ANALYSIS OF OIL PRICE FLUCTUATIONS AND MACROECONOMIC PERFORMANCE OF PAKISTAN

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Abstract of the Study

The present work is an attempt to investigate the impact of oil price fluctuations on Macroeconomic Performance in Pakistan. The study currently used the time series data from 1976 to 2015 and Johansen co integration test is used to shows the results of analysis. The empirical results explore that Macroeconomic Performance indicator in a powerful tool to measure the cause of oil price fluctuations in Pakistan.Economic Performance Index (EPI) an intuitive tool for finding a country's economic performance, which is presented by Khramov and Lee (2013). More importantly, all the variables which are used in Macroeconomic Performance indicator like unemployment rate, real effective exchange rate, government spending, government deficit, trade Balance play a very vital role to find the outcome of oil price fluctuations in Pakistan.The ARCHGARCH models are designed to deal with fluctuation problems. ARCH model formed by Engle (1982) and GARCH model is presented by Bollerslev (1986). It was also found that the larger fluctuations of oil prices cause negative collision on the Macroeconomic Performance of Pakistan, because of this negative impact the Macroeconomic performance become statistically insignificant. Finally the study suggest that to faster the Macroeconomic Performance of a Pakistan we should control the fluctuations of oil prices as it is the main indicator to boost the Performance of a country. It is also suggested that the Macroeconomic Performance may also supportive for the other countries to check the impact of Oil price fluctuate

Chapter 1

Introduction

1.1 Introduction

The present study entirely focuses on how the how the fluctuation in the oil prices affects the macroeconomic performance of Pakistan. And the present study also calculates the macroeconomic performance by six variables. It also highlights the importance of oil in a country and shows the effects of oil price fluctuations. In the past, economic growth is widely used to measure the development level in a country and over the time it was realized that only economic growth is not sufficient for the development of an economy. Thus macroeconomic performance is a more comprehensive and significant indicator to gauge the pace of direct change in the developed and developing countries. Macroeconomic performance occurs at every time when people take resources and to change them in ways that make them more valuable and it will cause healthful impact on economy of a country. A beneficial idea for production in an economy comes from the special kitchen. To create worthy final products, we create the mixture good quality ingredients together according to a recipe. Thinking about ideas and recipes changes how anyone thinks about economic policy which leads to the good macroeconomic performance. In this study macroeconomic performance is measured by an index named Economic Performance Index (EPI) an intuitive indicator for assessing a country's economic performance, which is presented by Khramov and Lee (2013). In this study the EPI is calculated by six variables and these are given as following:

Government Spending (GS): Government spending is the expenditure of government on public goods, infrastructure, and investment and transfer payments. Government spending depends on government revenue.

Government deficit (GD): A Government deficit occurs when a government's total expenditures increase the revenue.

Trade Balance (TB): The difference between the country's exports to its imports.

*Real Effective Exchange Rate (REER):*Real Effective Exchange Rate (REER) is a measure of the trade-weighted average exchange rate of a currency to the average exchange rate of other currencies.

Unemployment Rate (UR): Unemployment rate is the percentage of total labor force that is unemployed but is seeking employment and willing to work.

Additionally to improve macroeconomic performance energy is a primary input to manufacture goods and services. Thus it can be argued that everywhere in the world oil plays the important role for the economy and act like a back bone to fulfill the energy needs to spend a quality life particularly in developing countries. "Black Gold" is symbolically referred by Crude oil (Bamisaye and Obiyan, 2006). From the economic point of view crude oil is the dominant factor of real growth. Petroleum or oil is extracted from fossil fuels that have decayed over thousands of year and this black gold helps us in powers vehicles and machineries and to move the economic wheel swiftly. Oil is considered as input for the production of oil based goods of industrial and household goods. This far-reaching use has put oil as an important input into the complete output. In the previous three decades, the United Arab Emirates (UAE) has gained noticeable economic success.

The UAE is still one of the biggest oil producers. However, the machinery is depending on the imports of oil to run Pakistan economically in better way. Due to much dependency on imported oil, the prices of oil have increased. The shock of oil prices is destabilizing the domestic financial market. The whole world is depending on oil, because there is no such activity that can be possible without oil use. That's why the Crude oil is considered as the important indicator in the world (Hubbard.1998) which is involved in the production of goods and services thus it is worthy to examine the impact of its prices volatility on economic activities in the oil importing countries like Pakistan. Most of the preexisting studies showed that volatility in oil price affects economic growth in Pakistan as, Gounder and Bartleet (2007) examined that

the high rates of unemployment and inflation are the results of energy crisis. Energy crisis is noted as demand side shock. Ishaqe (2007) proved the hard hit effect on world economy by unexpected increase in prices of oil. Ishaque (2008) examined that the whole economy is affected by oil prices. Some other factors are also considered as the cause of the effect of oil prices on whole economy. Cost of production, reallocated resources, effects of income, trade and uncertainty are the factors that helped oil prices to affect the whole world economy. Nandha and Faff (2008) examined that global industry indices and prices of oil are affecting each other's in negative way. When the rise in the oil prices occur the whole world have face the loss in any sector. Choudhuri and Daid (1998) said that the fluctuations in real exchange rate of United States are measured by the increase in oil prices.

The fluctuation in the price of oil will affect many variables like trade balance, government deficit, and government spending, real effective exchange rate, unemployment rate etc. thus all these variables may become less predictable and macroeconomic performance of Pakistan may suffer badly. Therefore, present study is an attempt to determine the impact of oil prices volatility and its impact on macroeconomic performance in Pakistan. Finally, the ultimate purpose of this study is to propose the policy implication and suggestions for policy makers and concerned practitioners to develop such policy which may help to improve the macroeconomic performance in Pakistan.

1.2 Trade of oil and macroeconomic performance

In the recent time crude oil demand has increase to greater heights. As a consequence, the benefits of its trade are achievable easily in the whole world. By the trade of oil many projects has been achieved. This trade has also facilitated the improvement of major cities and towns in the world.

Present research contribution is wonderful as it will be analyze the relation between oil price fluctuations and macroeconomic performance and their effects on Pakistan's economy in recent year. Secondly the present research will be exclude the growth indicator and include macroeconomic performance for analysis, because growth is a weak indicator and does not provide the clear picture that how the fluctuations in the oil price hurt macroeconomic performance of Pakistan and what are the reasons behind them. The preexisting research does

not provide the precautionary measures for this problem, but the present research will be trying their best to provide such measures which enhance the macroeconomic performance of Pakistan.

1.3 Problem Statement

Present study will show the relation between oil price fluctuations and macroeconomic performance of Pakistan. Oil price shocks will be harmful for the macroeconomic performance of Pakistan, as ups and downs of the oil prices produce instability in the economy. The present research will be highlight the problem that oil price shocks are the cause of instability in the economy and because of this macroeconomic performance of Pakistan hurts badly. Therefore, it is desirable to determine the impact of oil prices volatility and its impact on macroeconomic performance in a developing country like Pakistan. Thus the findings of this study will be useful to propose the policy implication and suggestions for policy makers to design such types of policies which can improve macroeconomic performance in Pakistan.

1.4 Significance of the Study

The previous studies shows that the volatility in the oil price hurts economic growth in different countries as, Hamilton (1983) recognized that increased oil price have caused decline in the US economy. Abeysinghe (2001) reported that GDP growth of Singapore is negatively affected by higher oil prices. On the other hand, higher export revenue is gained by Malaysia and Indonesia. Husing (2007) found that the non linear relationship of real output and real crude oil prices in Germany. GDP growth and output are not reduced by increased prices of oil in Germany. Ishaque (2008) examined three types of higher oil prices impact on economy of Pakistan. One, productivity is reduced by increased demand of higher cost imported oil. Second, inflation is increased due to increase in international prices of oil. Third, with these two effects, overall GDP growth effects overall economy by change in the fuel prices so, previous studies found the positive and negative impact of oil prices on growth. This proved that previous studies have not clear picture to prove and disprove the effect of oil prices on growth. While, this proves that growth indicator is not good for analysis.

The present study will first include macroeconomic performance index instead of growth indicator to check the effects of fluctuations in the oil prices. Secondly, the study will applies

latest statistics and use most recent data to depict the effects of oil price fluctuations on macroeconomic performance of Pakistan. Thirdly, the volatility in oil price will cause volatility in inflation rate in any country as a result country face Economic instability therefore stability in the oil prices is very essential for macroeconomic performance. The present research will hopefully provide such measure which stabilize the oil price fluctuations and faster the Macroeconomic Performance of Pakistan.

1.5 Objective of the study

i. To examine the effects of oil price fluctuations on macroeconomic performance of Pakistan.

1.6 Organization of the study

Research has organized the study to examine the impact of oil price fluctuations on macroeconomic performance of Pakistan which is divided into 6 chapters. In Chapter 1 the introduction covers the problem statement, significance and objective of the study. Chapter 2 reviewed the previous research knowledge about oil price fluctuations effect on macroeconomic performance of Pakistan. Chapter 3is based on the theoretical framework. Chapter 4 covers data sources, description of variables, methodology and specification of model. Chapter 5 is based on the analysis of data in the form of results and discussion. At the end, Chapter 6 conclude the findings and suggested some beneficial recommendations.

Chapter # 2

Review of the Literature

2.1 Introduction

The main focus of this research is to check the impact of oil price fluctuations on macroeconomic performance of Pakistan. For this purpose in this chapter, the present study reviews the already existing literature so that it can provide help for new research. In this chapter section 2.1 is all about introduction, section 2.2 contains literature review, and section 2.3 is about conclusion of all the literature.

2.2 Literature Review

The following lines will summarize the relation between oil price volatility and economic performance.

Abeysinghe (2001) estimate the effects of increase in oil prices on Gross Domestic Product of 12 countries by measuring direct and indirect effects. These twelve countries are China, Hong Kong, Indonesia, Japan, Malaysia, Philippines, Singapore, South Korea, Taiwan, Thailand, and remaining OECD countries. The study used the quarterly panel data of above mentioned 12 countries which is from 1982 to 2000. The study applied Vector Auto Regressive (VAR) model. This model estimates that high oil prices affected the open economy directly and indirectly. Increase in prices of oil has negatively impact on GDP growth of importer countries and on the other hand it gives benefits to the exporting countries in form of higher export revenue. So, the export countries face direct and positive impact and import countries face indirect and negative relation. Malaysia and Indonesia are the main exporter of Singapore so that in higher oil prices these exporter countries face positive impact while Singapore face negative impact. All other countries in the study are importer nations and that is the reason their effect in

the form of direct and indirect both are found negative. At last, findings proved that the enhanced prices of oil has noteworthy effect on small open economies while the growth of large open economies like united states are not affecting by outstanding effects of oil.

Mellquist and Femermo (2007) examine the cause of unemployment in Sweden. This study measured the prices of oil as the cause of unemployment in Sweden. This research is also conducted to measure the fluctuations in prices of oil and its impact on industrialization, while the enhanced prices effect on unemployment is also the part of this conducted research. It is cleared that oil is very important indicator for any nation to increase productivity and crisis like wars. On the other hand, the jumps in prices of oil has concerned for selected nations. It is expected that the unemployment has increased due to increased prices of oil in Sweden. That's why this research is conducted by covering the data from 1980 to 2004.the data is collected from different places and the data of oil is taken in the form of average prices of oil. The average oil prices data is conducted by three markets; First market is United states market, Second is taken as European markets and the third market is taken as Asian markets. All three markets have dollar as a medium of exchange so the Swedish currency was exchanged by dollar and then the prices of oil are measured. The effect of inflation is adjusted in this research. The study used the causation technique to measure the direct impact of oil prices on level of unemployment. The analysis of granger causality figured out the direct effect of prices of oil on unemployment. It is estimated that the increase in prices of oil has increased the level of unemployment in Sweden. But in overall estimation, some indicators not proved the positive effect of increased oil prices on unemployment. so the study could not find the exact relationship of oil prices and unemployment. Most of the part of research analysis has shown the positive change in unemployment which is done by increase in prices of oil. But we can't deny the further part of analysis in which the unemployment is not increased by oil prices. The study suggests using fractional integration and co integration instead of classical approaches. The study also suggests reading further studies which are using different approaches to find the accurate results aboutthe change in unemployment by oil price in Sweden.

Bouakez and Vencatachellum (2007) estimated that the influence of huge prices of oil on the economies of African nations. This study has two parts to measure the influence of increase in oil prices of growth level of African countries in which the oil producers and oil importer nations are considered. In first part, it is estimated that the high prices of oil is good for oil producing

African nations. They can get huge benefits by purchasing oil on high prices. On the other hand, it is not good for oil importing nations. The imports of oil on high prices can harm the under developing African nations. Findings analyzed that the jumps in prices of oil has bad effect on oil importing countries. The high prices of oil have increased the inflation rate in oil importing countries and badly affect the consumption and production in oil importing African nations. The under developing oil importing nations have faced much because of fixed exchange rate. on the other hand, the oil exporting countries are earning more. The increased prices of oil have increased the export profit of oil exporting countries. Oil exporting countries basically are rich countries and developed countries and have real exchange rate. Their exchange rate is increased 9 percent more than fixed exchange rate. That's why their gain is also increased in the form of profit from oil prices. In this way their productivity and growth is also increased double than oil importing countries. it is suggested that the oil prices should be stable. The oil prices should give favor to both the exporting and importing African nations.

Faria *at el.* (2008) estimated the relation among exports of china and prices of oil. The study shows that the increase in prices of oil in recent years has happened in the same time with noteworthy enhance in exports of china rather to increase imports of China. In the days of increased oil prices, china has dominated as exporter country of oil rather considered as importer country. The study used the monthly data from 1992-2005 periods. The data of manufactured exports of Chinese, exchange rate in the form of real, oil prices and GDP in the form of per capita are the collected variables to conduct this research. For the analysis co integration test applied the results shows an established affiliation and earn so bit and oil price have positive correlation and also shows high elasticity for countries like China who were dominated as export competitors. The high elasticity have changed the scenario and found the negative elasticity for exchange rate which is in the form of real terms. There the results show that the exports of china have increased very much with increased prices of oil. It is estimated that the prices of oil has increased due to increase in growth and productivity in china, which has risen the prices of oil and dominated them as exporters of oil and gained much profit from increased oil prices. At last all this is because China has large number of labors in their country. The large labor force means the increase in production and growth.

Lin *et al*. (2009) examined that return in stock market by increase or decrease in prices of oil in china. The return is estimated from United States stock market, Hong Kong and Taiwan stock market by collecting monthly data from 1997 to 2008 by applying the vector auto regressive model (VAR) approach. The study shows the mix result of greater China. As Taiwan and U.S stock market effected as same manner by the change in the price of oil. It is estimated that the supply of oil has increased the benefit of Hong Kong and China. These are considered as emerging nations in stock market. The high in prices of oil has increased the supply of oil, while the increased supply of oil has enhanced the stock of Hong Kong and china oil in stock market. Then the high prices has increased the profit of Hong Kong and china, Secondly the oil demand shock is affect to Hong Kong and Taiwan Stock market but not in China stock market. Oil demand shock affect negatively on Taiwan market, Hong Kong market face positive impact and China market face Insignificant affects.

González and Nabiyev (2009) estimated the GDP growth by fluctuating the prices of oil in Sweden and United States of America. The study chosen to compare the GDP sensitiveness of oil price volatility of USA and Sweden. Because USA is the largest consumer of oil and consume 25% oil of the world, on the other hand Sweden consumes less oil than other developed countries. Here GDP growth calculated as dependent while oil price are the dependent variable. The data for the estimation is from 1993 to 2008. The data is gathering from International Energy Agency IEA and Goldman Sachs Research Database, Swedish statistics bureau, World Research Institute website, US DOE, Energy Information Administration. The results after estimation shows that the Sweden economy shows less dependence in oil price and GDP growth, even the results showed it is explained by the large share of nuclear that the less prices of oil has increased the GDP in the form of growth. America on the contrary showed the author's expectations are exactly in line that there is larger relationship. The findings of America showed that high in prices of oil has reduced the growth and productivity while the less price of oil has increased the GDP growth. The author suggests that if there is a need to reallocate the resources in labor markets. And create link between security market of crude oil as a commodity and its effects on real stock returns because it is a common believe that price volatility creates doubt in investments.

Arouri and Nguyen (2010) check the relation of oil price, stock market and investment of portfolio in Europe. Other studies check this impact in brooder sense and do not able to give appropriate results but this study check the link between oil price and stock market in short links as it use by parts analysis for batter understandings. The study use two results one is by aggregate and second are sector by sector, by using the data of 59 observations author applied causality test to analysis the data. The results show that there is powerful and significant impact between the oil price and stock market and both of them change with the passage of time. The results provide two points one is that ups and downs of price level of oil give important points which is helpful for the estimation of stock return and on the basis of this return investor decide whether they invest of not. And the other is when portfolio investment is decided on the condition of oil price then it will increase the productivity of risk return sector. It will also give sharp increase to some of the industries. Thus oil price give base to invest portfolio investment and decide risk return level. In addition this research gives some important points for coming time period. One it gives long run relationship between stock return and oil price which is useful for future. Second it gives tools which also used for products which are made by gas and energy. Third it gives elements of business cycle which indirectly effects by pointing some countries which belong to Europe.

Masih *et al.*(2010)studied that the association among changing's in stock and oil prices and its influence on Emerging market of South Korea. The researcher used prices of oil as affecting variable and measured its effect on stock price which is used as dependent variable by covering the monthly time period which is taken from the month of may 1988 tojanuary 2005. And the study used Multivariate co integration analysis to estimate the data. The result suggests that profitability of firm is negatively affecting by shock of oil price in two ways. First it increases the production cost of firm and second it indirectly decline the profit margin of investors. According to the results long term the variables have worthy association with each other's. While stability is not affecting by the crisis in the shape of financial crisis. The price movement significantly affects the stock market at large scale.

Ordonez *et al.* (2010) estimated that flows of labor market in United States. In this research, it is estimated that the flows in labor market occurs by shocks of real oil price. In this study author tried to find the amount of oil prices that can be considered as the stimulates for fluctuations in

labor market. This research is conducted to measure the behavior of shocks of oil prices and its influence on the market of jobs and productivity. It is necessary to check the effect of oil prices shocks on labor and their production level. The variables consider for this research are vacancies for labor, finding rate of jobs, unemployment rate and separation rate of jobs. Study divides the implicit GDP price deflator to obtain real magnitudes. At the end, the results show the increase in unemployment level when the prices of oil are increased. The higher price of oil has decreased the employment level which caused to increase the unemployment rate. While the job vacancies are not much affecting by jumps in oil prices. The higher price of oil has forced labor to left their jobs. This shock has increased the amount of unemployed labor. But one thing is found that when the unemployment rate is increased, job vacancies are not affected by this high shock of oil prices. In this way, the firms meet with new workers which have stabled the unemployment rate.

Trung and Vinah (2011) estimated the shocks of prices of oil and its influence on exchange rate which is taken in the form of real effective, inflation and on the activities of the economy of Vietnam. While this research has noteworthy importance because this study is measured the combing effect of high prices of oil, inflation and exchange rate on activity of economy of Vietnam. Here the independent variables are taken as prices of oil, inflation, and exchange rate in real terms. And dependent variable is economic activity. The role of Inflation and exchange rate is very important to observe the fluctuations in economic activity. Monthly data from January 1995 to March 2009 has been used to measure the growth level in terms of economic activities by prices, inflation and exchange rate fluctuations with the help of vector autoregressive (VAR) modeling and co integration technique. The result showed that prices of oil prices rate of real exchange strongly affect the economic activity in Vietnam. It means when the prices of oil has become higher, the economic activities found in positive way and growth level of the economy is increased. Findings also proved the constructive effect of inflation on economic activity of Vietnam. Sometimes when the exchange rate is stabled and not much affecting by shocks of oil prices then economic activities run in constructive way. While the exporting point of view, the inflation and high prices of oil can run the economic activities in good way. Same scenario is found in Vietnam regarding their economic activity.

Kiani (2011) estimated the impression of high prices of oil on growth of economy of Pakistan. In this study dependent variables are real Gross Domestic Products (GDP), stock

prices, real government revenue, and government spending and inflation rate. While oil prices used as independent variable. The study used the data of 20 years from 1990 to 2009 that was composed from International Ministry of Finance (IMF). The study applied the Ordinary Least Square (OLS) technique, which shows real Gross Domestic Products (GDP), is positively related with high oil prices and Real Government revenue but Stock prices negatively affected. Government spending and inflation rate also positively related with high oil prices in Pakistan. Author says that it is not an easy task to decrease the prices of commodities and to stable the inflation rate in days. The inflation rate takes much time to reduce and when the rate of inflation will reduce then the prices can be reduced and cover the losses. It is not easy to reduce the prices at daily level. In this regard, the government has to take some serious steps regarding their subsidies. The government can reduce the prices of commodities by giving them subsidy on products. The government should give subsidy to farmers in the form of decrease the price of electricity and diesel in both the villages and cities. This may help the poor peoples to balance their family budget.

Jamali *et al*. (2011) examined the relationship between change in crude oil prices and macro economy of Pakistan. Real GDP, rate of interest in short and long terms, supply of money and rate of exchange in real terms are the variables of macro economy of Pakistan which is the dependent variable and oil prices indicate independent variable. The study used the quarterly data from February 1992 to April 2006 and analyzed this data with help of VAR model which is considered as the best for analysis. Results show that shocks of oil in the form of crude have negative control on Gross Domestic Products. The findings elaborated that the GDP is reduced when the prices of crude oil is enhanced. The Study showed that the aggregate of output is decreased when the prices of oil is increased. This is linked with GDP, when the prices of oil are increased then the production in the form of output is reduced which has negatively affect the GDP. In another estimation, exchange rate is constructively affected by higher oil prices. At the end, the remaining findings are related to interest rate, supply of money and shocks of oil prices. The results have proved the significance in between shocks of oil prices, supply of money and rate of interest in Pakistan.

Qianqian (2011) investigated that the economy of china is affected by the fluctuations in the prices of oil in international level. By taking the variables real output, Consumer price index,

net exports and monetary policy the study calculated growth of China's economy. The study used the monthly data from October 1999 to October 2008. The study applied the co-integration test and vector error correlation model. The study exposed that internationally high oil prices have negative relation variables in the form of supply of money, exports and output. When the prices become higher, the supply of money is reduced. The less supply of money and higher prices of oil has reduced the amount of exports and all this affected the output and growth level of the economy. And there is positive relation international oil prices with Consumer price index. In addition, this effect in current situation is not for this time. This bad effect has shown the clear picture of this effect on next coming years. Therefore we have taken the past and the future possibility into consideration with current scenario.

Ghalayini (2011) impacted the Interaction amongst prices of oil Price and growth of economy of group of 7 countries. The purpose of this paper is to inquire whether the changes in the oil price can explained group of 7 countries economic growth. These 7 countries are Canada, France, Germany, Italy, Japan, USA and UK. The data of 7 countries is started from 2000 to 2010. For the purpose of analysis, the researcher used the causality technique to measure the causation of increase or decrease in economic growth of group of 7 countries. The empirical analysis proved the causation in between fluctuations of prices of oil and growth of 7 countries. The findings proved that the exporter countries gained benefit from increased oil prices. Their rate of increase in economic growth is not affected by high prices of oil. Even due to increase in exports, their growth level is promoted by high return profits. On the other hand, group of 7 countries are affected by high prices of oil. The main fluctuations are found in the behavior of the consumers and producers. The economies which are considered as exports and have high rate of growth get benefits from high prices of oil. The G 7 countries have strong background of exports and have high growth rate. So, these countries get benefit from increase in oil prices. The increase in prices of oil has increased their production and growth level. Their gain from exports is also increased which has risen the growth level of G 7 countries. On contrary, the rise in prices of oil is not good for other world countries in which the developing countries are in loss.

Brückner *et al.* (2011) impacted the association of democracy, shocks in prices of oil and income in all the countries with net oil exporter. Here oil price and income is independent variable on the other hand democracy is dependent variable. This study has constructive

importance due to its title in which the researcher tried to measure the income level and democracy. Democracy and income level are considered as the base of GDP with the help of fluctuations in the prices of oil by using the generalized method of moment's technique. It is estimated that the increase in prices of oil are helpful for democracy and income level for those countries that have export mind. The exporter countries of oil exporting gained high profits when the prices of oil are increased. Due to more profit, the income level of exporting countries has raised all these positive factors have made them strong democratically. All this positive effect has increased the GDP of oil exporting countries. On the other hand, the emerging nations have faced their democratic problems which caused decrease in GDP. The decrease in GDP is found by increase in prices of oil and decrease in level of income in long period.

Chang *et al.* (2011) estimated changes in prices of oil and its effect on the performances on macroeconomic level in 17 countries of Asian and Oceanic. Granger Causality test is used for analysis. The concerned variables to measure the effect of oil prices on performance are Gross domestic product, consumer price index, rate of unemployment and prices of oil. The analysis of granger causality showed the causation in one and two way. Some countries like Laos, Japan and Thailand not showed any causation from prices of oil to performance and from performance of economy to prices of oil. Some countries like China, India and Myanmar have proved the change in the performance by prices of oil. Gross domestic product, inflation and rate of unemployment is changed when the prices of oil are fluctuated in these countries. The remaining countries have shown the causation in both ways. The findings proved that the performances of remaining economies has shown noteworthy change which was done by change in price level of oil. These countries proved two way causation. So, the prices of oil are caused by economic performance like GDP, inflation and unemployment. The findings of co-integration showed that the high prices oil has constructively increase the GDP of exporting countries in long run. In detailed, the countries that are good in exports, get benefit from high prices of oil and gained high profit which helped their GDP to increase in constructive way. On the other hand, importing nations like small economies or developing nation's GDP is badly affected by high prices of oil. The reason is that, these countries are relying on their imports. When the prices of imported oil is increased, their unemployment rate is increased and productivity is decreased which reduced the growth level of GDP in long run.

Farzanegan (2011) estimate oil revenue shocks and government spending behavior in Iran. As most of the studies shows Iran is mostly depends on oil to meet its development level in most of the sectors which use oil for production. In this situation oil is the most vital variable for Iran and its revenues is very useful tool for political sector of Iran. As the study shows Iranian government depends sixty percent on revenue of oil and ninety percent depends on the revenue generated from gas resources. In the global market oil market of Iran is focused more than others. In this study author examined the effects of oil price change on the different sector of the economy in Iran. For this purpose data is collected from 1959 and ending to 2007. The study use two different tools for analysis in which one is Impulse Response Function and the second one is Variance Decomposition Analysis. After using the techniques the study give the results which shows that when oil have to face increasing shocks the expenditure on military and security gives direct and significant result which describe that when oil price increases the Iranian economy gets more revenue and spends on military department to increase security and all other facilities of military, while on the other hand social spending of public does not gives significant response. It means increase in oil prices increases the price of other thing also and as result public face inflation in the economy. The results also shows that increase in oil is only beneficial for the purpose of military expenditure of government on the other side it is not good for social, educational, and health point of view. So, the author suggests that the government should take steps to improve above mentioned departments of Iran, so that development can take place.

Felix and Kurubo (2012) examined the impact and fluctuations of prices of oil and rate of exchange in Nigeria. Oil worth and rate of exchange are used as independent variables. While Nigerian economy is used s dependent variable. The study covered the period 1986 to 2011. The study used VAR- based co integration test. The result of VAR model showed that the high changes in prices of oil confidently influence the change in rate of exchange which is measured in real terms. It means positive increase in the prices of oil in international level enhance the rate of exchange in Nigeria. The study suggested that the policy makers should focus on the problems of too much fluctuation in exchange rate. The more changes in exchange rate can harm the behavior of the market which should be respond in constructive way. The policy makers have to focus on the prices of oil to make the policy for rate of exchange. The policy makers should develop the scenario of exchange rate related to high prices of oil in Nigeria. The high prices of

oil can stable the rate of exchange if the policy makers have policy related to the policy of oil exporting nations or they have to focus on their exports.

Dizaji (2012) estimated the change in expenditures of government and revenues of government by the shocks of oil prices in Iran which is considered as the oil exporting nation. This research has vast importance because this research is based on deep empirical findings. There are two groups of analysis and findings in which the data is gathered from 1970 to2008 in first group and 1990 to 2009 in second group. In both groups the combined selected variables prices and revenues of oil, expenditures and revenues of government, GDP ratios. In first group, the effect of war with Iraq is included. While, in second capital expenditures of government, supply of money and inflation in the form of consumer price index is included. Both groups use the VAR and VEC model with the help of granger causality to check the expenditure and revenue of the government when it is compared to the prices of oil. The findings of first group are showing the one way causation. In which the revenue of oil had been cause of change in the ratio of GDP. The same findings are found in between expenditures of government and with ratio of GDP. In detailed, the expenditures of government single handedly affected the ratio of GDP. In advance, oil shocks are also found to be the causation of change in expenditures of the government. According the second group of analysis, the results indicated that expenditures of government and revenues of government are affecting each other's. In detailed, if is found that the expenditures are affecting revenues of government and revenues are affect the expenditures of government. The same scenario is found of government capital with expenditures and revenues. In advance findings, the results of oil shocks are showing that the shocks of oil are found to be the cause of increase in the rate of inflation. According to the export point of view, the increase in prices of oil has increased the revenue of government of Iran.

Ekmekcioglu (2012) estimated the macroeconomic effects of changing the crude oil prices on entire world. Macroeconomic effects calculated by the level of economic output of the country and aggregate demand of oil. Study also estimated the macroeconomic advantages of word crude oil price changes. Study uses the yearly data. And the study used correlation approaches to analysis the data. The result shows that an increase in crude oil price slower output growth therefore it is negatively associated with growth. The reason is that when the prices of oil are increased, the amount of employed labor is decreased to meet with cost. The decreased

employment level has slow down the production level which is seen as the cause of decrease in rate of growth. While, the enhanced prices of oil which is taken in the form of crude has enhanced the cost of living. It is simple, when the prices are increased then the transport industry has raised their prices. The rise in the prices of transport industry has been the cause of increase in standards of living. But here is the problem that the amount of gained profit is decreased due to less participation of people which caused the decrease in growth. It is suggested that the government has put their intention on price mechanism of crude oil and should reduce fluctuation and should give subsidy to people or found the alternative of crude oil.

Garkaz *et al*. (2012) examined the bond of revenues and expenditures of government of Iran. Oil revenue is used as dominant variable and expenditures of government are depending on revenues. The study used the data from 1996 to 2008. The study used Wavelet analysis approach; this shows the correlation between two variables. Empirical analysis is showing that the revenues of government in the form of oil and expenditures have constructive and noteworthy association. When the revenue of government in the shape of profit from oil is increased then the expenditures are also increase by the Iranian government. Same situation is found according to the expenditures point of view. When the expenditures are increased, the productivity of oil is increased and the revenue of oil has enhanced in Iran.

Mujahid *et al*. (2013) examined the connection among oil prices and prices in the market of stock in Pakistan. Authors used the daily data from March 1998 to December 2005. The selected variables are taken as prices of stock volume of trade, information, prices of oil and gas. These variables helped the researcher to find out the consequences of changing the prices of oil in stock market and its influence on return from stock market of Pakistan. In this regard, causation technique with named of granger causality helped the researcher in analysis. Empirical findings of granger causality showed the causation from prices of oil to return from stock market. The one way causation showed the inverse causation in which the increased prices of oil has decreased the return from stock market in Pakistan. Basically Pakistan is an importing country. So, the high price of oil has reduced the efficiency of stock market of Pakistan. In response to oil, the results of gas are much satisfactory. The gas and other liquidities showed the constructive causation with stock market. Due to more use of gas and liquidity and increase in its prices, the stock market return is increased. The reason is that the prices of oil are much higher than the

prices of gas and other liquidities. So, the increase in prices of gas did not harm the return from stock market in Pakistan.

Soh (2013) studied the globalization and influence of variations in oil prices on the growth level of economies of 12 countries. Variations in prices of oil and economic growth relationship is measured in 12 advanced, emerging and developing nations. Each group has 4 countries in which two countries are taken as oil exporting countries and two countries are taken as oil importing countries. Advance, emerging and developing nations groups are consists of oil exporting and importing countries. In advanced country group, Australia, Canada, Japan and Norway are taken. In emerging nations group, Algeria, china, India and Saudi Arabia are taken. While, the developing countries are Angola, South Africa, Thailand and Venezuela. All 12 countries of three groups covered the data from 1990-2010 by using regression analysis. According to the empirical analysis of regression, the developing countries showed the relationship among oil prices and GDP which is taken as economic growth. While the oil exporting countries had good and noteworthy relation of oil exports prices with GDP. In which the GDP is increased when the prices are enhanced. While the importing countries are not much affected by oil prices because they are focusing on gas and other resources as well. But there growth rate is not increased much as compared to exporting countries. The findings of emerging countries not showed good results. Even their exporting nations like Algeria and Saudi Arabia have not much increase in GDP growth as compared to increase in prices of exporting oil. While the importing countries had decreased economic growth when the prices of imported oil was increased. At the end, the advanced nations like Australia, Canada and Norway showed the findings according to the expectations of the researcher. These nations showed the greater increase in GDP growth as compared to all selected nations when the prices of exporting oil are enhanced. But Japan is not showed much increase in growth level as compared to increase in prices of oil.

Ahmad (2013) investigated that the influence of prices of oil on rate of unemployment in Pakistan. The theme of this research is that developing countries like Pakistan's industrial sectors are depending on oil to increase their production and growth level. It is concerned that the high prices of oil is the hurdle for developing countries like Pakistan. The reason is simple, when the prices of oil are increased then the cost of production, and input costs are also increased. Due to

increased input costs, it is very difficult for developing countries to get high profit in return. That is the reason, the developing countries are reduced their production and labor. That's why due to increase in prices of oil, unemployment is increased in Pakistan. For this concern, the researcher conducted the monthly data from1st month of 1991 to the 12th month of 2010 of selected variables like prices of oil, rates of t-bills, rate of unemployment, inflation GDP deflator. The analysis of granger causality displayed the one way causality which was running from prices of oil to unemployment in long run in Pakistan. The results of causality displayed that the high prices of oil has increased the unemployment level of the economy of Pakistan. When the prices of oil are increased then the production level is decreased which resultant the decrease in labor and growth rate. Same findings are given in between interest rate and prices of oil. The prices of oil have enhanced the rate of interest in long term in Pakistan. The overall results proved the one way constructive causation from prices of oil to unemployment and interest rate.

Jawad (2013) estimated that the effect of volatility of oil prices on growth level of the economy of Pakistan. some factors like investment in private and public sectors and balance of trade has helped to measure the effect of oil prices on GDP growth. Investment is an important indicator which helped the producer to produce more which will help to increase the volume of exports and to make the balance of trade in surplus or in balance. All these factors can help to boost up the growth level of the economy. If the export balance will be more then the oil prices can be beneficial regarding growth of country. To measure this relationship, the data is gathered over the time period of 1973 – 2011 by using the johansen co integration technique on the data of selected variables. The results of johansen cointegration displayed the constructive influence of balance of trade and investment by private sectors on GDP growth in Pakistan. In detailed, when the balance of trade is enhanced and become more surplus like the increase in exports volume, the GDP growth of Pakistan is promoted. While, the noteworthy investment in private sectors are also increased the GDP of economy of Pakistan. On the other hand, the changes in prices of oil and investment by government or public investment not exhibited the worthy impact on growth level of Pakistan economy. The study suggested that the government should focus on public investment to increase the GDP growth of economy of Pakistan.

Coudert et al. (2013) estimated that the effect of fluctuations in prices of oil on exchange rate and trade. The exchange rate is taken in real terms while the term of trade is taken to measuring the prices of commodities and currencies and to measure the effect of oil prices on imports and exports of commodities. This research conducted in both short and long period of time to measure the volatility in exchange rate. in this regard, the data is covered by 1980 to 2012 in which 52 countries are selected on the bases of export of commodities, 17 countries are oil exporting nations, 12 countries are selected from OECD, 3 countries are selected from gulf countries and 2 leading oil exporting nations are included in the panel of selected countries. The analysis proved the existence of oil prices on exchange rate and terms of trade. It is estimated that the exchange rate is fluctuated very low when the price of oil is increased. While the term of trade is much affected by higher prices of oil. According to the export perspective, when the price of oil is increased, the gain from trade is also increased; the ratio of profit for exporting countries is increased due to high prices of oil. A price of oil has good effect on commodity exports in short run as compared to long run. In short period of time, some commodities give high profit ratios to commodity exporting countries when the price of oil is increased. But this is based on the nature and time of commodity at which the demand of commodity was increased. Second, this is based on short time and for specific commodities. But the oil exporting countries gained high profit as compared to commodity exporting nations. The leading oil exporters have gained high profit when the prices of oil have increased. The leading oil exporting nations also got huge profit in terms of trade.

Ibrahim *et al*. (2014) inspected the link concerning shocks of prices of oil and the economic growth of Nigeria. The growth of Nigerian Economy is collected from aggregate consumption, investment, government spending, oil exports and imports. While oil price is independent variable. The study using the yearly data from 1981 to 2012. The figures are computed from Energy Information Administration, Statistic of National Bureau, and the Nigeria's Central Bank. Foe analysis the techniques of OLS and two stage least square estimation are applied, it implies the significant direct influence of growing rates of oil on the growth of oil exporting nations, these countries enjoyed high export revenue. The negative effects on growth of oil importing countries and these countries face high cost of production and it leads towards inflation that will cause inflation and low economic growth in Nigeria. Author of the study recommended ting that nation should expand its revenue in term of exports as mean of

lessening dependence on oil in the form of crude and petroleum and all types of products related to liquids. This will prevent the inverse effects of the shocks and attained statistically significant level.

Khatriz(2014) examined the impact of oil price and balance of payment on the exchange rate of Indian and Indonesia. Most of the studies work on the rate of exchange and balance of payment but this study check that how oil prices and non oil balance of payment effect exchange rate. This study is the new one in the field of research as the few author works on it. The author in this study use the level of price of oil and balance of payment an independent variable and exchange rate as dependent variable which is explained by regression equation. The research use the US dollar as it is the widely accepted in the market of exchange rate. Every one easily accept and able to transform it. US dollar has Universal acceptability. Study use the data of 30 year which is starts from 1971 and end on 2010. For the analysis point of view the writer first check the stationary of the data by using unit rot test and then he applied co integration test to measure the effects of variables. After analysis the study get the result as oil price have strongest results on exchange rate because oil prices is use in dollar of US and that is the powerful unit. On the other side balance of payment have unfavorable effect on dependent variables in Naira, in Indian economy oil price trade balance have positive and significant results. It shows both of the variable are use to measure the exchange rate of Indian and Indonesia. The study suggest that India should request Indonesia to give some leaves so that India increase its exports and improve its exports sector.

Shafi *et al*. (2014) studiedthat the association of high oil amount and rate of exchange on economic growth of Russia. The researcher focus on the factors that are affecting rate of exchange which are considered in this research are expenditures of public sectors, inflation, investment in term of foreign, interest rate, and balance of trade which is based on exports and imports values. The study collected the yearly figures over the period of 1971 to 2012. The data of variable are collected from International Financial Statistic (IFS). Study applied co-integration test for estimation and shows that volatility in prices of oil and rate of exchange have positive affiliation with economic growth. Oil price and exchange rate are considered as the main sources to construct the growth level of economy of Russia. While other variables significantly positively related to exchange rate. Analysis showed that the increased rate of inflation is enhanced the rate

of exchange. When the inflation and exchange rate are increased then interest rate is constructively enhanced. The most important foreign direct investment which is increased expectedly and has raised the rate of exchange. At the end, consumption by government, their expenditure and trade balance significantly positively related to rate of exchange. But exports have negative relation with real effective exchange rate.

Difiglio (2014) estimated the values of oil, production in terms of growth and shocks of strategic petroleum in U.S. this research is conducted to investigate the shocks of oil prices. It is concerned that when the prices of oil and petroleum are increased then it turns growth level down and also become the cause of reduction in labor which caused unemployment. The increase demand and supply of oil and increase in its prices can reduce the amount of capital which resultant reduces the labor and productivity. All these factors are reducing economic growth. Data of the research started from May 1987 to May 2012. Data is collected from Energy Administration and Bureau of Labor Statistics, GDP growth which is showing economic growth and prices of crude oil in international term figures are collected from IEA, World Energy Outlook 2011. The SPR TEST applied for analysis of data, the results after analysis shows that new technology related to production of oil has energized the production of North America. The new technologies and policies are good for world and not showed any harm effect on world economy. The results proved the protection from the shocks of strategic petroleum to the supply of oil to world economies. In detailed, the supply of oil is not creating problems for oil importing countries because it provided the protection by strategic petroleum. While the findings showed that the reduction in demand of oil has reduced its prices in world market and due to less demand and lower prices, the investment in oil production and commodities that are producing from oil are also reduced which resultant the reduction in growth level of economies of concerned nations.

Bondzie *et al*. (2014) examined that influence of fluctuations in world prices of oil on growth of Ghana. Economic growth is calculated by Consumption, Investment, Output, Money Growth Rate, Inflation, Real Wage, Nominal interest rate, Capital service. The study also shows the consequence of monetary policy shocks on growth level of economy of Ghana. The variables of monetary policy shocks are Consumption, Investment, Output, Money supply, Money growth rate, Inflation, real Wage, Nominal Interest rate, Capital service. The authors used annual data

from 2007 to2010. The study applied general equilibrium of dynamic stochastic model for estimation The study examined that the fluctuation in interest rate cause fall in market prices and also fall in marginal cost of production. Money supply has positive relation with economic growth but interest rate and prices of oil fluctuation have adverse impact with growth in Ghana.

Creti *et al*. (2014) estimated the comparison of importing and exporting nations and measured the influence of worth of oil on financial markets. The countries that are importing oil from exporting nations are France, Germany, Italy, Germany, Netherland and U.S. now, the countries that are exporting oil to importing nations are emirate Arab, Kuwait, Venezuela and saudi arabia. The study used the time series data from September 2000 to December 2010. For analysis co integration techniques were applied. The result exhibited adverse influence of prices of oil on the growth rate financial market of importing countries. When the prices of oil and all these liquidities are increased then the production and growth process is become slowly in importing countries and their financial markets are struggling. The lower oil prices encourage the oil importing nations to increase their growth and production level. On the other hand, the exporting nations have constructive and noteworthy association among high oil prices, growth and financial markets. When the prices of oil are enhanced, the return of exporting nations is increased, their financial markets found stronger and their growth level is enhanced due to more profit in return from the export of oil at high prices. The demand and supply factors are showing that when the prices of oil are increased, the findings showed the decrease in demand and supply. While the lower prices has increased the demand and supply of oil. While, the findings proved that the low demand and supply are not affected the exporting nations because they are already dominated and their financial markets are stronger than the financial markets of importing nations. Ven and Fouquet (2014) examined the adverse effect of coal export on demand. The findings proved the adverse effect of oil imports on demand and growth level of the economy of United Kingdom.

Khan (2015) impacted the oil and worth of on growth level of the economy of a developing country. Here prices of lubricant and gold are independent variable while GDP and market return are the dependent variables. The study used the secondary data from 1997 10 2014. The researcher covered the stock values of KSE 100 returns in monthly bases and monthly average oil and gold prices. The study used the correlation test and the level of association

between variables. The analysis observed that the growth in terms of GDP is affecting negatively to the prices of gold. In detailed, when the growth level of the economy of stabled then the prices of gold are decreased which helped to make the economy stronger. On the other hand, growth of oil has constructive relation with GDP growth. But the association is not much effective. The findings showed the slight increase in GDP growth when the production of oil is enhanced. At the end, the empirical analysis proved that the amount and prices of gold and oil are increased the GDP growth of the economy. But the return rate in stock market is not good as compared to GDP growth. The growth and return in stock market are not increasing much as the prices of gold and oil are increased in concerned nation. While the lower prices of oil and gold has upsurge the growth level of the economy. The results suggested that the government should invest more in oil and gold which will reduce their prices and will enhance the return in stock market and will promote the growth rate of Pakistan.

Kurihara (2015) estimated the influence of prices of oil on the growth level of the economies of developed countries. The independent variables of the study are price of oil and rate of exchange in term of real rate. On the other hand growth is the dependent variable which denotes Real GDP. The study collected the quarterly data of variables from 1990 to 2015 taken from International Financial Statistics (IFS). The author applied co-integration test which showed that prices of oil bond with growth level of the economy is not clear. The studies showed oil exporting country enjoy positive relation with economic growth when the oil prices increase. Variables have long run equilibrium association. While oil importing countries face negative relation. The bond of growth and prices of oil cause positive effect on certain countries like United States, the European Union, and Japan. The author suggests that the supply oriented policies are necessary to boost the economy of oil-exporting countries.

Sek *et al*. (2015) examined the fluctuated prices of oil which is taken in response to crude form and its effect on inflation. This impact between two variables is examined in two groups of countries. One group which are less dependent on oil and the other who are highly dependent on oil. Ten countries from different continents are taken as Low oil dependent. While high income dependent countries are mainly from Asian and European continents. The study also observed the influence of prices of crude oil on rate of exchange, domestic output, and production cost of exporters. For the sake of numerical estimation annually data has been collected from 1980 to

2010, sources of data world bank. it approaches to the panel data set of two groups of countries and applied the Auto Regressive Distributed Lag (ARDL) model which showed that crude oil fluctuation have positive impact with inflation in Malaysia. The policy makers should make strategies regarding effective rate of real exchange and value of oil to tackle the hurdles and to gain maximum profit from them. Similarly exporter's production cost should be molded in such a way that it doesn't affect domestic inflation much, as these strategies will go to play an important role which can affect the stability of price and financial market. Policy makers prefer those policies which are monetary in nature that why it is much feasible to keep in check the excessive oil and fluctuated rate of exchange on inflation in domestic.

Hazarika (2015) investigated the influence of enhanced prices of crude oil on organization of petroleum exporting countries. Rate of oil is independent while GDP, exports and exchange rate are dependent variables. Secondary data is collected from 2007 to 2014. The data is collected from independent statistics, and US energy information and Annual Bulletin and press release of OPEC. The study applied the simple regression model which implies that there are positive impacts of rate of oil which is measured as crude on exchange rate. High rates of oil have negative relation with Gross domestic product and positive relation with exports. When rates of oil are enhanced then the growth level of economy is reduced, while the exporting nations god the constructive effect from high rates of oil. But when rates of oil are decline it doesn't affect economic activity.

Kang (2015).*et al* estimated the bond of shocks in rates of oil with the return in market of stock and with stock market volatility of United States economy. In this research independent variables are oil prices while dependent variables are market return and market volatility. Combine the study uses the daily data at monthly frequency from January to December from 1973 till 2013. The data is drawn from CRP this study has applied KPSS and co variance test to check series. The study measured the shocks in prices of the in three ways with volatility and return of stock market. Firstly an encouraging surprise to the global aggregate demand of oil has negatively affected the change and return in stocks. Secondly when the prices of oil are enhanced, then it has adversely reduce the change in stocks and also reduced the return in market of stock. Thirdly the reduction in global oil production increased volatility and return in stocks.

Jiranyakul (2015) estimated the relation between oil price and real effective exchange rate in Thailand. This study is based upon few variables like CPI, RERI and prices of crude oil. This study used 98 observations of the monthly data from July 1997 to December 2013. The data of CPI and RERI has been extracted from the Bank of Thailand. The study used the GARCH model and causality test for analysis. The result shows that there exists positive cause-effect association among prices of oil which is taken as real prices of oil and exchange rate which is also effective in real form. It is also deduced that the variables are not associated in long run. Study investigated that volatility in prices of oil cause to fluctuate the rate of exchange with lots of variations afterwards. Whereas, change in prices of oil negatively affect the change in rate of exchange. The author recommended that policies should be molded in such a way that more work should be done on energy efficiency instead of energy intensity to minimize the cost of production. For the sake to prevent the domestic market export cost and export diversification is important, so it could not cause harm to the local market in future.

Lorusso and Pieroni (2015) estimated the influence of fluctuated prices of oil on the economy of U.K, and also estimated the causes of fluctuations. In this study the author estimated macroeconomic aggregates of UK which includes nominal interest rate, real government deficit growth in terms of real GDP and consumer price index inflation. The study considers the monthly data from January 1976 to December 2014. Data is sourced from US Department of Energy and US Bureau of Economic Analysis. Study estimated the causes of fluctuations of oil price by structural VAR (SVAR). Finally the result showed that when there exists upsurge in the prices of oil, it also increases the domestic inflation of the economy and the government deficit decreases because the revenue generated when the value of oil is enhanced. The increase in the value of oil affects fiscal position of UK economy positively. When there is an increase in oil price, GDP growth falls down immediately, but rise in aggregate demand, have minute impact on domestic output growth but the case is opposite in long run. In long run output growth goes down when aggregate demand increases.

Jafarian and Safari (2015) examined the impact of values of oil fluctuations on Different areas of the stock market of Malaysia. These different sectors are stock market, discretionary of consumer, staples of consumer, energy and material, industrial sectors, financial sectors, utilities and sector of telecom. The study used the monthly data from 2000 to 2011. Granger causality

test and multifactor regression model were applied for the analysis. The result shows the constructive influence of changes in prices of oil to the KLCI return (Kuala Lumpur Composite Index). Secondly oil price change has positive impact on return from sector of energy and staples of consumer. Thirdly a price of oil change has destructively effects the return in services sectors of telecom and utilities.

Osigwe (2015) examined fluctuation in prices of oil and in rate of exchange. Then these fluctuations are influenced on the performance of Nigerian economy. The study contains one independent variable which is exchange rate and two dependent variables which are oil prices and economic performance by covering the data over 1960-2010. Exchange rate profile of Nigeria's data has been collected from World Bank's WDI (2013). The ordinary least square technique were applied for the estimation and the result were obtained that enhanced worth of oil were positively affected the economic performance of Nigerian economy increased 4% and GDP were used as the proxy for economic performance. While on the other hand when there were decreases in the oil prices the economic performance increased because Nigerian economy heavily depends on the revenue generated by oil exports. Inflation possesses negative and significant impact on economic performance but trade openness and exchange rate have positive influence on the performance of Nigerian economy. Findings recommended that relationship between real rate of exchange and oil prices is quite ambiguous and negative but positive with economic performance.

Aregbeyen and Kolawole (2015) estimated the impact among the revenue of oil, spending of government and growth level of the economy of Nigeria. Oil revenue is independent variable while growth and spending of government are dependent variables of the study and covering the data 1980 to 2012. Data were gotten through IMF, International Financial Statistics. Granger causality test is applied to measure the impact the magnitude of the variables. The result indicated that oil revenue impacted positively on the economic growth of Nigeria and impacted positively on the government spending. Oil revenue plays important role to keep moving the spending of government and growth in Nigeria. Author suggested that government should increase capitalization for the sake of developmental projects, by providing job opportunities and stable economic conditions.

Zaher and Maayan (2015) examined the impact of Global oil prices on GDP per capita of Israel's economy. The study used the time series data from1988 to 2013. The data is collected in monthly frequency and then converted in to quarterly frequency. The study used the method of vector error correlation model (VECM) for the analysis of variables. The result showed no association among growth level of Israeli economy and oil rates it means rates of oil change does not impact the economic growth.

Ahmad and Masan (2015) estimated the powerful relationship government spending, revenue of oil and economic growth in Oman. This study focus on the three main variable of macroeconomic like real oil revenue, real GDP, real government expenditure. For the analysis the annual data is used which is started from 1971 and ending on 2013. Data is collected from National Statistical hand book of Omani economy provided by National Centre for Statistics and Information. To analyze the data two tests were applied these are co integration and error correlation ques. And to check the dynamic effects of oil revenue shocks some useful tools applied which are variance decomposition and impulse response function. Co integration test suggest the constructive and noteworthy association among these three variables in long period. And error correlation technique predicts the causation in short period. At the end the author suggests that Oman should limits its expenditure, make stability in oil revenue and tending to induce economic growth.

Hesary and Yoshino (2015) impacted the Macroeconomic effects of oil price fluctuations on emerging and developed economies. China is one of the emerging economies while Japan and United States are developed economies. Oil prices are independent variable on the other hand growth rate and inflation rate are dependent variables. For the analysis data is started from February 2007 to September 2013. Data were obtained from International Financial Statistics (IFS) etc. For the analysis SVAR technique were applied. For getting the batter results all the variables were in real term. Results depicts that in developed countries the disturbance in oil prices and its impact on economic growth is very mild and catchable but the case of emerging countries is different than developed countries because of high fuel substitution and a low population. High strategic approach for crude oil stocks usage and government energy reserves targets in both developed and emerging countries are important to adopt. These strategies make them more prepared to resist the oil shocks. Whenever there is an increase in crude oil prices it

affects beneficially less on emerging and developing countries CPI inflation as compared to developed countries.

Khan (2015) checked the impact of oil and gold prices of a developing country on the GDP growth. Here oil prices and gold prices are independent variable while GDP and market return are the dependent variables. The study used the secondary data from 1997 10 2014. Data is collected randomly from different means which includes published journals, newspapers, books, and from many reports. This study used the value of stock of KSE 100 returns on month bases and monthly average oil and gold prices. The study used the correlation test and the level of association between variables. The result showed that GDP is negatively correlated with monthly average gold prices whereas oil growth shows weak insignificant but positive correlation with GDP. The data analysis results show that GDP growth is affected by the oil and gold prices. The results also show that oil and gold prices posses insignificant impact on return. The author recommended that there is a need to invest in the oil and gold in Pakistan because there is a direct effect of oil price on stock return and GDP sector.

Jain and Patil (2015) examined the impact of oil prices on Indian Economy. Research is based on empirically estimation of fall in crude prices and position of India's oil industry. Study analyzed pattern of production import over its consumption. This study is conducted to find out crude prices affect India's inflation rate, its impact on fiscal and trade deficit in oil companies. This study has found how much India hold remains in near future considering crude prices. The analysis of this paper showed that change in oil prices are uncertain, so they are generally expected to rise. Because of increase in India's import rate, Indian economy has suffered, when price of crude oil there increases cause rate of inflation to rise, which means now government have to more on subsidy, it decreases the value return on exports and result decrease in investment which directly affect GDP. Thus, the study suggested that in long run it is important for India to take measures for new energy resources, renewable energy sources to lighten the increasing demand for oil which is taken as crude and other liquids like petroleum and diesel. Increase in the number of crude oil imports explorative the domestic market so the need is to enhance petroleum supplies through increased along with other resources by using collaboration in oil field with the other foreign companies, to know how to find other renewable resources in a country or other ways to produce crude oil as a substitute. The use of renewable energy sources

like in any form will be helpful to reduce the burden of oil imports by planting easy and feasible ways to attain replacement benefit of crude oil in India. With growing need of demands has attracted the Western European countries too towards the use of renewable energy resources, Increase in India's exports will be helpful to meet its growing future oil import requirements.

Agri *et al*. (2016) estimated the effect of oil price volatility on macroeconomic variables and sustainable development in Nigeria. Real Gross domestic products, Exchange rate, Unemployment, balance of payment and interest rate in Nigeria are the macroeconomic variables which are differ in magnitude of their responsiveness. The authors used the secondary data from 1990 to 2015. Data are collected from Economic Financial and Banking indicators, World Economic and Financial Surveys. By using this time series data the study applied VAR model to estimate the effect of variables. When international oil prices decreases it will cause significant impact on price fluctuation and the imports increases, inflation decreases and this results the decrease in government revenue and expenditure in Nigeria. Authors recommended that energy saving hybrid cars that use solar energy should be encouraged. Sea ports should be free of scraps. Automobile companies should be encouraged to invest and produce in Nigeria.

Baumeister and Kilian (2016) examined the relation between lower oil prices and U.S economy. The study explores the effects on real GDP growth to decline in prices of oil. The study used the data from February 1970 to March 2016. After applying Simple OLS regression analysis suggests that decline in oil prices activate increase in real GDP growth by 0.7 percent. This in GDP rise up the real consumption of private and cause a decrease in trade deficit of petrol. This effect shows that a reduction in real investment largely due to the variation in the oil sector is considered as twice as large as that following the 1986 oil price decline.

2.3 Conclusions:

In summary, the literature shows that most of the work on Fluctuation of oil prices is done to find out the relation between oil prices and economic growth. The results of the studies prevail a blur relationship between oil price volatility and growth of economy. That is higher oil prices have negative relation with Gross domestic product (GDP), stock prices, real output and stock as a result economic growth decreases. On the other hand higher oil prices have positive

relation with exchange rate, real government revenue as a result economic growth decreases. So the relationship of above mention variables with economic growth provides a blind picture, sometime it provides positive relation and sometime negative. Economic growth does not provide good relationship with those variables. So, present study will shows the macroeconomic indicators when strengthen the relation of oil prices and macroeconomic performance of Pakistan. In this research macroeconomic performance index will introduced. If economic performance index use here, it might provide fine relationship.

Chapter No. 3

Theoretical and Conceptual Framework

3.1 Introduction:

Fluctuations in the oil prices are the global phenomena in the world which is felt by many countries. It is widely known that oil price fluctuation can cause effects on both exporting countries verses importing countries. One of the major impacts of Fluctuation in the oil prices is change in the inflation rate which is dangerous for overall performance of the economy. Many studies shows the oil price fluctuation cause negative impact on growth on economy and many other studies shows oil price fluctuation cause positive impact on growth of economy. However the present study used the relation between price of oil and economic performance to understand the batter impact of fluctuations.

The objective of this chapter is to provide comprehensive knowledge about economic performance and fluctuations in oil price in Pakistan and also provide concepts and related theories. As section 3.1 shows introduction of this chapter, 3.2 contains concept and definition of oil prices, 3.3 shows relation among oil price fluctuation and economy, section 3.4 shows Macroeconomic Performance, 3.5 is all about measurements of oil price fluctuations, 3.6 contains Cobb-Douglas production function, 3.7 is related to the theories of prices and at the end 3.8 shows conclusion of this chapter.

3.2 Concept and Definition of Oil Prices:

The prices of barrels measure through unrefined oil prices of oil which is available for immediate selling at a given time and place.

Mostly oil prices are set with the help of law of demand and law of supply. Oil price movement are easily seen that it is caused when little to do with the fundaments of supply and demand.

The fluctuation in oil market is linked with the financial market said by Tim Eyans, an energy analyst at City Future's Perspective in New York.

3.2.1 Determinants of Oil Prices:

i. **Supply and Demand:** It has very simple concept to understand. As demand of oil increases (or Supply of oil decreases) the price of oil goes up. On the other hand if demand of oil decreases the price of oil goes down.
ii. **Market Sentiments:** The other determinant is market sentiments, in this sentiment group of many people believe that oil demand will increase sharply in future and cause increase in the level of oil prices in present. On the other hand many people believe that oil demand will decrease sharply in future and can cause decrease in the prices of oil in present.

3.2.2 Reasons of Oil Price Increase:

i. Increase in the demand of oil.
ii. Fears of supply description.

3.2.3 Reasons of Oil Price Decrease:

i. Decrease in the demand of oil.
ii. Fear of supply increase.

3.2.4 Effects of Oil Price fluctuation on Economy:

Oil price fluctuation affects the economy on two different levels.

i. Micro level
ii. Macro level

3.2.5 Effects on Micro level:

i. Higher oil price tends to make production more expensive for businesses. On the other hand lower oil prices tend to make production less expensive for businesses. So, it will affect business sector.
ii. Higher oil makes goods and services of all the persons who live in a given house more expensive because the production cost increases. On the other hand lower oil prices make the goods and services less expensive. So, it will affect the household sectors on micro level.

3.2.6 Effects on Macro level:

As oil price fluctuations affect micro level it also affect the macro level.

i. As oil prices increases it will increase inflation. On the other side if oil prices decreases inflation decreases. The price of goods made with many type of petroleum products are affected in a straightforward way in term of inflationary oil prices.
ii. Increase in oil prices affects costs in indirect manners like transportation, manufacturing and heating. It leads to affect the price of many goods and services. This cost bear by consumers.
iii. Fluctuation of oil prices also effects the growth of economy.
iv. The supply and demand of other goods greatly varies due to the change in oil prices due the change in the cost of production.
v. According to economies, the supply curve of goods and services which depends on oil fluctuates drastically due to the prices up or down shift.
vi. Rise in oil prices affect the demand of other goods because they reduce wealth, as well as increase uncertainty about future (still 2007).

3.3 Relationship between Oil Price fluctuation and the Economy:

Oil prices fluctuation is the important source of economic fluctuation. As Blanchar and Gale (2007) noted, the late 1990s and early 2000s were considered to be an era when oil price fluctuate largely, this change can be compare in magnitude with the oil price shocks in 1970s.

However, these later oil shocks did not cause considerable fluctuations in real GDP growth or the unemployment.

Oil price shocks can cause other shocks of economy. In 1970s there was waste increase occur in commodity price which affects the inflation rate and growth. Whereas, the early 2000s is considered as the period of large growth rate which does not affects oil prices on inflation and growth.

Most of the studies suggest that the relation between oil prices and economy has determine most of the time like, Hooker (2002) suggested that the end of 1980s is considered as structural break happened between the relationship inflation and oil prices.

Blanchard and Gali (2007) looked at the responses of prices, wage, inflation, output and employment to oil shocks. They also find out those responses of all these variables to oil shocks drive down to mute in the mid-1980s.

3.4 Macroeconomic Performance:

The field of economics is divided into two groups' macroeconomics and micro economics.

Macroeconomics is the study of economy as a whole includes two things movements and trend variations. Such as exchange rate, unemployment, inflation, economic growth, budget deficits andmoney supply.

Microeconomic works on the individual part of the economy, which includes two things decision of household and firms and second is their interactions. Household treated as both supplier and demander of Factor of Production (Land, Labor, Capital, and Entrepreneurship) and as consumer of goods and services. Firm treated as both supplier of goods and services.

Macroeconomics covers the wide events of economy and considers the decisions making of an individual regarding economic activities. Macroeconomic events on larger scale along with the role of state of the economy greatly affect all the members of the society.

3.4.1 Macroeconomic Variables:

Economist gets the overall success of the economy when economic performance is stable. For this purpose three macroeconomic variables are important.

i. Gross domestic product (GDP)
ii. Inflation rate
iii. The unemployment rate

Gross Domestic Product: GDP is considered as the total amount of goods and services produced within a year in any country. Economic performance therefore, is the increase in the number of goods and services produced in an economy.

The Unemployment Rate: second and core variable is unemployment rate which is the main key of labor market. It is defined as the number of who are willing and able to work is unemployed. Low unemployment rate is the good indicator for macroeconomic performance.

Inflation Rate: the third important macroeconomic performance indicator is inflation rate. This is the overall increase in the prices of the economy. The real value of money decreases due to the rise in inflation rate. People who have fixed income decreases their consumption level as a result demand of goods and services go down, and macroeconomic performance hurts badly.

3.4.2 Measurement of Economic Performance:

Economic performance index is used in this study to measure the macroeconomic performance of a country. Economic Performance Index (EPI) is a macro-indicator use to measure the economic performance globally, nationally and state wise. This performance index is presented by Khramov and Lee (2013).

It is an indicator of macroeconomics. EPI is an efficient index to measure economic performance nationally and globally of any country. Index of economic performance measured the performances of government, firms and households on monthly, quarterly and annually bases.

Economic performance index contain the elements that affect all these segments respectively. These elements are;

i. Inflation rate (calculate monetary position of the economy)
ii. Unemployment (calculate production position of the economy)
iii. Budget deficit (percentage of GDP calculate fiscal position of the economy)
iv. Change in real GDP (calculate aggregate performance of the economy)

3.4.3 Raw EPI

Raw EPI is simple and assign equal weights to all variables and it is equal to one. Formula for Raw EPI is;

EP1 = 100% - | Inflation Rate | - Unemployment Rate - Budget Deficit/GDP + Change in Real GDP

Or

EPI = 100% - | Inf (%) | - Unem(%) - Def/GDP(%) + ΔGDP(%)

Where;

Inf (%) i=>current inflation rate

Unem (%) =>current unemployment rate

Def/GDP (%) =>current budget deficit as a share of GDP

ΔGDP (%) => real GDP growth rate

3.4.4 Weighted EPI

It is use to avoid consistency problem During high economic volatility period, in this method assign weigh to all variables to normalize the data. The weights set the boundries by multiplying the inverse standard deviation to the average standard deviation of each economic variable. Formula's for weighted EPI

Weighted EPI = 100% - W_{inf} |Inf(%)–I*|- W_{unem} (Unem(%)–U*) – W_{def} (Def/GDP(%)–Def/GDP*) + W_{gdp}(ΔGDP(%)–ΔGDP*),

Where

Wi => weight of each element and calculated by

$$W_i = 1 / StD_i * StDev_{AV}$$

IMF Working Paper [Khramov and Lee (2012)]

3.5 Measurement of Oil Price Fluctuations:

In this study the ARCH (GARCH) model is used to calculate the volatile oil prices. ARCH model is stands for Autoregressive Conditional Heteroscedasticity. While Generalized Autoregressive Conditional Heteroscedasticity is representing the GARCH. ARCH model is used to shows possible volatile variance, and also describe continuous increase variance. Most communally it is used for short term increase variations. The goal of this model is to calculate the volatility like a standard deviations, portfolio selections and derivative pricing.

3.5.1 ARCH Model:

ARCH model presented by Engle (1982). This model enables data to calculate the most feasible weight for the sake of forecasting latter. In this model standard deviation is calculated by using fixed number of most recent observations. In this most recent observation is 22 days of last month of the data. It is supposed that the variance of tomorrow's return is equal to weighted average of square residual of last 22 days.

Engle says that the variance of residuals (σ^2) of current period "t" to depend on past behavior of time "t-1"

$$\sigma_t^2 = \gamma_0 + \gamma_1 \mu_{t-1}^2$$

This is the arch model which suggested that whenever economy is get hit by big shock in period (t-1) then the value of μ_t will be bigger as well. And when the value of (μ^2_{t-1}) varies then the variance of coming innovation μ_t is also change.

After some time the assumption of equal weight have lacking the power because it is think that the most recent and current observation would be more relevant so that it have higher weight.

3.5.2 GARCH Model:

GARCH model is presented by Bollerslev (1986). This is another the weighted average of past square residual but in this model he decline weight which cannot go to zero. It is a very useful tool for predicting conditional variance. GARCH model of variance shown as:

$h_{t+1} = h_{t+1} = \omega + \alpha(r_t - m_t)^2 + \beta h_t = \omega + h_t\varepsilon_t^2 + \beta h_t$

here h_t define the variance of residual and

$r_t = m_t + \sqrt{h_t}\varepsilon_t$ the variance of ε is one.

Econometrician estimate that GARCH model only works if coefficients to be non-negative. It should work if $\alpha+\beta < 1$ and if the weights are positive $\alpha>0$, $\beta>0$, $\omega>0$. This type of model is typically called GARCH (1, 1) model.

3.6 Cobb-Douglas Production Function:

Paul Douglas represented his first formulation of Cobb-Douglas Production Function in 1927. When he was researching the formulation form to relate the calculation of workers and capital, his friend Charles Cobb who was the mathematician suggested the form $Y_t = A.K_t^{\alpha}.L_t^{\beta}$. That is why this function is called as Cobb-Douglas production function. During 1900-1947 both of them formulated and tested the Cobb-Douglas production function, which is commonly used to represents the relationship of output and two inputs labor and capital.

The present study will be based on Neo-Classical Cob-Douglas Production Function. As Hesary and Yoshino (2015) use the same model by using relationship between growth rate and inflation rate in China and Japan. Aregbeyen and Kolawole (2015) use cob Douglas production function by using the relationship among oil revenue,economic growth and public spending in Nigeria.

3.7 Price Theories :

Price theories are shown by the theories of inflation. Oil price volatility and oil price shocks cause inflation in the economy. “Inflation itself may also cause inflation in future.” This research shows important price theories, which are mostly used to present price effects. This is the macroeconomic phenomena that “Inflation is always and everywhere.” Says by Milton Friedman. The current study used the following theories for measuring oil price in Pakistan economy. There are following price theories.

3.7.1 The Quantity Theory of Money:

The quantity theory of money explains the relation between level of prices and the quantity of money in circulation. The quantity theory of money is the classical monetary analysis in the 19^{th} century. It prepares the conceptual frame work for interpreting price level in relation to the quantity of money in the economy. It also helps to reserve gold standard.

David Hume in period between (1711-1776) present the first idea to measure the impacts due to change in monetary policies within country or from one to another economy, by measuring prices and quantity of money. He gives significant process of producing and extending the quantity theory of money.

David Ricardo (1772-1823) is the classical economist. He thought that disequilibrium effects of oil prices and quantity of money are not important in the long run analysis. Ricardo says that inflation in Britain is the cause of Bank of England’s negligence over flowing out of money. Ricardo persuades the helpful output and employment effects of monetary inflow.

Irving Fisher (1876-1947) is the neo-classical economist. He presented his famous equation of exchange MV=PI like Cecil Pigou (1877-1959) presented Cambridge cash balance equation. Fisher and Cecil Pigou shows that monetary control could be avail in a fractional reserve-banking regime. This equation says that when velocity of money is equal to the price index then monetary control could be achieved.

3.7.2 Monetary Theory of Inflation:

Monetary theory of inflation is about determined level of output and prices.Monetarism refers to the followers of M. Friedman (1912-2006) he says that "only money matters" he also says that the role of monetary policies is more important than fiscal policy in the matter of economic stabilization. Whereas, he money supply is considered as the important factor tomeasuring the level of output and prices in the short run, and only the level of price in long run because the level of output in the long run are not measured by the money supply.

Monetarism stressed on the role of money. As in the modern Quantity Theory Milton Friedman says that "Inflation is always and everywhere" a monetary phenomenon which creates more expansion in the quantity of money than in total output. The monetarist also follows the exchange equation of Fisher. Supporting economist of this theory are Hazarika (2015), Khan (2015), Kiani (2011), Trung and Vinah (2011).

3.7.3 Demand Pull Theory:

Demand Pull theory presented by John Maynard Keynes (1883-1946). He shows the relation between inflation and aggregate demand. Keynes and his followers proved that aggregate demand rises due to demand pull inflation. Aggregate demand includes consumption, government expenditure, and investment. He says when the gap between aggregate supply and aggregate demand increases the level of inflation increases and that is the level of full employment. Keynes and his followers say that when the level of full employment take place then the production factors increases the public prices. The economist who support this theory are Ibrahim *et al*. (2014), Shafi *et al*. (2014), Bondzie *et al*. (2014), Creti *et al*. (2014), Sek *et al*. (2015), Kang *et al*. (2015), Osigwe (2015).

In demand pull theory prices increase faster than output.

3.7.4 Cost Push Theory:

It is caused when wage is increased by union forcefully and the rise in profit is due to the employers. This type of inflation is not uncommon, when it was seen in 1950s and 1970s. This type of inflation is known as "New Inflation".

The main cause of cost push inflation is that money wage increases more than the productivity of labor because of labor union. As a result cost of production increases and it will cause increase in the prices of products. On the other hand products become expensive for consumers and the cost of products increase. Therefore cost push or wage push inflation takes place.

Another cause of cost push inflation is profit push inflation. Monopolistic firms set high prices of goods to cover the high cost of production. As a result this type of firms enjoys high profit from their products.

The researchers who follow cost push theory of inflation are Masih *et al.*(2010), Qianqian (2011), Jawad (2013), Aregbeyen and Kolawole (2015), Zaheer and Maayan (2015).

3.7.5 Structural Inflation Theory:

Idea of structural inflation comes into economic research nearly 40 years ago. It is about how structural factors effects the inflation in the economy. These structural factors cause supply increase, unemployment, production factors become slow. Less developed countries are still unsuccessful because they could not be able to change their structure improvement, or even they do not try for self-economic growth.

Rapid and faster growth of service sectors requires population growth and their immigrations for the sake better lives; is another inflationary factor. And it is more stressed by structuralism. Many researchers follow this theory of inflation and Jamali *et al.* (2011) is one of them.

3.7.6 Rational Expectations Revolution Approach to Price:

In 1970s macroeconomics reveals the idea of rational expectation economists. The rational expectation of business cycle and price generation mechanism shows a vertical price curve for short run and also for long run. People expect that prices are always rises. As a result business cycle and prices generate a vertical PC (price curve) in short and long run. In this situation monetary policy do not have any effect even in short run. According to the Sargent and Wallace, government budget constraints can play a defining role to limit the path of inflation. All

other financing methods to decrease government deficit greatly depends on the timing of inflation in the future.

3.7.7 New Neoclassical Synthesis (NNS):

New Neoclassical Synthesis is the real economic activity which is further suggested as new classical real business cycle theory. This theory is popularized as Paul Samuelson, the Neoclassical Synthesis was known as an engine of analysis.

Keynesian view about NNS is that it determines the National Income and it provide the principles to help in macroeconomic analysis. In the time period of monetary policy the New Neoclassical Synthesis has become a focus of research. In 1990s there become a difference in New Keynesian and New classical economist on the start of price movements and business cycle have increasing to become soft, and now the NNS become the matter of macroeconomics.

In this NNS these monetary factors are the key factors of Business cycle, because Keynesians assume that prices have stickiness in the short run. But the new version of NNS which is called the NEW IS-LM-PC makes the endogenous price level. Here IS shows investment and saving. LM shows money supply and PC shows Phillips curve. These components of model estimate that today inflation expects future inflation.

3.7.8 The Political Macroeconomics of Inflation:

The above mentioned theories only focus on the macroeconomic factors of Inflation. But this theory focuses on the non-economic factors which cause inflation, such as institution, political factors and culture. Political forces instead of social planners choose economic policy in the real world. So, the new political economy provides the new relation between election timing, performance of policy makers, political instability and the inflation also. Another cause of inflation is the sustained government deficit which is the result of new political process.

3.8 Conclusion:

This chapter provides all the knowledge about economic performance and oil prices, their concepts, types, merits and demerits. And after that it will provide basic theories of inflation

which shows that how prices increase, and what are their effects on other variables and economies.

Chapter No. 4

Data, Model and Methodology

4.1 Introduction

This chapter discusses the collected figures, methodology and specification of model to conduct the empirical analysis. OLS (ordinary least square) technique will be used if all the v variable stationary at level. Johnson co integration technique will be use if all the variables stationary at 1st difference. ARDL co-integration will be used to find the long run relationship between variables if some variables are stationary at level or some are on 1st difference. Section 4.2 we will discuss the data source and time span. Section 4.3 contains the brief introduction of the variables. Section 4.4 is based on the brief summary of variable constructions based on measurement and there expected or unexpected intrusion. Section 4.5 highlights the methodology which tells about models and strategies used to extract desired results Model is specified in section 4.6. At the end, the conclusion is concluded in last section of chapter.

4.2 Sources of collection of data:

The data of different variables for the period 1976-2015 has been taken. The collected data is time series data and gathered from different sources like World Development Indicators (World Bank), Pakistan Economic Survey (Ministry of Finance) and IMF etc.

4.3 Definition of variables:

All the variables defined in this section. The centre point of this study is to check the impact of oil price fluctuations on macroeconomic performance of Pakistan.

4.3.1 Dependent Variable:

Macro-Economic Performance (EPI): Macro Economic performance will be dependent variable. Macroeconomic performance means an increase in GDP growth. This increase in Gross Domestic Product (GDP) growth means there will be an increase in the value of national output / national expenditure. It will be an increase in the goods and services in a given time period. When the macro economic performance of a country increases it means country will be more developed. When there show a rise in the oil prices of export-country then macroeconomic performance of that country also increases but the macro economic performance of import-country decreases. On the other hand; when there will decrease in the oil prices of export-country occur then macroeconomic performance of that country decrease but there will be an increase in the macro economic performance of import-country. To measure the macro economic performance the present research will use the Economic Performance Index (EPI) which is the spontaneous indicator For measuring a country's economic performance, and it is presented by Khramov and Lee (2013).

$$\mathrm{EPI}_t = 100\% - UR_t(\%) + REER_t(\%) + GS_t(\%) - GD_t(\%) + TB_t(\%)$$

These are the following variables which affects the Macroeconomic performance of a country.

UR_t = Unemployment Rate of country in the current period of time.

$REER_t$ = Real effective exchange rate of country in the current period of time.

GS_t = Government spending of country in the current period of time.

GD_t =Government Deficit of country in the current period of time.

TB_t = Trade balance of country in current period of time.

Government Spending (GS): Government spending is the expenditure of government on public goods, infrastructure, and investment and transfer payments. Government spending depends on government revenue. Oil exporting countries will get more and more revenue when the price of oil will be high, as a result government spending of exporting countries will be high. On the other hand oil importing country like Pakistan faces more expenditure on their imports of oil and their macroeconomic performance will decline.

Government deficit (GD): A Government deficit tends to rise when a government's total expenditures exceed the total value of revenue. As the studies shows Pakistan heavily depends on oil imports in order to run its economic circle. So, in this situation higher oil prices in the export-country will increase the government expenditure of import-country in the form of higher import prices. As a result government deficit takes place in home country because of higher expenditure. Deficit will cause negative impact on the macroeconomic performance of any economy.

Real Effective Exchange Rate (REER)*:* It is a measure of the trade-weighted average exchange rate of a currency against a basket of currencies. When the oil prices of export-country increase it will revalue the country's currency. As result real effective exchange rate of export country rises this will also raise the economic performance of export country .On the other hand import-country will pay higher import prices because of higher exchange rate as a result their macroeconomic performance will decline.

Unemployment Rate (UR): It is the total percentage of labor force which is unemployed but seeking for employment. Whenever oil prices increases, transportation cost will also increase for the poor people as well as for small scale entrepreneurs. This will lead to increase the cost of goods and services, in this situation it will become hard for entrepreneur to hire many employers

and give them salaries. As a result unemployment increases in export and also in home country. And increase in the unemployment rate cause negative impact on the macroeconomic performance of any country.

Trade Balance (TB): It is the difference between the monetary value of exports and imports in an economy over a period of time. Present research will measure trade balance (current account balance) in million rupees in Pakistan. The expected effect of trade balance is positive on macroeconomic performance of Pakistan if the exports will be greater than imports. Jawad (2013) used trade balance as a control variable in his study.

4.3.2 Independent variables:

Independent variable is as following:

i. **Oil Prices (OPV):** The price of oil normally shows the price of a barrel of crude oil. Few periods indicate higher volatility of oil prices which shows high risks for macroeconomic performance, this means that the expected macroeconomic performance effect greater at certain periods compared to others. This research will try to find out that large changes in the oil prices seem to be followed by other large changes and vice versa. These phenomena will know as volatility clustering and calculated by ARCH (GARCH) models.

The ARCH (GARCH) models stands for Autoregressive Conditional Heteroscedasticity. It is designed to deal with this type of problems. ARCH (GARCH) models are considered as an important technique in the analysis of time series data. These models are specially used to analyze and forecast volatility. In this research the question is about price volatility and the best tool becomes the ARCH (GARCH) models to provide a volatility measure. As Felix and Kurubo (2012) used GARCH technique to measure the fluctuation of oil prices in Nigeria. Ahmad and Mustafa (2013) used the ARCH (GARCH) model to check the effects of oil price Fluctuation and effects of Karachi stock market in Pakistan. Further results are given in Appendix (1)

ii. **Labor (LAF):** The total labor force is defined simply as the people of the country who are willing and able to work. Labor force will be directly linked with economic performance of country. As labor force participation increased it will also increase the output and the income therefore macroeconomic performance increases.

iii. **Cross Capital Formulation (CCF):** Total investment will be used as the cross capital formulation in the present research. Economic development takes place when good investment is available in the country. The investment extracted from tax collection, foreign aids etc which is basically the investment in public sectors by government. Mostly the government invested in development projects like education and health institute and on infrastructure. After public investment, the next is private investment which is invested by individuals in industries to increase production and also invested in services. While, the efficiency of the economy of any country is increased with the help of combined effect of private and public investment. The relationship of cross capital formation is positive with the macroeconomic performance of a country.

- ***Imports (IMP):*** An import is a good brought into a home country. High price imports of oil will cause adverse influence on the performance at macroeconomic level of home country as income of the home country shifts into the other country. And low price imports of oil because positive impact on macroeconomic performance of home country as less price oil is available of economic activities in home country.

- ***Exports (EXP):*** The term export means shipping in the goods and services out of a country. When oil prices increase in export-country then it will get more export's revenue and as results macroeconomic performance takes place in export-country. And import-country will face higher expenditure for imports of high price oil. But when the oil price decreases in export-country it will cause decline in the exports revenue of export-country and the macroeconomic performance does not takes place. On the other hand import-country will enjoy low expenditure. Exports are calculated as Fuel exports % of GDP

Explanation of Control Variables:

The control variables are following:

1. **Interest Rate (IR):** Kiani (1990) used Interest rate as a control variable in his study. It is the percentage on total amount of money charged for its used over specified period of time in a year. The present study will use this amount in percentage. And it will be expected that if the interest rate is high then people use less amount of money and as a result macroeconomic performance declines. The data of real interest rate are in percentage.
2. **Money Supply (MSP):** Jamali et al. (1992:2) used Money supply as a control variable in their study. It is the total amount of money in the economy. The present research will use money supply in millions rupee in Pakistan. The expected effect of money supply on macroeconomic performance is positive because as the money supply increases people have more money in hands, as a result consumption level increase in the economy this will leads to the positive effect on macroeconomic performance.

4.4 Variables Construction:

The focus of this study aims to investigate the impact of oil price fluctuations on macroeconomic performance of Pakistan. The dependent variable of the study is macroeconomic performance index and independent variables are oil prices, total labor force and investment as a capital. Table 5.1 provides the brief summary between independent variables and dependent variable.

Table 4.1Construction of variables

Variables	Abbreviation	Variable's measuring units	Sources of Data	Expected sigh with EPI

Economic Performance	EP	$\text{EPI}_t = 100\% - UR_t(\%) + REER_t(\%) + GS_t(\%) - GD_t(\%) + \text{TB}_t(\%)$	WDI, State bank of Pakistan, FDI	Negative
Unemployment Rate	UR	% of Labor force in Pakistan	WDI	Negative
Real Effective Exchange Rate	REER	%of GDP of Pakistan	WDI	Negative
Government Spending	GS	%of GDP of Pakistan	WDI	Negative
Government Deficit	GD	Revenue – Expenditure	State Bank of Pakistan, FDI	Negative
Fuel Imports	Imp	Fuel imports % of GDP of Pakistan	WDI	Negative
Fuel Exports	Exp	Fuel exports % of GDP of Pakistan	WDI	Positive
Oil prices	OP	Oil prices are the spot price of a barrel of crude oil. Fluctuations of oil price measured by ARCH (GARCH) model	WDI	Negative
Labour	L	Labour is measured by the Total labour force participation rate	WDI	Positive
Cross capital	CCF	Total investment is used as cross	WDI	

formulation		capital formulation in which includes public and private investment.		Positive

4.5 Methodology

We obtain the impact of oil price fluctuations on macroeconomic performance of Pakistan through Johansen's co integration method. The initial step of this study is to measure the integration orderof variables. For this purpose this study has applied unit root test to check the stationarity. Then we decide to use the Johansen's Co integration method for the analysis of data.

4.5.1Descriptive Statistic:

Descriptive statistics tells the basic relationship between all the variables. Here to check the normality of the variables of Macroeconomic performance. The present study will apply the normality test as well as the T and F test to check the significance of coefficient of determination. The statistical summary and correlation matrix shows which independent variable is highly and weakly correlated with dependent variable. It tells about the fitness of model and to show the impact of oil price volatility effect on Macroeconomic Performance of Pakistan.

4.5.2 Econometric Analysis:

The present study will first apply unit root test to predict the stationary of the variables in the model. If all the variables stationary at level then study will apply simple regression, ordinary least square (OLS) technique. If all variables stationary at 1^{st} difference then the present study will apply Johnson Co integration test. If some variables are stationary at level and some on 1^{st} difference then our study will apply ARDL test to check the effects of oil price fluctuations on macroeconomic performance of Pakistan. In this recent research all the variables related to

Macroeconomic Performance and oil price volatility are integrated at first level and the results suggested the test for analysis is Johansen Co integration Test.

4.5.3 Unit Root test

This test is use to check the stationarity in time series data. Unit root is one cause of showing non-stationarity. In our analysis we check the changelessness of the data by applying the augmented Dickey–Fuller test(ADF) unit root test. This test is valid for large samples. This test results indicated that elaborates that all the variables are integrated at first difference in time series.

4.5.4 Co integration Rank Test:

After finding out the stationary of the data the next step is to apply the co integration test to check the co integration among the variables. And it is also used to check the existence of long run relationship between dependent and independent variables. For this purpose confined co integration Rank test is applied. The unrestricted co integration rank test is consisting of two steps for co integration and also for long run analysis among variables. The first step is consist of the relation between two values trace value and critical value. If the trace value is more the critical value it shows the null hypothesis (no co integration among variables) is rejected and alternative hypothesis (co integration among variables) is accepted. The second step of not restricted co integration rank test is consisting of maximum Eigen value. In this the Eigen value should be greater than the critical value at 5% level. If the maximum Eigen values are greater the critical values then study will reject the null hypothesis and accept the alternative hypothesis. Finally the results show that there is co integration and long run effect shows between oil price volatility and Macroeconomic performance.

4.5.5 Johansen Co-Integration Analysis:

The main concern of this study is to checks the impact of oil price fluctuations on macroeconomic performance of Pakistan. On the base of results extracted from stationarity this study chooses to apply Johansen Co-integration method. Johansen co-integration test was developed by Johansen in 1995. The results of the Johansen test shows that all the variables are stationary or integrated at 1^{st} difference I(1).

The reasons behind the selection of Johansen Co integration technique are;

i. When the size of sample is found to be large then Johansen approach is valid. It does not feasible results in small size of sample [Pesaran and shin(1999)]
ii. Johansen's co-integration is applied on the bases of integration of all variables at 1^{st} difference.
iii. Unbiased and efficient estimator is obtained after implying Johansen co-integration technique.
iv. Johansen co integration method provides error free long term result and avoids the issue of serial correlation.
v. The Johansen co integration test is mostly used to check the co integration among long run variables.
vi. Johansen co integration method proved short run and long run outcome individually.

4.5.6 Error Correlation Model (ECM):

After identifying the long run estimation among the variables it is necessary to check the short run estimation among variables. To check the existence of short run co integration error correlation model is used.

There are following advantages of Error Correlation Model:

i. Error correlation model is used to check the short run relationship among variables.

ii. Error correlation model is used to stabilize the effects of Short and long run variables.
iii. In error correlation model a term tool of adjustment is used to reduce the error among variables from short run to long run.
iv. ECM (-1) shows the significance of the model. Here negative sign shows the error correlation model reduce the error and stabilizing the variables from short run to long run.

The recent study used the error correlation model to see the effects of oil price volatility on Macroeconomic performance in Pakistan in short run.

4.5.7 Stability Test:

The very important and last test is stability test to measure the impact of oil price fluctuations effects on Macroeconomic performance in Pakistan. Sometime the model faces the problems of serial correlation and Heteroscedasticity. Stability test is specially applied to check the effects of serial correlation and Heteroscedasticity among variables. Two test are applied to check the stability of model for this purpose. The result of these tests is shown through graph to highlight the problems of serial correlation and Heteroscedasticity. The name of first test is Cumulative Sum of Recursive Residuals CUSUM test and the name of second test is Cumulative Sum of Recursive Residuals square CUSUMS test. The present research used CUSUM and SUSUMS tests on oil price fluctuations and Macroeconomic Performance to check the serial correlation and Heteroscedasticity among variables.

4.6 Model Specification:

The present study concentrates on the relationship between macroeconomic performance and oil price fluctuations in Pakistan. The study focus on the linear relationship whether the variables move in the same direction or not. Therefore the present study will be based on Neo-Classical Cob-Douglas Production Function. As Hesary and Yoshino (2015) use the same model by using relationship between growth rate and inflation rate in China and Japan. Aregbeyen and

Kolawole (2015) use cob Douglas production function by using the relationship among oil revenue, public spending and economic growth in Nigeria.

Therefore, traditional production function is written as.

$$Y_t = A.K_t^{\alpha}.L_t^{\beta}$$

To check the impact of oil price fluctuations on macroeconomic performance of Pakistan, transposed form of Cob-Douglas Production Function can be written as:

$$Y_t = A.K_t^{\alpha}.L_t^{\beta}.OP_t^{\theta}.IMP_t^{\gamma}.EXP_t^{\sigma}.N_t^{\mu}$$

Here we apply the log on both sides of the equation to mak.e it linear

$$lnY_t = lnA + \alpha lnK_t + \beta lnL_t + \theta lnOP_t + \gamma lnIMP_t + \sigma lnEXP_t + \mu lnN_t + \mu_t$$

(I)

Final estimated model is following

$$lnY_t = \varphi + \alpha lnK_t + \beta lnL_t + \theta lnOP_t + \gamma lnIMP_t + \sigma lnEXP_t + \mu lnN_t + \mu_t$$

Natural log of exogenous technological progress express as (Φ) has a positive impact on macroeconomic performance.

Y_t = level output in an economy in the current period of time.

K_t = Total gross fixed capital formation in an economy in the current period of time.

L_t = supply of total labor force in an economy in the current period of time.

OP_t = Oil Prices in an economy in the current period of time.

Now we will change the model by adding the Economic performance index (EPI) and other explanatory variables in place of equation (1) because we wanted to check the impact of oil prices fluctuations on macroeconomic performance of Pakistan economy.

$$\mathrm{EPI}_t = f(CCF_t, L_t, OP_t, IMP_t, EXP_t N_t) \qquad (2)$$

$$\mathrm{EPI}_t = 100\% - UR_t(\%) + REER_t(\%) + GS_t(\%) - GD_t(\%) + TB_t(\%)$$

N_t is the set of controlled variables, which are may be

$$\mathrm{N}_t = (\, IR_t, MS_t)$$

IR_t = Annual interest rate of the country in recent years.

MS_t= Money supply of the country in recent years.

Here is presented the model of error correction.

$$\Delta(LEPI)_t = \beta_\circ + \sum_{i=1}^{n} \beta_{1i}\, \Delta(LEPI)_{t-i} + \sum_{i=0}^{n} \beta_{2i}\, \Delta(LOPV)_{t-i} + \sum_{i=0}^{n} \beta_{3i}\, \Delta(LLAF)_{t-i} + \sum_{i=0}^{n} \beta_{4i}\, \Delta(LCCF)_{t-i} + \sum_{i=0}^{n} \beta_{5i}\, \Delta(LMSP)_{t-i} + \sum_{i=0}^{n} \beta_{6i}\, \Delta(LEXP)_{t-i} + \sum_{i=0}^{n} \beta_{7i}\, \Delta(LIMP)_{t-i} + \beta_8(LEPI)_{t-1} + \beta_9(LOPV)_{t-1} + \beta_{10}(LLAF)_{t-1} + \beta_{11}(LCCF)_{t-1} + \beta_8(LMSP)_{t-1} + \beta_8(LEXP)_{t-1} + \beta_8(LIMP)_{t-1}$$

Equation (3)

β_0 = intercept term, μ_t = Disturbance term

Here Δ shows the difference at first order and $_{t-1}$ shows the previous year effects in long run as well as in short run.

The association between independent and dependent variables in both short and long run illustrated in this equation. We display the impact of oil price fluctuations on macroeconomic performance of Pakistan. Dependent variable is economic performance (EP) which is measured by five variables unemployment rate(UR), real effective exchange rate(REER), government spending(GS), government deficit(GD), trade balance (TB) and the independent variables are oil prices(OP), labor(L) and cross capital formulation (CCF) exports (EXP), imports (IMP). The above equation shows correlation between independent and dependent variables in both short and long run. Where the coefficient of short run variables are β_1, β_2 ,β_3 , β_4,β_5,β_6,β_7, and coefficient of long run variables are β_8 ,β_9 , β_{10},β_{11} ,β_{12} ,β_{13} .

Null hypothesis

$H_0 = \beta_8 = \beta_9 = \beta_{10} = \beta_{11} = \beta_{12} = \beta_{13} = \beta_{14} = 0$ (not confirmed the association among variables in Long run)

Alternative hypothesis

$H_1 = \beta_8 \neq \beta_9 \neq \beta_{10} \neq \beta_{11} \neq \beta_{12} \neq \beta_{13} \neq \beta_{14} \neq 0$ (confirmed the association among variables in Long run)

In detailed, the H1 should be accepted to confirm the existence of long run relationship among variables. for this, the F statistics computer value should be greater than the upper and lower bound values. If this situation is found then Ho will reject by accepting the H1 which confirms the existence of long run.

4.6.1 Short and long run relationship time horizons

There is the need to check the association among variables in both period of time the short and long run. Here the equations of short and long periods are given below:

1. **Long run Equation**

$$LEPI_t = \alpha_\circ + \sum_{i=1}^{n} \alpha_{1i}(LEPI)_{t-i} + \sum_{i=0}^{n} \alpha_{2i}(LOPV)_{t-i} + \sum_{i=0}^{n} \alpha_{3i}(LLAF)_{t-i} + \sum_{i=0}^{n} \alpha_{4i}(LCCF)_{t-i} + \sum_{i=0}^{n} \alpha_{5i}(LMSP)_{t-i} + \sum_{i=0}^{n} \alpha_{6i}(LEXP)_{t-i} + \sum_{i=0}^{n} \alpha_{7i}(LIMP)_{t-i} + \mu_t$$

Equation (4)

The above equation is presenting the long period of time performance of economy at macroeconomics level. This equations is based on lag variables in which t is showing the time series and t-1 is showing the lag values of all previous years. Error term is presented by μt.

Short run equation

$$\Delta(LEPI)_t = \gamma_\circ + \sum_{i=1}^{n} \gamma_{1i}\Delta(LEPI)_{t-i} + \sum_{i=0}^{n} \gamma_{2i}\Delta(LOPV)_{t-i} + \sum_{i=0}^{n} \gamma_{3i}\Delta(LLAF)_{t-i} + \sum_{i=0}^{n} \gamma_{4i}\Delta(LCCF)_{t-i} + \sum_{i=0}^{n} \gamma_{5i}\Delta(LMSP)_{t-i} + \sum_{i=0}^{n} \gamma_{6i}\Delta(LEXP)_{t-i} + \sum_{i=0}^{n} \gamma_{7i}\Delta(LIMP)_{t-i} + \lambda(ECM)_{t-1} + \mu_t$$

Equation (5)

After long term specification, the above equation is showing the association among variables in short run. In short run, Δ sign is showing the change in dependent variables when the independent variables are changed. The change in taken in short term in which the effect of previous year is included. While the $(ECM)_{t-1}$is showing the error correction model which is used to reduce the error in long run and to make the findings of long run with minimum error.

4.6.2 Error Correction Model

Error correction model is based on the speed adjustment tools that are used to reduce the error in long period. The minimizing error in long run will stable the findings of long run that was affected by the error of short run.

here the equation of error correction is given below as follow:

$$\Delta Zt = \Delta\gamma + \delta\Upsilon t\text{-}1 + \lambda(ECMt\text{-}1) + e_t \ldots \textbf{(5)}$$

Equation is presenting the error correction in which the short term effects are measured by δ sign and long run effects are measured by λ sign which is also representing the speed of adjustment in error correction model.

4.7 Conclusion

This chapter was based on methodology and data. The data is collected from 1976-2015. The selected variables are Macroeconomic performance which is measured by unemployment rate, real effective exchange rate, trade balance, and government spending and government deficit. On the other hand independent variable are oil prices, total labor force and total investment as cross capital formulation, exports and imports of the Pakistan. In this chapter we also inquire the relationship between oil price fluctuations and macroeconomic performance in

Pakistan. The Johansen co integration method used to show the relationship. On the bases of the results extracted from the stationary tests; the Johansen co integration method is applied to check the relationship between variables. The ADF test depict that all variables are stationary or integrated at 1^{st} difference I(1). To find out the effects of long run distribution Unrestricted co integration rank test is used and for the short run effects Error correlation model is used. At the end of this chapter CUSUM and CUSUM square test are applied to check the stability among variables of oil; price fluctuations and Macroeconomic Performance of Pakistan

Chapter No. 5

Results and Discussion

5.1 Introduction:

Chapter 5 examine the effect of oil price fluctuations on Macroeconomic Performance of Pakistan from 1976 to 2015. Before analysis the data it is essential to take the overview of variables. The summery statistic gives the information about data and it provides the value of Minimum, Maximum, Median, Mean, Std. Dev, Kourtosis, Skewness, Jarque-Bera, and probability etc. which is presented in section 5.2. Further the results of Correlation matrix are presented in this chapter in section 5.3 it is used for measure the strength of association between the pair of variables. In section 5.4 Augmented Dicky Fuller test is applied on the data to examine the stationary of the data them to propose a suitable methodology to calculate the reliable results. While section 5.5 presented the result of co-integration rank test to verify the co integration association among the dependent and a set of independent variables. Next in section 5.6 and 5.7 results of long and short run are accessible respectively. At the end of this chapter CUSUM square and CUSUM test are presented to check the constancy of data and conclusion is given in section 5.8.

5.2 Descriptive Statistic:

To estimate the consequence of oil price fluctuations on the Macroeconomic performance of Pakistan the descriptive summary of variables is given in following table.

Table 5.1 presented the expressive summary of selected variables and row 1 shows the mean value of the variables' series, which is obtained by adding up all the series of a variable and divided it by the number or series. Row 1 shows that the average value of Economic Performance (EPI) is 76.771 and the average Oil price variation (OPV) is 4.752 million. Average

ration of total labour force (LAF) is 49.825 and the average of cross capital formulation is 495931.2 while the average of money supply (MSP) is 42.368. The average value of Exports (EXP) and Imports (IMP) are 2.663 and 23.681 respectively.

Table 5.1: Review of the Variables

	EPI	OPV	LAF	CCF	MSP	EXP	IMP
Mean	76.771	4.752	49.825	495931.2	42.368	2.663	23.681
Median	76.062	4.612	49.680	193446.0	41.496	1.862	22.949
Maximum	93.212	8.081	53.481	2431664.	49.186	7.127	36.562
Minimum	48.112	0.004	45.200	2581.000	37.273	0.312	14.211
Std. Dev.	26.381	1.813	1.933	694540.3	3.392	2.092	6.473
Skewness	0.871	-0.276	-0.518	1.826	0.339	0.811	0.299
Kurtosis	2.251	2.915	3.609	5.171	1.945	2.193	1.918
Jarque-Bera	5.841	0.509	2.351	29.343	2.555	5.324	2.486
Probability	0.053	0.775	0.308	0.000	0.278	0.069	0.288
Observations	39.1	39.2	39.1	39.2	39.1	39.2	39.1

Source; Author's calculation by utilizing E-view 9.

The second row represents median value of the series. It is the middle value of the sequence of specific variable which is getting by the middle value of arranged sequence either in ascending or descending order. As represented by the table 76.062 is the median of macroeconomic performance index EPI series. While 4.612 is the median of oil price variations (OPV).

The third row represents the maximum value of the series. As, 93.212 are the maximum value of Macroeconomic Performance (EPI) and 8.081 is the maximum variation occur in the oil prices in respective time period. On the other hand the fourth row of the series represents the

minimum value. As, 48.112 is the minimum value of macroeconomic performance (EPI) and the 0.004 is the minimum variation in the oil prices. While Fifth row of the table illustrate the standard deviation, that is the measure of variation in the series.

Sixth row represents the skewness. Oil price variation (OPV) and total labour force are negatively skewed while all the other variables are positively skewed. Negatively skewed show that distribution has long left tail while positively skewed showed that the distribution has long right tail.

Seventh row shoes the kurtosis. It shows the Preakness and flatness of distribution of the series. Here oil price variation (OPV) are approximately equal to 3 so that is Mesokurtic and this is distribute normally. On the other hand economic performance (EPI), money supply (MSP) exports (EXP) and imports (IMP) have flattery distributed and have value of kurtosis less than 3 so that it shows Playto kurtic. While on the end cross capital formulation (CCF) and total labour force (LAF) contain value of kurtosis>3 that is leptokurtic.

At the end, eighth row represents the statistics of Jarque-Bera experiment which is employed for testing that the statistics sequence are distributed normally or not. Jarque Bera is goodness of fit and it tells that if the computed value of $P > 0.05$, then we said the residual are normally distributed but if the computed value of $P < 0.05$ then we said that residual are not normally distributed. In present research the ninth row represent the computed value of Jarque Bera test. All the values are greater than 0.05 except Investment variable. These values are macroeconomic performance (0.053), oil price volatility (0.775), total labour force (0.308), Money supply (0.278), Exports ((0.069), Imports (0.208), which shows all the data series are normally distributed.

5.3 Correlation Matrix:

Before estimating the empirical results it is important to inspect the strength of association involving in dependent and independent factors. It tells the level of association between variables and correlation matrix is also used to show the difficulty of multicollinearity in the estimated model. High correlation coefficient (greater than 0.8) shows the trouble of sever multicollinearity therefore the consequence of matrix given in table 5.2.

Table 5.2; Correlation Matrix

	EPI	OPV	LAF	CCF	MSP	EXP	IMP
EPI	1.000						
OPV	-0.207	1.000					
LAF	-0.075	-0.366	1.000				
INV	-0.489	-0.292	0.706	1.000			
MSP	-0.197	-0.126	0.339	0.271	1.000		
EXP	0.254	-0.494	0.389	0.369	-0.091	1.000	
IMP	-0.288	-0.231	0.051	0.279	-0.371	0.407	1.000

Source ;Author's calculation by utilizing e-view 9.

Table 5.2 shows the correlation matrix of all variables which are included in present study. It shows macroeconomic performance index (EPI) is weakly correlated with oil e volatility (OPV) and other independent variable. Because all the variables have less than 0.4 correlation value, that is the low level of association. So, it's revealed that the dependent variable have no problem of Multicollinearity.

The reason behind the weak correlation between oil price variation (OPV) and Macroeconomic Performance (EPI) of Pakistan might be described as: Pakistan is including in group of countries which have high reliance on oil import to meet the demand of local citizens. Over the time we face the changing pattern in source of energy supply such as crude oil. Thus arguably, oil is one of the key source which has exposed the country to many risks and brought negative impacts on the economy.

According to the 2013-14 Pakistan Economic survey "the price of oil has been increasing continuously especially in last few year. In 1995 per barrel oil price was $10 which has

augmented of almost per barrel $110 in May 2014. Thus the prices in 2014 show an increase of almost hundred times as compare to its price in 1995." Such rapid boosts in oil price direct boost in the local and imported goods price level. High oil price causes negative impact on manufacture of commodities by increasing the cost of manufacture and indirectly imposes negative impact on the wages of labor force by decreasing their real income. In short, increase in oil price leads exchange rate to appreciate in oil exporting nations and depreciate in oil importing nations (Krugman, 1980; Caprio and Clark, 1981; Golub, 1983; Benassy-Quere et al, 2007; Chen, 2007; Mollic and Lizardo, 2010;Hasanov, 2010; Nikbakht, 2010; Reboredo, 2012).

If we talk about the link between oil price fluctuation and government spending the outcome prove oil price increase or decrease have positive and direct result with government spending of oil exporting countries but negative impact with importing country like Pakistan. When price of oil increase the government of Pakistan have to bear more import prices the remaining income of Government decreases, the Government spending decreases, it will also cause government deficit to increase. These all are the causes of weak correlation involving oil price volatility and macroeconomic performance in Pakistan.

The above discussion and results also shows the weak correlation between macroeconomic performance (EPI) and labor force (LAF). The present's research shows that there is weak correlation between macroeconomic performance (EPI) and cross capital formulation (K). Therefore it can be concluded that the proposed model has no problem of multicollinearity and econometric results estimated in the study are reliable.

5.4 ADF Test of Stationary:

ADF experiment is apply to confirm the stationarity of the data series utilized in present study. Stationary in data series is important to estimate the reliable results and to stay away from the trouble of specious regression results. The results of ADF experiment utilized to examine the variables' level of stationarity; such as I (1) illustrate the stationarity of factors at 1st difference. If statistics demonstrate that some factors are stationary at level then presented as I (0). In our investigation we ensure the stationarity by applying the stationarity test ADF on dependent and independent variables and outcomes are given in table 5.3.

Table 5.3: Outcomes of ADF test

Variables	Trend	Intercept and Trend	Trend	Intercept and Trend	Conclusion
	At Level		At First Difference		
EPI	-1.531	-0.353	-5.531	-5.905	I(1)
OPV	-2.609	-1.282	-5.085	-4.958	I(1)
LAF	-1.142	-1.232	-3.401	-4.243	I(1)
CCF	-2.034	-2.707	-5.036	-4.309	I(1)
MSP	-2.587	-2.432	-5.862	-5.895	I(1)
EXP	-1.995	-1.965	-3.369	-3.345	I(1)
IMP	-2.311	-2.532	-6.291	-6.212	I(1)

Source: Author's calculation by utilizing E.views 5

Table 5.3 depicts the result of ADF test which show that the time sequence are not stationary at the establishment stage although all the variable are stationary at the first difference i.e. I(1). When ADF test gives the results at first difference it means the rejection of null hypothesis (the facts is not stationary) at 1% and 5% significant level. The consequences of ADF analysis depict that the value of data is under the 95% critical values.

Macroeconomic Performance Index (EPI) is stationary at first difference with intercept value of (-5.905) and Oil price volatility (OPV) is also stationary at first difference with intercept value of (-4.958). The results also show that Total labor Force (LAF) is stationary at first difference with intercept value of (-4.243) and cross capital formulation (CCF) is stationary at first difference with intercept value of (-4.309). In similar fashion, Money Supply (MSP) is stationary at first difference with intercept value of (-5.895), in addition, the exports (EXP) and

imports (IMP) variables are also stationary at I(1)with intercept values of (-3.345) and (-6.212) respectively. Thus ADF test results show that the entirevariables are stationary at I(1) thus in next step study will apply the Rank analysis to check the number of co integration equation in the proposed model.

5.5 Unrestricted Co integration Rank Test:

Previous table demonstrate that the entire time series are stationary at I(1), therefore mostly the likelihood based on Johansen technique will be adopted to calculate the existence of the co-integration vector which presented by the results of trace statistic in table 5.4.

Table 5.4 consequences of Unrestricted Co integration Rank experiment

	Sample (adjusted): 1979 2015 Included observations: 37 after adjustments Series: EPI OPV LAF K MSP EXP IMP			
Hypothesized no of CE(s)	Critical Value0.05	Trace Statistic	Eigenvalue	Probability
nothing	135.704	144.577	0.709	0.002
At mainly 1	93.644	98.895	0.591	0.029
At mainly 2	68.927	65.742	0.467	0.101
At mainly 3	48.765	42.454	0.357	0.146
At mainly 4	27.979	26.074	0.286	0.126
At mainly 5	14.585	13.588	0.214	0.094
At mainly 6	6.932	4.636	0.207	0.312
	Trace analysis specify 2 cointegration eq(s) at the level 0.05 Indicate refusal of hypothesis at the level 0.05 p-values MacKinnon-Haug-Michelis (1999)			

Source: Author's calculation by utilizing E-Views 5.

Here the results show that the trace value is employed to accept or reject the null hypothesis. In results of table 4 the first two rows depict that the trace statistic are more than the critical value of 5% which conform the refusal of null hypothesis i.e. there exist no co-integration. It means co-integration exists and it conforms the occurrence of long run correlation in our estimated model. Other rows shows that trace statistic are less the than the 5% critical value at level which conform the acceptance of null hypothesis i-e there exist no co-integration.

5.6 Long Run Dynamics:

The somehow present of co-integration shows the existence of long run association in our model.Following results indicate that oil price has long run consequence on economic performance of Pakistan and outcomes are given in table 5.5.

Table 5.5 consequences of Long Run Dynamics

Dependent Variable: EPI

Sample : 1979 2015

Observations: 37 subsequent to alteration

Variable	Coefficient	Std. Error	t-Statistic
OPV	-1.471**	0.693	-2.122
LAF	4.906*	2.086	1.661
CCF	5.401***	2.005	2.351
MSP	-3.629***	1.347	-2.694
EXP	1.597*	0.941	1.697
IMP	-1.361**	0.747	-1.822

Note: *** Indicate 1% significance level, ** indicate 15% significance level and * indicate 10% significance level.

Table 5.5 demonstrates that all the variables have significant correlation with Macroeconomic Performance (EPI). In the side of independent variable the total labor force (LAF) and cross capital formulation (CCF) have positive and significant relationship with Macroeconomic Performance (EPI). Alternatively oil price instability (OPV) has negative relation with Macroeconomic Performance (EPI). In control variables the money supply (MSP) and total imports (IMP) have negative relation with macroeconomic performance (EPI) on the other hand total exports (EXP) have positive and significant relation with macroeconomic performance (EPI).

Oil price volatility has statistically significant and harmful influence on macroeconomic performance (EPI) in the observed sample. The relation of these variables shows that how Macroeconomic performance (EPI) is affected negatively due to increase in oil price volatility (OPV) in Pakistan. In present research the Macroeconomic performance (EPI) is calculated by using different economic indicators such as unemployment rate (UR), real effective exchange rate (REER), government spending (GS), government deficit (GD),trade balance(TB). Thus indirectly results highlight that sudden shocks in oil prices increases uncertainty in business community and thus responsible for high unemployment rate. Thus sever adverse effects of volatile oil prices appears usually in those countries who depends on oil import to manufacture goods. Pakistan is also a front line country who imported oil massively and oil as input is a key factor almost in every sector of its economy. Present results show the negative relation between oil price fluctuation (OPV) and unemployment rate (UR). When oil prices increases in oil exporting country the oil importing country (Pakistan) face more and more oil importing expenditure. Another way round, the results show that the ability of production sectors also have strong linkages with oil prices and raise in oil prices direct to high rate of manufacture and due to higher input cost producer face a decline in production and decrease in demand of goods due to high prices. Like other developing countries, in Pakistan increase in oil prices also have harmful shock on transport zone, electricity production zone, cement sector etc. thus here it can be suggested that there is need to adopt other ways of electricity production similar to; water, sunlight, wind etc. However, in Pakistan above 50 percent of electricity is produced by means of oil consequently as a result when price of oil increases it will also cause increase in input cost and decreases the overall economic performance. Thus an oil price raise the cost of manufacture and imposes a sharp cut on production of goods, increases the volume of imports, generated

uncertainty in the business community and reduces the volume of investment and exert negative impact on Macroeconomic Performance (EPI) of Pakistan. The other important factor of economic performance is effective real exchange rate (REER). It is important to describe that oil price volatility and particularly a sudden rise in oil prices show the way to exchange rate approval in oil exporting country although depreciation in the oil importing countries (Krugman, 1980; Caprio and Clark, 1981; Golub,1983; Benassy-Quere et al, 2007; Chen, 2007; Mollicand Lizardo, 2010;Hasanov, 2010;Nikbakht, 2010; Reboredo, 2012). As a result sudden rise in oil prices also poses undesirable outcome on economic performance of Pakistan. In addition, high reliance on oil import increases the exposure and negative effects of such external shocks in the developing economies. Thus it is anticipated that the negative effect of oil prices volatility on economic performance in developing economies are much higher as compare to the developed economies. Furthermore, the elevated oil prices leads to boost in prices of commodities due to rise in cost of production and all such factor increase the inflation in the country and restrict the increase in macroeconomic performance (EPI). The study also provides the indirect relationship between government spending (GS) and government deficit (GD) with oil price fluctuations (OPV) in Pakistan. The study shows government spending (GS) and government deficit (GD) are important indicators to measure the economic performance, and these indicators are exaggerated by the fluctuation in oil prices. When oil price increase, the price in oil importing countries also rises because oil importing countries have to pay more for oil to full fill the domestic needs of oil, as a consequence the expenditures on oil import become essential and governments usually switch off their expenditures in other sectors, and this economic phenomenon ultimately decline the domestic government spending. Pakistan is one of the oil importing country and industrial sector along with other sectors always have high demand of oil and such high demand could lead further spending on the import of oil. As a result, government expenditures can exceed massively and the deficit of government could increase and ultimately it will cause negative pressure on the macroeconomic performance of Pakistan.

The current study shows the helpful and statistically significant outcome of labor force participation on macroeconomic performance in Pakistan. When labor increases the productivity also increases which increases the creation of commodities and also reduced the unemployment level in the country. Thus addition in labor force increases the economic performance in the country if all other factors considered constant.

The consequences demonstrate that capital formation has significant and optimistic shock on economic performance in Pakistan. Thus a capital formation indicates the capital stock such as transportation assets, equipment, tools and electricity and these all factors are contributing factor to increase the macroeconomic performance of country. Thus empirical results show that addition in capital formation have a contributing role to increase the economic performance in Pakistan. However, according to the results increase in money supply and imports have negative impact on macroeconomic performance in Pakistan. The influence of exports on economic performance is positive but statistically insignificant.

Overall the results describe that wide fluctuation in the oil prices plays an essential job in driving the recession of a state. That is why oil price movement which have been strictly seen by economist, policy makers and investors in the developed and developing countries. The historic high value of oil prices have been seen during 2010-13 and downturn during 2014-16 (longest since the 1980s) propose that the oil prices fluctuations have burly pressure on the economic performance of different countries, particularly the oil importing countries. Thus, economic uncertainty in Pakistan due to volatile oil prices creates a question in the mind of investor to invest or not? Are the investment is on risk or not? If the investor invests in the duration of low oil prices the impacting revenue from the investment boost up and this will creates positive impact on the macroeconomic performance of Pakistan. At this time more investment creates more revenue and macroeconomic performance become higher and higher as beneficiaries of low price for oil importing country like Pakistan in the form of improving household consumption spending, business investment as low production cost improve fiscal balance, improve profit margins of businesses, and improve the level of gross domestic products with in the nation. But in the period of higher oil prices the rate of return on investment low down and this exerts negative impact on the macroeconomic performance. As the low rate of return on investment restrict the investors and leads to decline in production, and due to lower supply of goods, inflation increases and consumption decreases and macroeconomic performance decreases in the economy

5.7 Short Run Dynamics:

After examining the long run relationship involving Macroeconomic performance and oil price volatility we use the Error correlation model (ECM) frame work to establish the short run correlation.

Table 5.6 Results of Short Run Dynamics

	Dependent Variable: D(EPI) Sample ;1979 2015 Observations: 37 after alteration		
Variable	**Coefficient**	**Std. Error**	**t-Statistic**
C	-2.952	1.694	-1.742*
D(OPV(-1))	-1.620	1.101	-1.471
D(LAF(-1))	1.911	1.493	1.279
D(CCF(-1))	1.651	0.623	0.265
D(MSP(-1))	0.806	0.673	1.197
D(EXP(-1))	2.515	1.502	1.673*
D(IMP(-1))	-0.773	0.431	-1.792*
EC_{t-1}	-0.122	0.039	-3.076***

Note: *** Indicate 1% significance level, ** indicate 15% significance level and * indicate 10% significance level.

Table 5.6 gives the summary of short run dynamic relationship. The EC_{t-1} coefficient illustrates the speed of adjustment and negative coefficient shows the convergence of equilibrium from short run to long run. In simple words, the consequences demonstrate that speed of adjustment is 12%, which means that 12% disequilibrium will be accurate from short run to long

run annually and statistically significant at one percent significance level. Moreover the consequence of error correction expression also conforms the presence of long run causal association of dependent variables to Macroeconomic performance (EPI). Thus results of error correction term verify the constancy of the estimated model and also verify the co integration relationship of macroeconomic performance with a set of independent variables.

5.8Granger Causality test:

Table 5.7 Results of Granger Causality Test

Pairwise Granger Causality Tests Sample: 1976 2015 Lags: 1			
Null Hypothesis:	Obs	F-Statistic	Prob.
VOLT does not Granger Cause EPI	38	0.88706	0.3527
EPI does not Granger Cause VOLT		0.34615	0.5601
TOTAL_INVESTMENT does not Granger Cause EPI	39	0.01433	0.9054
EPI does not Granger Cause TOTAL_INVESTMENT		0.93489	0.3400
MONEY_SUPPLY does not Granger Cause EPI	39	0.55124	0.4626
EPI does not Granger Cause MONEY_SUPPLY		0.00038	0.9845
EXPORTS does not Granger Cause EPI	39	1.29173	0.2632
EPI does not Granger Cause EXPORTS		0.03212	0.8588
IMPORTS does not Granger Cause EPI	39	2.02845	0.1630
EPI does not Granger Cause IMPORTS		0.19349	0.6627
TOTAL_INVESTMENT does not Granger Cause VOLT	38	0.12987	0.7207
VOLT does not Granger Cause TOTAL_INVESTMENT		0.00103	0.9745
MONEY_SUPPLY does not Granger Cause VOLT	38	0.01585	0.9005
VOLT does not Granger Cause MONEY_SUPPLY		2.24573	0.1429
EXPORTS does not Granger Cause VOLT	38	3.48964	0.0701
VOLT does not Granger Cause EXPORTS		0.49192	0.4877
IMPORTS does not Granger Cause VOLT	38	0.15673	0.6946
VOLT does not Granger Cause IMPORTS		0.78100	0.3829
MONEY_SUPPLY does not Granger Cause TOTAL_INVESTMENT	39	4.41084	0.0428
TOTAL_INVESTMENT does not Granger Cause MONEY_SUPPLY		0.45294	0.5052
EXPORTS does not Granger Cause TOTAL_INVESTMENT	39	0.04115	0.8404
TOTAL_INVESTMENT does not Granger Cause EXPORTS		2.09090	0.1568
IMPORTS does not Granger Cause TOTAL_INVESTMENT	39	0.23866	0.6281
TOTAL_INVESTMENT does not Granger Cause IMPORTS		2.88021	0.0983

EXPORTS does not Granger Cause MONEY_SUPPLY	39	0.63913	0.4293
MONEY_SUPPLY does not Granger Cause EXPORTS		0.51035	0.4796
IMPORTS does not Granger Cause MONEY_SUPPLY	39	1.16860	0.2869
MONEY_SUPPLY does not Granger Cause IMPORTS		0.91229	0.3459
IMPORTS does not Granger Cause EXPORTS	39	1.99893	0.1660
EXPORTS does not Granger Cause IMPORTS		8.17088	0.0070

Table 5.7 shows the results of Granger causality test. It can be concluded that oil price volatility does not granger cause EPI because p value is 0.3527 here we accept the null hypothesis it conclude that coefficients of volatility of oil price are equal to zero and have no information in predicting the future of EPI. The converse can be said EPI does not granger cause Volatility of oil prices because p value is 0.5601 here we accept the null hypothesis it conclude that coefficient of EPI equal to zero and have no information in predicting the future of Volatility of Oil price. It identified there is bidirectional causality between EPI and Volatility of oil price .

5.9 Stability Test:

Finally, to ensure the constancy of the model the CUSUM and CUSUMQ were imposed. The consequences of both the test can be shown in figure 5.1 and 5.2 correspondingly.

1- CUSUM Test

Figure 5.1

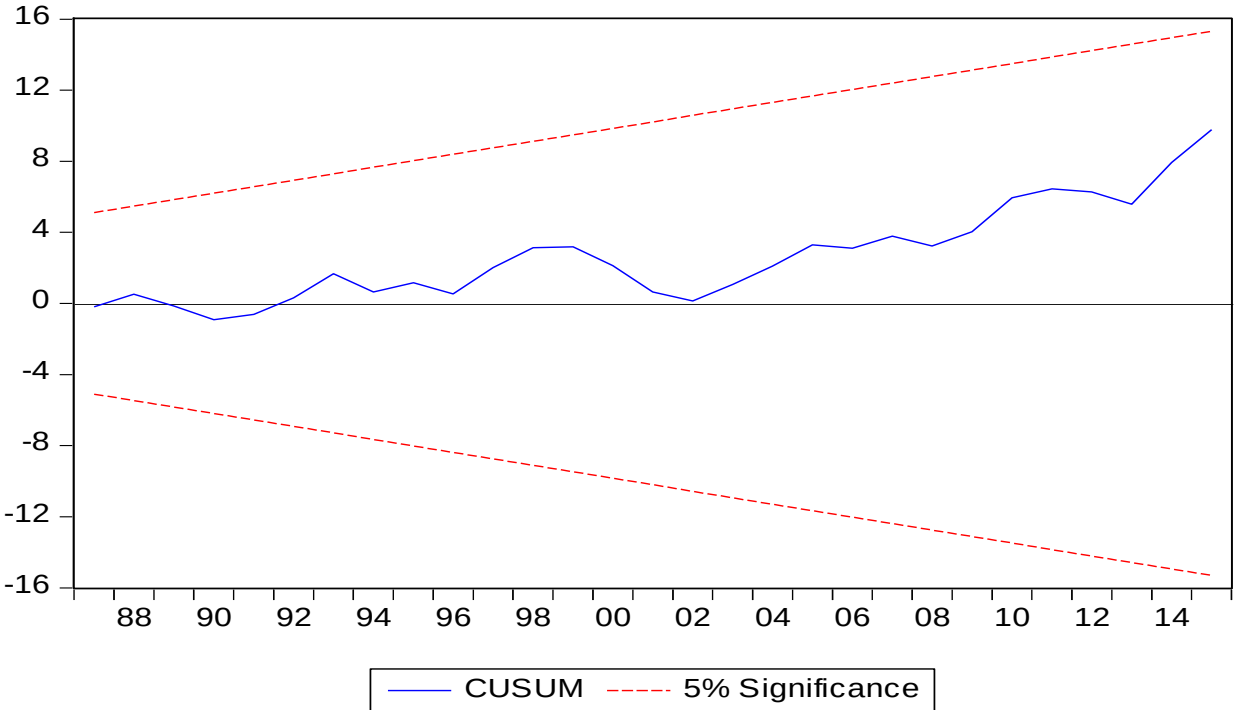


Figure 5.1: Design of Cumulative Sum of square of Recursive Residual.

Source: produced by the author utilizing E-Views 5

2- CUSUM of Square Test

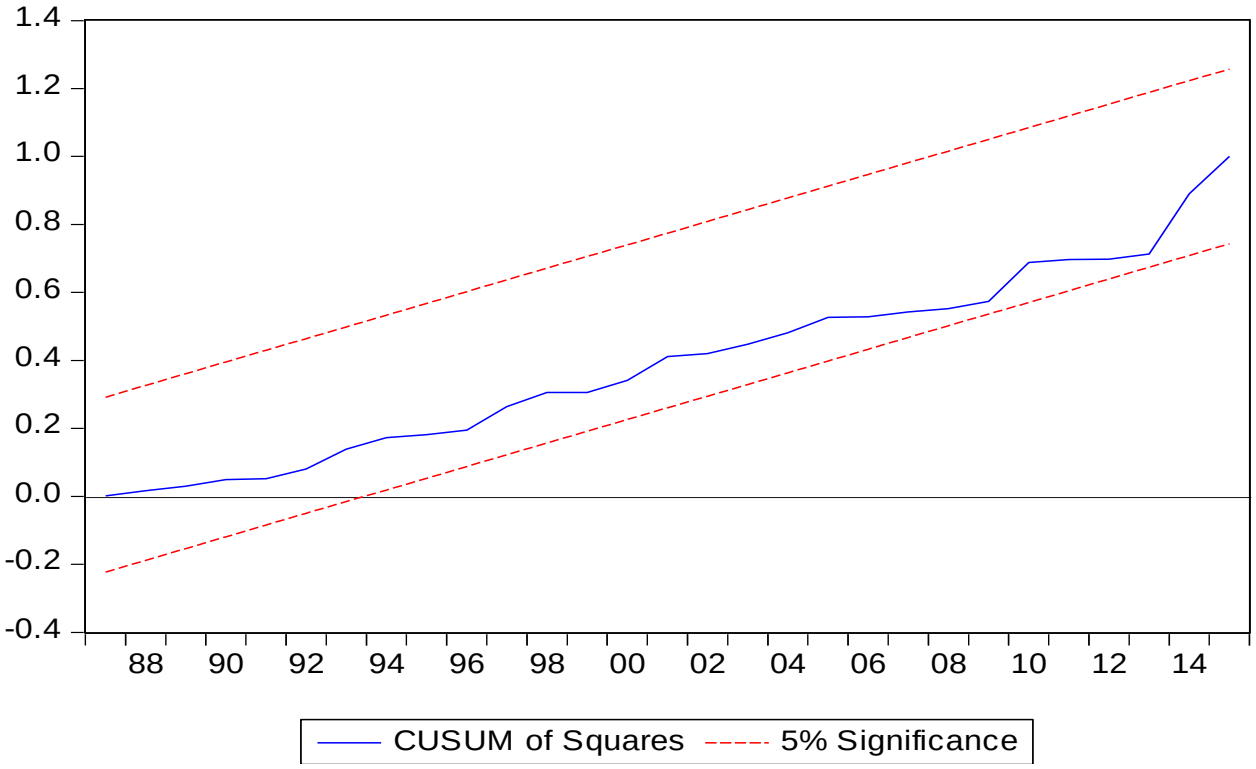


Figure 5.2: Design of Cumulative Sum of Recursive Residuals.

Source: produced by the Authors utilizing E Views 5.

The results obtained by above figures are statistically constant inside the directly outline which show the important bound at significance level 5%.

5.10 Conclusion:

The chapter shows the association among oil price fluctuations and macroeconomic performance in Pakistan by means of a time sequence data from 1979 to 2015. According to the results, all variables are stationary at 1(I) and ranked analysis confirmed the existence of co integration association. Thus Johansen Co-integration is applied to check the shock of oil prices instability on macroeconomic performance in Pakistan. consequences of the work indicate that the entire independent variables have significant relationship with Macroeconomic Performance (EPI). Results show that oil price instability (OPV) has pessimistic relationship while the variables such as the total labor force (LAF) and cross capital formulation (CCF) have positive and significant relationship with Macroeconomic Performance (EPI). In control variables the

money supply (MSP) and total imports (IMP) have negative relation with macroeconomic performance (EPI) on the other hand total exports (EXP) have positive but insignificant relation with macroeconomic performance (EPI). But in short run the EC_{t-1} coefficient demonstrates the speed of adjustment and negative coefficient shows the convergence of equilibrium from short to long run.In simple words, the consequences demonstrate that speed of adjustment is 12%, which means that 12% disequilibrium will be accurate from short run to long run annually and statistically significant at one percent significance level. The outcome of stability examination such as CUSUM and CUSUM of square tests show the constancy of the estimated model. The empirical results highlight that sudden shocks in oil prices increases the uncertainty in the business community, boost the cost of manufacture, decrease the volume of investment and thus ultimately responsible to crumble the economic performance of Pakistan.

Chapter No. 6

Conclusion and Policy Recommendations

6.1 Conclusion:

In summary, literature shows that most of the work on Fluctuation of oil prices is due to find out the correlation among oil prices and economic growths. Outcome of the studies prevail a unclear association among oil price volatility and growth of economy. That is higher oil prices have negative relation with Gross domestic product (GDP), stock prices, real output and stock as a result economic growth decreases. On the other side higher oil prices have positive relation with exchange rate, real government revenue as a result economic growth decreases. So the relationship of above mention variables with economic growth provides a blind picture, sometime it provides positive relation and sometime negative. Economic growth does not provide good relationship with those variables. So, present study will show the macroeconomic indicators when strengthen the relation of macroeconomic performance and oil prices of Pakistan. In this research macroeconomic performance index will introduced. If economic performance index use here, it might provide fine relationship.

3rd chapter provides all the knowledge about economic performance and oil prices, their concepts, types, merits and demerits. And after that it will provide basic theories of inflation which shows that how prices increase, and what are their effects on other variables and economies.

4th chapter consist of highlight the methodology and data. The data is collected from 1976 to 2015. The selected variables are Macroeconomic performance which is measured by unemployment rate, trade balance, real exchange rate, and government spending and government deficit. In contrast independent variables are oil prices, total labor force and cross capital formulation, imports and export of the Pakistan. In this chapter study also displays the

connection between oil price volatility and macroeconomic performance. Johansen co integration technique utilized to illustrate the association. From the results of the stationary study choose to apply the Johansen co integration process. Study exploit Johansen process as the consequence of the ADF test describe that all factors are stationary or composed at I(1). For checking the effects of long run distribution unrestricted rank test employed and for short run effects Error correlation model is used. At the end of this chapter CUSUM and CUSUM square test are put into practical use to check the equilibrium among variables of Macroeconomic Performance and oil price fluctuations of Pakistan.

Chapter 5th illustrate the association among macroeconomic performance and oil price fluctuations in Pakistan and time series data is used started from 1979 to 2015 in present study. According to the results, first difference stationary is shown on all the variables and ranked test confirmed the presence of co integration relationship. Thus Johansen Co integration is applied to measure the effect of oil prices instability on macroeconomic performance. Results indicate that all the independent variables have significant relationship with Macroeconomic Performance (EPI). Results show that oil price volatility (OPV) has negative relationship while the variables such as the total labor force (LAF) and cross capital formulation (CCF) have positive and significant relationship with Macroeconomic Performance (EPI). In control variables the money supply (MSP) and total imports (IMP) have negative relation with macroeconomic performance (EPI) on the other hand total exports (EXP) have positive but insignificant relation with macroeconomic performance (EPI). But in short run the EC_{t-1} coefficient depict the rapidity of adjustment and negative coefficient shows the convergence of equilibrium from short run to long run. In simple words, the outcome demonstrate that speed of adjustment is 12%, which means that 12% disequilibrium from short to long run will be righted annually and significant at one percent. Outcome of stability test such as CUSUM and CUSUM of square tests show the strength of estimated model. Empirical results highlight that sudden shocks in oil prices increases the uncertainty in the business community, increase production cost, decrease the volume of investment and thus ultimately responsible to crumble the performance of Pakistan economy.

Main intention of the work is to explore the effect of oil price Fluctuations on Macroeconomic Performance. The present study associates the estimation among macroeconomic performance variables and fluctuations of oil price in Pakistan in both time periods that is short and long run.

Recent research utilized the time series data for period 1876 to 2015. To depict the empirical estimations of output the study used Johansen co integration technique later by checking the stationarity of the statistics by employing the ADF test.

Our results of the research shows that there is neutral affiliations among Macroeconomic Performance and oil price fluctuations that is more the fluctuation in oil prices occur less the Macroeconomic performance of Pakistan. The present study suggest that all the variables like Government spending, Government deficit, Trade Balance, unemployment rate, real effective exchange rate are all the variables used to calculate Macroeconomic performance cause negative impact on macroeconomic performance when oil price fluctuation increased. Only exports, labor and capital cause positive impact on Macroeconomic Performance. This means that increase in exports and increase in labor and capital cause Macroeconomic performance to boost up. At the end of the analysis the Error correlation model suggest the speed of adjustment is 12 percent. Which means that disequilibrium will be corrected 12% from short to long run yearly but it is not significant. Moreover the negative sign also conform the presence of long run correlation of oil price variations to Macroeconomic performance. Consequences obtained from CUSUM and CUSUM square figures have straight line statistical stability. This shows 5% level of significance critically within the boundaries.

6.2 Policy Recommendations:

As per the present research examining the policies are endorse mended to increase the macroeconomic performance of Pakistan are given below.

- As we can see in present study exports of oil increase Macroeconomic performance of Pakistan. So, Alternative fuel companies start up and invest more in the fuel companies. And also increase other export to increase export revenue and stable the trade balance.
- As the study presented that increase in the volatility of oil price cause increase in the volatility of exchange rate and also hurt the balance of trade of country so, the policy makers should fully aware of uncertainty in the oil prices.
- People of Pakistan should use alternative of oil like natural gas, nuclear energy, solar etc in all production sectors.

- People should reduce their dependency of oil for transportation and use CNG for that purpose because high level of oil prices cause pessimistic effects on the economy of Pakistan. Because ending oil dependency is the best thing that could happen in Economy. It will reduce government spending and also stabilize the real effective exchange rate of Pakistan.

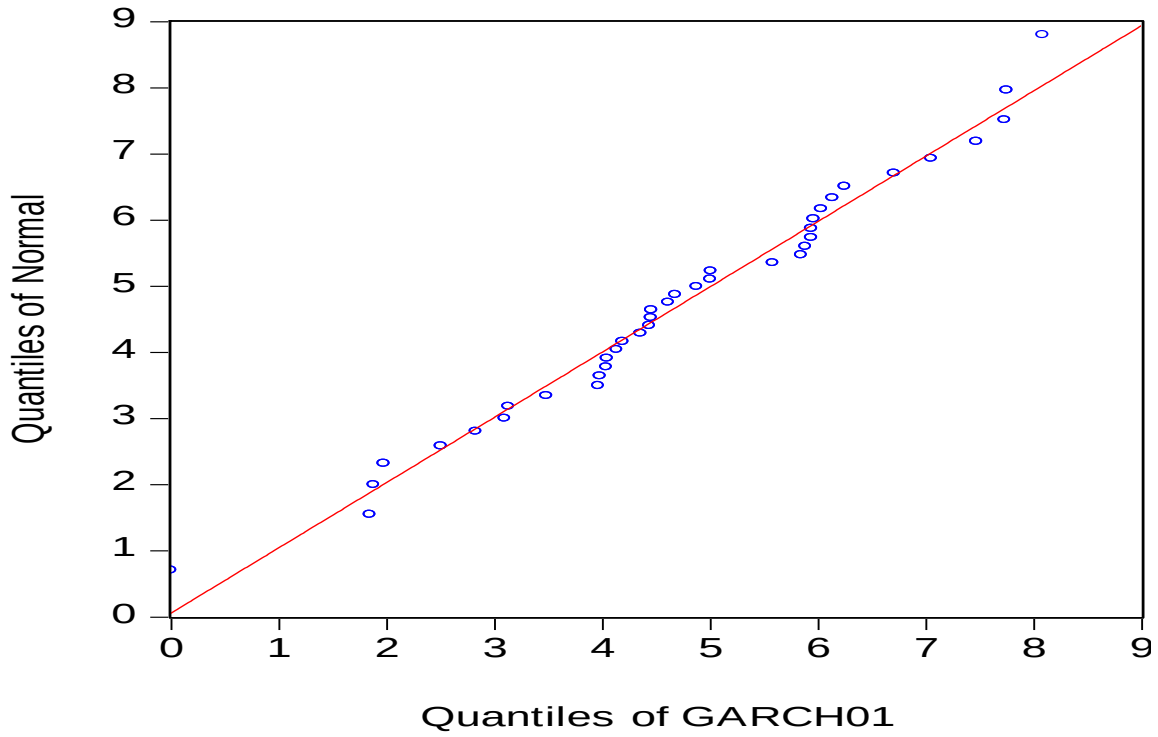
Appendix 1

Calculation of Volatility by Making GARCH variance series

Dependent Variable: OIL_PRICES (1976-2015)
Method: ML ARCH - Normal distribution (BFGS / Marquardt steps)
Presample variance: backcast (parameter = 0.7)
GARCH = C(3) + C(4)*RESID(-1)^2 + C(5)*GARCH(-1)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	11.96604	3.945206	3.033058	0.0024
OIL_PRICES(-1)	0.651965	0.115846	5.627871	0.0000
Variance Equation				
C	2.827909	1.069023	2.645321	0.0082
RESID(-1)^2	-0.289372	0.161194	-1.795179	0.0726
GARCH(-1)	0.695353	0.095466	7.283794	0.0000
R-squared	0.581608	Log likelihood		-84.62797
Adjusted R-squared	0.564894	Durbin-Watson stat		1.911975
S.E. of regression	2.344476	Sum squared resid		203.3730

Graphical Presentation of Oil prices volatility (GARCH series)



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