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Short Communication

Oil Price and Stock Market Performance Evidence from Tehran Stock Exchange Market

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Abstract

The level of development in any country is very much dependent upon the rate of investment in the economy. Stock market provides an effective platform for the diversion of financial sources from excess to deficient economic units and their productive investment. There are number of regional and global macroeconomic factors and variables which determine the financial market performance. Present study is aim to investigate the effect of international (OPEC) oil price fluctuation on the performance of stock exchange markets in Iran (Tehran Stock Exchange (TSE) Index). In addition to oil price, other macroeconomic variables includes exchange rate and foreign private portfolio investment were also considered in the model in order to improve strengthen its illustrative power. The study also analyzed the significant of political consistency in the determination of stock market performance. The results shows that the oil prices (OP), exchange rate (ER) and foreign private portfolio investment (FPPI) have a meaningful positive relationship with market performance, while political instability (PI) have a negative effect on Tehran stock exchange performance.

Keywords: Oil Price, Exchange Rate, Foreign private portfolio investment, Tehran Stock Exchange (TSE).

Introduction

Stock markets as one of the most important kind of financial markets provide an appropriate base which diverts the funds from surplus to deficient enterprises. The stock market fluctuation has a root in underlying assets transactions and indeed supply and demand. Stock price indicative of present value of the future cash flows. Thus, having optimistic view in the stock market may cause increase in stock prices. Hence stock market performance can be considered as the index of the economy situation. The changes in the stock prices is caused by many different factors, include internal enterprise and the external macroeconomic variables. The company's earning policies, profit, cash flow, inventions, product diversification and management honesty, are the main interior specifications influencing the company's stock price. The macroeconomic variables have a substantial and indirect effect on the asset prices in the stock market. The fluctuation in macroeconomic variables elaborate the systematic risk. Thus, global factors also have a great effect on stock market performance. Hamilton[1], greatest recessions in the United States have been preceded by a considerable increase in oil price. Ragoff[2], stated that the significant increasing of oil price between 2003 and 2005 aggregative lowered the productivity all around the world by around 1.6 % or about a 748 billion dollars. Undoubted, Oil is an important component of production cost. The effect of oil price fluctuations would be different in countries based on their oil consumption, such as Iran as one of important member of OPEC countries. It should be noted that increasing in oil prices leads to increases their currency's value for oil exporting countries and subsequently causes decrease the value of currency in oil importing countries. Basher[3], noted that developed economies compared to 1970s are more energy efficient than decades ago considering their oil consumption and changes in GDP. Such efficiency is the main result of using advanced technologies and renewable energy resources. But the developing economies are the major consumers of oil like China. This is so because their rapid economic growth is causing the high demand for oil. Thus, our research paper is aim to examine the effect of oil price fluctuations on Tehran stock exchange performance (TSE)[4]. In order to promote the explanatory power of the model it would be wise examine the other important variables such as economic factors which has significant impact on the stock market.

Research Background: Efficient Market Hypothesis (EMH) is considered to be a significant contribution by Fama in 1960s[5]. There are three forms of the EMH which considering the informational efficiency of the market i.e. weak, semi-strong and strong. Thus, the prices can reflect pervious information whilst the semi-strong form elaborate that asset prices do not reflect the information but are also instantly adjusted to the new information made available, and according to strong form hypothesis the market is so efficient that the asset price does not reflect only the past information but incorporate the other information.

Markowitz has a great contribution in literature of finance because of his research on portfolio theory. Capital asset pricing model (CAPM)is an important asset valuation method, was developed by Treynor[6], Sharpe[7], Lintner [8] and Mossin [9] independently on the work of Markowitz[10]. Such model helps to determine the rate of return on the asset. Also, the model considers the sensitivity of the asset to systematic or non-diversifiable risk, and also the return on market portfolio and risk free return. Stephen Ross present Arbitrage Pricing Theory in 1976 which describes how the expected return and the asset value be calculated.

Cobo-Reyes[11] examined the relationship between oil market shocks and industrial production power considering other variables such as stock market returns. The results shows that the raises in oil price negatively affects the stock returns and industrial productivity. Basher and Sadorsky [12] found reliable records that oil price fluctuations effects stock price returns in their sample study markets the results revealed that increasing in oil price have a meaningful positive impact on surplus stock market returns. Liao and Chen [13]examined the impact of oil and Gold prices on some individual industries rather than the whole market and found that both the electronic and rubber industrial sub-indices are influenced by the fluctuation in oil prices and there is a meaningful positive relationships between oil prices, electronic industrial and rubber industrial. Aloui[14]stated that oil price fluctuations has a negative impact on stock market behavior. Chen[15] conducted a study to investigate whether the stock market is affected and squeezed by high oil price into bear territory, the monthly returns on U.S stock markets. The findings of the study shows that the high possibility of a bear market emergence as a result of increase in oil prices. Ramos and Veiga[16] examined the asymmetric effects of oil price fluctuations in international stock markets.

Ono[17] investigate the impact of oil prices fluctuations on stock returns in China, India, Russia and Brazil countries. The study shows that stock returns has a positive respond to oil price in China, India and Russia, except for Brazil. Basher[12]concluded that there is a meaningful relationship between oil prices and economic downturn. Adaramola [18], examined dynamic effects of oil price on stock market returns in Nigeria and found that there is a significant meaningful relationship between positive stock return in the short-term and a significant negative stock return to oil price shock in the long-term. Abdalla[19], examined the possible relationship between oil price and stock market in Saudi Arabia. The results shows that there is a meaningful relationship between these two variables in increasing and decreasing situations.

Methodology

Considering asset pricing theory the return on asset can be proposed as a linear equation of different financial and economic variables. The beta coefficient of variables elaborate sensitiveness of return compared to change in the variable. The financial issues literature is quite rich with respect to empirical studies that link the fluctuation in macroeconomic variables and the stock market performance. In Iran too, considerable number of studies have been conducted but with respect to oil and different market returns still there is a literature gap.

Stock market is influenced by number of internal and global economic factors. This study has focused on the global factor, it means examine crude oil price fluctuation in international markets, which is affecting the economic activities. Hence our proposed model is:

$$TSE = \beta_1 + \beta_2(OP) + \beta_3(ER) + \beta_4(FPPI) + \beta_5(PS) + \varepsilon$$

Where; TSE:Tehran Stock Exchange Index, OP: Crude Oil Prices per barrel in US dollar (Based on OPEC per barrel price), ER: exchange rate, FPPI: Foreign Private Portfolio Investment (million US dollars), PS: political stability, a dummy variable where if PS=1, it represents democratic government and if PS=0, it shows the dictatorial period.

The annual time series data has been taken from 2000 to 2015 for analysis. The data of TSE Index has been extracted from the website of Tehran Stock Exchange (where as the oil prices data has been taken from OPEC prices, Exchange rate and foreign private portfolio investment data was drawn from the annual publications of Central Bank of Iran).

Results and Discussion

Finding and analysis: Table-1 shows the descriptive statistics of independent variables and also TSE Index. The below table shows the correlation between the variables. It can be observed that oil price has moderate positive correlation with TSE Index, representing that increasing in oil price lead to positive impact on Tehran Stock Exchange. It is important to notice that the other variables also have positive correlation with TSE Index but relationship is low at the scale.

Table-1
Descriptive Statistics

	TSE	OP	ER	FPPI	PS
Mean	10230.37	75.62	73.26	416.33	0.50
Median	9637.23	75.64	79.26	46.17	0.50
Maximum	14121.11	138.21	104.49	2115.17	0.70
Minimum	7456.19	31.15	46.92	74.39	0.30
Std. Dev.	3259.51	31.44	17.28	749.89	0.46
Skewness	-0.2944	0.7219	0.5612	1.6679	0.00
Kurtosis	1.936	3.4569	1.6037	6.4579	1.00
Jarque-Bera	0.7521	0.8987	1.3319	6.6397	1.5648
Probability	0.7456	0.6745	0.6218	0.0962	0.5649
Observation	16	16	16	16	16

The regression results indicate that the independent variables in the model shows approximately 95 percent variation in the dependent variable. The Durbin Watson Statistic is 2.37 which is indicating the absence of autocorrelation. The probability of F-Statistic shows that totally significant at 5% significance. The focused variable i.e. oil price has a positive sign which means that an increase in oil price would cause the stock market index to go up and vice versa and the results are also statistically significant. Thus, results reflect that the returns on Tehran Stock Exchange (TSE) increases as the oil prices increase. Exchange rate has also a positive sign and is statistically significant too, it means decrease in Rial (The official currency of Iran) against U.S dollar is main reason of increasing stock market index. Thus, the exports of the companies would increase as the result of devaluation of the currency, resulting into their profits to rise. Foreign private portfolio investment represents the investment in securities, which directly affects the stock market index. It is expected that an increase in foreign portfolio investment would have a positive impact on the market performance and returns. The regression results are in the line of the expectations as foreign private portfolio investment has a positive sign and such results are also statistically significant. In this study the researcher also included a dummy variable i.e. political stability, a qualitative factor. The results show that the political stability has a negative sign which means that the stock market tends to go up during dictatorial tenures and it is negatively affected during democratic government control.

Table-2
Correlation Matrix results

	TSE	OP	ER	FPPI	PS
TSE	1.03	0.84	0.65	0.54	0.67
OP	0.84	1.04	0.52	0.11	0.75
ER	0.57	0.51	1.09	-0.42	0.99
FPPI	0.69	0.06	-0.32	1.06	-0.49
PS	0.52	0.72	0.96	-0.49	1.03

Table-3
Determinants of TSE Index

Variables	Coefficient	Std. Error	t-Statistic	Prob.
TSE	-19642.54	3965.91	-4.95	0.00
OP	166.91	16.79	6.26	0.00
ER	365.22	69.49	6.26	0.00
FPPI	2.16	0.69	4.36	0.00
PI	-9211.57	1995.13	-5.49	0.00
Adj.R2	0.95	F-statistic	59.50	
DW Statistic	2.37	Prob. (F-statistic)	0.00	

Conclusion

Since the experience of oil crisis in 1973, the oil price fluctuations have captured the great interest of the researchers around the world to investigate its impacts on different economic activities. Stock markets have also been observed to reflect the oil price fluctuation in different manner in different countries. In this regard this study is aim to find how the stock markets in Iran are affected by oil price fluctuation.

Present study show increasing in oil prices does not moderate the stock returns rather its relationship with TSE market index. Along with oil price the study also explains that the exchange rate and foreign private portfolio investment also has a positive and meaningful significant relationship with stock market performance in Iran. It further shows that democratic tenures negatively but dictatorial periods positively influence the stock market performance. Hence the study guides the investors and financial policy makers to estimate the expected inflow of foreign private portfolio investment, oil price and exchange rate in order to forecast the movement in stock markets in Iran.

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