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# An Empirical Research : Impact of the Changes of Oil Prices over Stock Market Prices

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## ABSTRACT

The stock market volatility is a well-known phenomenon. These volatility and fluctuations are empirical proven but which macroeconomic factor affect stock prices in what proportion and with what frequency is not well known phenomenon. Although, there are many macroeconomic factors that affect the stock market, however, we considered only one macroeconomic factor for the purpose of this research paper; that is, oil prices and its impact on the stock market prices. Therefore, the aim of this research paper is to investigate the empirical relationship between oil prices shocks and stock market. An empirical approach has been utilized to accomplish this research paper. The findings of this research paper concludes that stock market and oil prices are related but under what circumstances how it will react is uncertain.

JEL: E44, E03
**Keywords:** Stock Market prices, changes of Oil Prices

## I. INTRODUCTION

The movement towards liberalization, privatization and globalization have strengthens the foundation and relatedness of stock market in the whole world since 1990s specifically in developed, emerging and developing countries. Around-the-world the need, emergence and popularity of stock-market considered as well-known fact and as such need arises among investors, researchers, academicians and policy makers to identify more specifically about the actual or real factors affecting the stock market prices. It is known that market-prices of stocks are driven by 'information' and information is highly sensitive and can be affected by known and unknown factors from all around the world. Also, it could be said that stock market 'react before' and 'interpret after' about the right and wrong information and finally perform corrective action if required according to interpretation. Now it is essential to add today's most important key element which makes this market to run at a speed of rocket which is, 'information technology', through which whole world is connected so tight that if little vibration is their at one point than it will impact whole channel but frequency will be higher at proximate region and vice versa.

Generally accepted, another stock market proven fact illustrates that stock market is the mirror and backbone of an economy, it can be concluded that stock prices are affected by the macro-economic indicators. This is evident from the fact that whenever there are any macroeconomic news flashes about expected as well as unexpected macroeconomic indicators than stock market prices will show its impact accordingly. It is difficult to know which information played an important role in the movement of stock prices. Daily fluctuations and volatility as reported in the whole world's stock exchanges, stocks prices, supports the argument that individual stock prices are influenced by a variety of unanticipated economic events, as if information is well known than stock market will not allow fluctuation but this is not the case. Therefore, it can be understood as; there is an element of unanticipated news that results into fluctuations of the stock prices. However, the impact of the above-mentioned economic news, will behave differently with different stocks due to their nature (industry with which it is related). Thus, economic news whether broadcasted or as anticipated or unanticipated among investors are directly related or associated with the stock market index movement.

The theories are silent on the question of which specific factor or variable affect the stock prices. However, there are many theories developed to assess the stock prices with assumptions and risk and return approach, efficient market hypothesis and capital asset pricing theory. But these theories are also silent on question of which specific variable affect stock prices in what proportion. Other than company's operational performance, there are other factors which made possible to move in the same direction as other stocks moving in the stock exchange. This provides evidence that macroeconomic do affect stock prices but which macroeconomic factor affect is not specific.

This research paper, attempted to understand the relationship between the oil prices shocks and stock market with the evidences provided in empirical research. The empirical fact that changes in oil prices can be judged for the economic growth of an economy. It would not be wrong, if we say that the whole world is dependent on the oil producing countries and oil is a major as well as scare resource which has been extensively used throughout the world. Therefore, the dependence of the world economy on oil can be explicitly understood and regarded as a macroeconomic indicator, and therefore, it does have relevance with the stock market. Oil-prices are determined on the basis of fundamental market forces, that is, demand and supply of oil-based products. When there is an increase in the oil prices it is valid to say that the cost-of-production of oil-based companies have been increased, and if so that means level-of-profits are decreased and thus stock returns also decreased and vice versa. On the other hand, non-oil based companies, cost of production will affect due to the involvement of transportation cost. Thus, oil prices will affect directly and indirectly to all types of businesses. Oil prices are believed to be one strong macroeconomic factor that performs movement of stocks, although the level of influence is not determined in comparison to other macroeconomic factors. Recent ups and downs in the oil prices and its impact on stock market have shown that the traditional beliefs are changing with regards to the correlation between the two. This can be better understood with the empirical perspective.

This paper is organized as follows: section two includes the research methodology, research question, and research hypothesis; section three includes literature review and discussion; section four includes limitations and scope of the research; section five includes findings conclusion and section six includes recommendations.

## II. METHODS AND MATERIAL

### A. Objectives of the Research

The primary objective of this paper is to find out the type of relationship between the oil prices and stock market returns in the past and present. In addition, the secondary objective of this research paper is to find out the expected future relationship between the oil prices and the stock market returns. The basic idea of the research paper is to know what is happening to the oil prices since financial crises of 2008, and to know the reasons for the sudden unexpected changes and future expected relationship.

### B. Research Methodology

The research methodology is the combination of two methods they are, data collection and data analysis. The data collection method used for this research paper is based on the secondary data base, collected from the authentic sources such as, website: World Bank, Stock Exchanges; Yahoo Finance; Newspapers & Magazines (The New York Times, Reuters, Fortune, The Telegraph, and Forbes); Journals (Journal of Future Markets, The Energy Journal, Journal of Finance, American Economic Review, Journal of Business, Scottish Journal of Political Economy). Whereas data analysis technique used for this research paper is between-study literature review which involves comparing and contrasting information from multiple literature sources. Specifically saying, empirical works findings compared with multiple components. The advantage of using this technique is appropriate for the purpose of this research because this technique is based upon two factors, representation and legitimation, where representation refers to the ability to extract meaning from the information and legitimization refers to the credibility of the synthesis made in the research. These two factors are the important factors to achieve the objective of this paper.

Research question: What is the impact of oil price changes on the stock market prices over a period of time?

Hypothesis

H1: Oil prices changes are not highly correlated with the stock market prices.

H2: Oil prices impact over stock market prices has been changed over a period of time.

H3: The impact of oil prices as one of the macroeconomic indicators on the stock market prices is losing its relevance in recent years due to relationship between countries.

## III. RESULT AND DISCUSSION

### A. Literature Review and Discussion

Over the past six decades, oil prices have been treated as one of the macroeconomic indicator from the point of view of many economist, academicians and investors of financial markets. In favor of the above statement, Hamilton (2011) pointed out that ten out of eleven postwar economic downturn, was experienced at the time when there is an increase in oil prices. Thus, it gave rise to the importance to examine the relationship between oil prices and stock prices so that linkage of oil prices with that of overall economy, and oil prices can be investigated, and results or observations can be applied for the betterment. When the oil prices were increasing, economy was facing downturn which means that there is a connection between economy and oil prices. This connection indicated that oil prices can be understood as one of the macroeconomic indicator. His research observation cannot be ignored because it was proved that there is a statistically strong negative relationship.

Thus, this research paper argued that oil price changes are treated as macroeconomic indicator and similar point is proved in Hamilton’s research.

Jones, Leiby and Paik (2004), argued that oil price shocks is a meaningful and useful measure of economic impact which is directly linked with the stock market prices. Asset prices are the present discounted value of the future net earnings of a firm, thus stock prices and returns absorb impact of current and expected future impact of oil price shocks. Where, it is not essential to wait for the incidence to occur actually, that is, change in oil prices, on the basis of expectation changes occur in the stock prices.

Chen, Roll & Rose (1986) in their research paper that aimed to study the economic forces and stock market’, they concluded that stock market returns are exposed to systematic economic news. However, impact of systematic news will differ from one stock to other stock in terms of their relevance. Also, they argued that oil prices do not affect the trend of stock prices. This means unsystematic economic news does not hold in the real market scenario. Accordingly, the question arises is; why market is not moving according to the systematic economic news?

In contrast, evidence of negative relationship was verified by the research of Jones and Kaul (1996). However, it was not supported by the research of Huang et al. (1996) and Wei (2003). Ready (2003) examined separately the demand and shocks of oil prices, and they found that both demand and supply shocks are strongly correlated with aggregate stock returns. Changes in oil shocks considered as supply shocks, whereas increase in oil prices considered as demand shocks. The strong significant negative relationship found between supply shocks and stock returns in the sample period of 1986-2011. The strong positive relationship found between demand shocks and stock returns in the same period.

Bjørnland (2008) argued that the stock prices determinants are the prevailing economic conditions as well as expected economic conditions. The information processing efficiency of the stock market has been a subject of research since the formation and development of stock market in the whole world history. Therefore, the improvement in stock prices are made as per forecast than it is a case where forecast is made on the basis of public and private information, however, it is not the case. And, it is reasonable to argue that stock market do absorb consequences of information as quickly as it absorbs any information and react instantly in relation to oil price shocks. As asset prices are the present discounted value of the future net earnings of firms, thus, both prevailing and expected impacts of oil price shocks should have absorbed into stock prices and its return, instead waiting for the actual time occurrence of the consequences. Consequently, it can be concluded that oil price is one of the macroeconomic factors which do have an impact on the stock market.

Jones & Kaul (1996) investigated the effects of changes in oil prices on stock prices during the postwar period. Their major contribution was to find out whether the stock market rationally evaluates the impact of oil shocks on the economy. They evaluated the stock market ability to evaluate the casual real effects of events that exogenously disturb the economy. Investigation was triggered to the reaction of the U.S. stock market with that of oil shocks, which shows that the stock prices rationally reflect the impact of news on current and future cash flows. On the other hand, they were not able to find out the evidences of fads or market overreaction. Canadian stock market also appears to react rationally to oil shocks as per their research. Whereas, reaction of Japan and United Kingdom stock markets were different. They were unable to find out completely the stock markets reactions to oil price changes in the context of rational asset pricing. They found that the effects of oil price changes on the stock market of Japan and the United Kingdom was substantially greater which cannot be justified in relevance to real cash flows. They also failed to explain the effects of oil prices on stock exchanges in relation with the changing expected returns. They concluded that, in the case of Japan and the United Kingdom the stock markets do overreact to oil price shocks and oil price shock impact on expected stock returns which is not proportional.

Thus, from the above discussion it can be concluded that, the oil prices do have had a correlation with the stock prices, however, the frequency or level of reaction is not determined, it could be same as expected or under-reaction as expected or over-reaction as expected.

An evidence of positive relationship between oil prices and stock prices has been reported recently in October 2014, when the Dow Jones Industrial Average fell down by 500 points which was driven by falling oil prices. Logically, a drop in oil prices is good for the market and economy, because it lowers down the production cost and stock returns will increase. In 2008, there was an increase in oil prices by around $150 a barrel, which was treated as bad for the stock market. Now the question arises is; why it is happening opposite. The answer is the weak correlation between oil prices and stock prices overtime.

To measure the relationship between oil prices and stock prices' a research conducted by Andrea Pescatori an economist (Gandel, 2014), found sometimes oil prices follow the stock market and sometimes stock market moves in opposite direction. He also found that stock prices tend to follow oil prices when people are not having confidence on the economy.

Hamilton (2003) provided evidences that there is a strong negative relation between increase in oil prices and future GDP growth. This means that, if there is fall in oil prices than GDP will increase and vice versa, this fact was stated by Ethan Harris also.

Lower oil prices simple means that the supply is higher according to law of supply. Ethan Harris, an economist, argues that lower oil prices are the function of increased supply and not a fundamental problem of an economy (Gandel, 2014). Thus, it can be concluded that, as oil prices decreases, due to higher supply, it means there is an increase in total production and consumption of oil based products and as such it should be indicated as an increase in the level of GDP in an economy.

Recent years showed entirely different trend between oil and stock prices. For instance, it presented no fundamental relationship exist between oil prices and stock prices. In the year 2014, oil prices and stock prices were experienced as moving in same direction.

Oil prices have been dropped down so fast in recent past (1980 till Dec 2015) and behind the scene it has its own story. Domestic production of oil in United States has been nearly doubled over the last six years. Thus, decrease in imports; oil exporting countries need to find another home. Therefore, oil exporting countries like, Saudi Arabia, Nigeria and Algeria, used to depend on exporting to the United states, however, nowadays they have to depend on Asian Markets and thus they are forced to drop down the prices. Not only Canada and Iraq have had increased their exports of oil in the past, rather Russia also managed to keep pumping its exports besides all its economic problems.

Other sign for oil price downfall in recent past can be stated from the fact of weakening of economies of Europe and developing counties like world's biggest importer of oil. China has also undergone devaluation of its currency.

International relations and deals between the nations along with crises such as Greek debt crises and sanctions made by the United States on the Iran on account of 'Nuclear Deal' pave the path for the great changes in the Oil Industry. This fact is proven evidence as we can see the downfall of oil prices in the recent past. Thus, the question arises accordingly is that; do oil prices made any impact on the stock market index movement as it does in the history. The answer is oil prices movement is no more regarded as the fundamental indicator of macroeconomic which has any impact on the stock prices.

### B. Limitations and Scope of the Research

One of the important limitations is the availability of data and time for doing the research. Second limitation is the lack of quantitative research methodology approach. Therefore, there is a huge scope of this study for the researchers to take this research to new heights and discover relationships between oil prices and stock market. Stock market is related to the current changes and future expectations; hence, we cannot fix any relationship because market conditions and circumstances will change. Thus, it is the duty of the researchers, economist and professionals to know which factor is related to present market conditions and how it will affect in what sense.

## IV. FINDINGS AND CONCLUSION

This paper concludes as follows: there is an impact of macro-economic performance indicators of an economy with respective stock market. For the purpose of this paper only one macroeconomic factor is considered to be empirically studied that is oil prices changes and stock market prices correlation.

World economic news can be considered as one of the common factor that affect all the stock market index at the same point of time but the degree of affect will vary from one stock market to another and one stock price to another, it will be more appropriate to say impact will be based on the terms of relevance to the concerned stock market and its stocks. Also, at this stage we can also conclude that the stock market movements are highly associated with its proximate environmental and economic changes. Stock market movement is highly correlated with closely related environmental & economic factors and vice versa.

As a result, all Null hypothesis is rejected and alternative hypothesis is accepted. Thus, the results of their study is concluded as follows; history of correlation between oil prices and stock market prices are highly correlated but today the correlation is week between the two. This is because of the fact that there are huge changes taking place from recent past between the countries political relationship and economic resources development and new technology which weaken the demand of oil or it can be said that substitute of oil is in the market.

The reduction in the imports of oil in United States is one of the reasons for the downfall in the oil prices. This could be documented from the increase of Shale oil production since 2008 by approximately 4 million barrels per day. Reduction in imports from Organization of the Petroleum Exporting Countries (OPEC) cut in half and in the last thirty years the US has stopped importing crude oil from Nigeria.

Oil prices have been dropped from $110 per barrel to $25 per barrel from 2008 till October 2015. In the last three months (August, September and October) 2015, oil prices have been reduced from $54 to $46.22 per barrel, that is 14.40 percent decline. Whereas, in the last ten years statistics shows that, in 2006 the oil price was $59 per barrel and today it is $46.22 per barrel (21.66 percent decline). During 2008 oil prices reached $140 per barrel, thereafter, it started declining and reached lowest of this period $42 per barrel at the beginning of 2009. Within one year, it decline to 70 percent which is not normal, we can relate to the global financial crises also. Again it started recovery and it reached $113 per barrel in the first quarter of 2011, till first quarter of 2014; it fluctuates between $113 per barrel to $105 per barrel. Thereafter, a sharp decline has been seen in the second and third quarter of 2015. If we assume that economic cycle for oil industry is ten years than again oil prices will regain its high prices in the upcoming years.

On the other hand, if we evaluate the economic and political relationship between countries and their development, than the whole scenario will change and it will not follow any previous trend associated with the price changes in this industry. Therefore, it can be concluded that as there are numerous factors that are related to the huge changes in the oil prices and thus relationship between the oil prices and the stock prices will not remain same as before. If this trend continues than oil production companies have to stop production, therefore reduction in the total supply will cause oil prices to recover and adjust.

## V. RECOMMENDATIONS

Stock market investors should not evaluate their investment in stocks only on the basis of the oil prices changes rather investment evaluation should be based on two broad areas that is internal factors and external factors. An internal factor means the actual and expected performances of the respective stock's companies. Whereas, an external factor refers to the broad economic indicators of the concerned economy and world economy.

Simple economics rule says oil price changes is the result of demand and supply rule, that is when supply is more than price will decrease and vice versa. Thus, production cost will decrease and ultimately earnings of the companies will increase. This simple logic is proving wrong in the current scenario because decreasing oil prices is not matching with the earnings that is, still companies' earnings are not increasing and this makes investors confused.

This paper focuses only on the one macroeconomic indicator that is oil price changes, thus for investors of stock market, it is concluded that oil prices changes impact on stock market prices is weak and not a good indicator of the stock market movements. Rational investors need to have continues watch or awareness about the world economy and its consequences to the different stock exchanges. More specifically oil price changes will affect only oil stocks and little impact will be there on the other. Still specific relationship cannot be determined. In simple words we can say it will change according to the new changes in the whole world.

## VI. REFERENCES


[1] Bjornland, C.H. (2009). Oil price shocks and stock market booms in an oil exporting country. Scottish Journal of Political Economy, 2(5), 232-254.

[2] Chen, Nai-fu, Ricbard Roll, and Stephen A. Ross, 1986, Economic forces and the stock market. Journal of Business 56, 383-403.

[3] BP Global, Energy Statistics, Statistical Review http://www.bp.com/en/global/corporate/about-bp/energy-economics/statistical-review-of-world-energy/review-by-energy-type/oil/oil-prices.html Accessed on October 3, 2015

[4] The New York Times, Energy & Environment, Oil Prices: What's Behind the Drop? Simple Economics by CLIFFORD KRAUSS http://www.nytimes.com/interactive/2015/business/energy-environment/oil-prices.html?_r=0 Accessed on October 3, 2015

[5] Reuters, Market, Oil dips as U.S. keeps alive hopes of Iran nuclear deal BY BARANI KRISHNAN http://www.reuters.com/article/2015/07/13/us-markets-oil-idUSKCN0PN01820150713 Accessed on October 4, 2015

[6] http://www.vox.com/2015/7/14/8962651/oil-prices-iran-nuclear-deal, Accessed on October 4, 2015

[7] Huang, R., R. Masulis, and H. Stoll (1996), "Energy Shocks and Financial Markets," Journal of Futures markets 16, 1-27.

[8] Jones, C. and G. Kaul (1996), "Oil and Stock Markets," Journal of Finance, 51, 463-491.

[9] Jones, C. M. and G. Kaul (1996), "Oil and the stock markets." Journal of Finance, 51, 463–491.

[10] Jones, D. W., P. N. Leiby and I. K. Paik (2004), "Oil Price Shocks and the Macroeconomy: What Has Been Learned Since 1996," The Energy Journal, 25, 1-32

[11] New York Times, Energy & Environment; Oil Prices: What's Behind the Plunge? Simple Economics; By Clifford Krauss Updated September 30, 2015
[12] Reuters, Markets, "Oil dips as U.S. keeps alive hopes of Iran nuclear deal", New York, By Barani Krishnan
[13] The New York Times, Middle East; "The Iran Nuclear Deal – A Simple Guide", By William J. Broad And Sergio Peçanha http://www.nytimes.com/interactive/2015/03/31/world/middleeast/simple-guide-nuclear-talks-iran-us.html?_r=0 Accessed on October 4, 2015
[14] Vox, Energy & Environment, "What the Iran nuclear deal means for oil prices",
[15] Wei, C. (2003), "Energy, the Stock Market, and the Putty-Clay Investment Model," American Economic Review 93, 311-323.
[16] Oilprice.com By Chris Pedersen Posted on Mon, 13 October 2014 , 5 Reasons Oil Prices Are Dropping http://oilprice.com/Energy/Oil-Prices/5-Reasons-Oil-Prices-Are-Dropping.html Accessed on October 14, 2015
[17] Nasdaq, Crude Oil, WTI (NYMEX) Price, End of day Commodity Futures Price Quotes for Crude Oil WTI (NYMEX) http://www.nasdaq.com/markets/crude-oil.aspx?timeframe=10y Accessed on October 14, 2015.
[18] Gandel, S. (2014). Stock market plunge: Why oil matters [Online] Available at http://fortune.com/2014/10/15/stock-market-plunge-oil-prices/ Accessed on September 25, 2015