

# Oil prices & stock market: Evidence from KSE & BSE

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## Abstract

Oil prices are changing day to day depending upon different factors that force it to fluctuate. Oil prices have a very devastating effect on every field of life. Oil prices effects differently depending upon the nature of users. This paper is going to study the impact of oil price fluctuations on the stock market of some of the Asian countries. Asian countries are sub segmented into oil importing countries and exporting countries each of which effects differently on the oil price change. The significance of the study is that there should be a clear distinction between all of the countries that oil prices effects differently to different countries. It is important to have an effect of different countries separately on the oil price changes instead of having on some of the specific country we cannot derive any conclusion regarding that if one country is being affected at certain level than how come the other country could also be affected at the same level, Oil prices have a negative effect on the stock market of oil importing countries and a positive effect on the stock market of oil exporting countries. The reasons have been discussed in the paper.

## Keywords

Oil Prices, Karachi Stock Market, Bombay Stock Market

## 1. Introduction

International oil prices fluctuations effects different countries in different manner. Regarding the oil concern all the countries are divided into two categories. One is the oil exporting countries like Saudi Arabia Iran and many more and the second is the oil importing countries includes Pakistan china Bangladesh UK and many more. But as far as this paper is concerned the countries which are a part of Asia. It is important to consider the effects of oil prices on stock prices in a number of countries in order to better identify effects that may be systematic across countries rather than country specific. Then we will see how their stock market is affected by the oil prices changes. Normally studies revealed that there exists a negative relationship between oil prices and the stock market. For such results this study focuses on two major oil importing countries namely Pakistan and India. If considering upon the nature of business each country is doing and the amount of oil they are consuming can create a major difference in the results that's why each country has been

studied with deep concern for a better result. This study reveals around 20 years stock indexes of each country on the basis of which a relationship can be seen with the international oil prices whether they are having a positive relation or a negative one. As far as other studies are concern international oil prices are negatively interlinked with the stock indexes. Discussing about Pakistan the adverse economic impact of higher oil prices on oil-importing developing countries is generally considered as more severe than for the developed countries as they are more dependent on imported oil and are more energy-intensive. One rational view about using oil price change as a measure for change in key macroeconomic indicators is that value of stock prices in theory equals discounted expectation of future cash flows. An increase in oil price leads to inflation, increase budget deficit and puts downward pressure on exchange rate which makes imports more expensive. The rising oil prices are the major concern for all the developing economies. Future oil demand is difficult to predict but is generally highly correlated with the growth in stock market. It seems logical to assume that oil prices and

stock market performance might be negatively correlated. More expensive fuel translates into higher transportation, production, and heating costs. Rising fuel prices can also affect factors like inflation. But it is also possible to associate expensive crude with a booming economy. Understanding the relationship between oil prices, exchange rates and emerging stock market prices is an important topic to study because as emerging economies continue to grow and prosper, they will exert a larger influence over the global economy. By some estimates, emerging economies will account for 50% of global GDP by 2050 (Cheng *et al.*, 2007) and the majority of economic growth.

## 2. Literature Review

Oil-price shocks affect stock market returns or prices through their effect on expected earnings. oil price shock has a negative impact on stock prices, since they negatively affect output, i.e. industrial production, as well as employment growth. Total energy requirements China is expected to account for 12% of world oil demand in 2025 (instead of 7% in 2005) the empirical evidences on the impact of oil price shocks on stock prices have been mixed (Chu-Chia *et al* 2009). Oil prices have an effect into the real economy, by increasing cost to firms and by reducing the amount of disposal income that consumers have to spend. As a consequence, it can be expected that rising oil prices have a negative effect into the level activity of an economy and into its stock markets ( Danial ,2009). GCC countries are major suppliers of oil in world energy markets, their stock markets are likely to be susceptible to change in oil prices. GCC markets represent very promising areas for regional and world portfolio diversification. Thus, understanding the influence of oil price shocks on GCC stock market returns is important for investors to make necessary investment decisions. oil prices affect significantly stock markets only in Qatar, UAE, and Oman (El Hedi 2006 ). There is a strong evidence that changes in oil prices forecast stock returns. This predictability is economically significant, robust over time and cannot be explained by calendar anomalies or well known economic variables that predict stock returns (Gerben Driesprong *et al.*, 2004). The changes in the oil prices are tended to be (1) permanent, (2) difficult to predict, and (3) governed by very different regimes at different points in time. Unquestionably the three key features in any account are the low price elasticity of demand, the strong growth in demand from China, the Middle East and other newly industrialized economies, and the failure of global production to increase (James *et al*, 2008). Pakistan heavily depends on oil imports for running its economic machinery as a result oil price shocks may have bad effects on domestic financial markets. Changes in oil prices will have an impact on the volatility of stock prices. Oil prices affect earnings of companies through which oil is a direct or indirect cost of operation. Hence, an increase in oil prices will cause expected earnings to decline, and this brought about an immediate decrease in stock prices (Noreen *et al.*, 2005). Being an important energy resource to the economic industries,

an increase in oil prices implies an increase in cost of production, which in turn slows down the growth rate (and may reduce the level of output, due to recession) and they may also lead to an increase in the price level and potentially an increase in the inflation rate. These tendencies eventually decrease the stock prices (Norasibah *et al.*, 2009). Stock prices, oil prices and nominal exchange rates are co integrated, and oil prices have a positive and statistically significant impact on stock prices. This result is inconsistent with theoretical expectations. The growth of the Vietnamese stock market was accompanied by rising oil prices (Paresh *et al.*, 2009). Oil price movements are an important and interesting topic to study because increases in oil prices are often indicative of inflationary pressure in the economy which in turn could indicate the future of interest rates and investments of all types (Perry Sadorsky, 2000).

In recent years, the influence of oil prices and foreign exchange rates on Russian stock returns has been immense. The influence of US stock prices and US and Russian interest rates has also affected the stock market (Stanislav, 2006). China and India will have average annual growth rates in oil of 3.6% and 3.9% respectively (compared to the 1.3% average annual growth rate for the world). China and India, combined together will represent 42% of the global increase in oil demand between 2005 and 2030 China, are accumulating large reserves of foreign currency (mostly US dollars) and this will make them a bigger player in the world financial markets (Syed Abdul *et al* 2010).Oil prices relationship with stock prices and exchange rates in the long-run. First, this study identifies three major oil producing countries and three major oil consuming countries (Samuel, 2010).

This study examines the relationship between changes in oil prices and stock market returns in two oil importing countries. The effect of oil prices on a country's economy has been and continues to be a keen interest to many people, particularly economists. Throughout the history, oil has played a critical role to shape countries development (Al-Fayoumi *et al.*, 2009). Generally speaking, although changes in the price of crude oil are often considered as an important factor for understanding fluctuations in stock prices, there is no consensus about the relationship between stock prices and the price of oil among economists. More specifically, the relevant literature generates mixed views regarding the effect of such oil-price shocks on asset prices, such as stock prices. Kaul and seyhun (1990) and Sadorsky (1999) state a negative effect of oil-price volatility on stock prices. Papapetrou (2001) reports that an oil price shock has a negative impact on stock, since they negatively affect output and employment growth. Hong *et al.* (2002) also identify a negative associate between oil-prices returns and stock-market returns. Sadorsky (2001) however, using a multifactor market which takes into consideration the presence of several risk premiums, identifies certain factors, such as exchange rate and interest rate along with oil prices themselves as the main determinants of oil and gas stock returns. He also shows a significant positive relationship between oil prices and stock returns coming from oil and gas firms. A systematic investigation of the impact of oil price

changes on the US stock market. Using daily data from 1983 to 2006 (Sridhar Gogineni, 2008). Oil price changes have chain affects on real economic activities. Oil price changes have chain affects on real economic activities ( Mehmet Eryigit' 2009).

### 3. Methodology

The data has been taken in this study is 20 years data of both oil prices and the stock market of Pakistan and India as well. The data is from 1990 to 2010. In list of expensive commodities, great volume of oil import is mass expenditure for country not producing it. These countries rely mostly on the import of this commodity to facilitate manufacturing of their products and goods. Many researchers suggest that, changes in the oil price have considerable effects on the aggregate economic activity. Such effects are expected to be unlike for oil importing and exporting economies (Amano & Norden, 1998). Moreover, Jiménez-Rodríguez and Sánchez (2005) investigated oil prices fluctuations and economy effect through the exchange rate. Since, crude oil is a fundamental production input; it is usually predicted by the theory that supply-side importance of oil price hikes includes a narrowing of aggregate economic activity and inflationary pressures. Additionally, aggregate demand is expected to decrease in an oil importing economy, and escalates for oil exporting economy.

This inference is applicable for real currency rates, which is an actual price of local and international currencies. These can be stated as the nominal exchange rate aligned for inflation differentials amongst the countries. Hence, Countries with less oil production like Pakistan and India heavily rely on the import of oil from other countries to fuel their economy, similarly, other those developing countries not a good producer of oil, their trade balances are negatively affected due to this import.

This study investigates the relationship of oil prices change and stock market prices. Literature shows negative relationship between oil prices and international markets (Afia Malik, 2008), (Achraf Ghorbel, 2009). Impact of oil prices on stock market is mix both Negative and positive (Cheng et al, 2010). Japan and Use both have negative effect of oil prices on stock market (Donoso et al, 2009). If shock in oil prices is positive then its impact on stock market is negative. China have week relations ship between stock market and oil prices (Samuel Imarhiagbe, 2010). Oil prices can affect stock prices directly by impacting future cash flows or indirectly through an impact on the interest rate used to discount the future cash flows. In the absence of complete substitution effects between the factors of production, rising oil prices, for example, increase the cost of doing business and, for non-oil related companies, reduce profits. In this study the dependent variable that is stock market prices have been taken from two countries, one is Pakistan (KSE) and the other one is India (BSE).

This study will focus on the impact of oil prices on both the stock prices, how much their change vary. On the basis of historical study that has been done in this paper about the oil

prices and the Asian stock market hypothesis is being developed that:

H0: there is a positive relationship between oil prices and the stock market prices.

HA: there is a negative relationship between oil prices and stock market prices

### 4. Data Analysis

For data analysis, we have to used the descriptive, correlation and regression analysis used. Firstly, in the Descriptive analysis (Mean) showed the mean value of data for all variables and standard deviation showed that how much data deviate from its mean value.

Table 1. Descriptive analysis

Variable	Min	Max
KSE	11.1	165.3
BSE	22.4	240.9
OIL PRICES	16.11	95.25

The correlation analysis showed there was positive correlation between OIL PRICES and both the KSE and BSE .The correlation between BSE and the international oil prices are more perfectly correlated then with KSE and the oil prices. The sensitivity of correlation in Bombay stock market toward the oil price is more than the Karachi stock market.

Table 2. Correlation Matrix

Variables	OIL PRICES
KSE	0.771
BSE	0.832

The regression equation for KSE and the international oil prices is:

$$KSE = - 20.2 + 1.85 \text{ oil prices} \dots \dots \dots (1)$$

The regression equation shows that -20.2 is constant and 1.85 is the slope intercept, for every single change in the oil price there will be a change in the stock prices.

The regression analysis (P) showed that significance level between the dependent variable and independent variables. This research study the significance level between the variables was good and all independent variable was more efficient and affect more dependent variable.

The regression equation for BSE and international oil price is

$$BSE = - 32.8 + 3.01 \text{ oil prices} \dots \dots \dots (2)$$

The regression equation shows that -32.8 is constant and 3.01 is the slope intercept. For every single change in the oil prices there will be a significant change in the stock prices.

In this the significance level of both the oil prices and the stock prices are reliable but most often oil prices are more reliable then stock prices as its significance level is 100 %. Their standard deviation is also given depicting the risk level of both the variables.

**Table 3.** Regression Analysis

STOCK PRICES	R	R-SQ	ADJ R-SQ
KSE	32.429	59.4	57.3
BSE	42.6	69.23	67.5

Above table showed that correlation between the independent variables and dependent variable which was 32.429 and (R-Sq) showed that all independent variables brings 59.4% variation on dependent variable and rest of variation were due to other factors. And R-Sq (adj) comes after removing the standard error which was 57.3 %.

And also for BSE the S is 42.6 % the R-SQ is 69.3% and Adj R-SQ is 67.5%. ANOVA or variance analysis described about the fitness of the model which was checked through the significance level of model (F & P) columns. The results showed that the model was fit and independent variable affects the dependent variable. DF column showed the (number of variables – 1) which was 1 means that there were 2 variables in model and sum of square of variables was 77414 and mean square was 77414. And F value was 42.62 which must be greater than 12 for the model fitness and P column showed the significance level which was .000 for the model that proved the fitness of model.

## 5. Conclusion

There might be other variables that caused change in the stock prices which has been shown in the data but as far as this paper is concerned this paper has shown the variability of the fluctuation that has been caused because of both the variables and to what extent other hidden variables caused to change. The model shows that there is a negative relationship between the international oil prices and the stock prices of both the Karachi stock exchange and the Bombay stock exchange. Data taken from 1990 to 2010 shows that as the oil prices goes on to fluctuate as a result the stock prices goes on to change with significant level of almost 100 % that shows there inter dependability. The oil prices is uncontrollable factor so instead of controlling the oil prices the government of both countries that is Pakistan and India both should focus on finding the alternatives of oil so that if the oil prices goes on to increase they can switch to other sources as a result its prices will eventually come down. The model suggest that the oil prices are making the stock prices to change and to what extent this change is occurring this can be shown through the regression analysis where the R shows the level of interdependency of oil prices and the stock prices of both countries that is Bombay stock exchange and Karachi stock exchange and then R-SQ that shows that how much the factors other then oil prices are affecting the stock market prices those factors can be economical factors or social factors or that can be on the demand of the company on which the share prices are depending. The extent to which other factors are affecting the both relationship are shown in the above tables that shows that almost 50 % of the relation is affected by the other factors are the rest is being affected by the other factors. With regard

to Asian countries oil prices are of much importance as this paper has concluded the results that stock market is a depending upon the international prices. Oil prices are considered one of the expensive imports for country which is not producing oil; countries with manufacturing industries inside for production of tradable goods rely heavily on import of oil. Countries with less oil production like Pakistan heavily rely on the import of oil from other countries to fuel their economy, similarly, other those developing countries not a good producer of oil, their trade balances are negatively affected due to this import. Therefore, a price of this commodity has a very noteworthy contribution in the development Other studies reveals that there might be a chance that stock market could get itself save from fluctuations in international oil prices in such a way by switching towards gas, but the issue in country like Pakistan is that gas prices and its supply to the industries is also a big question to ask. So to rely on gas seems not to be a good option.

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