

A STUDY ON IMPACT OF CRUDE OIL PRICE IN THE PRICE OF GOLD

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ABSTRACT

Oil is a magic word that always makes news. The common man does not know much about this strange “mineral oil”, although in majority of the countries bear’s burden of the cost of exploration of oil or its import. At present price of crude in the international market, oil exploration in India is an economically viable activity even if the risks are related high. It is often argued that investment in gold is associated with fears about rising inflation. In this context it is quite interesting to study the relationship between price of fuels and metals, especially crude oil and gold. Hence the study is conducted with the aims of study the impact of change in oil price in the gold prices and analyzes various factors which affect the change in oil prices. For analyzing the relationship I choose five years monthly prices of both gold and crude oil starting from 2013 to 2017. Regression analysis is used as tool for analysis.

Key words: Crude oil, Economy, Gold, Price volatility, Risk.

INTRODUCTION

The oil has been a vital role to the global economy has experienced growth in oil consumption for the majority of years since early 1990s. The most important representatives which interconnect the different markets in global economy are gold and oil. Gold the most traded precious metal and oil, the most traded raw material, play an important role in development and growth of an economy.

The first connection between gold and oil has begun in history, when producers of Middle East required gold in exchange for crude oil. As a result of many historical events gold and oil market achieve huge growth and significant relationship between these two commodities was no longer determined at the level of payment only. In 1944, US dollars were convertible in to gold to prevent trade imbalances between countries. After 1971, when the dollar convertibility in to gold was cancelled, price stability of both gold and oil has dropped, but despite the significant price volatility, kind of common trend can still be seen in their price development and growth. Because trading of both commodities are influenced by common macro-economic factors such as exchange rate, stages in business cycle, fiscal and monetary policy etc.

Crude oil is the world’s most commonly traded commodity, and its price is the most volatile in commodity market. Gold is considered the leader in the market of precious metals as increases in its price seem to lead to parallel movements in the price of other precious metals. Gold is also an investment asset and commonly known as a “safe haven” to avoid the increasing risk in financial markets. Using gold is one of the risk management tools in hedging and diversifying commodity portfolios. Investors in both advanced and emerging markets often switch between oil and gold or combine them to diversify their portfolios.

The above features of gold and oil justify the economic importance of studying the relationship between the prices of these two commodities. Further their special features make the prices of gold and oil not only influenced by ordinary forces of supply and demand, but also by other forces. The research intends to analyze the relationship between gold and oil prices in the content of the global economy.

OBJECTIVES OF THE STUDY

- To study the impact of change in oil price in the gold prices.
- To analyze the different factors which affect the changes in oil price.
- To study the impact on economy with these fluctuations.

REVIEW OF LITERATURE

Pushpa, Chakraborty, and Mathur (2011) investigated the relationship between the oil prices and stock market prices. The study was conducted in two big emerging economies in Asia namely India and china. Both India and china were the major consumers of oil market and their stock markets susceptible to oil price

variations. A data series from January 2000 to May 2011 was considered for their study. Johansen's cointegration model was applied to find out the cointegration between two variables such as oil prices and stock market prices of India and China. The results of analysis found the existence of long-term relationship between the variables in both countries. The trace and maximum Eigen value test evidenced that of at least one cointegrating vector in the model and it concludes that both the variables exhibit a long-run relationship between them.

Priyanshigupta and Anurag Goyal (2015) conducted a study on the impact of oil price fluctuations on the Indian economy. The sole objective of the study is to examine how oil price fluctuations impact the Indian economy through various channels such as trade, investment, and exchange rate. The study mainly depends upon secondary data and employs VAR analysis to examine variance decomposition to capture the relationship among the variables. The results of the study suggest that the maximum impact of oil price fluctuations is felt on the price level and international trade. Because of India's dependence on oil imports, India faces the impact of imported inflation, which is the price level rise in the country.

K.S. Sujit and B. Rajesh Kumar (2011) examined the dynamic relationship between gold price, oil price, stock market returns, and exchange rate. The study focused on the objective of validating the relationship systematically to examine the impact of oil price, exchange rate, and stock market on gold price. Vector Autoregression (VAR) technique has been used. The study uses gold daily price in dollars and other currencies data from the World Gold Council and from Yahoo Finance website. The study concludes that the simple relationship between currencies through a single common commodity does not exist and the interlinkage between gold price, oil price, and exchange rates are all complex in nature. It is clear from the analysis that the variations in gold prices largely depend on gold itself rather than exchange rate, oil price, and other indices.

Jana Simkova (2010) conducted a study on the analysis of the relationship between oil and gold prices. The aim of the study is to analyze the relationship between gold and oil price levels. The research was conducted for the periods of 1970-2010 and then adapted separately to each quantitative analysis. Correlation is used as one of the tools for analysis. Strong positive correlation in the whole sample between gold and oil was found out. Proportional analysis confirmed that the gold/oil ratio is during this period moving on its long-term values. Both gold and oil prices were influenced by certain factors. Correlation analysis revealed that in the case of inflation, industry, stock prices of gold mining companies, and interest rates. The study also conducted a Granger causality test. It helps to identify the causal links between gold and oil price levels.

The study of **Janbi (2010)** explores whether the Gulf Cooperation Council (GCC) equity markets are informationally efficient with regard to oil and gold price shocks during the period 2006-2008. The study examines the impact of gold and oil prices on the financial performance of 6 GCC stock markets. The entire study reveals that GCC equity markets are informationally efficient with regard to oil and gold price indexes. Autoregressive integrated moving average (ARIMA) and multiple regressions are used for analysis. With the help of multiple regression model, the study suggests that Japanese yen, Australian dollars, US dollars, Canadian dollars, oil prices, and gold future prices have an effect on the change of Thai gold price.

ANALYSIS AND INTERPRETATION

Purpose: hypothesis which is laid down is tested to know whether to accept or to reject it according to the random samples drawn. Here hypothesis tested to identify the relationship between the price of gold and the price of crude oil.

Hypothesis

Null hypothesis (H₀): there is no positive relationship between relationship between price of gold and price of oil in the year 2013.

REGRESSION ANALYSIS RESULT ON OIL AND GOLD PRICE IN THE YEAR 2013.

<i>Regression Statistics</i>	
Multiple R	0.288000827
R Square	0.082944476
Adjusted R Square	0.080418152
Observations	365

	<i>Coefficients</i>	<i>Standard Error</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>P value</i>
Intercept	847.6516615	172.4035835	508.6164559	1186.686867	1.33595E-06
X variable	0.203409845	0.035499541	0.133599265	0.273220425	2.11258E-08

INTERPRETATION

In the year 2013 using the regression method, the probability value which is calculated is 2.1125E-08 i.e. 0.000000021125. The table value is 0.05. So null hypothesis should be rejected because the calculated value is less than the level of significance 0.05. So the alternative hypothesis is accepted. So in the year 2013 the changes in gold price have relationship between the crude oil price changes.

Hypothesis

Null hypothesis (Ho): there is no positive relationship between relationship between price of gold and price of oil in the year 2014.

REGRESSION ANALYSIS RESULT ON OIL AND GOLD PRICE IN THE YEAR 2014.

<i>Regression Statistics</i>	
Multiple R	0.119718224
R Square	0.014332453
Adjusted R Square	0.011624575
Observations	366

	<i>Coefficients</i>	<i>Standard Error</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>P value</i>
Intercept	3007.45423	263.4717767	2489.3363	3525.572151	5.27503E-26
X variable	-0.107807	0.046859905	-0.199957167	-0.015656919	0.021977619

INTERPRETATION

According to the monthly analysis of 2014, using the regression analysis it can see that the calculated value i.e. the probability value is 0.021977619. Comparing to the level of significance 0.05 the calculated value is lesser. So in this case the null hypothesis should be rejected. As a result the alternative hypothesis which is set should be accepted. So it can say that in the year 2014 the relationship between the changes in price of crude with the change in price of gold is positively correlated.

Hypothesis

Null hypothesis (Ho): there is no positive relationship between relationship between price of gold and price of oil in the year 2015.

REGRESSION ANALYSIS RESULT ON OIL AND GOLD PRICE IN THE YEAR 2015.

<i>Regression Statistics</i>	
Multiple R	0.775697753
R Square	0.601707003
Adjusted R Square	0.600609777
Observations	365

	<i>Coefficients</i>	<i>Standard Error</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>P value</i>
Intercept	1628.953451	57.63527984	1515.612484	1742.294419	1.00901E-93
X variable	0.21958685	0.009376955	0.201146875	0.238026825	1.4723E-74

INTERPRETATION

By analysing the trend in the year 2015 can see that as in the year 2013 the calculated value is too away from the level of significance 0.05. The calculated probability value is 0.00000014723. So the probability value of 2015 is lesser than the book value i e. 0.05. So as a result, the null hypothesis is rejected and so that the alternative hypothesis is accepted. So the relationship between the price of gold and price of crude oil is showing positive in the year 2015.

Hypothesis

Null hypothesis (Ho): there is no positive relationship between relationship between price of gold and price of oil in the year 2016.

REGRESSION ANALYSIS RESULT ON OIL AND GOLD PRICE IN THE YEAR 2016.

<i>Regression Statistics</i>	
Multiple R	0.144173037
R Square	0.020785865
Adjusted R Square	0.018088305
Observations	365

	<i>Coefficients</i>	<i>Standard Error</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>P value</i>
Intercept	3066.072806	46.37002115	2974.885202	3157.26041	1.5477E-204
X variable	-0.022405627	0.008071581	-0.038278557	-0.006532697	0.005790681

INTERPRETATION

In the year 2016 while calculating the price trend using regression analysis, it produces a result i e. the calculated probability value is 0.005790681. This value comparing with the book value is very lesser. The book value is 0.05. In this case the null hypothesis which is set should be rejected as the book value goes beyond the calculated value. As a result the alternative hypothesis which is set will be accepted. So the price trend of gold is positively making effect in the price of crude oil.

Hypothesis

Null hypothesis (Ho): there is no positive relationship between relationship between price of gold and price of oil in the year 2017.

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REGRESSION ANALYSIS RESULT ON OIL AND GOLD PRICE IN THE YEAR 2017.

<i>Regression Statistics</i>	
Multiple R	0.405082262
R Square	0.164091639
Adjusted R Square	0.161788861
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Observations	365

	<i>Coefficients</i>	<i>Standard Error</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>P value</i>
Intercept	2491.610143	37.07727	2418.696934	2564.523	6.7753E-207
X variable	0.096615839	0.011445	0.074108216	0.119123	7.58715E-16

INTERPRETATION

By analysing the last year prices i.e. in the year 2017 using the regression analysis it produces a value that is 0.000000758715. From that value it is noted that it is far away from the book value i.e. 0.05. So in this case the null hypothesis will be rejected and as a result the alternative hypothesis is accepted. From this it is identified that the price of gold for the year 2017 is dependable to the price of crude oil. So there is a positive relation between gold and oil prices.

Hypothesis

Null hypothesis (Ho): there is no positive relationship between relationship between price of gold and price of oil from the year 2013-2017

REGRESSION ANALYSIS RESULT ON OIL AND GOLD PRICE IN THE YEAR 2013-2017

<i>Regression Statistics</i>	
Multiple R	0.116088
R Square	0.013476
Adjusted R Square	0.012936
Observations	1826

	<i>Coefficients</i>	<i>Standard Error</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>P value</i>
Intercept	2358.033599	47.77093005	2264.342125	2451.725072	0
X variable	0.045640426	0.009143294	0.027708	0.063572852	6.55583E-07

INTERPRETATION

Here the hypothesis testing is conducted from 2013- 2017. Here while using the regression analysis the calculated probability value find out is 0.000000655583. The level of significance is 0.05. So while comparing this with the calculated value it shows that the calculated value is lesser than the level of significance. Therefore the null hypothesis is rejected and the alternative hypothesis is accepted. It means the changes in the price of gold are related to the change in crude oil price as they show a positive relationship throughout 5 years.

FINDINGS AND SUGGESTIONS

- The price of gold has impact on the changes in crude oil prices.
- When comparing the probability value of gold and crude oil, it is less than 0.05 the level of significance. That means gold price have effects on the changes in crude oil prices.
- The changes in crude oil prices are because of the changes in the world economy, population, the exchange rate differences etc. whereas monetary policy performed by governments, changes in interest rates, inflationary policy, this all affects the price of gold.
- The year 2015 shows the highest prices for both gold and crude oil.
- The lowest prices for gold and crude oil can be seen in the year of 2017.
- The year 2016 is the year which experienced lesser fluctuations in the prices of both gold and crude oil.
- Through theoretical aspects it is found out that India is among the highest consumers of crude oil in the world.
- The gems and jewelry industry accounts for nearly 20 per cent of the total Indian exports
- The period of 2000-2015 experienced the highest price fluctuations of gold and crude oil prices.

CONCLUSION

The regression analysis shows that there are direct relationship between the changes in price of gold that with the price of crude oil. Their inter relationship may be partly because of their valuation in US dollars, as both these commodities are quoted in US dollars in global market. If dollars weakens against rupee, imported items like oil, gold etc. will cost more dollars. Another important link between gold and oil is inflation. As crude oil price rises, inflation also rises. Gold is known to be a good hedge against inflation. The value of gold rises when inflation rises. These are the economic reasons for the price changes.

The analysis shows that the price changes in gold price has effect on the changes of gold, because we can see that when the prices for the gold goes lower the oil prices changed accordingly and vice versa. Also the analysis results show a direct relationship between the both commodities prices. So it can summaries that they are relationship between gold and crude oil prices.

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