Impact of Oil and Gold Prices on the Stock Exchange of Bombay: An Evidence from India

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Abstract

In this paper, we have analyzed that investors have not in rational behavior. In the imperfect markets, prices are always change in trends and these changes are known as the non random we have taken the data from 2003 to 2011. We have applied the different techniques and our results are showing that there is no long run relationship between these two dependent variables and stock exchange of India. Bombay stock exchange is known as the oldest stock exchange of India. It is also known as the fastest stock exchange of the world. It was established in 1876. The rating of bombing stock exchange is the at the 11th no. with the market capitalization is the 1.8$ trillion. It has listed near about 5600 companies. Bombay stock exchange is also known as the oldest stock exchange of Asia. Most of the investors, would like to invest in this stock market due to large capitalization. According to securities act of India, Bombay stock exchange first recognized stock exchange of the India. In 2000, it was known as the derivatives market.

Keywords: Rational behavior; Imperfect market; Non-random; Market capitalization

Introduction

According to different researchers, the purpose of the investment is the way of saving in the future. Investors can save their money with the different way, one of the way is the investment in the shape of the Gold. Different studies have proved that there is positive result in the shape of the gold. Many studies have proved that investment in the gold is the known as the best way of the investment. In the case of financial crisis, it is known as the quite safe. Prior studies showed that there is positive relationship between gold prices and stock exchange, this thing is showing that gold is the safe heaven investment.

With the comparison of all metals Gold is known as the own pride. It has the main role from the time of immemorial. At the start, gold was used as the way of exchange and it was also used as the namental purpose. In simple words it is known as the portfolio investment. Investors have chosen this metal for investment among the different metals. According to different investors Gold is known as the more profitable metal and less risky. Different researchers have proved that there is inverse relationship between gold prices and stock exchange. In the condition of the downturn economy, most of the investors invest into the gold. This paper is trying to explore the relationship between Indian stock exchange and gold prices. For this purpose, we have utilized the secondary data and taken the data from, 2003 to 2011 (Figure 1 and Table 1).

Objective of the Study

The purpose of this study is to show the relationship between gold prices and stock exchange of India. The prices of gold are also favorite topic for debate. According to Nasir) there is direct linkage between gold prices and stock market. In simple words, gold is known as the simple lest way to attractive the investors into the investment in gold. Our study is showing that increase in the prices of the gold, there is impact on the GDP.

Overview of the Bombay Stock Exchange

Bombay stock exchange is known as the oldest stock exchange of India. It is also known as the fastest stock exchange of the world. It was established in 1876. The rating of bombing stock exchange is the at the 11th no. with the market capitalization is the 1.8$ trillion. It has listed near about 5600 companies. Bombay stock exchange is also known as the oldest stock exchange of India. In 2000, it was known as the derivatives market.
variable and gold prices, oil prices as the dependent variables, they had shown the results that there is significant relationship between China stock exchange and gold prices. They had suggested that investors should invest in this metal [2].

Chung S Kwon and Tai S Shin Examined that the relationship between gold prices and Japan stock exchange. For this purpose they were collected the data from Feb 2004 to Jan 2014 and utilized the VAR model. They had taken variables namely, stock exchange as the independent variable and gold prices, oil prices as the dependent variables, they had shown the results that there is significant relationship between Japan stock exchange and gold prices. They had suggested that investors should invest in the gold rather than stock exchange [3].

Claire, Ginette, Rajneesh and Ahmet Shown that the relationship between gold prices and France stock exchange. For this purpose they were collected the data from Feb 2001 to Jan 2011 and utilized the simultaneous equation model. They had taken variables namely, stock exchange as the independent variable and gold prices, oil prices as the dependent variables, they had shown the results that there is significant relationship between France stock exchange and gold prices. They had suggested that investors should invest in the gold rather than stock exchange [4].

Graham Smith, Observed that the relationship between gold prices and Malaysia stock exchange. For this purpose they were collected the data from Feb 2003 to Jan 2013 and utilized the Johnson approach model. They had taken variables namely, stock exchange as the independent variable and gold prices, oil prices as the dependent variables, they had shown the results that there is significant relationship between Malaysia stock exchange and gold prices. They had suggested that investors should invest in the gold rather than stock exchange [5].

Grorge Handroyiannis and Evangelia Papapetrou Examined that the relationship between gold prices and Asian stock exchange. For this purpose they were collected the data from Feb 2005 to Jan 2014 and utilized the VECM model. They had taken variables namely, stock exchange as the independent variable and gold prices, oil prices as the dependent variables, they had shown the results that there is significant relationship between Asian stock exchange and gold prices. They had suggested that investors should invest in the gold rather than stock exchange [6].

Hamed Sadri and Ehsan TayebiSani viewed that the relationship between gold prices and Afghanistan stock exchange. For this purpose they were collected the data from Feb 2007 to Jan 2015 and utilized the ECM model. They had taken variables namely, stock exchange as the independent variable and gold prices, oil prices as the dependent variables, they had shown the results that there is significant relationship between Afghanistan stock exchange and gold prices. They had suggested that investors should invest in the gold rather than stock exchange [7].
Kuan-Min Wang and Yuan-Ming, Showed that the relationship between gold prices and Finland stock exchange. For this purpose they were collected the data from Feb 2004 to Jan 2015 and utilized the cointegration model. They had taken variables namely, stock exchange as the independent variable and gold prices, oil prices as the dependent variables, they had shown the results that there is significant relationship between Finland stock exchange and gold prices. They had suggested that investors should invest in the gold rather than stock exchange [8].

Mahmood Yahyazadehfar and Ahmad Babaie, Showed that the relationship between gold prices and Germany. Stock exchange. For this purpose they were collected the data from Feb 2002 to Jan 2014 and utilized the GARCH model. They had taken variables namely, stock exchange as the independent variable and gold prices, oil prices as the dependent variables, they had shown the results that there is significant relationship between Germany stock exchange and gold prices. They had suggested that investors should invest in the gold rather than stock exchange [9].

Mu-Lan, Ching-Ping and Tzu-Ying, Examined that the relationship between gold prices and Hong Kong. Stock exchange. For this purpose they were collected the data from Feb 2003 to Jan 2013 and utilized the GARCH model. They had taken variables namely, stock exchange as the independent variable and gold prices, oil prices as the dependent variables, they had shown the results that there is significant relationship between Hong Kong. Stock exchange and gold prices. They had suggested that investors should invest in the gold rather than stock exchange [10].

Mishra, Das, Mishra and Gold observed that the relationship between gold prices and Denmark stock exchange. For this purpose they were collected the data from Feb 2007 to Jan 2015 and utilized the VAR model. They had taken variables namely, stock exchange as the independent variable and gold prices, oil prices as the dependent variables, they had shown the results that there is significant relationship between Denmark stock exchange and gold prices. They had suggested that investors should invest in the gold rather than stock exchange [11].

Perry Sadorsky, viewed that the relationship between gold prices and Egypt stock exchange. For this purpose they were collected the data from Feb 2007 to Jan 2015 and utilized the ARCH model. They had taken variables namely, stock exchange as the independent variable and gold prices, oil prices as the dependent variables, they had shown the results that there is significant relationship between Egypt stock exchange and gold prices. They had suggested that investors should invest in the gold rather than stock exchange [12].

Ramazan Safi and Ugur Soytas Analyzed that the relationship between gold prices and Bangladesh stock exchange. For this purpose they were collected the data from Feb 2001 to Jan 2014 and utilized the VECM model. They had taken variables namely, stock exchange as the independent variable and gold prices, oil prices as the dependent variables, they had shown the results that there is significant relationship between Bangladesh stock exchange and gold prices. They had suggested that investors should invest in the gold rather than stock exchange [13].

Subarna K Samanta and Ali HM Zadeh shown that the relationship between gold prices and Bahrain stock exchange. For this purpose they were collected the data from Feb 2001 to Jan 2014 and utilized the EARCH model, they had taken variables namely, stock exchange as the independent variable and gold prices, oil prices as the dependent variables, they had shown the results that there is significant relationship between Bahrain stock exchange and gold prices. They had suggested that investors should invest in the gold rather than stock exchange [14].

Kwan, Cotsoimitis and Kwok shown that the relationship between gold prices and Canada stock exchange. For this purpose they were collected the data from Feb 2002 to Jan 2012 and utilized the multi regression model. They had taken variables namely, stock exchange as the independent variable and gold prices, oil prices as the dependent variables, they had shown the results that there is significant relationship between Canada stock exchange and gold prices. They had suggested that investors should invest in the gold rather than stock exchange [15].

Kwon and Shin investigated that the relationship between gold prices and Andorra stock exchange. For this purpose they were collected the data from Feb 1998 to Jan 2012 and utilized the cointegration and causality model. They had taken variables namely, stock exchange as the independent variable and gold prices, oil prices as the dependent variables, they had shown the results that there is significant relationship between Andorra stock exchange and gold prices. They had suggested that investors should invest in the gold rather than stock exchange [16].

Maghayereh, Aktham Analyzed that the relationship between gold prices and Korea stock exchange. For this purpose they were collected the data from Feb 1999 to Jan 2011 and utilized the VECM model. They had taken variables namely, stock exchange as the independent variable and gold prices, oil prices as the dependent variables, they had shown the results that there is significant relationship between Andorra stock exchange and gold prices. They had suggested that investors should invest in the gold rather than stock exchange [17].

Hypotheses

H1: there is long run relationship between oil prices and stock exchange of India.

H2: there is long run relationship between gold prices and Indian stock exchange (Figure 3).

Methodology

In this paper, we have taken the data of the gold and oil prices and monthly data of Indian stock exchange. In the different time series mostly, we utilized the co integration to analysis the relationship between them. The purpose of cointegration that time series should be integrated at the same level. Unit root is utilized to check the stationary level. Augmented dicky Fuller test can be utilized to check that all the variance is constant or not.

\[ Zt = \alpha + \alpha_1 Zt-1 + \epsilon_t \]

Oil price returns

\[ OP_t = \ln(\frac{OP_t}{OP_{t-1}}) \]

Figure 3: Theoretical framework.
Gold price returns

$$GP_t = \ln \left( \frac{GP_t}{GP_{t-1}} \right)$$

We have applied the following techniques.
1. Correlation matrix
2. Co-integration tests
3. Granger causality test
4. Variance decomposition analysis

Co-integration

In the different time series mostly, we utilized the co-integration to analysis the relationship between them. The purpose of cointegration that time series should be integrated at the same level. Unit root is utilized to check the stationary level. Augmented dickey Fuller test can be utilized to check that all the variance is constant or not (Table 2).

$$Z_t = \alpha_0 + \alpha_1 Z_{t-1} + \alpha_t \{t-T/2\} + \epsilon_t$$

The purpose of correlation to find out the relationship between variables. In the table we have found out that there is weak correlation between oil prices and Indian stock exchange. However, there is weak correlation between gold prices and Indian stock exchange (Table 3).

VAR lag order selection

First we have used the lag length. For this purpose, we have utilized the Schwarz information criteria. It is utilized to determine the value of month that where SC is the low value. According to our results the SC value is low at -7.22.

Unit root test

For the co-integration we need a stationary data at the same level. The stationarity of the data means that there is no effect of the previous effect. According to results of unit roots, ADF and PPT has shown that data were become stationary after the first difference (Table 4).

Co-integration

Our results is showing that all the series have the lag lead relationship. Cointegration is showing that series are the stationary at the same level (Tables 5 and 6).

Granger causality

Cointegration is not showing that market does not lead to the other market. Co-integration is showing the absence of the long run association. Granger causality is showing the causality is not present here (Tables 7-9).

Our results are showing that 5% change in the due to gold and oil prices while, 94% change in stock exchange due to their innovations. Gold and oil prices are showing the same results. Our study is also showing that mostly changes in gold and oil prices due to their own

| BSE 100 | Oil Prices | Gold Prices |
|---------|------------|-------------|
| KSE 100 | 1          | 0.207852    |
| Oil Prices | 0.207852 | 1          |
| Gold Prices | -0.03863 | 0.190823  |

Table 2: Correlation.

| Months | 0   | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  |
|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| SC     | 2.29| -7.22| -6.99| -6.84| -6.61| -6.32| -6.08| -5.84| -5.59| -5.33| -5.08| -4.82| -4.6 |

(SC: Schwarz information criterion)

| Series Name | ADF Level | ADF First Diff. | PP Level | PP First Diff. |
|-------------|-----------|-----------------|----------|---------------|
| BSE         | -0.83347  | -8.07756        | -0.90688 | -10.3106      |
| Oil Prices  | -1.38548  | -6.0139         | -1.27543 | -8.86015      |
| Gold Prices | 1.066462  | -8.84958        | 0.986298 | 10.9823       |

Critical values

1%: -3.48124, -3.48164, -3.48083, -3.48123
5%: -2.88377, -2.88395, -2.88359, -2.88376
10%: -2.57869, -2.57879, -2.5787, -2.57868

Table 3: VAR lag order selection.

| Hypothesized Trace | 0.05 | Prob. |
|--------------------|------|-------|
| No. of CE(s)       |      |       |
| None               | 0.164895 | 27.18098 | 29.79708 | 0.0974 |
| At most 1          | 0.028072 | 3.755465 | 15.49472 | 0.9224 |
| At most 2          | 0.000416 | 0.053978 | 3.841467 | 0.8164 |

Table 5: Unrestricted Cointegration Rank Test (Trace).

| Hypothesized Max-Eigen | 0.05 | Prob. |
|------------------------|------|-------|
| No. of CE(s)           |      |       |
| None                   | 0.164895 | 23.42553 | 21.13163 | 0.0235 |
| At most 1              | 0.028072 | 3.701488 | 14.2649  | 0.8895 |
| At most 2              | 0.000416 | 0.053978 | 3.841467 | 0.8164 |
changes. Empirical evidence is showing that 8% change in oil prices bring 9% change in gold prices.

**Conclusion**

Investors have herding behavior due to changes in prices. They do not always behave rationally. In the imperfect markets there are changes in the trend and these changes are known as the non random. Our results are showing that there is no long run relationship between stock market and India and gold markets. Our study is showing that there is no long run relationship between oil and gold prices on the investors' decision. In the developing country investments in gold, oil are known as the best source for the investment. For getting the maximum return investors are trying to find the way of getting high return. Stock market is the consider the best way of investment in the world.

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