TECHMIND RESEARCH
ISSN: 2291-2118
International Journal of Research in Business and Technology
Volume 3 No.3 December 2013

Oil Price Fluctuations and FOREX Market: Evidence from OPEC Countries

Jaspreet Kaur[1], Dr. Navita Nathani[2], Manpreet Kaur[3]
[1]Asst. Professor, Prestige Institute of Management, Gwalior,
jaspreet24kaur@gmail.com
[2]Head, Management, Prestige Institute of Management, Gwalior,
drnavita810@gmail.com
[3]Asst.Professor, Maharishi College, Bhopal,
minigwl512@gmail.com

Abstract- *The paper aimed to examine the causes of fluctuations in oil prices that may be due to fluctuating foreign exchange rates and also to investigate the same relationship existence between the two variables. The present study has been conducted in OPEC nations as these are the nations which play an important role in determining oil prices, though oil prices have been taken from NYMEX WPI from period 1997-2011. The results were examined and analyzed by using Toda and Yamamoto causality approach (1995) and mixed results were found.*

General Terms- *NYMEX WPI, OPEC*

Keywords- *Oil Prices; Exchange Rates; OPEC nations.*

1. INTRODUCTION

Economic growth of the country is affected by multiple macro economic variables for instance aggregate demand, national income, exchange rate, etc. Although it would not be wrong to say that these macro variables sometimes are affected by the economic growth of the country. Therefore, one can rightly say that there is existence of bilateral relationship between macro variables and economic growth of the country. On the other hand, if one looks into the depth would find that there is existence of some kind of relationship between the variables even. So to evidence this we can the example of relationship between oil prices and exchange rates of the various countries.

1.1 Introduction to OPEC countries

The organization of Petroleum Exporting Countries (OPEC) is an international Organization of eleven developing countries that influences and maintains the price of oil through the control of production levels. The Organization of the Petroleum Exporting Countries (OPEC) was created at the Baghdad Conference in Iraq in September 1960. The founding members of the organization were Iran, Iraq, Kuwait, and Saudi Arabia andVenezuela. Current OPEC members are Algeria, Indonesia, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, the United Arab Emirates and Venezuela. Since oil revenues are so vital for the economic development of these nations, they aim to bring stability and harmony to the oil market by adjusting their oil output to help ensure a balance between supply and demand. OPEC's eleven Members collectively supply about 40 per cent **of the world's oil output, and** possess more than three-quarters of the world's total proven crude oil reserves. Therefore, people usually connect any oil price change with the OPEC and there has been considerable curiosity and concern about its behavior and role in the international oilmarket.The principal aim of the OPEC is the coordination and unification of the petroleum policies of member countries and determination of the best meansfor safeguarding their interests, individually and collectively; ways and means of ensuring the stabilization of prices in international oil markets with a view to eliminating harmful and unnecessary fluctuations; secure a steady income to the producing countries; an efficient, economic and regular supply of petroleum to consuming nations, and a fair return on their capital to those investing in the petroleum industry.

1.2 Oil Prices- Demand and Supply

Even the crude oil prices like the prices of other commodities swing due to the excess and deficiency of it in the market. Basically the crude oil prices are determined by the demand and supply of it and also due to the regulation of three major international petroleum exchanges, namely, New York Mercantile Exchange (NYMEX), the International Petroleum exchange in

London and the Singapore International Petroleum Exchange.

Some evidences can be seen regarding the impact of supply demand various events on oil prices and therefore their impact on exchange rate of the country. It is depicted from the below given graph that since 1869, US crude oil prices adjusted for inflation averaged $23.67 per barrel in 2010 dollars compared to $24.58 for world oil prices.

In December 2007 and July 2008, the price of crude oil reached $100 (bbl) and $140 (bbl) respectively. The origin of the increase in the price of crude oil again can be linked to both demand- and Supply-side explanatory factors, although the former effects far outweigh the latter. The high demand for oil from East Asia, especially China, and to a lesser extent India, largely explained the upsurge in the price of this essential commodity. In addition to the above strong demand-driven factors, there were also supply-side determinants to the high increase in the price of crude oil. These relate to the upheavals in oil-producing countries as well as refineries capacity constraints, which have created additional pressures in the oil market.

1.3 Foreign Exchange against dollar

Since Brettonwood Conference, dollar has been the standard currency for transactions. The appreciation and depreciation of dollar affects the prices of the commodities and therein oil prices.

Impact of the dollar exchange rate on oil demand and a supply and subsequently prices of it:

Every currency which is used and is linked in the business of oil export and import gets affected by the dollar effective exchange rate which in turn affects the demand and supply leaving an impact over oil prices.

Oil prices changes also entail demand-side effects on consumption and investment. Consumption is affected indirectly through its positive relation with disposable income. The magnitude of this effect is in turn stronger the more the shock is perceived to be long-lasting. Moreover, oil prices have an adverse impact on investment by increasing firms' costs. It is worth noting that, in addition to the previously discussed impacts of oil prices on supply and demand, oil price changes influence foreign exchange markets and inflation, giving thus rise to indirect effects on real activity. The variability in oil prices is expected to have a large impact on the relative value of the currency. This relationship between the price of oil and the exchange rate has been established by the Literature for oil-producing countries but not for Oil-importing countries.

The effect of exchange rate fluctuations on real activity has been subject to an extensive debate. On the demand side, there has been a common belief that devaluation or depreciation could boost domestic production through stimulating the net export component. Additional channels on the demand side could also be responsive to fluctuations in the exchange rate. Alexander (1952) illustrates the possibility that devaluation could lower the consumption component of aggregate demand. The inflationary effect of currency devaluation redistributes income from workers to producers. Since workers are said to have a high marginal propensity to consume compared to producers, total consumption declines as a result of currency depreciation.

Channels of interaction between the exchange rate and the macro economy are made more complicated by developments on the supply side of the economy. Since currency depreciation raises the cost of imported inputs, it contributes to an increase in the production cost and thus curtails the aggregate supply. If the reduction in aggregate supply more than offsets the increase in aggregate demand, depreciation will result in a decrease in domestic production. In this case, devaluation or depreciation is said to be contractionary. Otherwise, it could be expansionary.

1.4 FOREX Market

Global market in convertible currencies is traded and their conversion rates are determined. It is the world's largest financial market in which every day, on average some one and one-half trillion dollar worth of currencies are bought and sold. Out of this only about 15 percent is traded for goods or services, the balance 85 percent is traded by the individual and institutional speculators.

Below graph shows the consumption of four countries - China, India, Turkey, and USA - and the world total consumption. China, India and Turkey are emerging economies, but United States of America is the most developed country in the world. As it can be seen from Table 1, USA has the biggest share of the total oil consumption in the world. In 2007, USA consumed the 23.9 % of the total oil. The total share of the world oil consumption for China, India and Turkey in 2007 is only 13.4%.

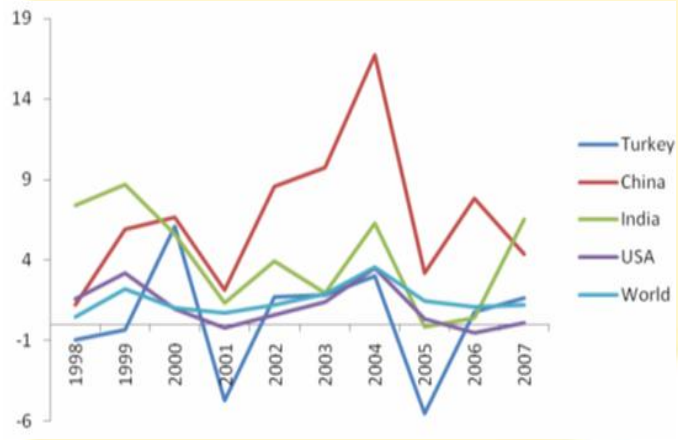
(China consumed 9.3%, India consumed 3.3%, and Turkey consumed 0.8%).

Oil consumption for Turkey, China, India, USA and World

Dates	Turkey	China	India	U.S.A	World
1997	646	4179	1828	18621	73598
1998	640	4228	1963	18917	73939
1999	638	4477	2134	19519	75573
2000	677	4772	2254	19701	76340
2001	645	4872	2284	19649	76904
2002	656	5289	2374	19761	77829
2003	668	5803	2420	20033	79296
2004	688	6772	2573	20731	82111
2005	650	6984	2569	20802	83317
2006	655	7530	2580	20687	84230
2007	666	7855	2748	20698	85220

Source: BP Statistical Review of World Energy - June 2008

As it can be seen from Figure 1, the oil consumption of Turkey and other emerging countries were not steady ever the last decade. During the financial crises (2001) and the year 2005 the oil consumption decreased sharply in Turkey. The oil consumption in India increased approximately 8.7%according 1998 and 6.5% according to 2006. The overall increase in the oil consumption of was higher than the increase of other countries. Especially between 2000 and 2006 the amount of increase in oil consumption was more than other countries. For example, the change in oil consumption in China was approximately 16.68% in 2004. Although the oil consumption of emerging countries has been unstable over years consumption of USA and total world has been stable.



2. REVIEW OF LITERATURE

There is unanimous work on the relationships between the oil prices changes and share prices and further exchange rates along with many other macro economic variables. (Ghalayini, 2011). Also the study of Blanchard et al (2007) proved through hypothesis in his that inflation and economic activity is affected by oil prices increase. It is seen share prices and U.S dollar exchange rates are often referred to as factors of daily changes in crude oil prices. (Faff et al, 1997). Also, Malik (2007) examined the impact of rising oil prices along with the changing macro conditions on output using the IS, monetary policy and augmented Phillips curve for Pakistan. He found that oil prices and output were strongly related, and to a great extent this relationship was non-linear, that is, after a certain level it became negative. In addition to this they found, lower debt-GDP ratio, lower deficit spending, lower real effective exchange rate, and the existence of foreign exchange reserves and capital investment would cause output to rise. Usually it is said that stock returns also present the inclusion of fluctuating oil prices like the work of Basher, Sadorsky (2006) who studied the impact of oil price changes on a large set of emerging stock market returns by using an international multi-factor model that allows for both unconditional and conditional risk factors to investigate the relationship between oil price risk and emerging stock market returns. They found strong evidence that oil price risk impacts stock price returns in emerging markets. Results for other risk factors like market risk, total risk, skewness, and kurtosis were also presented. Also, in general it is said that there is positive relationship correlation between crude oil prices and negative correlation between crude oil prices and exchange rates i.e. higher share prices or weaker dollar lead to higher crude oil prices, as can be illustrated in the study of Jacobson et al (2003) who postulated that oil prices affect the stock returns and those can be less predicted on the basis of oil prices changes. The results of various studies show that there is relationship among crude oil prices, share prices and exchange rates over time more than expected. In the same light Coudert et al (2008) found that causality runs from oil prices to exchange rates and also found that to net foreign asset position helds this relationship. Similarly, Mohammad (2007) explored the oil price – exchange rate nexus for Nigeria during the period 2007-2010 using daily data and found that that a rise in oil prices lead to a depreciation of the Nigerian Naira vis-à-vis the US dollar using the generalized autoregressive conditional heteroscedasticity (GARCH) and exponential GARCH (EGARCH) models. Also the study of Razgallah et al (2009) postulate the same who examined and found that the role of oil prices in portfolio preferences was not exogenous to exchange rate determination, but rather endogenous. Additionally, Tseng (2010) who used the two-step regression approach to show that exchange rates could affect the crude oil price disturbance, and found significant two-way causal relationship between such dynamics and the exchange rate. Moreover, the study of Aliyu (2009) analyzed the impact of oil price shock and real exchange rate volatility on real economic growth in Nigeria on the basis of quarterly data from 1986Q1 to 2007Q4. The results of the same showed that oil price shock and appreciation in the level of exchange rate exert positive impact on real economic growth in Nigeria.

Furthermore the study of Coudert (2008) analyzed the assumption that pegged exchange rates are more prone to risk of overvaluation, because their real exchange rates have a tendency to appreciate by using two databases for de facto classifications by Levy-Yeyati and Sturzenegger (2003) and by Reinhart and Rogoff (2004). They had assessed the currency misalignments by estimating real equilibrium exchange rates taking into account a Balassa effect and the impact of net foreign assets and found that pegged currencies are shown to be more overvalued than floating ones. Some authors gave models explaining the relationship between oil prices and stock returns of the nation as illustrated from the work of Eryigit (2009) extended market model (market return, oil prices (in Turkish Lira), oil price in dollars and exchange rate between dollar and Turkish Lira (TL) and used it to determine the effects of the oil price in dollars changes on market indexes in Istanbul Stock Exchange (ISE) for the period of 2000.01.04 – 2008.01.11 and found that oil price

(USD) changes have a significant positive effect on Wood, Paper &Printing, Insurance and Electricity sub-sector indices.

Besides this, Huang, Stoll et al (1994) specified that the expected quote return was positively related to the deviation between the transaction price and the quote midpoint while the expected transaction return was negatively related to the same variable.

It was found during the review that supply and demand function also affect the oil prices. The work of Ringlund, Rosendahl, Skjerpen (2008) showed a negative and significant price elasticity of supply, by taking the sample of Oil producing countries and non oil producing countries. Apart from this, it was also seen through the study of Brunetti Celso et al (2010) that "fair price" pronouncements have little influence on the market price of crude oil and that they supply little or no new news to oil futures market participants. Further, the bilateral relationship of oil prices was seen with inflation. A paradigm can be seen from the study of Tseng (2011) estimated the short-term and long-term pass-through effects of oil prices on inflation in Taiwan from 1982 M1-2010 M12, employing the CPI index, core index, and various basic sub-indices for evaluation and found results that international oil prices experience a significant and long-term pass-through effect on inflation in Taiwan, though the short-term pass-through effect was not significant using rolling regression and recursive regression analyses.

3. OBJECTIVES OF THE STUDY

- To check whether the data series is stationary.
- To establish bi-variate causality between exchange rate and Oil price fluctuations of OPEC nations.
- To open a new vistas for further research.

4. RESEARCH METHODOLOGY

4.1 About the Study

The study was empirical and causal in nature as it has emphasized analyzing the relationship between fluctuations of oil prices and foreign exchange market with respect to OPEC nations. The population of the study was OPEC nations' foreign exchange rates and Oil Prices from New York Mercantile Exchange (NYMEX), Singapore Oil Prices exchange for crude oil prices and the sample for the study was twelve nations of OPEC nations with NYMEX as oil price exchange. The time frame for the study was taken to be seventeen years varying from January 1997 to January 2012. Individual OPEC nation exchange rate was the sample element. Purposive sampling technique was used. The study was based on secondary data, which was collected from the various secondary sources such as websites of financial data, World Bank website and journals. The data was analyzed by using Augmented Dickey fuller Unit root test and subsequently bilateral causality relationships were checked by using No Granger Causality test (Toda & Yamamoto, 1995).

4.2 Data Analysis

The study has been done in a very narrow prospective by taking relationship between the foreign exchange rates and oil prices, which could have elaborated by studying the other factors which affect changes in both. Also, the study was conducted by taking a regional block likewise other regional blocks could also have been taken. Another time period could have extended. Thus it is suggested to take large sample size so that more appropriate and accurate results can be obtained. Further research can be conducted on all sectors of India. The time frame can be extended to more than 8 years. The time period study can be extended conducted so that it can be possible to analyze facts. deeply. Study is also useful for students who have an interest in the particular field or doing research on any related topic.

5. RESULTS

The present study used time series analysis in 12 OPEC nations namely Algeria, Angola, Equadorian, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, UAE, and Venezuela to determine the bilateral causality between the variables oil prices from New York Merchantile Exchange and foreign exchange rates of the nations to dollar.

5.1 Unit root Test

To examine dynamic relationship between Oil prices and Exchange rates of OPEC nations, four types of unit root tests were employed in their log-levels and log-differenced forms between Oil prices and Exchange rates of OPEC nations. They were ADF test with and without intercept till the data become stationary. The standard test for unit root non stationary is ADF (1979) test. The ADF test is based on following regression:

$$\Delta X_t = \theta + (\rho - 1)X_{t-1} + X_{p_{i-1}}\beta_i \Delta X_{t-i} + u_t \_\_\_\_\_ (A1)$$

The null hypothesis is (ρ−1) = 0, i.e. Xt possesses a unit root. One issue in computing the ADF test is the choice of the maximum lag in the equation (A1). An insufficiently small number of lags will result in a test of incorrect size, but too large choice of lags results in a test of lower power. In the present study AIC value was used to determine the optimum lag length. Its principle says lower the value, better the model. So, the present study included use of VAR model (Vector Autoregression Estimate model) as it is based on the assumption that variables oil prices and exchange rates are not co-integrated. Table 1 shows the results of Unit root test.

Unit Root Test statistics (See Annexure table 1-13)

Exchange Rates of 12 OPEC nations	Samples	Levels	First Difference		d_{max}
			p-value	**Coefficient value**	
Oil prices from NYMEX	1997-2011		0.000	-0.986470	4
Algerian Dinar	1997-2011	0.2960	0.000	-1.124921	4
Angolan Kwanza	1997-2011	0.8265	0.001	-1.003883	4
Equador-USD	1997-2011	0.2810	0.000	-0.895262	4
Iranian Riyal	1997-2011	0.8050	0.00	-1.007683	4
Iraqi Dinar	1997-2011	0.44	0.001	-1.0007322	4
Kuwaiti Dinar	1997-2011	0.2918	0.001	-1.000355	4
Libyan Dinar	1997-2011	0.486	0.001	-1.03567	4
Nigerian Naira	1997-2011	0.622	0.000	-1.809640	4
Qatari Riyal	1997-2011	0.00	0.000	-3.602016	15
Saudi Riyal	1997-2011	0.00	0.000	-2.592461	15
UAE Dirham	1997-2011	0.00	0.000	-2.889534	15
Venezuelan Bolivar	1997-2011	0.922	0.000	-1.008429	4

All the data series were stationery at (I,1) i.e. 1st diff and intercept level. In all the above cases p-value of OPEC nations currencies and oil prices predict that value is significant at 5% level using differencing with intercept model, implying that null hypothesis is rejected in all cases and the data is stationary.

Also predicting the value of ADF test equation the coefficient value is negative in all cases suggesting that the model is fit.

5.2 The Toda and Yamamoto Approach

The approach uses granger causality theorem which includes estimation of VAR models. It shows that if a pair of I(1) series are cointegrated there must be a unidirectional causality in either way. Further if the sries are not I (1) or are integrated of different orders, no test for a long run relationship is usually carried out (Toda, 1995). The following equation explains the Granger Causality in the present study:

Where, d is the maximal order of integration order of the variables in the system, h and k are the optimal lag length of Yt and Xt, and are error terms that are assumed to be white noise with zero mean, constant variance and no autocorrelation. Indeed, all one needs to do is to determine the maximal order of integration d, which we expect to occur in the model and construct a VAR in their levels with a total of (k + d) lags. (Toda, 1995)

The present study assumes the null hypothesis to be that oil prices do not granger cause exchange rates (OPEC nations) and vice-versa, which is further represented (Toda, 1995) as:

$$Y_t = \alpha + \sum_{i-1}^{h+d} \beta_i Y_{t-i} + \sum_{i-1}^{k+d} \gamma_j X_{t-j} + U_{yt}$$

$$X_t = \alpha + \sum_{i-1}^{h+d} \theta_i X_{t-i} + \sum_{i-1}^{k+d} \delta_j Y_{t-j} + U_{xt}$$

$$H_0: \sum_{j=1}^{k} \gamma_j = 0 \quad X_t \; does \; not \; cause \; y_t$$

$$H_1: \sum_{j=1}^{k} \gamma_j \neq 0 \quad X_t \; \; cause \; y_t$$

Table 2 shows the results of Toda and Yamamoto Non Granger Causality Tests in the context of oil prices and exchange rates of different OPEC nations. All the results were analysed on the basis of 5% significant level. In most of the nations it was seen that we cannot reject the null hypothesis stating that neither oil prices nor exchange rates cause each other in any of the cases respectively. Exceptionally in case of Angola it was observed that null hypothesis can be rejected meaning that oil prices fluctuations were cause to exchange rates fluctuations and vice versa. Additionally in some cases like those of Saudi Arabia, UAE and Venezuela, one-way causal relationship was observed.

Table 2 Toda and Yomamoto Non-Causality Tests

Hypothesis	Lags	Probability	Null Hypothesis Accepted/Rejected
OILPRICES does not Granger Cause ALGERIA forex	4	0.93986	Not rejected
ALGERIA forex does not Granger Cause OILPRICES		0.69669	Not rejected
ANGOLA forex does not Granger Cause OILPRICES	4	0.04056	Rejected
OILPRICES does not Granger Cause ANGOLA forex		0.03491	Rejected
OILPRICES does not Granger Cause EQUADORIAN forex	4	0.99583	Not rejected
EQUADORIAN forex does not Granger Cause OILPRICES		0.74074	Not rejected
OILPRICES does not Granger Cause IRANIAN forex	4	0.95969	Not rejected
IRANIAN forex does not Granger Cause OILPRICES		0.15602	Not rejected
OILPRICES does not Granger Cause IRAQI forex	4	0.64447	Not rejected
IRAQI forex does not Granger Cause OILPRICES		0.92576	Not rejected
OILPRICES does not Granger Cause KUWAITI forex	4	0.98625	Not rejected
KUWAITI forex does not Granger Cause OILPRICES		0.77660	Not rejected
OILPRICES does not Granger Cause LIBYAN forex	4	0.93660	Not rejected
LIBYAN forex does not Granger Cause OILPRICES		0.18140	Not rejected
OILPRICES does not Granger Cause NIGERIAN	4	0.71591	Not rejected
NIGERIAN does not Granger Cause OILPRICES		0.18397	Not rejected
OILPRICES does not Granger Cause QUATARI forex	4	0.23822	Not rejected
QUATARI forex does not Granger Cause OILPRICES		0.65906	Not rejected
OILPRICES does not Granger Cause SAUDI forex	15	0.00772	Rejected
SAUDI forex does not Granger Cause OILPRICES		2.8E-05	Not rejected
OILPRICES does not Granger Cause ARAB forex	15	0.00066	Rejected
ARAB forex does not Granger Cause OILPRICES		0.99999	Not rejected
OILPRICES does not Granger Cause VEN forex	15	0.52643	Not Rejected
VEN forex does not Granger Cause OILPRICES		0.00623	Rejected

6. CONCLUSION & SUGGESTIONS

This study is indented to be a useful contribution to the academicians, researchers and students in their studies to understand the long run relationship between exchange rates and oil prices. Reference of the study can also be helpful for the academicians for their research. It is also intended to be useful contribution for further research because it provides a link between theory and practice. The study is useful in opening new vistas for the further research. With the help of the present study a model can be developed explain the determinants which would help the think tanks.

The study has been done in a very narrow prospective by taking relationship between the foreign exchange rates and oil prices, which could have elaborated by studying the other factors which affect changes in both. Also, the study was conducted by taking a regional block likewise other regional blocks could also have been taken. Another time period could have extended. Thus it is suggested to take

large sample size so that more appropriate and accurate results can be obtained. Further research can be conducted on all sectors of India. The time frame can be extended to more than 8 years. The time period study can be extended conducted so that it can be possible to analyze facts deeply. Study is also useful for students who have an interest in the particular field or doing research on any related topic.

Acknowledgements

It would be incomplete if the special references are not mentioned for the work done. Below is the list of all.

REFERENCES

[1] Aliyu, Shehu Usman Rano., 2009, Impact of Oil Price Shock and Exchange Rate Volatility on Economic Growth in Nigeria: An Empirical Investigation, *Research Journal of International Studies*, Vol. Issue 11, No. Issue 11 (2009): pp. 4-15.

[2] Amano, R. and van Norden, S. (1993), Oil prices and the rise and fall of the U.S. real exchange rate, Bank of Canada, Working Paper.

[3] Amano, R. and van Norden, S. (1995), Exchange rates and oil prices, Bank of Canada, Working Paper

[4] Bénassy-Quéré, A., Mignon, V. and Penot, A. (2007), China and the relationship between the oil price and the dollar, *Energy Policy*, 35, 5795-5805.

[5] Brunetti Celso., Bahattin Buyuksahin, , Michel A. Robe, Kirsten R. Soneson, 2010, Do OPEC Members Know Something the Market Doesn't? 'Fair Price' Pronouncements and the Market Price of Crude Oil, SSRN working papers series.

[6] Blanchard, Olivier, and Jordi Galí, 2007, "Real Wage Rigidities and the New Keynesian Model," *Journal of Money, Credit, and Banking*, 39(1), 36–65.

[7] Basher Syed A., Sadorsk Perry., 2006, Oil price risk and emerging stock markets, *Global Finance Journal*, 17, 224–251. http://www.syedbasher.org/published/2006_GFJ.pdf retrieved on June 7, 2012.

[8] Chou Kuo-Wei, Tseng Yi-Heng, 2011, Pass-Through of Oil Prices to CPI Inflation in Taiwan, International *Research Journal of Finance and Economics*, ISSN 1450-2887, Issue 69, Euro Journals Publishing, Inc. 2011, http://www.eurojournals.com/finance.htm retrieved on June 6, 2012.

[9] Coudert Virginie, Mihnon Valérie, Penot Alexis, *Energy Studies Review*, 15(2), 2008

[10] Coudert Virginie, Couharde Cécile., 2008, Currency Misalignments and Exchange Rate Regimes in Emerging and Developing Countries, *CEPII*, Working Paper No 2008-07.

[11] Eryiğit Mehmet., 2009, Effects of Oil Price Changes on the Sector Indices of Istanbul Stock Exchange, International Research Journal of Finance and Economics, ISSN 1450-2887, Issue 25, Euro Journals Publishing, Inc. 2009, http://www.eurojournals.com/finance.htm retrieved on June 7, 2012

[12] Faff, R, Brooks, R., and. 1997. Financial deregulation and relative risk of Australian industry, Australian Economic Papers 36:308–320

[13] Ghalayini Latife., 2011, The Interaction between Oil Price and Economic Growth, *Middle Eastern Finance and Economics*, ISSN: 1450-2889, Issue 13, Euro Journals Publishing, Inc. 2011, http://www.eurojournals.com/MEFE.htm retrieved on June 6, 2012.

[14] Huang, R. D., Masulis, R. W. and Stoll, H. R. (1996). Energy Shocks and Financial Markets. *Journal of Futures Markets*, 16(1), 1-27.

[15] Jacobsen B., Gerben Driesprong, Benjamin Maat, 2003, Striking Oil prices: Another Puzzle, *Journal of Financial Economics*, 89, 307-327.

[16] Levy-Yeyati, Eduardo, and Federico Sturzenegger, 2002, Classifying Exchange Rate Regimes: Deeds versus Words, Universidad Torcuato Di Tella. Available via the Internet at: www.utdt.edu/~fsturzen.

[17] Malik, Afia., 2007, Crude Oil Price, Monetary Policy and Output: Case of Pakistan, *The Pakistan Development Review*, 47(4), 425-436.

[18] Muhammad Zahid, Suleiman Hassan, Kouhy Reza, 2011, Exploring oil price – exchange rate nexus for Nigeria, *FIW Working Paper series* with number 071.

[19] Razgallah Brahim. , Kamal Smimou, 2009, Oil prices and the greenback: it takes two to tango, *Applied Financial Economics*, 21(8).

[20] Reinhart Carmen M. & Rogoff Kenneth S., 2004, The Modern History of Exchange Rate Arrangements: A Reinterpretation, The Quarterly Journal of Economics, 119(1), 1-48.

[21] Ringlund Guro Børnes., Knut Einar Rosendahl, Terje Skjerpen, 2008, Does oilrig activity react to oil price changes? An empirical investigation Original Research Article, *Energy Economics*, 30(2), 371-396.

[22] Toda, H.Y. and Yamamoto (1995) Statistical inference in Vector Autoregressions with possibly integrated processes. Journal of Econometrics, 66, 225-250.

[23] Tseng Yi-Heng ., Huang Alex Yi Hou, 2010, Is Crude Oil Price Affected by the US Dollar Exchange Rate?, *International Research Journal of Finance and Economics*, ISSN 1450-2887

Issue 58 , Euro Journals Publishing, http://www.eurojournals.com/finance.htm retrieved on June 6, 2012.

Webology

[1] http://www.eurojournals.com/mefe_3_08.pdf retrieved on June 1, 2012
[2] www.southwesternfinance.org retrieved on June 1, 2012
[3] www.ecu.edu retrieved on June 1, 2012
[4] www.Syedbasher.org retrieved on June 1, 2012
[5] www.sciencedirect.com retrieved on June 1, 2012
[6] www.Syedbasher.org retrieved on June 1, 2012
[7] www.sciencedirect.com retrieved on June 2, 2012
[8] www.cbo.govt retrieved on June 2, 2012
[9] www.scribd.com retrieved on June 3, 2012
[10] www.imf.org retrieved on June 3, 2012
[11] http://www.ipedr.com/vol3/56-M10032.pdf retrieved on June 3, 2012
[12] http://econpapers.repec.org/paper/mcdmcddps/2010_5f01.htm retrieved on June 4, 2012
[13] http://papers.ssrn.com/sol3/papers.cfm?abstract_id=251296 retrieved on June 4, 2012
[14] http://papers.ssrn.com/sol3/papers.cfm?abstract_id=251296 retrieved on June 4, 2012
[15] http://www.bcb.gov.br/pec/wps/ingl/wps124.pdf retrieved on June 5, 2012
[16] http://www.forexpros.com/commodities/crude-oil-historical-data retrieved on June 5, 2012

Author's Biography

Jaspreet Kaur joined the Prestige Institute of management, Gwalior in April 2011 as Asst. Professor with her area of interest in Finance. Before that she served in HDFC Life as Sales Development Manager where she took promotion to Business Development Manager within 9 months of service. There she served for 1.5 years, during the completion of her post graduate degree in Master in Business Administration (Finance) as she got placed in between of it. In her academics she has also cleared UGC NET JRF, 2012 and is presently a research associate with Jiwaji University, Gwalior. She has co-coordinated various programs at Entrepreneurial Development Cell in Prestige, Gwalior like Business Plan competitions, FDPs etc. She has nine national and four international publications in European Case Clearing House in her credit. Along with this she has served in many administrative positions.

Dr. Navita Nathani has been associated with Prestige Institute of Management, Gwalior for last seven years, with primary teaching in the field of Finance; her research interests are in the area of Stock Market and Project Management. She has experience of twelve years in the academic and research field. She has earned her doctoral degree in Project Management from Jiwaji University. She has more than fifty publications as research papers & case studies in International and National Journals to her credit. She has coauthored two edited books. She is corporate trainer and has provided training modules in prominent Institutions and corporations like ICAI, ICICI Prudential and HDFC. She has attended more than thirty conferences, workshops and conducted same at national and international level. She is faculty in-charge of Entrepreneurial Development Cell of PIMG. She is an approved guide of Jiwaji University and Banasthali Vidyapith, Jaipur. Nine students are pursuing PhD under her guidance. The world finance conference which is to be held in Rio Jnario Brazil has conscripted her as reviewer. In addition to this currently she has been working on two projects sponsored by AICTE, Delhi and DST. She is a member, Faculty of Management, Jiwaji University, Gwalior. She is professionally associated with Indian Accounting Association, Gwalior Management Association and Junior Chamber of India.

Manpreet Kaur is Assistant Professor in Finance Department of Maharishi College, Bhopal. She is pursuing her doctoral in Working Capital Management from Jiwaji University, Gwalior. She has two publications to her credit. Her aim is to serve the society by educating young blood and researching the problems to find the solutions.

ANNEXURE

Table 1 of unit root test (Algerian Dinar)

Null Hypothesis: D(ALGERIA) has a unit root
Exogenous: Constant
Lag Length: 4 (Automatic based on AIC, MAXLAG=4)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-28.16747	0.0000
Test critical values:	1% level	-3.431848	
	5% level	-2.862087	
	10% level	-2.567105	

*MacKinnon (1996) one-sided p-values.
Augmented Dickey-Fuller Test Equation
Dependent Variable: D(ALGERIA,2)
Method: Least Squares
Date: 07/20/12 Time: 18:55
Sample (adjusted): 1/10/1997 11/30/2011
Included observations: 3884 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(ALGERIA(-1))	-1.124921	0.039937	-28.16747	0.0000
D(ALGERIA(-1),2)	0.021591	0.035340	0.610949	0.5413
D(ALGERIA(-2),2)	-0.016130	0.030114	-0.535619	0.5923
D(ALGERIA(-3),2)	-0.027080	0.023899	-1.133102	0.2572
D(ALGERIA(-4),2)	-0.040168	0.016045	-2.503442	0.0123
C	0.021459	0.020748	1.034278	0.3011

R-squared	0.551413	Mean dependent var	2.31E-05
Adjusted R-squared	0.550835	S.D. dependent var	1.928071
S.E. of regression	1.292189	Akaike info criterion	3.352096
Sum squared resid	6475.300	Schwarz criterion	3.361774
Log likelihood	-6503.771	F-statistic	953.3863
Durbin-Watson stat	1.995751	Prob(F-statistic)	0.000000

Table 2 of unit root test (Angolan Kwanza)

Null Hypothesis: D(ANGOLA) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on AIC, MAXLAG=4)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-62.57993	0.0001

Test critical values:	1% level	-3.431847
	5% level	-2.862086
	10% level	-2.567104

*MacKinnon (1996) one-sided p-values.
Augmented Dickey-Fuller Test Equation
Dependent Variable: D(ANGOLA,2)
Method: Least Squares
Date: 07/20/12 Time: 19:07
Sample (adjusted): 1/06/1997 11/30/2011
Included observations: 3888 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(ANGOLA(-1))	-1.003877	0.016042	-62.57993	0.0000
C	0.024546	0.012051	2.036957	0.0417

R-squared	0.501938	Mean dependent var	-5.14E-08
Adjusted R-squared	0.501810	S.D. dependent var	1.063999
S.E. of regression	0.750998	Akaike info criterion	2.265687
Sum squared resid	2191.696	Schwarz criterion	2.268910
Log likelihood	-4402.495	F-statistic	3916.248
Durbin-Watson stat	2.000000	Prob(F-statistic)	0.000000

Table 3 of unit root test (Equador-USD)

Null Hypothesis: D(EQUA) has a unit root
Exogenous: Constant
Lag Length: 4 (Automatic based on AIC, MAXLAG=4)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-26.14128	0.0000
Test critical values:	1% level	-3.431848	
	5% level	-2.862087	
	10% level	-2.567105	

*MacKinnon (1996) one-sided p-values.
Augmented Dickey-Fuller Test Equation
Dependent Variable: D(EQUA,2)
Method: Least Squares
Date: 07/20/12 Time: 19:13
Sample (adjusted): 1/10/1997 11/30/2011
Included observations: 3884 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(EQUA(-1))	-0.893845	0.034193	-26.14128	0.0000
D(EQUA(-1),2)	-0.069605	0.030720	-2.265751	0.0235

D(EQUA(-2),2)	-0.094646	0.027317	-3.464661	0.0005
D(EQUA(-3),2)	0.015903	0.022284	0.713631	0.4755
D(EQUA(-4),2)	-0.047101	0.016040	-2.936390	0.0033
C	5.544875	5.741358	0.965778	0.3342

R-squared	0.496680	Mean dependent var	1.35E-15
Adjusted R-squared	0.496031	S.D. dependent var	503.6810
S.E. of regression	357.5672	Akaike info criterion	14.59807
Sum squared resid	4.96E+08	Schwarz criterion	14.60774
Log likelihood	-28343.45	F-statistic	765.3669
Durbin-Watson stat	1.998304	Prob(F-statistic)	0.000000

Table 4 of unit root test (Iranian Riyal)

Null Hypothesis: D(IRAN) has a unit root
Exogenous: Constant
Lag Length: 4 (Automatic based on AIC, MAXLAG=4)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-27.39179	0.0000
Test critical values:	1% level	-3.431848	
	5% level	-2.862087	
	10% level	-2.567105	

*MacKinnon (1996) one-sided p-values.
Augmented Dickey-Fuller Test Equation
Dependent Variable: D(IRAN,2)
Method: Least Squares
Date: 07/20/12 Time: 19:28
Sample (adjusted): 1/10/1997 11/30/2011
Included observations: 3884 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(IRAN(-1))	-1.053720	0.038468	-27.39179	0.0000
D(IRAN(-1),2)	0.012833	0.034043	0.376972	0.7062
D(IRAN(-2),2)	-0.027666	0.028927	-0.956409	0.3389
D(IRAN(-3),2)	-0.064192	0.023138	-2.774292	0.0056
D(IRAN(-4),2)	-0.063259	0.016031	-3.946178	0.0001
C	3.293525	1.865784	1.765223	0.0776

R-squared	0.522311	Mean dependent var	-0.023120
Adjusted R-squared	0.521695	S.D. dependent var	167.7813
S.E. of regression	116.0369	Akaike info criterion	12.34724
Sum squared resid	52215598	Schwarz criterion	12.35692
Log likelihood	-23972.34	F-statistic	848.0491
Durbin-Watson stat	1.999670	Prob(F-statistic)	0.000000

Table 5 of unit root test (Iraqi Dinar)

Null Hypothesis: D(IRAQ) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on AIC, MAXLAG=4)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-62.79472	0.0001
Test critical values:	1% level	-3.431847	
	5% level	-2.862086	
	10% level	-2.567104	

*MacKinnon (1996) one-sided p-values.
Augmented Dickey-Fuller Test Equation
Dependent Variable: D(IRAQ,2)
Method: Least Squares
Date: 07/20/12 Time: 19:33
Sample (adjusted): 1/06/1997 11/30/2011
Included observations: 3888 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(IRAQ(-1))	-1.007322	0.016042	-62.79472	0.0000
C	0.296611	0.636196	0.466225	0.6411

R-squared	0.503652	Mean dependent var	-0.003834
Adjusted R-squared	0.503524	S.D. dependent var	56.29794
S.E. of regression	39.66812	Akaike info criterion	10.19949
Sum squared resid	6114855.	Schwarz criterion	10.20271
Log likelihood	-19825.80	F-statistic	3943.177
Durbin-Watson stat	2.000110	Prob(F-statistic)	0.000000

Table 6 of unit root test (Kuwati Dinar)

Null Hypothesis: D(KUWAIT) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on AIC, MAXLAG=4)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-62.38704	0.0001
Test critical values:	1% level	-3.431847	
	5% level	-2.862086	
	10% level	-2.567104	

*MacKinnon (1996) one-sided p-values.
Augmented Dickey-Fuller Test Equation
Dependent Variable: D(KUWAIT,2)
Method: Least Squares
Date: 07/20/12 Time: 19:38

Sample (adjusted): 1/06/1997 11/30/2011
Included observations: 3888 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(KUWAIT(-1))	-1.000355	0.016035	-62.38704	0.0000
C	-0.000787	0.000768	-1.024974	0.3054

R-squared	0.500395	Mean dependent var	-2.22E-05
Adjusted R-squared	0.500266	S.D. dependent var	0.067717
S.E. of regression	0.047871	Akaike info criterion	-3.240114
Sum squared resid	8.905151	Schwarz criterion	-3.236891
Log likelihood	6300.783	F-statistic	3892.143
Durbin-Watson stat	1.999938	Prob(F-statistic)	0.000000

Table 7 of unit root test (Libyan Dinar)

Null Hypothesis: D(LIB) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on AIC, MAXLAG=4)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-64.59087	0.0001
Test critical values:	1% level	-3.431847	
	5% level	-2.862086	
	10% level	-2.567104	

*MacKinnon (1996) one-sided p-values.
Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LIB,2)
Method: Least Squares
Date: 07/20/12 Time: 19:43
Sample (adjusted): 1/06/1997 11/30/2011
Included observations: 3888 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LIB(-1))	-1.035676	0.016034	-64.59087	0.0000
C	0.000233	0.000212	1.101385	0.2708

R-squared	0.517745	Mean dependent var	4.14E-06
Adjusted R-squared	0.517621	S.D. dependent var	0.019015
S.E. of regression	0.013207	Akaike info criterion	-5.815699
Sum squared resid	0.677765	Schwarz criterion	-5.812476
Log likelihood	11307.72	F-statistic	4171.980
Durbin-Watson stat	2.000996	Prob(F-statistic)	0.000000

Table 8 of unit root test (Nigerian Naira)

Null Hypothesis: D(NIG) has a unit root
Exogenous: Constant
Lag Length: 4 (Automatic based on AIC, MAXLAG=4)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-33.96710	0.0000
Test critical values:	1% level	-3.431848	
	5% level	-2.862087	
	10% level	-2.567105	

*MacKinnon (1996) one-sided p-values.
Augmented Dickey-Fuller Test Equation
Dependent Variable: D(NIG,2)
Method: Least Squares
Date: 07/20/12 Time: 21:03
Sample (adjusted): 1/10/1997 11/30/2011
Included observations: 3884 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(NIG(-1))	-1.809640	0.053276	-33.96710	0.0000
D(NIG(-1),2)	0.478521	0.045564	10.50209	0.0000
D(NIG(-2),2)	0.235599	0.036557	6.444621	0.0000
D(NIG(-3),2)	0.049499	0.026686	1.854874	0.0637
D(NIG(-4),2)	-0.091322	0.015978	-5.715398	0.0000
C	0.036943	0.020807	1.775485	0.0759

R-squared	0.658247	Mean dependent var	-0.000484
Adjusted R-squared	0.657806	S.D. dependent var	2.213696
S.E. of regression	1.294953	Akaike info criterion	3.356369
Sum squared resid	6503.027	Schwarz criterion	3.366046
Log likelihood	-6512.068	F-statistic	1493.876
Durbin-Watson stat	1.994166	Prob(F-statistic)	0.000000

Table 9 of unit root test (Qatari Riyal)

Null Hypothesis: D(QUATAR) has a unit root
Exogenous: Constant
Lag Length: 15 (Automatic based on AIC, MAXLAG=15)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-20.86078	0.0000
Test critical values:	1% level	-3.431853	
	5% level	-2.862089	
	10% level	-2.567106	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(QUATAR,2)
Method: Least Squares
Date: 07/20/12 Time: 21:44
Sample (adjusted): 1/27/1997 11/30/2011
Included observations: 3873 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(QUATAR(-1))	-3.602016	0.172669	-20.86078	0.0000
D(QUATAR(-1),2)	2.053426	0.168291	12.20165	0.0000
D(QUATAR(-2),2)	1.578255	0.161893	9.748734	0.0000
D(QUATAR(-3),2)	1.205368	0.154346	7.809505	0.0000
D(QUATAR(-4),2)	0.876615	0.146300	5.991890	0.0000
D(QUATAR(-5),2)	0.792623	0.137762	5.753560	0.0000
D(QUATAR(-6),2)	0.726765	0.128616	5.650677	0.0000
D(QUATAR(-7),2)	0.628147	0.118484	5.301526	0.0000
D(QUATAR(-8),2)	0.499890	0.107875	4.633988	0.0000
D(QUATAR(-9),2)	0.416352	0.096956	4.294231	0.0000
D(QUATAR(-10),2)	0.441189	0.085406	5.165768	0.0000
D(QUATAR(-11),2)	0.425815	0.072739	5.854042	0.0000
D(QUATAR(-12),2)	0.323547	0.058353	5.544629	0.0000
D(QUATAR(-13),2)	0.187005	0.044018	4.248343	0.0000
D(QUATAR(-14),2)	0.090027	0.029681	3.033141	0.0024
D(QUATAR(-15),2)	0.065406	0.016096	4.063453	0.0000
C	-1.79E-05	0.000284	-0.063041	0.9497

R-squared	0.737174	Mean dependent var	-1.63E-05
Adjusted R-squared	0.736083	S.D. dependent var	0.034449
S.E. of regression	0.017697	Akaike info criterion	-5.226419
Sum squared resid	1.207690	Schwarz criterion	-5.198934
Log likelihood	10137.96	F-statistic	675.9560
Durbin-Watson stat	2.004671	Prob(F-statistic)	0.000000

Table 10 of unit root test (Saudi Riyal)

Null Hypothesis: D(SAUDI) has a unit root
Exogenous: Constant
Lag Length: 13 (Automatic based on AIC, MAXLAG=15)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-20.42526	0.0000
Test critical values:	1% level	-3.431852	
	5% level	-2.862089	
	10% level	-2.567106	

*MacKinnon (1996) one-sided p-values.
Augmented Dickey-Fuller Test Equation

Dependent Variable: D(SAUDI,2)
Method: Least Squares
Date: 07/20/12 Time: 21:41
Sample (adjusted): 1/23/1997 11/30/2011
Included observations: 3875 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(SAUDI(-1))	-2.592461	0.126924	-20.42526	0.0000
D(SAUDI(-1),2)	1.109679	0.122437	9.063279	0.0000
D(SAUDI(-2),2)	0.721651	0.116952	6.170505	0.0000
D(SAUDI(-3),2)	0.478781	0.110906	4.316998	0.0000
D(SAUDI(-4),2)	0.213698	0.104530	2.044363	0.0410
D(SAUDI(-5),2)	0.402472	0.097112	4.144416	0.0000
D(SAUDI(-6),2)	0.385205	0.089603	4.299042	0.0000
D(SAUDI(-7),2)	0.364180	0.082345	4.422617	0.0000
D(SAUDI(-8),2)	0.231374	0.074518	3.104928	0.0019
D(SAUDI(-9),2)	0.180029	0.065758	2.737740	0.0062
D(SAUDI(-10),2)	0.240733	0.053543	4.496046	0.0000
D(SAUDI(-11),2)	0.176334	0.041528	4.246125	0.0000
D(SAUDI(-12),2)	0.082200	0.028743	2.859834	0.0043
D(SAUDI(-13),2)	-0.025948	0.016082	-1.613476	0.1067
C	-3.81E-07	2.75E-05	-0.013854	0.9889

R-squared	0.789612	Mean dependent var	-2.06E-07
Adjusted R-squared	0.788849	S.D. dependent var	0.003721
S.E. of regression	0.001710	Akaike info criterion	-9.901028
Sum squared resid	0.011284	Schwarz criterion	-9.876787
Log likelihood	19198.24	F-statistic	1034.791
Durbin-Watson stat	2.001036	Prob(F-statistic)	0.000000

Table 11 of unit root test (United Arab Emirates dirham)

Null Hypothesis: D(ARAB) has a unit root
Exogenous: Constant
Lag Length: 15 (Automatic based on AIC, MAXLAG=15)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-26.15393	0.0000
Test critical values:	1% level	-3.431853	
	5% level	-2.862089	
	10% level	-2.567106	

*MacKinnon (1996) one-sided p-values.
Augmented Dickey-Fuller Test Equation
Dependent Variable: D(ARAB,2)
Method: Least Squares
Date: 07/20/12 Time: 21:59

Sample (adjusted): 1/27/1997 11/30/2011
Included observations: 3873 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(ARAB(-1))	-2.889534	0.110482	-26.15393	0.0000
D(ARAB(-1),2)	1.721269	0.105518	16.31251	0.0000
D(ARAB(-2),2)	1.744898	0.100897	17.29378	0.0000
D(ARAB(-3),2)	1.653941	0.096557	17.12912	0.0000
D(ARAB(-4),2)	1.166097	0.091926	12.68520	0.0000
D(ARAB(-5),2)	1.019722	0.086169	11.83401	0.0000
D(ARAB(-6),2)	1.047116	0.080141	13.06595	0.0000
D(ARAB(-7),2)	0.951208	0.072955	13.03830	0.0000
D(ARAB(-8),2)	0.676759	0.065600	10.31648	0.0000
D(ARAB(-9),2)	0.573558	0.058769	9.759517	0.0000
D(ARAB(-10),2)	0.679835	0.051569	13.18301	0.0000
D(ARAB(-11),2)	0.578477	0.043362	13.34049	0.0000
D(ARAB(-12),2)	0.412549	0.034903	11.81993	0.0000
D(ARAB(-13),2)	0.367704	0.029496	12.46644	0.0000
D(ARAB(-14),2)	0.308168	0.023762	12.96869	0.0000
D(ARAB(-15),2)	0.102146	0.015511	6.585440	0.0000
C	3.15E-07	2.86E-05	0.011017	0.9912

R-squared	0.655166	Mean dependent var	-1.29E-07
Adjusted R-squared	0.653735	S.D. dependent var	0.003028
S.E. of regression	0.001782	Akaike info criterion	-9.818185
Sum squared resid	0.012240	Schwarz criterion	-9.790700
Log likelihood	19029.92	F-statistic	457.8862
Durbin-Watson stat	2.008863	Prob(F-statistic)	0.000000

Table 12 of unit root test (Venezuelan bolívar)

Null Hypothesis: D(VEN) has a unit root
Exogenous: Constant
Lag Length: 4 (Automatic based on AIC, MAXLAG=4)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-27.43193	0.0000
Test critical values:	1% level	-3.431848	
	5% level	-2.862087	
	10% level	-2.567105	

*MacKinnon (1996) one-sided p-values.
Augmented Dickey-Fuller Test Equation
Dependent Variable: D(VEN,2)
Method: Least Squares
Date: 07/20/12 Time: 22:02
Sample (adjusted): 1/10/1997 11/30/2011

Included observations: 3884 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(VEN(-1))	-1.008429	0.036761	-27.43193	0.0000
D(VEN(-1),2)	-0.131556	0.033502	-3.926764	0.0001
D(VEN(-2),2)	-0.067831	0.029812	-2.275275	0.0229
D(VEN(-3),2)	0.047539	0.024316	1.955059	0.0506
D(VEN(-4),2)	0.066066	0.016023	4.123173	0.0000
C	0.990219	0.602985	1.642196	0.1006

R-squared	0.578094	Mean dependent var	0.000229
Adjusted R-squared	0.577550	S.D. dependent var	57.71361
S.E. of regression	37.51164	Akaike info criterion	10.08872
Sum squared resid	5456824.	Schwarz criterion	10.09840
Log likelihood	-19586.30	F-statistic	1062.723
Durbin-Watson stat	2.003485	Prob(F-statistic)	0.000000

3.2.1. Algerian Dinar and oil prices

Pairwise Granger Causality Tests
Date: 07/19/12 Time: 22:46
Sample: 2/03/1997 3/05/2012
Lags: 4

Null Hypothesis:	Obs	F-Statistic	Probability
OILPRICES does not Granger Cause ALGERIA	3803	0.19732	0.93986
ALGERIA does not Granger Cause OILPRICES		0.55321	0.69669

3.2.2 Angola

Pairwise Granger Causality Tests
Date: 07/19/12 Time: 22:53
Sample: 2/03/1997 3/05/2012
Lags: 4

Null Hypothesis:	Obs	F-Statistic	Probability
ANGOLA does not Granger Cause OILPRICES	3803	2.50069	0.04056
OILPRICES does not Granger Cause ANGOLA		2.59066	0.03491

3.2.3 Equador

Pairwise Granger Causality Tests
Date: 07/19/12 Time: 22:59
Sample: 2/03/1997 3/05/2012
Lags: 4

Null Hypothesis:	Obs	F-Statistic	Probability

OILPRICES does not Granger Cause EQUADORIAN	3803	0.04713	0.99583
EQUADORIAN does not Granger Cause OILPRICES		0.49323	0.74074

3.2.4 Iran

Pairwise Granger Causality Tests
Date: 07/19/12 Time: 23:04
Sample: 2/03/1997 3/05/2012
Lags: 4

Null Hypothesis:	Obs	F-Statistic	Probability
OILPRICES does not Granger Cause IRANIAN	3803	0.15743	0.95969
IRANIAN does not Granger Cause OILPRICES		1.66168	0.15602

3.2.5 Iraq

Pairwise Granger Causality Tests
Date: 07/19/12 Time: 23:06
Sample: 2/03/1997 3/05/2012
Lags: 4

Null Hypothesis:	Obs	F-Statistic	Probability
OILPRICES does not Granger Cause IRAQI	3803	0.62528	0.64447
IRAQI does not Granger Cause OILPRICES		0.22288	0.92576

3.2.6 Kuwait

Pairwise Granger Causality Tests
Date: 07/19/12 Time: 23:12
Sample: 2/03/1997 3/05/2012
Lags: 4

Null Hypothesis:	Obs	F-Statistic	Probability
OILPRICES does not Granger Cause KUWAITI	3803	0.08788	0.98625
KUWAITI does not Granger Cause OILPRICES		0.44436	0.77660

3.2.7 Libya

Pairwise Granger Causality Tests
Date: 07/19/12 Time: 23:15
Sample: 2/03/1997 3/05/2012
Lags: 4

Null Hypothesis:	Obs	F-Statistic	Probability
OILPRICES does not Granger Cause LIBYAN	3803	0.20341	0.93660
LIBYAN does not Granger Cause OILPRICES		1.56279	0.18140

3.2.8 Nigeria

Pairwise Granger Causality Tests
Date: 07/19/12 Time: 23:21
Sample: 2/03/1997 3/05/2012
Lags: 15

Null Hypothesis:	Obs	F-Statistic	Probability
OILPRICES does not Granger Cause NIGERIAN	3792	0.76697	0.71591
NIGERIAN does not Granger Cause OILPRICES		1.31412	0.18397

3.2.9 Qatar

Pairwise Granger Causality Tests
Date: 07/19/12 Time: 23:26
Sample: 2/03/1997 3/05/2012
Lags: 15

Null Hypothesis:	Obs	F-Statistic	Probability
OILPRICES does not Granger Cause QUATARI	3792	1.23297	0.23822
QUATARI does not Granger Cause OILPRICES		0.81742	0.65906

3.2.10 Saudi Arabia

Pairwise Granger Causality Tests
Date: 07/19/12 Time: 23:32
Sample: 2/03/1997 3/05/2012
Lags: 15

Null Hypothesis:	Obs	F-Statistic	Probability
OILPRICES does not Granger Cause SAUDI	3792	2.09975	0.00772
SAUDI does not Granger Cause OILPRICES		3.19974	2.8E-05

3.2.11 United Arab Emirates (UAE)

Pairwise Granger Causality Tests
Date: 07/19/12 Time: 23:39
Sample: 2/03/1997 3/05/2012
Lags: 25

Null Hypothesis:	Obs	F-Statistic	Probability
OILPRICES does not Granger Cause ARAB	3782	2.17069	0.00066
ARAB does not Granger Cause OILPRICES		0.21531	0.99999

3.2.12 Venezuela

Pairwise Granger Causality Tests
Date: 07/19/12 Time: 23:43
Sample: 2/03/1997 3/05/2012
Lags: 4

Null Hypothesis:	Obs	F-Statistic	Probability
OILPRICES does not Granger Cause VEN	3803	0.79781	0.52643
VEN does not Granger Cause OILPRICES		3.59621	0.00623