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# OIL PRICE VOLATILITY AND MACROECONOMIC FACTORS INFLUENCE STOCK MARKET RETURN: A STUDY IN MALAYSIA

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**ABSTRACT:**

The prime objective of this study is to analysis the impact of crude oil prices and macroeconomic variables on the stock market of Malaysia .For this purpose we have taken the data from 1981-2011 and applied the Johnson co integration, ECM and unit root test. Our results are showing that there is significant association between crude oil prices, macroeconomic variables on the stock market of Malaysia .Hence, final analysis is showing that the major responsible bank of Malaysia should control the dwindling position on interest rate and focus on the transparency system for developing the confidence level of all investors.

**KEYWORDS**: crude oil, ECM, unit root test, co-integration, central bank

## INTRODUCTION:

From the 2008, the degree of association between crude oil prices and macroeconomic variables are known as the hot issue for the entire economist. Our study is trying to expose that sharp changes in the prices of crude oil has huge impact on the economics of the country. From the last few decades the plausible expiations about the association between oil prices and mare comic variables have occupied the minds of researchers'. According to Hamilton (2003), there were huge pioneering studies about the impact of the crude oil on the macroeconomic variables and this study is showing that oil price episode impact on the recession. The supply side effect is showing that crude oil is basic tool for the production.

According to economic theory stock prices is best predictor about the firm s earning. The fundamental value of the firm s prices can be calculated by the present values .Hence, the profit s earning is the part of investment, GDP and investment. Therefore, it is not wrong that economic activities can be calculated by the stock prices.

The oil boom had worst impact on the economic development of all the countries. Oil suddenly had very huge impact on the exports of the countries and exports of all the countries are consider crucial role for the progress. In the 1978 the crude oil shortage was start and in these years, it is seen that

oil crisis had worst impact on the import, export and some other macroeconomic variables. In 1995, there were worst currency devaluation and inflation in the world. Between 1998 and 2011 there were moderate inflation rate are seen. However, a t the September 2012 ,the rate of inflation were seen at 11.3%.Currenctly,all over the world the banking system are being making polices about the inflation rate. Central bank of Malaysia are also doing working about the policies, how can control the devaluation of currency. In 2008 the global recession were occurred .During this time sophisticated stock market was badly affected and all over the world were faced the oil crisis. It is very difficult task to analysis the impact of crude oil on the stock market of Malaysia.

Objectives:

- Impact of macroeconomic variables on the stock return of Malaysia.
- Impact of crude oil on the performance of Malaysia s economy.
- All the variables are long run relationship or short run relationship between the variables.

Problem statement:

From the last few decades impact of crude oil on the economy of Malaysia.

**Figure no 1: Followers of the oil market will be familiar with the recent evolution of oil supply and price:**

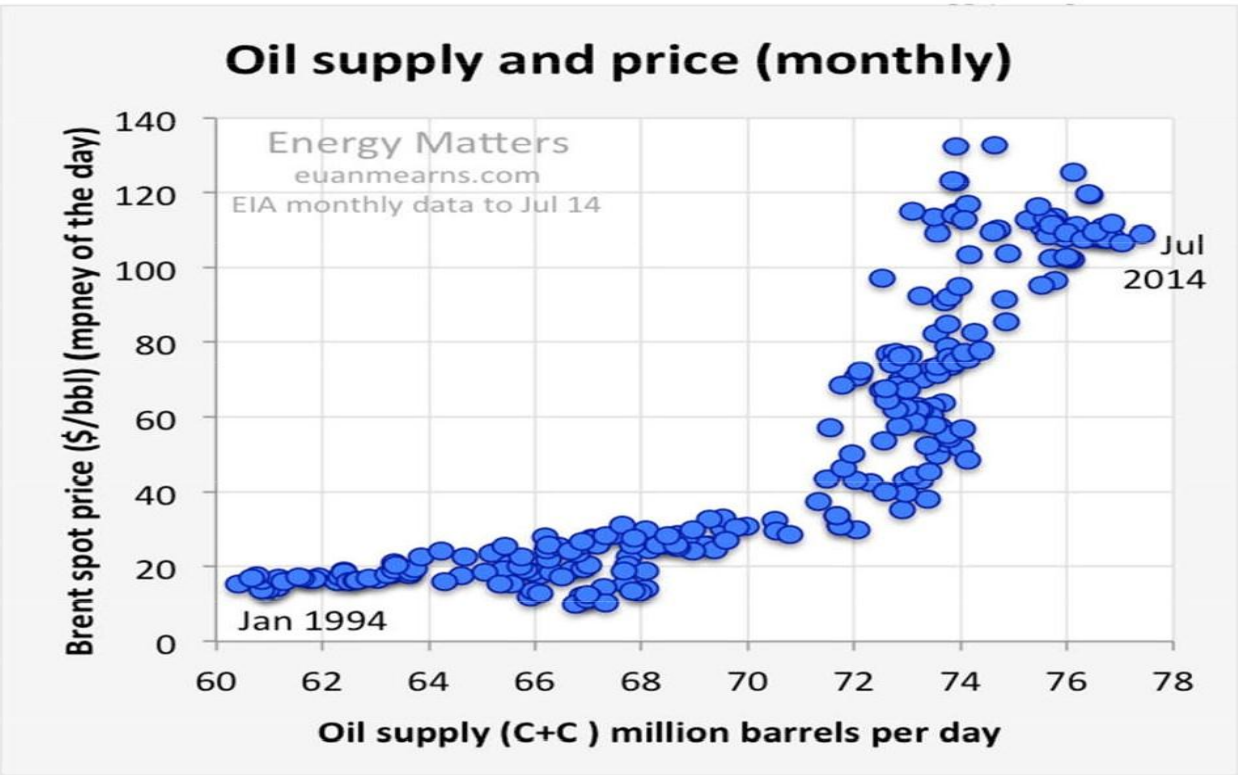
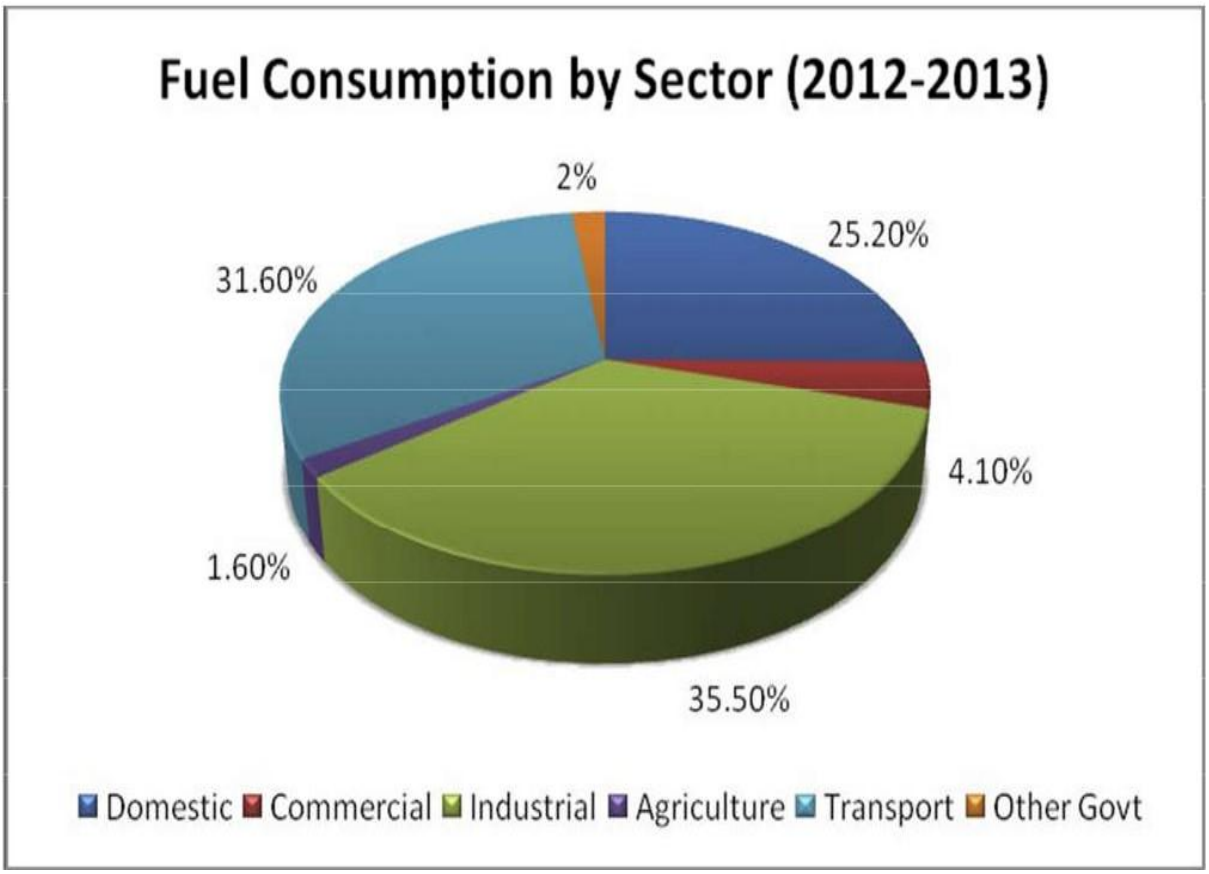


**Figure no 2: Fuel consumption by sector**




**LITERATURE REVIEW:**

Ahhmed, Analyzed the impact of macroeconomic variables and crude oil on the development of Nigera. For this purpose, they taken the data from years 1998-2008 and applied the VAR model .the results are showing that there is positive association between macroeconomic variables, crude oil and stock market of Nigeria .They suggested that inflation has influenced on the progress of stock exchange, therefore, government should focus on the polices about the increasing inflation rate [1].

Alile, Observed the impact of macroeconomic variables and crude oil on the development of Pakistan. For this purpose, they taken the data from years 1991-2009 and applied the ECM model .the results are showing that there is positive association between macroeconomic variables, crude oil and stock market of Pakistan .They suggested that exchange rate has influenced on the progress of stock exchange, therefore, government should focus on the polices about the increasing inflation rate[2].

Ayadi et al, Viewed the impact of macroeconomic variables and crude oil on the development of India. For this purpose, they taken the data from years 1999-2012 and applied the multi regression

model .The results are showing that there is positive association between macroeconomic variables, crude oil and stock market of India .They suggested that oil prices has influenced on the progress of stock exchange, therefore, government should focus on the polices about the increasing inflation rate [3].

Gunu Umar, Examined the impact of macroeconomic variables and crude oil on the development of USA .For this purpose, they taken the data from years 1990-2010 and applied the unit root model .the results are showing that there is positive association between macroeconomic variables, crude oil and stock market of USA .They suggested that inflation has influenced on the progress of stock exchange, therefore, government should focus on the polices about the increasing inflation rate [4].

Hamilton J. D, Viewed the impact of macroeconomic variables and crude oil on the development of UK .For this purpose, they taken the data from years 1986-2009 and applied the OLS model .the results are showing that there is positive association between macroeconomic variables, crude oil and stock market of UK .They suggested that inflation has influenced on the progress of stock exchange, therefore, government should focus on the polices about the increasing inflation rate [5].

Hamilton, James D., Observed the impact of macroeconomic variables and crude oil on the development of France .For this purpose, they taken the data from years 1991-2009 and applied the VAR model .the results are showing that there is positive association between macroeconomic variables, crude oil and stock market of France .They suggested that inflation has influenced on the progress of stock exchange, therefore, government should focus on the polices about the increasing inflation rate [6].

Hooker M., viewed the impact of macroeconomic variables and crude oil on the development of china .For this purpose, they taken the data from years 1996-2006 and applied the ECM model .the results are showing that there is positive association between macroeconomic variables, crude oil and stock market of china .They suggested that inflation has influenced on the progress of stock exchange, therefore, government should focus on the polices about the increasing inflation rate [7].

Jin, Analyzed the impact of macroeconomic variables and crude oil on the development of Japan. For this purpose, they taken the data from years 1998-2008 and applied the OLS model .the results are showing that there is positive association between macroeconomic variables, crude oil and stock market of Japan .They suggested that inflation has influenced on the progress of stock exchange, therefore, government should focus on the polices about the increasing inflation rate [8].

Hamilton J. D, Analyzed the impact of macroeconomic variables and crude oil on the development of Malaysia. For this purpose, they taken the data from years 1976-2007 and applied the VAR model .the results are showing that there is positive association between macroeconomic variables, crude

oil and stock market of Malaysia .They suggested that inflation has influenced on the progress of stock exchange, therefore, government should focus on the polices about the increasing inflation rate [9].

Hamilton, James D., Analyzed the impact of macroeconomic variables and crude oil on the development of Jordan .For this purpose, they taken the data from years 1992-2002 and applied the linear model .the results are showing that there is positive association between macroeconomic variables, crude oil and stock market of Jordan .They suggested that inflation has influenced on the progress of stock exchange, therefore, government should focus on the polices about the increasing inflation rate [10].

Hooker M., Analyzed the impact of macroeconomic variables and crude oil on the development of Amman .For this purpose, they taken the data from years 1993-2003 and applied the VECM model .The results are showing that there is positive association between macroeconomic variables, crude oil and stock market of Amman .They suggested that inflation has influenced on the progress of stock exchange, therefore, government should focus on the polices about the increasing inflation rate [11].

**GAPS IN LITERATURE REVIEW:**

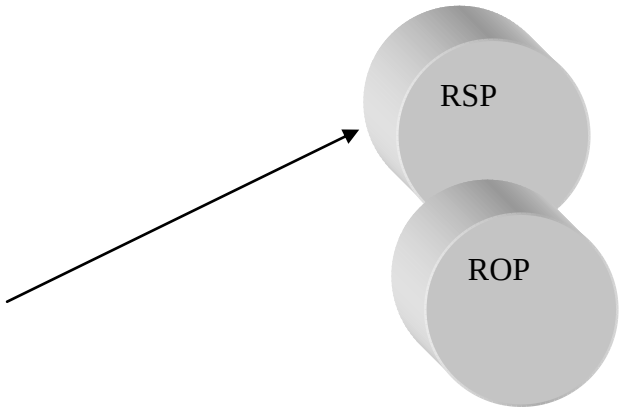
1) We have sought out impact of long run association of macroeconomic variables on the Malaysia stock exchange.

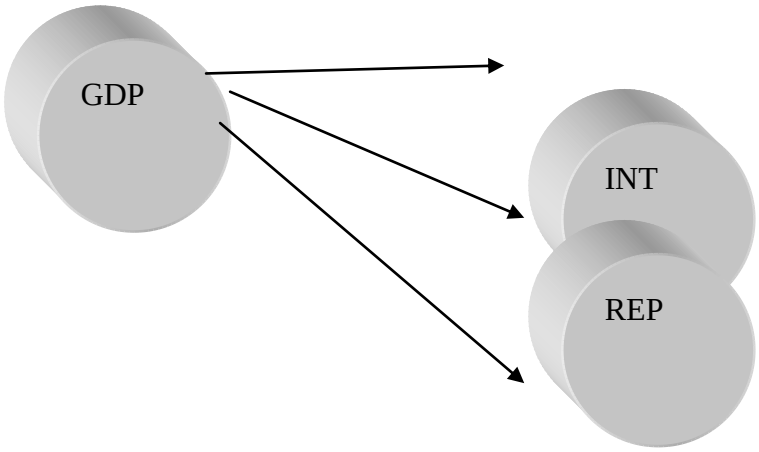
2) During financial crisis what were the impact of crude oil on the rate on inflation

3) In which years the rate of inflation was more and how all the stock market were affected due to recession.

**THEORETICAL FRAMEWORK:**

**Figure no 3:**






**METHODOLOGY: (WOZIP)**

In this paper, we have followed the approach of Gunu (2010) paper title: impact of oil prices on the stock exchange of Malaysia: According to his approach there is significant association between oil prices and stock market of Malaysia .Firstly, we have taken the data from 1981-2011.we have applied the co integration, unit root and ECM model for the proper results our main variables are given below.

GDP = b0 + b1oil price01(-1) + b2sp(-1) + b3GDP(-2) + b4oil_price01(-2) + b5sp(-2).

From the above, our model is specified as:

RGDP = f(RSP, ROP, INT, RER)

Where RGDP = Growth rate of Gross Domestic Product

RSP = Growth rate of stock price indexed by GDP

ROP = Growth rate of oil price indexed by GDP

INT = Interest rate

RER = Real exchange rate

The structural form is

RGDP = a0 + a1RSP + a2ROP + a3INT + a4RER + u

**EMPIRICAL RESULTS:**

First, we have applied the OLS method and results of other tests are given below.

**Table 1:**

| | | | | |
|---|---|---|---|---|
| Ordinary Least Square | | | | |
| Dependent Variable: RGDP | | | | |
| Method: Least Squares | | | | |
| Sample(adjusted): 1986 2011 | | | | |
| Included observations: 27 after adjusting endpoints | | | | |
| **Variable** | **Coefficient** | **Std. Error** | **t-Statistic** | **Prob.** |
| C | 0.010488 | 0.010858 | 0.965722 | 0.3453 |
| ROP | -0.002503 | 0.001084 | -2.310661 | 0.0312 |
| RSP | 19.92831 | 0.014833 | 1343.614 | 0 |
| INT | -0.000932 | 0.000559 | -1.668258 | 0.1102 |
| EXR | 0.000296 | 6.12E-07 | 4.815722 | 0.0002 |
| R-squared | 0.999992 Mean dependent var | 4.811537 | | |
| Adjusted R-squared | 0.999988 S.D. dependent var | 3.466677 | | |
| S.E. of regression | 0.0113101 Akaike info criterion | -5.955301 | | |
| Sum squared resid | 0.002687 Schwarz criterion | -5.713359 | | |
| Log likelihood | 82.41891 F-statistic | 587237.6 | | |
| Durbin-Watson stat | 1.300027 Prob(F-statistic) | 0 | | |
| $RGDP = a_0 + a_1ROP + a_2SP + a_3INT + a_4EXR + u$ | | | | |
| RGDP = 0.010488 - 0.002503ROP + 19.92831RSP - 0.000932INT + | | | | |
| 0.000296EXR | | | | |
| R-squared = 0.998 | Durbin Watson = 1.4 | | | |

Above model is showing that there is positive association between RGDP and SP and negative association between ROP and INT .This implication is the sowing that 1% increase in RSP will bring increase about 19.8% and 0.000296b% and 0.00094 % respectively .the value of R square is showing the RGDP tune to 98% .The value of Durbin waston 1.4 explains that there is positive correlation between the variables.

**Table 2**

| Stationarity Test (Unit Root) | | | |
|---|---|---|---|
| | | | |
| **Variable** | **ADF - Statistics** | **Critical Value** | **Order of integration** |
| RGDP | -11.37221 | 1% = -3.6753* | I(0) |
| 5% = -2.9666 | Stationary at level | | |
| 10%= -2.6221 | | | |
| ROP | -56.38464 | 1% = -3.6753 | I(0) |
| | | 5% = -2.9666 | Stationary at level |
| | | 10%= -2.6221 | |
| RSP | -2.740028 | 10% = -2.6349 | I(0) |
| Stationary at level | | | |

| | | | |
|---|---|---|---|
| INT | -2.038215 | 5% = -1.953859 | I(1) |
| | | 10% = -1.609572 | Stationary at first difference |
| EXR | -3.598318 | 5% = -2.9706 | I(1) |
| 10% = -2.6243 | Stationary at first difference | | |

The results of ADF unit root is showing that all the variables are stationary at level 1 and significant at 5 and 10 % respectively .these results are showing that RGDP<ROP and RSP are all stationary .All the variables are integrated at the order of 1.

**Table no 3:**

| Cointegration Test | | | | |
|---|---|---|---|---|
| Johansen Cointegrating Test. | | | | |
| **Eigen Value** | **Likelihood** | **5 percent** | **1 percent** | **Hypothesized** |
| | Ratio | Critical Value | Critical Value | No of CE(s) |
| 0.931046 | 83.58756 | 29.69 | 35.66 | None ** |
| 0.483172 | 16.73005 | 15.42 | 20.05 | At most 1* |
| 0.009117 | 0.228941 | 3.77 | 6.66 | At most 2 |

*(**) denotes rejection of the hypothesis at 5% (1%) significance level.

The value of table no 2 Eigen statistics shows that there is co-integration between the variables. It shows that there is long run relationship between the variables.

RGDP = 0.104114 – 0.076848ROP + 20.01231RSP

**Table no 4:**

Dependent Variable: RGDP

Method: Least Squares

Sample (adjusted): 1987 2010

Included observations: 24 after adjustments

| **Variable** | **Coefficient** | **Std. Error** | **t-Statistic** | **Prob.** |
|---|---|---|---|---|
| C | -0.014746 | 0.042885 | -0.343841 | 0.7362 |
| RGDP(-1) | 2.101727 | 4.774979 | 0.440155 | 0.6666 |
| ROP | 0.006851 | 0.016249 | 0.421551 | 0.6799 |
| RSP | 19.91754 | 0.015926 | 1250.716 | 0 |
| RSP(-1) | -41.89517 | 95.19541 | -0.440097 | 0.6667 |
| EXR | 2.46E-06 | 0.000166 | 0.148885 | 0.8839 |
| EXR(-1) | -0.000317 | 0.001498 | -0.210467 | 0.8364 |
| INT | -0.000908 | 0.000801 | -1.133788 | 0.2758 |
| INT(-1) | 0.002263 | 0.004659 | 0.485557 | 0.6349 |
| ECM | -1.810844 | 4.701832 | -0.385137 | 0.7058 |
| | | | | |

| | | | | | |
|---|---|---|---|---|---|
| R-squared | 0.999995 | Mean dependent var | 4.7126 | | |
| Adjusted R-squared | 0.999991 | S.D. dependent var | 3.444606 | | |
| S.E. of regression | 0.010724 | Akaike info criterion | -5.938522 | | |
| Sum squared resid | 0.001611 | Schwarz criterion | -5.447466 | | |
| Log likelihood | 81.26107 | Hannan-Quinn criter. | -5.808497 | | |
| F-statistic | 263671.8 | Durbin-Watson stat | 2.096857 | | |
| Prob(F-statistic) | 0 | | | | |

The values of ROP, INT and RSP are showing that there is short run association between the variables and all are significant .there is not short run relationship between exchange rate and other variables. For example, values are proving that 1 % increase in ROP, and RSP will increase the RGDP while,1 % increase in the inflation will decrease the growth rate.

In the long run, the ECM coefficient of -1.812(negative) and RGDP (-2) coefficient of 2.101727(positive) are significant, implying that a long run relationship exist among the variables (lag 1) at equilibrium.

The model;

RGDP = a0 + a1RGDP(-1) + a2ROP + a3RSP + a4RSP(-1) + a5EXR + a6EXR(-1) + a7INT + a8INT(-2) + a9ECM

RGDP = -0.014746 + 2.101727RGDP(-1) + 0.006860ROP + 19.91754RSP – 41.89517RSP(-1) + 2.47E-05EXR – 0.000317EXR(-1) – 0.000908INT + 0.002272INT(-1) – 1.810743ECM

**CONCLUSION AND RECOMMENDATION:**

Our empirical results are showing that GDP is significant affected by the EXP<ROP and RSP .Here, it is interesting to know that RSP is larger than other variables and it has the crucial role for the economic development. while, other variables like RSP and ROP are concerned by the interest rate and exchange rate .Finally, it is proved that central bank of Malaysia is steadily manage the nature of interest rate. Interest rate is the single variables through which investors can take proper decision about the further and existing investment. Second way to boost the confidence on investors is with the help of CBN ,which can ensure the Accountability of stock exchange .Third ,government should focus on the oil crisis .this can be possible with the adequate policies.

**REFERENCES:**

Ahhmed (2009): "Testing for granger causality between stock prices and economic growth", European journal of social and sciences, pg 24

Alile (1997): "Some international evidence of stock prices as leading indicators of economic activity", Applied financial economics, pg 1 – 14

Ayadi et al (2000): "The effects of oil production shocks on a net oil exporting country, Nigeria", Energy journal, pg 78 – 79

Central Bank of Nigeria (CBN). 2009. Statistical Bulletin, Monetary policy committees www.cenbank.org/monetarypolicy/committees.asap

Gunu Umar (2010): "oil price shocks and the Nigeria economy: A variance autoregressive model", International journal of business and management, pg 82 – 89

Hamilton J. D (2003): "What is an oil shock?" Journal of econometrics, pgs 113, 363 – 398

Hamilton, James D. (1983), "Oil and the Macro economy Since World War II," Journal of Political Economy, 91, pp. 228-248. Hooker M. (2002): "Are oil shocks inflationary? Asymmetric and nonlinear specification versus

changes in Regime", Journal of money, credit and banking, pg 34

Jin (2008): "oil price volatility", International research journal of finance and economics, pg 38 – 47

Michele Cavallo & Tao Wu, 2006. "Measuring oil-price shocks using market-based information," Working Paper Series 2006-28, Federal Reserve Bank of San Francisco.

Mork K. A (1989): "Oil and the macro economy when prices go up and down: An extension of Hamilton's Results", Journal of political economy, pgs 91, 740 – 744

National Bureau of Statistics (NBS), (2009)

Nyang (Jimenez-Rodriguez and Sanchez (2005): Oil Price Shocks and Real GDP Growth : Empirical Evidence for some OECD Countries. Applied Economics 37, pp. 201-228.1997)

Raguindin, M. C. E., & Reyes, R. G. (2005). The Effects of Oil Price Shocks on the Philippine Economy: A VAR Approach. University of the Philippines

Xiufang Wang (2010): "The relationship between economic activities, stock price and oil price: Evidence from Russia, China and Japan", International research journal of finance and economics, pgs 103 - 111