Crude Oil Price Influence on the Performance of Selected Stocks from Different Sectors – An Empirical Analysis

Muhamed Rafi
Assistant Professor, MES Engineering college, Kuttipuram, MBA Department

Dr. Jabir Moosa
Associate Professor, MES Engineering college, Kuttipuram, MBA Department.

Dr. Krishna Kumar.T. P
Professor, Nehru School of Management, Pampadi, Thrissur

Deepak K
Assistant Professor, MES Engineering college, Kuttipuram, MBA Department.

Abstract

In the growing economic scenario, crude oil prices influence on the growth of the nation. Most of the manufacturing industries performance is highly dependent on crude oil. Since manufacturing industry is highly dependent on crude oil, the increase in the oil price will impact the industry in an adverse manner. As the crude oil price is increasing day by day over the past years, the urge to understand the relationship between crude oil price and the economy has also increased. As there are fluctuations in the Indian economy, it leads to fluctuations in the Indian stock market as well. Because, the Indian stock market is highly volatile to the changing situations like inflation, Interest rates, Global events, politics, etc. Russia is well known for its crude oil. As the war between Russia and Ukraine starts, the impact have been seen in the crude oil price. In this scenario, the impact of crude oil price and the stock market have greater relevance. By referring to the historical data, there is an inverse effect on the crude oil price and the stock market is visible. Tyres, lubricants, logistics, refineries, airlines, paints, etc. are highly dependent on the oil prices. Some industries are affected positively and others are affected negatively due to the fluctuations in the price. The research has been made from the point of the investor, and the details regarding the stock prices have been collected and analysed for this purpose.

Keywords: *Crude oil, Inflation, Stock market.*

1. INTRODUCTION

The crude oil price has a great impact on the world. They are affected by different components in the economy like inflation, interest rates, politics, etc. In the past two years, the crude oil price is highly volatile. By looking at the result, we can see the change in the Indian market as well. Because of a lead-lag relationship, the crude oil price is considered the barometer for the economy. So, there must be a relationship between crude oil price and the Indian stock market. Oil price shock will affect the stock market returns or prices through their effect on expected earnings. Change in oil price is considered a macroeconomic factor for the evaluation of future cash flows. If the oil price increases, the production cost of industrial oil-consuming countries also increases.

On a theoretical basis, the oil price changes the stock market in two ways. If the selling price remains unchanged the increase in oil price leads to an increase in the cost of production which will reduce the earnings of the company. As like this the selling price increases it will affect the earnings of the firm by the fluctuations in the stock market. Thus, the change in the firm's oil price will adversely affect the stock market by influencing the firms' earnings. Again, the higher crude oil price will create an inflationary situation in the economy to manage the inflation, the central bank will increase the interest rate which may later affect the profitability of the firm.

The impact of oil prices on the stock market has a significant impact on economic growth and prosperity, not only on the Indian market but also on the global economy. Crude oil prices and stock markets have been the subject of extensive research. On this background, this study looks at the dynamic impact of crude oil prices on the selected stocks in Indian stock market.

2. REVIEW OF LITERATURE

Many people are doing research and study even now about the crude oil and India as well as crude oil price and the Indian stock market. There is a large number of research has been taken on the basis of the relationship between crude oil price and the stock market. Utmost of these studies have reported significant effects of oil price changes on stock return.

Kapusuzoglu and Chittedi conducted a study about the connection between the oil prices and stock prices in India from April 2000- June 2011.Their study reach at the conclusion of that the changes of stock prices in India have a significant impact on the changes of oil prices. A shift in oil prices, on the other hand, has no effect on stock prices. Bandopadhyay, Sahu, and Mondal (2013&2014) investigated about dynamic relationship between oil price stocks in Indian exchange. They consider petroleum prices in rupee terms during the amount from 2001 through 2013. The cointegration model result indicates the existence of long-term relationship between the 2 variables. Again, vector error term of VECM shows a protracted term causality moves from Indian securities market to grease price but not the other way around. In the near run, a positive shock in oil price has a small but persistent and expanding positive influence on the Indian securities market, according to the impulse response function research. Hosseini, Ahmad and Lai (2011) conducted a study on India for the period from January 1999 to January 2009. Using multivariate cointegration and vector error correction modeling techniques, they conclude that there is a long-term and short-term relationship between the macroeconomic variables of both countries and the stock market index.

Jones and Kaul (1996) studied on the stock markets shows that only the Saudi and Omani markets have predictive power of oil price increase. They examined the reaction of stock returns in four developed markets (Canada, Japan, the UK, and therefore the US) and found that for the US and Canada, exchange reaction may be accounted entirely to the impact of oil shocks on cash flows. However, some studies have shown that the link between oil and economic activity isn't entirely linear negative oil price shocks (price increases) tend to possess a larger impact on growth than positive shocks. Thus, it is expected that oil prices equally affect stock markets in a very nonlinear fashion.If oil prices remain at these high levels, the rupee is further expected to depreciate by the year- end. Rupee depreciation features a reverberating effect on the Indian economy and even the exchange. To arrest the rupee's fall, the RBI often takes some steps.

Arezki et al. (2017) studied with straightforward macroeconomic model, which explores the results of a change in world GDP growth, a change in the efficiency of oil usage, and a change in the supply of oil. This analytical framework integrates the four views of the drivers of the oil market into a model supported the basics of demand and provide. Their analysis suggests that an era of prolonged low oil prices is probably going to be followed by a period where oil prices overshoot their long- term upward trend.

Bhattacharjee (2013) has considered 124 data sets of petroleum and WPI and performed a correlation which resulted that there's a direct correlation between them. Further, the author considered the Grangers' Cause Test to review whether oil prices change inflation. It resulted that the variables selected are bidirectional ie., the fossil oil price change Granger causes inflation and contrariwise. The author also tested oil with capital and labor productivity, which ascertained that an increase in energy prices would lead to a decline in the productivity of existing capital and labor.

Punati and Raju (2017) found in their research through the econometric technique that Brent oil prices, index of business production, a charge per unit, and inflation determine the fossil oil prices. Hamilton (2008) studied on understanding fossil oil Prices has concluded that oils' future and spot prices differ to a minimum extent, however, if such difference is caused by news, the long-run prices on every horizon move together within the same direction. The author has further studied that oil is price and income elastic and would quieten down price elastic over time, during which case the anticipated price would increase. So as to extend oil from a field, methods like drilling wells, pumping in water, or carbonic acid gas are employed to take care of pressure. However, it becomes difficult to continue extraction at an identical rate and hence new geographical areas are found for extraction. He also concluded that price speculation, OPEC monopoly pricing, strong world demands, and geographical limitations are increasingly important contributions to the scarcity of oil.

Soundara pandiyan and Ganesh (2017) mentioned that there's an inter-correlation between CPI in fossil oil price and the other way around. It had been also found that there was a significant difference between fossil oil price and GDP and no significant difference between CPI and GDP. Kumar & Shipra (2018) - Have indicated that the causes of the fall in oil prices are majorly due to the monopoly of OPEC countries. In the short run, the price volatility is due to market expectations, however for the long run, it is underlying demand and supply conditions. Further, the decline in oil prices is sometimes due to new technologies as the cost of exploration and extraction reduces. An increase in dollar rates is also one of the reasons for the fall in oil prices. Further, their study has determined that oil forms a major part of the Indian commodity basket and therefore its volatility will impact the Indian economy as a whole. However, a decline in crude oil prices has helped the government to manage finances better as it reduces the subsidies provided towards petroleum products.

Raghunand S R & Dr.Smita Kavatekar concluded that there is a significant weak impact of crude oil on the Indian stock market. It shows that the Indian economy is stronger to beat the economic changes and it's ready to withstand the external factors which ruin its fluency. It examined that changes in crude oil prices affect not only the earnings and volatility of the stock market in the energy sector, but also the earnings and volatility of the stock markets in all other sectors. Moreover, the investors have to be more cautious about investing in these sectors because of the change in the crude oil prices. They should aware of the sources and their changes in prices and demand. In conclusion, the health sector is good for investment because they are not dependent on the crude oil price and they are not highly volatile.

Maghyereh and Aktham (2004) examined that oil shocks have no significant impact on stock index returns in emerging economies. The findings also show that stock market returns in these economies do not accurately predict crude oil price shocks. Nidhi Sharma and Kirti Khanna (2011) analysed on Crude oil price velocity & stock market ripple. In the case they have taken 10 years data and consider New York Stock Exchange, Bombay Stock Exchange (BSE) and London Stock Exchange used correlation and regression. They discovered the OPEC benchmark as well as its relationship to several crude oil benchmarks and stock markets. According to the findings, OPEC has no significant impact on the stock market or other oil benchmarks.

Nader Naifar and Mohammed Saleh Al Dohaiman (2013 found that the dependency structure between inflation and oil prices was asymmetrical and was up during the recent financial crisis. ChakerAlouiand Rania Jammazi (2009) shows that rises in oil price has a significant role in determining both the volatility of stock returns and the probability of transition across regimes. This study concludes a long-term relationship between stock market index and international oil price in the period of examination. It has been observed that the Indian stock index is cointegrated with crude price. This result obtained interprets that relevant variable act together in the long term. The relationship between stock market index and international oil price in the period of examination was found. This result obtained and interprets that relevant variables act together in the long term on the crude oil price.

3. OBJECTIVES OF THE STUDY

- To know how the crude oil price will affect the selected stocks from different sectors in Indian stock market
- To analyse and identify the reasons for positively and negatively affected on selected stocks through changes in crude oil price.

4. SOURCES OF DATA

An analytical study with the secondary sources of data including the yearly reports, official websites of BSE (www.bseindia.com), NSE (www.nseindia.com), Confederation of Indian Industries (CII) library, Centre for Monitoring Indian Economy (CMIE) Prowess and annual report library services like Ebsco Services is considered. Additional resources like, working papers, research papers, and economic dailies are also referred for this purpose. Financial data for recent years is collected for the selected stocks. Table 1.1 exhibits the list of stocks in the BSE stocks.

4.1. Methodology

Table 1.1 List of stocks from selected sectors

Sl. No	Name of the Stocks
1	Dwarakesh Sugars
2	Balrampur chini mills
3	Tata consultancy services
4	Spice Jet
5	Jet Airways
6	JK Tyres
7	Appolo Tyres

8	Ultra tech cement
9	JK Cement

4.2. Theoretical Overview

Factors affecting crude oil price

- Weather - In India winter season is a season and it continues for one or two months. The winter season is not well affected in India. But the winter season is adversely affecting other countries like Russia, Canada, Europe, etc. As well as these are the main crude oil producers. During the winter season, the consumption of crude oil will be high. At the same time, the news about winter also makes fluctuations in the price of crude oil.

- Geopolitical tensions - we know trade wars are happening between countries. Recently we saw the Russian-Ukraine war. As well as there were other trade wars are happened between the United States-China, Iran- United States. Any conflict between these countries is interrupted in the supply of oil.

- US Dollar vs foreign currencies- Crude oil on the global market is traded in US Dollars. Fluctuations in the currency can influence the value of the oil per barrel.

- Unexpected event – natural disasters are also a factor that influences the price of crude oil. It affects the refining, selling, and distribution of crude.

- OPEC rules decisions – Algeria, Angola, Congo, Equatorial Guinea, Gabon, Iran, Iraq, Kuwait, Libya, Nigeria, Saudi Arabia, United Arab Emirates, and Venezuela are the eight OPEC countries. They are the major oil-producing countries.

Crude oil and its effects

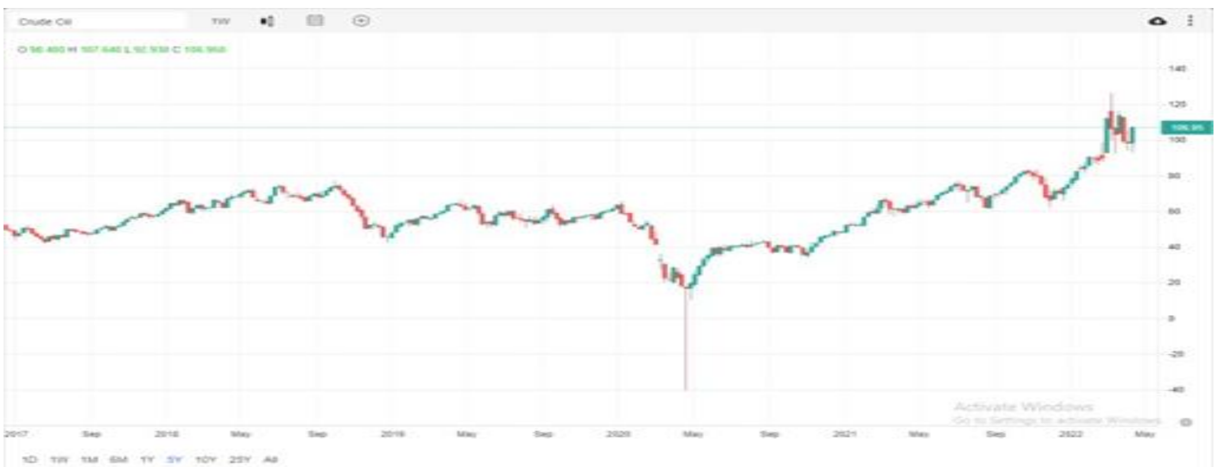
India is highly dependent on other countries for importing oil for meeting its energy requirements. Crude oil imports started in 1973. India is the 3rd largest oil exporter. In 1973 India imported only 10% of crude oil. But currently, India requires and imports 85% of its oil. Iraq is the major oil importer to India. They import approximately 23% of oil. Iraq and Saudi Arabia are on the primary list of oil imports to India. Russia is not on the top list. Only 2% of oil is imported from Russia. Compared to the previous year, in April 2022 Russia agreed to import oil at a discounted price, so it imported a high rate of crude oil.

Crude oil is also used for other purposes. Plastic is made from petroleum. Crude oil is sent to refineries and used in petrochemical plants and it is turned into the desired output. Due to insulating heat-resistant properties, plastics and other petroleum-based products are used in electronic components. Smartphones and speakers connected to computers and televisions are developed from oil. Clothing, purses, and shoes are made from petroleum-based fibers, especially for their lightweight, durable, and water-resistant properties. Crude oil is also used in beauty and health products, household products, medical products, etc. The rising prices of crude oil may also create an increase in these areas also. There is a direct relationship between crude oil and these products. During the Russian-Ukraine war, the price of crude oil was very high. At the same time, the price of these products like pharmaceuticals, electronics, and textiles also increased. Importing of oil is actually deficit for India. India needs to be independent. India is currently introducing new plans to reduce oil imports from other countries war also the crude oil price is increasing. After all, Russia is a major exporter of crude oil. Oil prices will rise. After all, Russia is a major exporter of crude oil

5. ANALYSIS

The crude oil price has been increasing day by day. There was a dip in the year 2020 May and then began to increase. There has been an upsurge in the domestic consumption of oil products over the past few years. Appearance of major oil producing companies overtime subjugated the global market scenario and later were occupied by governments of various countries. The decisions of the government coupled with that of associations like the Organization of Petroleum Exporting Countries, (OPEC), Organization for Economic Co-operation and Development (OECD), confrontations, wars and geopolitical conflicts, futures market contracts, speculators in the commodity market, refinery capacities, dollar value and the weather economic and industrial development affected crude oil prices.

Figure1.1. Crude oil price movements from 2017-2022



As we take the case of the sugar industries, the major performers of the sugar industries are BalrampurChini mills, Dwarakesh sugars, and Shree Renuka sugar. Here we can see, the graph showing the crude oil price and the share price of some of these sugar manufacturing companies. The share price of the sugar manufacturing companies is positively proportional to the price of crude oil. Because as the crude oil price increased, the government take an action to add more ethanol for blending with petrol. The ethanol is mainly produced from sugar cane. Thus, more production and sales begin for the sugar industry, as a part the share price of the sugar industry is also increasing. So the crude oil price have a positive impact on the sugar industry.

Figure 1.2. Share price movement of Dwarakesh Sugars, Balrampur chini Mills from 2017 to 2022

Due to the increase in crude oil price, India has to sell more Indian currency to the foreign market for the import of the goods. Thus, the Indian currency will be devaluated. Hence the people who are most benefited as a part of this are the IT sector which is exporting its services to the other countries and made huge profit. As a part of this, the share price of the IT sector like Infosys, Wipro, and TCS increased as a part of the crude oil price increase happened in the market.

Figure 1.3. Share price movement of Infosys and TCS from 2017 to 2022

Airline industy require a pure form of crude oil which is highly costlier than petroleum products. Since they are costlier than petroleum products the manufacturing cost also will be higher. When the price of crude oil increases the cost for the airline industry also increases as a part of that the share price will begin to reduce. So, the share price of the airline industry is highly negatively correlated. Most of the airline companies share prices fell down due to the increase in the crude oil price happened in the market. Airline players like spice jet, Indigo airlines, Kingfisher airlines were struggled at very level due to the increase in crude oil price happened in the market.

Figure 1.4. Share price movement of spice jet and Jet airways from 2017 to 2022.

Study also focused on the major players in tyre manufacturing industries such as Apollo tyres and J K tyres. The major part of the raw material for the tyre manufacturing company is a synthetic rubber, which requires 35% of the crude oil. So, when the price of crude oil increases, the manufacturing cost also increases. As a part of that share price of the Tyre industry, will begin to reduce. An increase in the crude oil price and the share price of the tyre industry are negatively correlated

Figure 1.5. share price movement of JK Tyres and Appolo Tyres

Figure 1.6. Share price movement of Ultra tech cement and JK Cement

Cement manufacturing companies such as J K Cement, ACC Cement, Ambuja Cement, Ultratech Cement, etc. are the major companies that are affected by the Russian Ukraine War

Because as the war began, the price of the crude oil increased. Amid rising in the pet coke and the coal prices led to an increase in the manufacturing cost of the Cement industry thus the share price of the stock began to reduce. Thus, the share price of the cement industries is negatively correlated to the crude oil price. When the price of crude oil increases, cement industry Share prices begins to reduce.

CONCLUSION

In this research, study presented evidence of the effect of crude oil prices on the Indian stock market. Sugar manufacturing industries and IT sectors have a positive impact on the Indian stock market. As ethanol becomes an ingredient in petrol manufacturing, it leads to an increase in the share price of the stock. When the value of the Indian currency began to reduce as part of the import of crude oil, it has affected positively the IT sector. So the sugar industries and IT sector have a positive relationship with the crude oil price. The industries like paint, cement, tyre, Airline, etc. have crude oil as their major raw material. When the crude oil price increased, there was an increase in the manufacturing cost which result in a reduction in profit. So, as the cost of crude oil increases the share price of these industries began to decline. So there are some industries that are positively impacted by the crude oil price and negatively impacted by the crude oil price. The industries which use crude oil as the major raw material will be impacted negatively by the stock market. This study helps the investors to make a better portfolio on the basis of increase in crude oil price and helps to implement portfolio revision strategies very efficiently.

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