the dynamic relationship between stock prices and macroeconomic variable contains academic interest as well as policy implications.

Investors have historically used risky strategies in their portfolios such as diversifying across countries, including gold investments, because such investments typically have had an inverse relationship with stock market movements. Technology has changed the environment in which there are very few obstacles today to hinder investors from buying or selling assets anywhere in the world. There are also many other options for investors to avert risk so that gold are not considered merely another commodity. In the commodity market, gold has its exceptional significance and gold is still considered as a safe investment when compared to equity and constantly rising because of its big demand in the country and mainly gold proposes the full security for short term and long term return. As per World Gold Council (WGC), Indians hold more than 18 thousand tons of gold, which signifies more than eleven percent of the total gold stock and it is largest in the world. According to the Gems and

Jewellery Export Promotion Council (GJEPC), the apex institution of Gem and Jewellery in India will organise the first Indian Gold and Jewellery Summit 2018. The Summit will mainly concentrate on four large areas i.e. export of Jewellery \$25 billion, code of conduct and values for jewellery industries in India, spot exchange of gold in India and value addition through Jewellery manufacturing (GJEPC India). After the global financial crisis in 2008, day by day the capital flows of emerging economies stock markets have incessantly much better and their removal of the international capital controls due to the liberalisation of economies (Acikalin, 2008). At the same time, it was very difficult and risky to make their investment decisions because the unexpected volatility of stock market returns. Therefore, the bottomless insecurity in stock market returns as a result of its volatility has a causal relationship and influencing the demand for gold (Bhuyan and Dash, 2018). In this context, this paper investigated the

relationships between gold price and Indian stock market indexes i.e. NSE-Nifty and BSE-Sensex. Results show that there is a positive association with Indian stock indexes while gold price expected inverse relationship with stock prices has changed over time. Positive associations recommend that several long-established portfolio risk procedures may no longer be applicable. Gold prices no longer have significant effects on the economy outside of industry-specific issues.

II. Review of Literature

Rakesh Kumar (October – 2013) in his paper macroeconomic factors on Indian stock market performance tries to analyse the factors which influence the stock market performance from January 2001 to 2013. The monthly data of 12 macroeconomic variables and one stock market index were used. Correlation analysis and factor analysis were used in this study. Correlation analysis results shows that most of the macroeconomic variables are correlated among themselves. Factor analyses are used to describe the variability among observed correlated variables. Among three factors, industrial performance plays a significant role in influencing the stock market. This study concluded that Indian stock market is highly responsive to the Macro environment. Also Indian stock market was affected by the performance of the firm as well as the unforeseen events.

Bhuyan and Dash (2018) assessed the dynamic causality analysis between Indian gold price movements and Indian stock market returns by using secondary monthly time series data with causality and Johansen cointegration test. Johansen co-integration indicated that there is a long term relationship exists between gold price and stock returns and Granger causality test results pointed out that there is no causal relation between gold and stock return.

Afsal and Haque (2016) specified the market interactions in the very important macroeconomic indicator i.e. gold price and stock markets based on Saudi Arabia. They mainly pointed out the non-linear dependencies with stock market in the Saudi Arabian perspective by the help of univariate and multivariate models of generalized autoregressive conditional heteroskedasticity (GARCH) analysis. The findings chiefly proved that there is no dynamic relationship between gold price and stock market.

Srivastava and Hari Babu (2016) illustrated causal relation between gold and stock returns in India and daily prices of gold and NSE-Nifty index has been considered and also the results of unit root test is stationary condition and have a long run relationship between the variables, but as per causality relationship model it is suggested that the data have bidirectional impact of variables.

Sur and Bhunia (2016) observed the impact of selected macroeconomic variables on Indian stock market by using so many important macroeconomic indicators i.e. BSE-Sensex, NSE Nifty, Gold price, Crude oil price, Real Interest rate, Wholesale price index and Exchange rate with monthly time series data for the period from 1997 to 2015. The results revealed that the positive reaction of sensex and nifty on crude oil prices, exchanges rates, real interest rates and whole prices indices but a negative impact from sensex and nifty to real interest rates.

Taheri (2014) Canada as oil producer to the increase of oil price was positive and other developed countries which were oil purchaser act in response to this transform negatively after analyzing of unit root and co-integration test and error correction model were implied to the study. Actually researcher tries examining the impact of crude oil price on evidence from selected developed countries stock markets after considering the real interest rate, industrial production index, real stock return in stock markets and real oil price (in USD) of Canada, UK, US and France for the period of 1990 to 2012.

Hussin et al. (2013) examined the linkages between gold price, oil price and Islamic stock market on evidence from malaysia. The results confirmed that Islamic stock market returns were not co-integrated with other variables in the long run and Granger causality test also observed that there was a bi-directional causality between Islamic stock returns with oil prices but only oil price variables influenced the Islamic stock market return in the short run in Malaysia.

Le and Chang (2011) examined the dynamic relationships based on a Bounds testing approach among oil, gold and financial variables in Japan and the findings of this study benefited both the investors and Japanese monetary authority that hold the Japanese yen in their portfolios.

Lee et al. (2012) analysed the asymmetric long-run relationship among crude oil and gold futures. Finally, the findings proved that an asymmetric long-run alteration exists between gold and oil. Moreover, the causal relationship shows to West Texas Intermediate Crude Oil acts a principal position.

Aloui and Jammazi (2009) scrutinized the effects of crude oil shocks on stock market shifts behaviour by using crude oil price and UK, France and Japan stock market indices over the period from 1989 to 2007 with Markov-switching EGARCH technique. The results represented that rises in oil price had significant role in determining both the volatility of stock returns and probability of transition across regimes.

III. Objectives

1. To find out the impact of gold price on performance of Indian stock market
2. To find out the co-integration between the gold price and Indian stock market.
3. To find out the causality between the gold price and Indian stock market.

IV. Research Methodology

This study is based on completely secondary data and information obtained from various appropriate databases including World Gold Council (WGC) database, BSE and NSE database, RBI database etc. In addition, the facts and shapes, outlines and findings highly developed in comparable previous studies and the government publications and reports are also used to supplement the secondary data. In the course of analysis in the study, various accepted statistical and econometric tools are used.

V. Data Analysis

We take the gold price as dependent variable and NIFTY and SENSEX as independent variable. For the analysis we taken data for 5-year monthly price for all three variables from April 2014 to April 2019

Chart 1 PRICE CHART

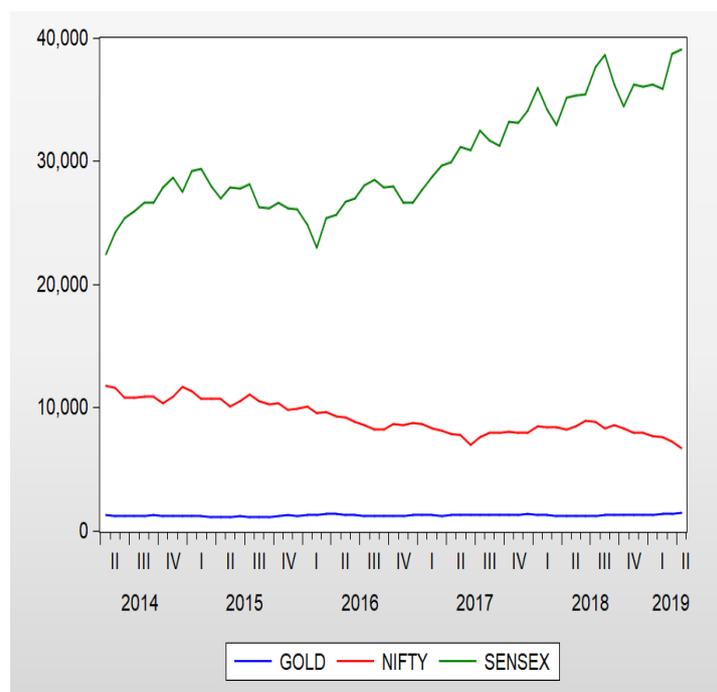


Chart 2 Return Chart

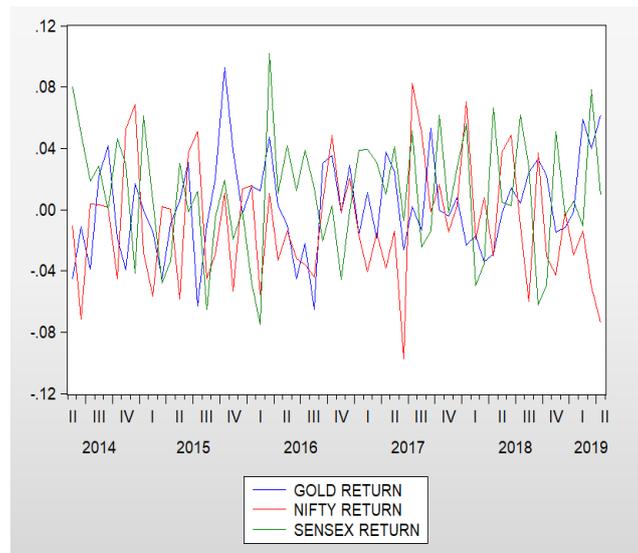


Table 1 Multiple Regression Statistics

Regression Statistics	
Multiple R	0.615848
R Square	0.379268
Adjusted R Square	0.357864
Standard Error	61.91673
Observations	61
F- Value	17.71905
Prob(F-value)	9.86769E-07

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	1555.201	140.5098	11.06828	6.31E-16	1273.942	1836.462	1273.94	1836.462
SENSEX	0.000425	0.002538	0.167425	0.867618	-0.00466	0.005506	-0.00466	0.005506
NIFTY	-0.03496	0.008336	-4.19378	9.51E-05	-0.05165	-0.01827	-0.05165	-0.01827

INTERPRETATION

The P value of SENSEX is more than 5% (0.867618) and P value of NIFTY is Less than 5% (9.51E-05). Therefore, NIFTY is a significant variable to dependent variable GOLD PRICE. It is a good sign of regression analysis to show that one variable is significant out of two variables. The probability of F-statistics is less than zero, it is also indicating that the two independent variables NIFTY and SENSEX jointly influence to dependent variable GOLD PRICE. This is also a good sign of regression.

Table 2 Stationary Test

At Level

Variable	Test critical values				Prob
	T-Statistic	1% level	5% level	10% level	
Gold	-1.30283	-3.5461	-2.91173	-2.59355	0.6227
Nifty	-1.15508	-3.54406	-2.91086	-2.59309	0.6881
Sensex	-0.77594	-3.54406	-2.91086	-2.59309	0.8185

At First difference

Variable	Test critical values				Prob
	T-Statistic	1% level	5% level	10% level	
Gold	-5.66141	-3.5461	-2.91173	-2.59355	0.0000
Nifty	-7.78974	-3.5461	-2.91173	-2.59355	0.0000
Sensex	-8.08086	-3.5461	-2.91173	-2.59355	0.0000

Interpretation

The Stationary test, 3 variable Gold, Nifty and Sensex the P-value is 0.6227, 0.6881 and 0.8185 at level the probability value is more than 5%. So, the variable is not stationary. So, we need to do First difference. In first difference all the 3 variable's P-value is zero. So, the variables become stationary

Table 3 Johansen Cointegration Test

Multivariate Co-integration Test:

Johansen multivariate cointegration test is used to find out the variables are co-integrated or not as well as the number of co-integrating relationships. Two likelihood ratio tests is used in this method i.e. Trace statistic and maximum Eigen Value statistic to observe the number of co-integrating vectors.

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None	0.49571	89.5156	29.7971	0
At most 1	0.43918	49.8085	15.4947	0
At most 2	0.24453	16.2638	3.84147	0.0001
Trace test indicates 2 cointegrating eqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None	0.49571	39.7072	21.1316	0.0001
At most 1	0.43918	33.5446	14.2646	0
At most 2	0.24453	16.2638	3.84147	0.0001
Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				

Interpretation

When compare to the critical value and trace value, trace value should be greater than critical value. Here the trace statistics greater than the critical value in both trace and maximum eigenvalue for the dependent variable as Gold Price and Independent variables as NIFTY and SENSEX The probability value for trace and maximum eigenvalue equal to zero it is than 5%. So, there is Co-integration from dependent and independent variables and the Probability value is less than 5% in both Trace and maximum eigenvalue. So, the null hypothesis is rejected.

Bivariate Co-integration Test [Gold Price with Nifty]

Bivariate Cointegration test has been performed to find out the long-term relationships between gold price and nifty by using two likelihood ratio tests i.e. Trace statistic and Maximum Eigen Value statistic to observe the number of cointegrating vectors.

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None	0.45982	53.0532	15.4947	0
At most 1	0.25833	17.3337	3.84147	0
Trace test indicates 2 cointegrating eqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None	0.45982	35.7195	14.2646	0

At most 1	0.25833	17.3337	3.84147	0
Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				

Interpretation

The dependent variable as Gold Price and Independent variable as NIFTY. When compare to the critical value and trace value, trace value should be greater than critical value. Here the trace statistics greater than the critical value in both trace and maximum eigenvalue. So, there is Co-integration from dependent and independent variables and the Probability value is less than 5% in both Trace and maximum eigenvalue. So, the null hypothesis is rejected.

Bivariate Co-integration Test [Gold Price with Sensex]:

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None	0.45006	53.3729	15.49471	0
At most 1	0.2755	18.6919	3.841466	0
Trace test indicates 2 cointegrating eqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None	0.45982	35.7195	14.2646	0
At most 1	0.258334	17.33365	3.841466	0
Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				

Interpretation

The dependent variable as Gold Price and Independent variable as SENSEX. When compare to the critical value and trace value, trace value should be greater than critical value. Here the trace statistics greater than the critical value in both trace and maximum eigenvalue. So, there is Co-integration from dependent and independent variables and the Probability value is less than 5% in both Trace and maximum eigenvalue. So, the null hypothesis is rejected.

Table 4 Granger Causality Test

Null Hypothesis	Obs	F-Statistic	Prob.
NIFTY does not Granger Cause GOLD	59	2.64727	0.08
GOLD does not Granger Cause NIFTY		2.43088	0.0975
SENSEX does not Granger Cause GOLD	59	1.22434	0.302
GOLD does not Granger Cause SENSEX		2.96907	0.0598
SENSEX does not Granger Cause NIFTY	59	0.16596	0.8475
NIFTY does not Granger Cause SENSEX		1.94639	0.1527

Granger Causality Test between dependent and independent variable the probability value should be less than 5% to become causality. If one variable causes other it is univariable causality. If both the variable causes each other then it is bivariabile causality. It is test P-value is more than 5% for variable between the NIFTY to Gold, SENSEX to gold, SENSEX to NIFTY or vice versa. So there is no causality between the Dependent and Independent variables.

VI. Conclusion

Indian Stock Exchange plays a dynamic role in the mobilization of capital in India and plays a key role for the financial sector of the economy. Investment in gold initiates the safest investment to make a probable revenue, and this has stimulated the need to examine the relationship between the Indian stock market and gold market. This study finds, the Indian stock market jointly influence the gold price and their co-integration between the dependent variable (gold price) and the independent variable (NSE and BSE). On the basis of findings, there is no causality between gold prices and Indian stock market. So, Indian stock market may affect the gold market.

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