EFFECT OF EXCHANGE RATE & FISCAL POLICY ON OIL PRICE VOLATILITY AND ITS IMPACT ON ECONOMIC GROWTH: PAKISTAN A CASE-IN-POINT.

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NATIONAL DEFENCE UNIVERSITY, ISLAMABAD
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Submitted in partial fulfillment of the requirements for the Doctor of Philosophy degree in Leadership and Management Studies at the Faculty of Contemporary Studies, National Defence University, Islamabad.

DEPARTMENT OF LEADERSHIP AND MANAGEMENT STUDIES
NATIONAL DEFENCE UNIVERSITY, ISLAMABAD
MAY, 2016

Supervisor -------------------------- Date: ----/----/2016.

(Professor Dr. Ghulam Shabir Khan Niazi)
IN THE NAME OF ALLAH, THE MOST MERCIFUL AND BENEFICENT
DEDICATIONS

I dedicate this research to my family especially my parents (Muhammad Safdar and Naseem Akhter) and my wife (Dr. Munazza Naz), who prayed day and night for my success and to achieve my goals throughout my life. Their prayers, core affection and love always keep me enthusiastic and energetic. May ALLAH bless them with good health and long life.(Ameen).

Muhammad Jawad
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Muhammad Jawad

Ph.D. (Leadership and Management Studies)
DECLARATION

I, Muhammad Jawad Son of Muhammad Safdar, Registration No. NDU-LMS/PhD/F-13/006, student of Ph.D Leadership and Management Studies at the National Defence University, Islamabad, do hereby solemnly declare that the thesis entitled “Effect of Exchange Rate & Fiscal Policy on Oil Price Volatility and its Impact on Economic Growth: Pakistan A case-in-point.” submitted by me in partial fulfillment of Ph.D degree in Leadership and Management Studies is my original research work, except where otherwise acknowledged in the text and has not been submitted or published earlier and shall not in future, nor submitted by me for obtaining any degree from this or any other university or institution.

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Date: -------------
FORWARDING SHEET

Effect of Exchange Rate & Fiscal Policy on Oil Price Volatility and its Impact on Economic Growth: Pakistan A case-in-point, submitted by Muhammad Jawad, Reg. No. NDU-LMS/PhD/F-13/006 in the partial fulfillment of Ph.D degree in Leadership and Management Studies with specialization in the subject topic has been completed under my guidance and supervision. I am satisfied with the quality of student’s research work.

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I, Professor Dr. Ghulam Shabir Khan Niazi, Professor, National Defence University Islamabad, supervisor of Mr. Muhammad Jawad, research student of National Defence University Islamabad, do hereby certify that the thesis entitled “Effect of Exchange Rate & Fiscal Policy on Oil Price Volatility and its Impact on Economic Growth: Pakistan A case-in-point.” being submitted in partial fulfillment of Ph.D degree in the discipline of Leadership and Management Studies is an original research work of the student except where otherwise acknowledged in the text, has not been submitted or published earlier for obtaining any degree from this or any other university or institution. The thesis is complete in all respects and ready for evaluation by external subject’s experts.

Dr. Ghulam Shabir Khan Niazi,
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Date:--------------------------- Signature: -----------------------------
Abstract

Oil is an important international commodity and the basic units of important sectors like industries, transportation, energy etc. of the economy. That’s why it is considered as the crucial and important factor of economical development of the country. The fluctuations in crude oil prices are highly unpredictable so that many companies and economies faced various challenges for making future policies. Oil price changes not only effect economic activities but they also effect the prediction for the future stability of economic growth.

This research is analysis the effect of exchange rate variation (fluctuations in Pakistani currency exchange rate with respect to US dollar) and the fiscal policy changes (increase and decrease in taxes, subsidies and government expenditure) on the oil price volatility (short term variations) of Pakistan. Furthermore, this research also analysis the impact of oil price volatility and the macroeconomic variables on economic growth (economic development) of Pakistan. Secondary data is collected from 1973 to 2014 and used for estimation of coefficients from Institute of Economic Affair (IEA), International Financial Statistics (IFS), World Bank (WB), Ministry of Petroleum & Natural Resources of Pakistan and Pakistan Bureau of Statistics. Unit root test, Correlation test, GARCH (1,1) test, multiple linear regression, Johenson co integration test, Granger Causality test, Vector autoregression (VAR), Impulse Response function and Variance decomposition test are used for estimation of the results.

GARCH (1,1) test define the exchange rate has not a significant relation with the local oil price but fiscal policy effect and foreign oil price has a significant relation on the local oil price. Afterward, linear regression describes the Public sector investment and Trade Balance has significant and oil price volatility and private sector investment has insignificant effect on gross domestic production of Pakistan. Johenson co integration test described the long run relation among the variables. Granger Causality test indicate that oil price volatility does not Granger cause on public sector investment and gross domestic production does not Granger cause on public sector investment is significant. Except these relationship, all other variables relationship exist and possible. Afterward, vector autoregression, impulse response function and variance decomposition describe its value and conclude that the effect of other variables was stable within 10 years and the major part on the variable is due to itself rather than other variables.

**Keywords:** Exchange Rate; Fiscal Policy; Oil Price Volatility; Economic Growth.
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CHAPTER 1

INTRODUCTION

This chapter defines the basic introduction of variables. The major and key variables of this research are Oil Price Volatility, Exchange Rate and Fiscal Policy.

1.1 Oil Price Volatility

Oil is an important international commodity and is one of the basic units in various sectors (manufacturing, production, transportation, energy) of the economy. It is also considered as an important macroeconomics factor in world economy. Crude oil is an important and most demanded commodity throughout the world. Due to this high demand, crude oil faces price war and directly or indirectly effects the economy of the world in general and a country in particular. The fluctuations in crude oil prices are highly unpredictable and thus the reason that many companies have to face various challenges in the market of crude oil.

Crude oil is an important source of energy and used in domestic as well as transport and manufacturing sectors widely. That is why it is considered as a crucial and important factor of economic development of a country. Oil demand and supply, and price fluctuation also effect stock market throughout the world (Rodrick, 1998). Middle East, the largest supplier of crude oil in the world and Asia, is considered ahead for the largest consumption of crude oil in the world.

Oil price changes not only effects economic activities but they also predict the future economic stability. Furthermore, it also defines and predicts the effects in price changes on economic stability. Oil value changes likewise influence the monetary development both decidedly and adversely. The oil price fluctuation in process and high unpredictability not only influence the economy but also different other factors (macro-economic variables) such as gross domestic product (GDP) of the country, import bills and inflation due to unpredicted variations of the prices in import and export.
Oil is considered a primary commodity in production and manufacturing process in an economy. There is a direct effect of prices of primary commodities on investment, GDP and many other macroeconomics factors. Prices of primary commodities also have a positive effect on aggregate price levels because they are the major inputs of the production process (Bloch et al., 2006).

There are various processes like electricity production, manufacturing processes, transport sector and energy production and oil is a basic and fundamental factor in all of these processes. Oil is a basic necessity, so it is important to study the volatility in oil prices because oil price volatility reduces the aggregate output for short run and, as a result, uncertainty increases and investment decreases (Guo and Kliesen, 2005).

It is now observed that the demand of oil is also increasing in developing economies like the demand in developed countries. Especially Asian emerging economies have increased their demand and production of oil in recent past (Birol, 2007).

"Oil costs aren't simply rising, yet the instability is additionally compounding variances are more maintained than they were in the 1990s, making capricious results (Birol, 2007)."

As per the Energy Information Administration (EIA) oil costs and worldwide monetary exhibitions have a direct or indirect numerical relationship. It additionally influences the oil importing nations and oil exporters. The oil value rises; it will positively impact the oil exporting nations. Meanwhile, it negatively impacts the oil importing nations.

It is viewed that the significance and high share of oil in economy is of pertinent importance. It is obvious that if the share is larger, then the effect will be greater. Moreover, it is also observed that the significance of oil price and cost have impact on the national income. This will effect both exporting and importing countries according to the extent of their particular shares in the economy (Jalles, 2009).
Other factors that contribute a major aspect are the dependence of consumers on oil and its degree to which they can find alternatives to switch to other resources due to increased price of oil in international market (IEA, 2006).

At the point, when oil cost expands the creation expense increments and hence the yielded development diminishes, which will ultimately decrease the economic growth. When oil price decreases, there will be more investment and as a result economic activities will upsurge and economic growth will also increase (Aliyu, 2009).

Oil price instability harms financial development through distinctive routes including; from an increment underway expense, ascend in expansion, ascend in interest rates and ascend in oil value unpredictability (Adelman, 2000).

The oil price and GDP also have a significant relationship, proposed by Hamilton, J.D. (1982). Research found an inverse association among oil prices and GDP. It is observed as, when the oil price increases, the production cost increases and thus the output growth decreases. It will ultimately drop the economic growth and GDP of the state will also decrease. When oil price decreases, there will be more investment and as a result economic activities will rise and economic growth will also increase and as a result overall GDP will upturn too.

As far as the economy of USA is concerned, in 1980 US economy was hit by recession and when earlier in 1973 oil prices increased for the first time in history, the US economy suffered a loss of $350 billion (Hamilton, 1982).

Awerbuch (2003) conducted empirical research and his empirical study reveals that the oil price increase effects the macroeconomic growth. This is because the increased oil prices also increase the inflation rate and interest rate. Unemployment rate is also increased due to lack of new investment and already present investment activities are also clogged. Thus the currency depreciation will decrease the financial value of assets and the oil importing economies will suffer really badly.

O’Neill, Penn & Terrell (2008) defined that oil is a major contributor in domestic economy and also constitutes to the gross domestic product of the state. According to the IEA, in 2000,
oil constituted 40% to the global energy requirements. As the oil price will increase, it will also increase the production cost and transportation cost in many industries and household sector. Moreover, it will increase the inflation and wage rates will also rise high. Ultimately, it will effect the economic growth.

The researchers Hamilton and Herrera (2003) suggested that low prices (cheap) of oil is important as it will increase the demand around the globe but it is not possible because oil is also a scarce commodity. The future of oil is quiet uncertain and consumers around the world are more concerned about the uncertainty of oil in future than its price fluctuations in present.

A high instability of Crude oil prices and its impact on economic growth has always aroused many controversies among the policy makers and researchers. Some economic researchers like (Akpan, 2009; Aliyu, 2009 and Olomola, 2006) disagreed and argued that this aspect would increase the economic growth while some others like (Darby, 1982 and Cerralo, 2005) argued that it would inhibit economic growth. It was commonly observed in oil exporting countries like Kingdom of Saudi Arabia, United Arab Emirates, Kuwait, Iraq, Iran and many other that an increase in oil prices would increase the national income of exporting countries.

The oil exporting countries are totally different from the other countries in many aspects as far as exchange rate and economic growth are concerned. The governments of oil exporting countries are large and powerful than small private sector. The governments are strong because they receive oil revenue which they earn from oil importing countries and hence the structure of a government and its policies play a significant role in the economic growth of any country. So in this regard, oil price is very important for oil exporting countries because they earn revenue to its maximum and use it for the economic growth of their land (Rosser & Sheehan, 1995). The fiscal policies and the monetary policies also rely on oil prices and government uses these funds and revenues for its expenditure.

It is thus very important to take preventive measures for oil price fluctuations because if these measures had not been taken accurately, the oil price fluctuations might transfer to exchange rates. It is quiet necessary to make the economy less instable by oil price changes (Jawad, 2013).
To the best of our knowledge, it is observed that the oil prices do not remain same for a longer time; these keep on changing frequently and so, these frequent changes can make alterations to the economy and it cannot remain stable anymore. Therefore, preventive measures should be taken to keep economy stable and in this way it doesn’t get hurt so badly with changes in oil price.

The oil exporting countries have been benefited greatly by the oil price increases and they have earned huge profits. Governments earn profits and they use those profits for the betterment of their own country. New investment projects are being launched and all the other expenditures are financed through those findings (Hausmann & Rigobon, 2003).

So that is the case of oil price increase; when oil price decreases, public sector faces disastrous loss because it is difficult for it to reduce the spending immediately. The country will be likely to face fiscal imbalances with oil price decrease because it’s economy was highly dependent on oil revenues and due to a decrease in oil revenues, fiscal imbalance occurs.

The changes in oil prices are highly uncertain and unpredictable. Sometimes the projects are halted and companies have to wait for the oil price increase so they can restart their projects e.g. Bain & Company. Norway is an oil producing country and it was first that introduced such policies to make a stable economy for oil price fluctuations. The other oil producers such as Kuwait, Indonesia and many other followed these policies and took preventive measures and, somehow, managed to adopt measures for oil price fluctuations (Devlin & Lewin, 2004).

Common issues that oil importing countries face include inflation, increase in input material cost, decrease in non-oil demand, low investment, decreased tax revenue and increase in budget deficits. Price fluctuation of crude oil and its instability has both positive and negative impact on economy and it also depends upon price’s rise and fall. There is one exceptional economy in the world that is oil exporting economy as well as it lies in the list of oil importing countries and that is Nigerian economy. The only difference is that, the country
exports the crude oil worldwide but meanwhile imports the refined products of oil (Aliyu, 2011).

Until 1973, oil prices pattern in the world was not volatile and due to this reason the impact of price fluctuations was also immense on the world’s economy. Many economic researchers have also studied the relationships between the oil price macroeconomics of different countries. These researchers have also introduced many methods for analysis. In order to analyze the data of one country, time series data method is used to analyze the data of different countries, where data type of cross-sectional is used for estimation of results (Cunado and Gracia, 2003 & 2005; Jimenez and Marcelo, 2005 and Cologni and Manera, 2008).

The price of oil assumes a discriminating part in the economy of any nation. When the oil price will change, the total stock price will also change (Huang et al., 1996). This is a totally new phenomenon and a new trend in oil market and researchers have presently explored the relationship between oil value and currency exchange. In contrast to this, only few studies have been found on examining the relationship between crude oil and diverse macroeconomic variables.

The explanation for this is that, until 1973, oil costs design in world was not unpredictable and around then it was hard to discover any relationship between oil costs and stock costs. Hence it was hard to comprehend the definite example keeping in mind the end goal of finding the relationship between oil expenses and stock expenses and the components which influence these variables (Kilian, 2007 and Driesprong et al., 2004).

Crude oil and stock market relationship was first studied by Jones and Kaul in 1996. They proposed a model called “cash-flow dividend model” and explained the link in the middle of crude oil and currency exchange. They focused on four significant economies United States, Japan, United Kingdom and Canada and contemplated that these business sectors experienced extraordinary effect of oil price shocks on the money streams. Along these lines it was inferred that the present and future money streams can be impacted by price shocks.
These findings were mostly relevant for American and Canadian markets while Japanese and British markets didn’t show significant results of this study. After Generalized Autoregressive Conditional Hetero-skedasticity model was proposed in 1999 by Sadorsky, oil price volatility was understood. This model proposed that there was an immediate relationship between oil value instability and monetary movement and clarified that the adjustments in oil costs influenced financial action.

As oil prices play a significant role in the economy of a country, so fluctuations receive due attention worldwide. Developed economies mainly concentrate more on oil price and stock price than the developing nations. It is noteworthy that world economy is shifting from developed nations to emerging economies and almost all of capital investment is flowing towards emerging economies. In this scenario, it is very important to shift the focus of study from developed nations to emerging economies in order to understand the trend of price fluctuation in oil prices and stock prices. It will help an incredible arrangement to comprehend the relationship between oil expenses and stock expenses in creating markets. This study will also help investors to make a decision before investing in emerging economies and they would better be able to understand the oil price volatilities and risk return ratio in emerging economies (Sachs & Warner, 2005).

Volatility is of great importance in an oil market and it is defined as the measure of the tendency of oil prices to increase or decrease sharply within a given period of time. There are many other definitions of the volatility which are given to it by different scholars as (Lee, 1998; Routledge, 2002; Busayo, 2013; Ogiri et al. 2013 and Osazee, 2013). Until 1980s, there was an increase in price of oil only, but after that, trend has changed now. There are large price fluctuations in oil prices consisting of sudden increase and sudden decrease. Thus the current pattern is full of price volatilities and it has created large uncertainties in oil markets (Sauter and Awerbuch, 2003).

There are many causes which accelerate the price volatility of an oil market. The major factors that are involved in oil price volatility are; decisions made by the Organization of Petroleum Exporting Countries (OPEC), the demand of crude oil and its supply, day-to-day events occurring in world, crisis and economic wars. It is to be mentioned that there is a
traditional approach to assess the oil market volatility. In 2005 Merino and Ortiz explained that there was a strong interaction between demand and supply forces and changes in oil prices.

As there is observed a decline in oil reserves, it is predicted that soon there will be oil shortage. This forecasted shortage of oil is alarming and is a major factor of crude oil price changes. There is no exact prediction about how much oil reserves will be left before the oil wells gets dried. After the OPEC states solidarity, the demand and price of oil got increased significantly in 2007-2008. These two causes were also considered as the major factors of price movement in oil market.

There are some worldwide political reasons which are responsible for the oil price changes too. Some terrorist activities in oil producing and exporting countries are a considerable threat to the oil reserves and they are also responsible for oil price movement mainly in increasing of its price and effect on the oil demand and supply cycle. Consequently, there is a worldwide increase in prices of oil because these countries have a major contribution as exporters of oil globally (Maugeri, 2006).

1.2 Exchange Rate

To the scope of exchange rate, it is commonly seen that the variations in exchange rate adversely effect the trade internationally. Nowadays economists are greatly involved in exchange rate study of developing countries as well and they argued that mostly swapping scale instability has a negative effect on exchange creating nations, trade in developing countries and international trade. Exchange rate uncertainty also effect bilateral trade due to the risks involved in exchange rate. Anderton and Skudely (2001) argued that this negative relationship doesn’t allow firms to take unnecessary risks in international trade.

Aliyu (2008) explained that conversion scale had not just established a link between the residential business sector and the world business sector for products and resources; however it had likewise an intensity of a nation's trade power in global exchange. It additionally maintained the inner and outside macroeconomic equalizations over the medium-to-long run.

Real exchange rates play a great role and it is very important to understand the effect and role
of real exchange rate and other factors on the export performance. Mohamad et al. (2009) conducted a research on this in a certain region including countries like Malaysia, Indonesia, Thailand and Singapore and discovered the impact of swapping scale along with other macroeconomic variables such as macroeconomic dependability, terms of exchange, capital products venture, outer interest and human capital on the fare execution of these nations. They found that the valuation of genuine conversion rate, its misalignment and instability have solid negative effect on fare execution. This will at last influence the exchange rate and abundance of the financial specialists.

Studies demonstrate that oil value instability and oil value changes influence the execution of currency exchanges in creating and developing markets. The researchers have proposed a multi-factorial mediation model. This model considers both contingent and unrestricted dangers connected with currency value and oil value vacillations. The oil price effects the currency market and has adverse effects on the economy. These price shocks and especially exogenous exchange rates have been widely discussed in relation to oil price changes. It is explained that the variation in oil price has not only a great effect on the microeconomic variables but also on macroeconomics variables in short and long term and in every sector of economy. Furthermore, these oil price changes effect economic activities on large scale (Lizardo and Mollick, 2010).

1.2.1 Exchange Rate Volatility

It is not true that exchange rate volatility is associated with developed nations but many developing economies are also effected by the exchange rate volatility. In terms of economic stability, mainly, countries try to achieve two main objectives: economic growth and price stability and particularly, in the case of developing countries, there had been seen risk and uncertainty in these two major variables and units.

The unpredictable movements of relative prices in economy are associated with exchange rate risks while it is noteworthy that increased investment, stable prices and economic growth are promoted by a stable exchange rate. It is now suggested that exchange rates influence the economic decisions and economic researchers are paying more attention to this study because it ultimately effects the macroeconomic variables.
Mostly it is seen that researchers focus on the impact of exchange rate volatility rather than the source of exchange rate volatility. Along these views, it is contended that understanding of the system how those shocks influence the genuine exchange rate is imperative to execute a proficient and believable financial approach.

The OECD (2004) has argued that the income of oil exporting nations is directly linked to the oil prices. When oil price will increase, the national income will also increase due to the high export earnings. After the research studies, a new phenomenon was introduced which was called “Dutch Disease”. This was perceived from situation in which a country having significant sources would have a good impact on the economy growth.

Sachs & Warner (2005) and Auty (2001) argued by looking at the growth rate of countries on the basis of natural resources; it was found that the countries that have low natural resources will grow slower than those who have plenty of resources. Rickne (2009) explained that the exchange rates of resources were highly related to exceedingly volatile commodity prices.

It is evident from research that sustaining the stable exchange rate is very important and it helps in economic growth (Mordi, 2006). It is explained that the exchange rate is a most essential value variable in an economy and performs two primary undertakings:

- It maintains international competitiveness
- It also serves as nominal fix to domestic price

Conversion scale unpredictability is characterized as the deviation from the steady exchange rate or vacillation in the trade rates over a span of time. The deviation from the steady conversion standard is activated by the assortment of business sectors parallel with the official business. If there will be a sharp sudden oil price shock, the demand and supply mechanism will get disturbed and it will result exchange rate volatility. It is suggested that, at the point when the versatility of both supply and interest is high, value instability will be higher and when elasticity of demand and supply will low, then price volatility will be lower too (Obadan, 2006).
It is found that the floating exchange rate is more volatile because exchange rate varies greatly with time. If there are more changes then the exchange rate will be more volatile. Studies show that the currency will appreciate and stability will be maintained when there will be favorable economic conditions (Mordi, 2006).

Englama et al. (2010) defined the volatility of oil prices and variation in rate of exchange as change in prices of oil over the period of time. Volatility can be defined as a percentage change and deviation in the price of oil on daily basis.

It is noted that there will be as higher volatility as larger the magnitude of change. Variances in oil expenses may make precariousness about the future method for the oil esteem, bringing on buyers to put off irreversible buys of customer strong products and, furthermore creating firms to put off irreversible speculations (Chen and Hsu, 2012).

Apere and Ijomah (2013) characterized instability as the cost of oil wavered in between $17 and $26 at distinctive times. In 2002 price of oil was $53 per barrel and by October 2004, the price of oil increased to $55. In the year 2008, oil prices increased on a record level as $147 per barrel and after that there was observed a sharp drop to $46.

The OPEC (Organization of Petroleum Exporting Countries) ascribed that the current worldwide unrefined petroleum will continue to be uncertain and there will be slow pace in world economic growth. Due to this exchange rate uncertainty, there is observed a crisis of Euro zone debt, an elevated unemployment in developed countries and their economies under debt and downfall. It was also observed that it had effects on inflation and its risk in developing nations (Okere, 2013).

### 1.3 Fiscal Policy

Fiscal policy is the course of action made by the local government to regulate its spending and rate of taxes implemented to increase its economy. Fiscal Policy is made by the local government to formulate its spending in different aspects and determine the charges of different taxes (vary for sector to sector, product to product and service to service) to increase the economic growth of the country. Fiscal policy worked with the monetary policy which is made by the central bank (state bank) of the country to control its money supply.
The studies related to fiscal policy show that globalization has also influenced the developments and changes in the world economy. Globalization has changed the economic environment and brought many technological and innovative methods and advancements in the global business and trade.

The way resources will be used in the economy, are to be decided by the government. So that is due to increase in the government expenditure and as a result increases the aggregate demand which is then called expansionary or “loose.” Contrary to this, that fiscal policy will be contractionary or “tight” which will reduce the demand by lower spending (Horton and El-Ganainy, 2009).

Fiscal policies will tend to increase future taxes due to the economic deficit and the intensity of this increase will depend on the effects of policies, both monetary and fiscal, and incentives for investing in human or physical capital. This will help in raising living standards of any country in future. When there is a budget deficit, the fiscal and monetary policies will promote investment and it will reduce government’s saving and capital formation will increase (Horton and El-Ganainy, 2009).

Many nations have reconsidered their fiscal and monetary policies between the borders and all these changes are caused due to globalization, scientific and technological changes. The world has also experienced political and social changes and reforms and due to this reason our financial system and economic life have totally changed. The accelerating and successive developments that world has seen, caused a number of changes (Amira et al., 2014).

Fiscal policy of a country maintains the economic stability in a country and thus it is considered very important for economic progress of the country. Fiscal policy maintains stability by conditioning quantitative Government expenditures and government revenues in order to impact the level of total interest and after that the macroeconomic variables, for example, conversion scale. Fiscal policy is the measure of the success of a government in implementing the stable economic policy in many developing countries. This policy also ensures the maintenance of internal and external equilibrium. As the oil price fluctuation
impacts stock market and economy of the country negatively, so, many countries try to manage sharp movements to avoid major risks and adverse effects on economy (Amira et al., 2014).

In the context of the present research, the price which is over the international oil price and the effect of exchange rate on the oil price is taken as the fiscal policy effect. It is noted that no common policy is implemented by the government related to taxes and spending (subsidies) and volatility effect is implemented.

1.4 Organization of study

The study describes a brief introduction in First Chapter about oil prices and its volatility, exchange rate, fiscal policy and their effects on economies. In Second Chapter, the study presents the preliminary literature review. The Third Chapter consists of Oil Prices, Exchange Rate System, and Fiscal Policy and Macroeconomic effect in Pakistan. The Forth Chapter deliberates data collection, theatrical framework and methodology. The Fifth Chapter explains the results and discussion on these results. Conclusion and Policy Response are established in the Sixth Chapter of the study and references of thesis are given at the end. Annexure-A provides a compact illustration of previously done researches in a chronological manner. Annexure-B described the graphical representation of oil price per barrel in US dollar, selling oil prices (PKR) in Pakistan and exchange rate variations of Pakistani Rupee with respect to US dollar in Pakistan.
CHAPTER 2
LITERATURE REVIEW

This Chapter describes the literature review related to key variables of our research. In this chapter, Exchange rate and Oil; Fiscal Policy, Oil and economic growth; Oil price and economic growth and Oil Price volatility literature are discussed.

2.1 Exchange rate and Oil

Oil importers and oil exporters emphasize much between the linkage and relationship of oil prices and their local currency. The changes (variations) in exchange rate also have great influence on oil prices and investors worldwide. Moreover, it is viewed that the currency exchanges of oil exporting and importing economies always check the price fluctuation closely. Though the prices of crude oil is highly unpredictable but one thing is obvious that price fluctuations of crude oil and its products depend on the demand supply mechanism. As U.S. ($) dollars is the currency in which oil buying and selling are taking place worldwide, so the relationship between local currency and US dollar is very important to understand and analyze.

The investigation on the influence of exchange rate and oil price shocks (fluctuations) on the economic growth and macroeconomic variables have extraordinarily mulled over through experimental examination. The market analysts scrutinized and concurred on the point that oil price shock diminishes monetary action and expands expansion rate in the meantime.

Appreciation of currency is triggered by the capital inflow and will increase the growth in Mexico. It has been examined that the monetary policy will positively effect the exchange rate and lower the interest rate. This will increase the money supply and currency depreciation will occur. The actions and consequences of exchange rate under fixed rate, floating rate and pegged exchange rate are also studied by researchers (Dornbusch, 1976 & 1984).
Krugman and Golub (1983) concluded that the wealth from oil will exchange from oil shippers to oil exporters and in this manner it will change the exchange rate of the country which is importing oil. It was noted that the current trade imbalance and portfolio reallocation will lead to change in exchange rate.

McGuick (1983) and Yoshikawa (1990) presented those oil price fluctuations movements which were greatly effected by the exchange rate. Other studies by researchers such as (Throop, 1993), (Zhou, 1995) and (Dibooglu, 1995) explained the linkage between oil costs and exchange rates in the long run. The test results proved that these results provided false evidence of co-integration (Godbout and Van Norden, 1995).

Burbidge and Harrison (1984); Gisser and Goodwin (1986); Mork (1984); Hoover and Perez (1994); Federer (1996) and Lee et al. (1995) have demonstrated that there are so many relationships existing between the increase of oil price, distinctive large scale financial variables and exchange rate.

Edwards (1989) proposed a model so as to focus the exchange rate of twelve specific nations. He found that there were genuine and ostensible variables that can be influenced by the exchange rate in transient and long span. In the event of short term, both genuine and ostensible variables can be influenced by the exchange rate variability while in long span just genuine variables can be influenced by conversion scale in developing and developed economies. The association among real exchange rate and development of the economy (economic growth) was also studied and it was found that the real exchange rate would have negative impact when it would deviate from the equilibrium point.

Jorion (1990) studied the multinational oil firms of US and found out that foreign involvement in US oil market was satisfactory and explained that the US multinational oil firms had a positive relation with foreign exchange rate in the oil market in the context of price in US economy.

The policy makers in developing countries faced many challenges in making right prediction of exchange rate and use of exchange rate according to the right situation. In the recent times, World Bank and IMF have proposed some structural adjustment programs and other
deregulation packages in developing countries which is itself a huge challenge for these countries. Edwards (1994) explained that the exchange rates have influential position in policy making. The exchange rate is an essential and significant element in an economy. It is characterized as the cost of remote merchandise as far as residential products. With a specific end goal to distribute the assets in a household economy at the middle of remote and local products, genuine conversion scale plays a critical rate. It is the measure of universal intensity term for an economy and nation.

Jones and Kaul (1996) contemplated the response of the United States and Canadian currency exchanges to oil price shocks. They clarified that oil price changes can be influenced by the future money exchange rate.

Federer (1996) examined three strategies to locate the skewed relationship between oil price shocks and monetary subsidence. These three ways incorporated counter inflationary fiscal strategy, sectoral shocks, and vulnerability in oil prices. Federer disclosed that as indicated by these models, there was a symmetric connection between oil value changes and yield development. The study likewise discovered an essential relationship between an increment in oil price and the reactions of swelling arrangement emerged through this increment. The essential point to note here is that the oil cost increment will help in foreseeing the yield development regardless of the variables of financial strategy.

Richards (1997) had found the relationship between genuine conversion rate and USA assembling benefits by using two approaches and models. The first model used was single-equation error correction model and the other one was vector autoregressive (VAR) model. The study found out that variables having impact on USA assembling are as following; expenses, relative costs and fares and movements in the genuine trade rates.

Yin-Wong (1998) examined that under settled increasing so as to exchange rate, state bank meddle or diminishing premium rate with a specific end goal to balance out exchange rate. Depreciation of money drives withdrawal in the total request and yield will likewise decrease because of the cheapening of cash. The genuine cash quality will build the interest of ostensible cash and premium rate and genuine cash will expand the interest. This will
contrarily influence the venture and utilization choices. Meanwhile, it also increases the commodities price like crude oil, gold etc. which will effect the economy eventually.

Amano (1998) concentrated on the association among oil expenditure and exchange rates in the US economy and established that oil value shocks could be influenced by the conversion standard development of US dollar. While it created a negative impact on the economies of Russia and Turkey, (Ozturk, 2008 and Rautava, 2004) likewise discovered the critical effect of oil value changes by the genuine exchange rates. Study shows that when oil price increases, the cost of input materials increases because oil is the main input for most of the production processes. This will lead to the exchange rate appreciation. The spending power of consumers will also be reduced with a rise in oil price and also the demand for goods will be decreased. As a result of this, the prices of goods will decrease and result in the depreciation of real exchange rate.

Chaudhuri and Daniel (1998) had utilized co-reconciliation and causality wonders to clarify the genuine conversion standard of US dollar. They clarified that the conduct of US dollar genuine exchange rate was not stationary and continued shifting after some time. This was all because of the uncertain and non-stationary oil prices. Researchers argued that oil prices which are not stationary can adversely effect the real exchange rates in long-term.

Faff and Chan (1998) studied the Australian currency rate and focused on its effect on oil. Their research was conducted for the period 1979-1992 and the results they found showed that there were two main factors to effect the oil price in Australian market. Those were market factors and the factors associated with the price of oil.

Sardorsky (1999) utilized vector auto-relapse costs from 1947 to 1996 and the information indicating month to month changes in oil costs. While mulling over the US economy, he demonstrated that there was an inverse association among oil price variation and the exchange rate. Many researchers examined the pioneering work of Hamilton to find the effectiveness of his study. He named this impact as "progressively outstretching influence" and clarified that there would be a negative effect of value to currency exchange rate, interest
rates, economy and mechanical generation. Later on, another economist Masih (2011) conducted the same research on South Korea.

Sadorsky (1999) explained that there were asymmetric effects found on US economy due to price volatility. He analyzed that exchange rate would be explained by the changes in oil prices. He found that, after 1986, changes in oil prices showed real changes in exchange rate. The final result they issued was that the oil prices would depress exchange rate and there would be positive impact on exports and consequently modern creation would increment.

Another group of researchers, Faff and Brailsford (1999), studied and researched that the exchange rate and oil price changes of Australian economy. They set up that Australian economy was too sensitive to the exchange rate changes and its shocks. The delayed consequences of their study showed an imperative positive relationship in the oil price and a negative relationship with other developing economies.

Backus and Crucini (2000) argued that the fluctuations in oil prices would show the variation in requisites of trade. The second channel was regarding wealth effects and it explained that the oil prices would have a great influence by exchange rates.

Sadorsky (2001) studied Canadian currency exchange and discovered a positive relationship in the currency exchange system and the cost of oil. Yet, there was likewise a negative connection discovered for the tenure of 1 month but after execution of currency trading system by the responsibility of the local government and the tenure of 3 months it became positive between US/Canadian Dollar.

Akram (2002) likewise directed the examination to figure out the likelihood of a non-straight association between prices of oil and the exchange rate of Norway. The aftereffects of the study were negative and the association between price of oil and the exchange rate of Norway was negative. It implied that conversion standard of Norway was not so much influenced by oil value changes. The relationship was discovered unequivocally positive when oil costs were beneath 14 dollars and were falling Stocks, shares and currency exchange value were monetary instruments of the exchanged money markets with a perspective to procure premium or profit pay notwithstanding guaranteeing capital
development (Arnold, 2004). The monetary markets had, because of late contemplated, the connection between oil costs and macroeconomics.

By studying the economy of Venezuela it was found that the GDP of it had increased due to volatility in exchange rate. Government controlled volatility by controlling price fluctuations (Hsing, 2005). It was analyzed that the recession is linked with the capital inflows and will result in which the appreciation of the currency will adversely effect the exports (Calvo et al., 1993).

International price transparency is easy to understand for consumers around the globe because they can easily compare prices of oil between different countries. All of this is possible because exchange rates are flexible worldwide. In order to eliminate the exchange rate volatility, international arbitrage will increase efficiency, productivity and welfare. Sari and Soytas (2006) explained that there is no heading between budgetary variables (like FDI, exchange rate, budget deficit) and changes in oil costs. The recognizable proof of the powers that drive stock returns and the flow of their related volatilities is a noteworthy concern in exact financial aspects and money (Giovannini et al., 2004).

While studying the Chinese economy, the results of (Huang, 2006)’s study showed that there was also an affirmative relation between price of oil and exchange rate movement but the impact was quite insignificant. The reason is that China does not so much depend on oil and thus its exchange rate is not much exposed to the oil price changes. Therefore the exchange rate of China remains stable mostly and is indifferent to the oil price changes in oil market.

Mordi (2006) characterized the exchange conversion scale as the cost of one cash in appreciation to the next for a given period. He additionally clarified that the build or reduction of genuine conversion scale results in the quality and shortcoming of money in connection to remote coin and it is a standard for delineating the intensity of household commercial ventures on the global market.

Olomola & Adejumo (2006) additionally explored the instance of Nigeria and mulled over the effect on oil price by swelling rate, genuine yield, genuine exchange rate and cash supply. He utilized the VAR structure to discover this impact and presumed that the genuine
conversion standard is dictated by oil price shocks and in the long run it will influence the
cash supply also. It was examined that the impact of oil price variations on cash supply will
offer ascent to Dutch ailment.

Alotaibi (2006) mulled over the relationship between oil value changes, genuine exchange
rate and currency value. They contemplated the economies of Persian Gulf Cooperation
Council (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates). Their
study utilized SVAR (Structural Vector Auto Regression) model and found that oil cost is not
influenced by the genuine shocks. They additionally contemplated the impact of ostensible
shocks on oil cost and GDP and discovered no such effect. The aftereffects of Real Business
Cycle (RBC) hypothesis are in concurrence with this examination that demonstrates that the
supply shocks have more noteworthy effects than interest shocks established in oil income.

It is evident that the exchange rate stability doesn’t influence the economic growth but oil
price fluctuations do affect the economic growth. Schnabl (2007) explained that exchange
rate adjusted the unbalanced real shocks of economy. Moreover, when exchange rate was
permanent, the low exchange rate volatility had a relationship with lower transaction cost for
international trade and capital flows. This would result in higher growth of economy.

In small open countries, monetary policies and exchange rate policies are major determinants
of oil price volatility. Mundell (1973) explained that when exchange rate fluctuations were
smooth and stable, it resulted in economic growth. Schnabl (2007) argued that due to
appreciation in currency, the Japanese and the European economies were greatly effected by
fluctuations in the exchange rate.

Habib and Kalamova (2007) discovered the presence of oil monetary standards and examined
the effect of exchange rate genuine on oil costs of three nations including Russia, Saudi
Arabia and Norway. The discoveries demonstrated that in Russia, genuine oil cost and
genuine conversion scale were absolutely co-related whereas in Norway and Saudi Arabia,
the connection between oil value and conversion scale was negative.

Different countries face different consequences and impacts of variations in the oil prices and
fluctuations of exchange rate. The difference is due to imports and exports of oil. Oil
exporting countries enjoy the benefits of high oil prices while oil importing countries face different economic and investment challenges in international trade. So it is obvious that different countries respond differently to the oil price changes and exchange rate fluctuations. (Jin, 2008; Coudert, 2008 and Englama, et al., 2010) argued that exchange rates directly effect the oil prices.

Jin (2008) examined the effect of oil price shocks and using along with exchange rate unpredictability on monetary development a vector autoregressive model (VAR) and a Lag Augmented (LAVAR) setback test. The test concentrated the examination of the oil price variations and conversion standard instability in Russia, Japan and China. A vector lapse adjustment model (VECM) was likewise used to break down the short-run impact of genuine total national output for these nations. The results showed that economic growth was negatively effected by the oil price increases in Japan and China while positively effected the economic growth in Russia.

Jin (2008) clarified the transmission system through which oil costs influence by the genuine monetary action including both of interest and supply channels. Because of the adjustments in oil costs, the interest reactions could impact the utilization and speculation choice. There would be a negative effect on utilization in light of the fact that a surge in the oil cost would exasperate the extra cash and the cost of residential tradable. The venture would likewise be antagonistically influenced by the increment in oil costs and the expense of information thus. This would eventually expand the yield of the firm as an aftereffect of the increment in oil costs and the expense of information.

Ozturk et al. (2008) inspected the relationship between overall oil costs and the change scale in a cutting edge economy which is little and open in nature. The co-coordination and Granger causality tests were joined with research on the relationship between widespread oil costs and the changed standard from 1982 to 2006. The outcomes found that the costs of universal genuine raw petroleum brought on the United States (USD)/Turkish Lira (YTL) by the genuine exchange rate.
It is apparent that the valuation for a currency is not a decent and positive sign for creating nations; deterioration is viewed as a decent sign for creating nations (Rodrik, 2008). Depreciation and economic growth have a positive correlation in emerging economies like China, Uganda, Taiwan, South Korea, India, and Tanzania. But this situation has a negative relation in developed countries like Mexico.

Aliyu (2009) utilized the Johansen co-integration model and inspected the effect of oil price variations and genuine exchange rate volatilities on the genuine monetary development of Nigeria from 1986 to 2007. The outcomes demonstrated a positive association between the oil worth shocks and authentic change scale. There was another test called the vector blunder amendment model (VECM) and it was utilized to figure out the fleeting relationship between the oil price shocks and genuine exchange rate. This model also studied the real GDP and its effect. In considering the GDP, the study found that the real GDP had an automatic adjustment mechanism and when there was a deviation from the equilibrium, the economy responded to it in a balanced way.

The empirical studies prove that economic growth is triggered by depreciation in exchange rate. The depreciation in exchange rate will result in expensive imports and as a result there will be more exports. This situation will make balance of trade strong and economic growth will also get higher. In spite of this, the gratefulness in exchange rate will make imports shabby and it will likewise influence the financial development (Tille, 2003 and Aliyu, 2009).

Apergis and Miller (2009) likewise utilized Granger causality model to concentrate on the effect of currency exchange return on the oil price fluctuation and his examination was done on different nations including United Kingdom, Germany, Australia, Italy, Canada, Japan, United States and France. Exploration study was centered about the currency exchange outcomes and its influence on oil cost. The study found that the currency exchange has low or no impact on oil cost.

It is more essential to concentrate on the effect of money exchange rate on the oil cost (price). Lizardo and Mollick (2010) clarified that an increment in U.S. dollar can devalue the
oil cost in net oil exporter nations, for example, Canada, Mexico and Russia. At the same time, the oil importing countries will also face the depreciation in oil price while appreciation of their domestic currency relative to US dollar.

Kilian et al. (2009) and Bodenstein et al. (2011) explained that the adjustment in currency exchange would rely upon the offer of fares to oil trading nations and the extent to which there is reliance on oil. Other than this there is another component and that is changes in US dollar exchange rate that will adversely influence the oil costs because of the inverse association between exchange rate and oil costs.

Nikbakht (2010) investigated the association between oil value and exchange rate. His exploration was centered on OPEC part states. The study utilized the information somewhere around 2000 and 2007 for seven nations of OPEC and observed linkage between oil value and exchange conversion scale in the long term. The discoveries of their study clarified that oil costs changes were emphatically influenced by the genuine exchange rates.

Mendez-Caebajo (2010) mulled over the effect of conversion scale on reducing oil costs of the Dominican peso amid the 1990-2008. The vector slip redress model was utilized to explore the relationship and found that the peso deteriorates the oil and its product cost by 1.2% to 10%.

There is a conflict among researchers and scholars regarding the causes of fluctuations in macroeconomic variables. Variation in exchange rate and oil costs is characterized as the rate of progress in cost over a given stretch of time. It is communicated as the rate and figured as the annualized standard deviation rate change in everyday cost. Fluctuations in exchange rate increase the uncertainty and hence the investment decisions for any developed economy become more difficult due to uncertain and volatile exchange rate (Englama et al., 2010).

The variation in exchange rate is elaborated as the exchange rate deviation from the equilibrium over a period of time. It has also shown that the misalignment of exchange rate will influence all the markets which are parallel. It is a fact that the imports will be expanded and exports will be reduced due to the appreciation of currency. While the depreciation of
currency will increase cost of imports and as a result it will reduce the import and expand the export (Razazadehkarsalari, Haghiri and Behrooznia, 2011).

Ghosh (2011) discovered the relationship between raw petroleum value and trade and then utilized the same technique utilized by Narayan et al. (2008) however on India. In this case, the value of Rupee depreciated and consequently found an appreciation in oil price. Ghosh (2011) further explained the situation in India that would face devaluation of currency effecting on the oil price increase. In context of those countries which neither import nor export the oil, the value of US dollar relative to the currency of that country would drop.

Aliyu (2011) explained that whenever exchange rate appreciated, there were more imports and reduced exports. Contrary to this, when the exchange rate depreciated, there were more exports than imports. Actually, when exchange rate depreciates, people prefer to buy domestic goods and the income flows towards exporting countries. Exchange rate belittling has a negative impact on creating nations (Razazadehkarsalari, Haghiri and Behrooznia, 2011).

Current studies are showing the role for real shocks and explaining the pattern of exchange rate fluctuations as well as exchange rate appreciations. Studies show that real appreciation decreases the competitiveness of export sector and industrial sector. According to Aliyu (2011), when exchange rate appreciates, it will raise imports and reduce exports. On the other hand the depreciation of exchange rates will increase exports and decrease imports.

Across the board, writing on money exchanges and oil value unpredictability have accentuated on clarifying the effect on oil price instability by the currencies and further concentrated on these circumstances for individual nations. Studies are focused on oil and gas stock and shown that the different sectors of different courtiers are effected differently according to the changes in their particular currencies. Oil price volatility is also studied empirically against the general currencies trends. The exact examination demonstrates that an oil price variation has an inverse relationship and factually noteworthy introductory effect on the currencies (Sardorsky, 1999; Masih et al., 2011; Nandha and Faff, 2007; Tang et al., 2010 and Filis, 2010).
Zhu et al. (2011) consider raw petroleum shocks and currencies exchanges of OECD and non-OECD somewhere around 1995 and 2009 and utilize a board limit co-mix approach for their exploration. The examination additionally demonstrates that there is a positive association between the oil costs expand and currency. This research is in contrast to contemporary theoretical research. This disagreement between empirical studies and theoretical studies can be attributed to a method that is used to test the validity and effectiveness of hypothesis. The drawback of the Granger causality method is that, it is not enough to entail true causality and if it uses more than three variables then it produces deceptive results.

Granger causality study also reveals that the GDP is also significantly effected by the oil price and exchange rate. Shaari (2012) uses the similar approaches and studies the economy of Malaysia. This study is centered about the impacts of oil price variations and genuine exchange rate fluctuations on expansion rate in Malaysia. VAR based co-integration and VECM tests are introduced and these are focused on the influence of oil price shocks and genuine conversion standard volatilities on inflation rate revealing the similar results. Granger causality tests are also applied but showing different results that there is an insignificant or nil effect of exchange rate on inflation but the oil price fluctuations have a direct influence on inflation rate in Malaysia.

In this way the exchange conversion scale changes will antagonistically and contrarily influence the monetary execution in both fleeting and long haul. Oriavwote and Eriemo (2012) mull over the relationship between genuine oil costs and genuine exchange conversion scale. The study utilizes the Johansen-co-incorporation test and the Granger Causality test for Nigeria 1980-2010. The test outcomes demonstrate that there is a solid instability between the genuine oil costs and the genuine successful exchange rate.

Turhan et al. (2012) clarify the structure of developing economies and the part of oil costs on trade rates. The outcomes demonstrate that the oil cost build results in valuation for coin of rising economies altogether against the estimation of US dollar. The information is additionally utilized to discover the outcomes on three distinctive time periods and times and
results demonstrate that the conversion scale changes after some time so effect becomes stronger after 2008 budgetary emergency on the economies of rising nations.

Ferraro et al. (2012) researches the degree to which oil costs have a dependable and stable linkage with the Canadian or U.S dollar ostensible exchange rate. The study discovers a bit deliberate relationship between oil costs and the exchange rate for month to month and quarterly periods. A very little effect is found on daily basis. The linkage on daily basis is rather strong.

Buetzer et al. (2012) explores the degree to which oil shocks are influenced by the worldwide currency exchange rate. The study is centered around genuine and ostensible trade rates and in addition, on a trade business sector weight record of 44 progressed and developing nations. Utilizing VAR models, they discover no proof that trade rates of oil exporters deliberately acknowledge against those of oil shippers consequential convulsions that raise the genuine oil cost. Then again, oil exporters experience critical thankfulness weights took after an oil interest shock, for which they possess a tendency to counter by aggregating remote trade holds.

Ansar and Asghar (2013) also explain the importance and effectiveness of oil in an economy. As Pakistan is an oil importing country so Pakistan pays foreign reserves to consumes oil so exchange rate will adversely effect the stock market and oil price of Pakistan.

Muhammad et al. (2013) describe the causes of inflation, gold price increase, foreign exchange rate and oil prices. The researcher concludes that all these factors are highly associated with each other. All these factors also cause a high inflation and as a result the investment and economic activities get slowed down.

2.1.1 Summary

Mundell (1973) explained that when exchange rate fluctuations were smooth and stable, it resulted in economic growth. Dornbusch (1976 & 1984) examined that the monetary policy would positively effect the exchange rate and would lower the interest rate. Krugman (1983) and Golub (1983) defined that exchange rate was changed of that country which was importing oil. (McGuick, 1983; Yoshikawa, 1990; Throop, 1993; Zhou, 1995; Godbout &
Van Norden, 1995 and Dibooglu, 1995) explained the linkage between oil costs and exchange rates in the long run and resulted that there was a false evidence of co-integration. (Burbidge and Harrison, 1984; Gisser and Goodwin, 1986; Mork, 1984; Hoover and Perez, 1994; Federer, 1996 and Lee et al., 1995) demonstrated that there were so many relationships existing between the increase of oil price, distinctive large scale financial variables and exchange rate.

Edwards (1989) found that the real exchange rate would have negative impact when it would deviate from the equilibrium point. Jorion (1990) explained that US multinationals oil firms had a positive relation with foreign involvement in oil market in the context of price in US economy. Edwards (1994) explained that the exchange rates have influential position in policy making. Jones and Kaul (1996) clarified that oil price changes could influence the future money streams. Federer (1996) discovered an essential relationship between an increment in oil cost and the reactions of swelling arrangement emerging through this increment. Richards (1997) found that the variables having an impact on USA assembling were; expenses, relative costs and fares and movements in the genuine trade rates. Yin-Wong (1998) demonstrated that under settled increasing so as to exchange rate, state bank meddle or diminishing premium rate with a specific end goal to balance out conversion scale.

Amano (1998) concentrated on the association among oil expenditure and exchange rates in the US economy and established that the oil value shocks can influence the conversion standard development of US dollar. While creating a negative impact on the economies of Russia and Turkey, (Ozturk, 2008 and Rautava, 2004) likewise discovered the critical effect of oil value changes on genuine exchange rates. Chaudhuri and Daniel (1998) argued that the oil prices that were not stationary could adversely effect the real exchange rates in long-term. Faff and Chan (1998) found that the two main factors that effect the oil price in Australian market were market factors and the factors associated with the price of oil. Sardorsky (1999) demonstrated that there was an inverse association among oil price variation and the exchange rate in US economy. Faff and Brailsford (1999) defined imperative positive relationship in the oil price and a negative relationship with other developing economies. Backus and Crucini (2000) argued that the fluctuations in oil prices would show variation in
requisites of trade. The second channel was regarding wealth effects and it explained that the oil prices would have great influence on exchange rates. Sadorsky (2001) studied Canadian currency exchange and discovered a positive relationship in the currency exchange system and the cost of oil.

Akram (2002) likewise directed the examination to figure out the likelihood of a non-straight association between prices of oil and the exchange rate of Norway. Hsing (2005) studied the economy of Venezuela and found that its GDP had increased due to volatility in exchange rate. Calvo et al. (1993) analyzed that the recession was linked with capital inflows and will result in which the appreciation of currency would adversely effect the exports. Sari and Soytas (2006) explained that there was no heading between budgetary variables (like FDI, exchange rate, budget deficit) and changes in oil prices. While studying the Chinese economy, the results of (Huang, 2006)’s study showed that there was also an affirmative relation between price of oil and exchange rate movement but the impact was quite insignificant.

Mordi (2006) characterized the exchange conversion scale as cost of one currency in appreciation to the next for a given period. Olomola & Adejumo (2006) discovered impact and presumed that the genuine conversion standard was dictated by oil price shocks and in long run it would influence the cash supply also. Alotaibi (2006)’s examination demonstrated that supply shocks had more noteworthy effects than interest shocks established in oil income. Schnabl (2007) explained that exchange rate adjusted the unbalanced real shocks of economy. Furthermore, he argued that due to appreciation in currency, the Japanese and the European economies were greatly effected by fluctuations in the exchange rate.

Habib and Kalamova (2007) discovered that the connection between oil value and conversion scale was negative. (Jin, 2008, Coudert, 2008, and Englama, et al., 2010) argued that oil prices directly effect the exchange rates. Jin (2008) examined and showed that the economic growth was negatively effected by oil price increase in Japan and China and positively effected the economic growth in Russia. Ozturk et al. (2008) inspected and found that the costs of universal genuine raw petroleum brought on the United States (USD)/Turkish Lira (YTL) genuine exchange rate. Rodrik (2008) Depreciation and economic growth had a
positive correlation in emerging economies like China, Uganda Taiwan, South Korea, India, and Tanzania but had a negative relation in developed country like Mexico. Aliyu (2009) demonstrated the positive association between the oil worth shocks and authentic change scale. (Tille, 2003 and Aliyu, 2009) The empirical studies proved that the economic growth is triggered by depreciation in exchange rate.

Apergis and Miller (2009)’s study found that oil cost had low or no impact on currency exchange in United Kingdom, Germany, Australia, Italy, Canada, Japan, United States and France. Lizardo and Mollick (2010) clarified that an increment in genuine oil cost would devalue the U.S. dollar in net oil exporter nations, for example, Canada, Mexico and Russia. At the same time the oil importing countries would face the depreciation in their domestic currency relative to US dollar due to increase in oil price. Kilian et al. (2009) and Bodenstein et al. (2011) explained that the changes in US dollar exchange rate would adversely influence the oil costs because of the inverse association between exchange rate and oil costs. Nikbakht (2010) investigated and clarified that genuine trade rates changes were emphatically influenced by the oil costs on OPEC part states.

Mendez-Caebajo (2010) found that the peso deteriorated by 1.2% with a 10% ascent in oil and its product cost. Englama et al. (2010) Fluctuations in exchange rate increased the uncertainty and this was the reason that investment decisions for any developed economy became more difficult in uncertain and volatile exchange rate. The variation in exchange rate was elaborated as the exchange rate deviation from the equilibrium over a period of time. It also showed that the misalignment of exchange rate would happen if all the markets are parallel. (Razazadehkarsalari, Haghiri and Behrooznia, 2011).

Narayan et al. (2008) and Ghosh (2011) explained the situation in India that would face devaluation of currency due to oil price increase. Aliyu (2011) explained that when exchange rate appreciated, there would be more imports and exports would be reduced. When exchange rate depreciated, people would prefer to buy domestic goods and the income would flow towards exporting countries. The exact examination demonstrated that an oil price variation had an inverse relationship and factually noteworthy introductory effect on the currencies (Sardorsky, 1999; Masih et al., 2011; Nandha and Faff, 2007; Tang et al., 2010 and Filis,
Zhu et al. (2011) studied and revealed that GDP was also significantly affected by the oil price and exchange rate in OECD and non-OECD countries.

Shaari (2012) elaborated that there was insignificant or nil effect of exchange rate on inflation but the oil price fluctuations had a direct influence on inflation rate in Malaysia. Oriavwote and Eriemo (2012)’s outcomes demonstrated that there was a solid instability between the genuine oil costs and the genuine successful exchange rate. Turhan et al. (2012)’s outcomes demonstrated that oil cost built results in the valuation for coin of rising economies altogether against the estimation of US dollar. Ferraro et al. (2012)’s study discovered a bit deliberate relationship between oil costs and the exchange rate for month to month and quarterly periods. Buetzer et al. (2012) explored the degree to which oil shocks influence the worldwide currency exchange rate. Ansar and Asghar (2013) studied and explained that oil price shocks would adversely effect the stock market and exchange rate of Pakistan. Muhammad et al. (2013) described the causes of inflation, gold price increase and foreign exchange rate and concluded that all these factors were effected by the oil price increase.

2.2 Fiscal Policy, Oil and Economic Growth

The studies have examined fiscal policy shocks in developed countries and their effect on real exchange rate. Pereira & Manuel (2009), Jean & Alain (2009) explained that fiscal policy had a significant contribution of economic growth of any economy.

Chu (1989) presented a fiscal policy reaction function and his study was conducted for 18 non-oil developing countries that were dependent on external trade. He said that the fiscal cycles in these non-oil countries were correlated with the trade cycle of the rest of the world and that the fluctuations in government revenues would drive the fluctuations in government expenditures.

Fashola (2001) characterized the monetary arrangement as the arranging of income and use levels and example by government to impact the roundabout stream, or particularly to advance full vocation generation, value security and national welfare. The fiscal policies were basically of two type; expansionary or contractionary.
Studies also revealed the key variables that stimulate fiscal responses. An IMF staff survey (2003) studied the fiscal policy reaction functions for emerging and industrial countries and found that debt level would increase with primary surplus. The other factor than can effect fiscal policy is trade openness. Rodrick (1998) argued that openness would increase the exposure to external shocks and as a result it would increase the demand for government safety nets and public goods. Crude oil is an important source of energy and widely used in domestic as well as transport and industrial sector widely. That is why it is considered as a crucial and important factor of economical development of any country. Oil demand and supply and price fluctuation also effect stock market throughout the world. Middle East is the largest supplier of the crude oil in the world and Asia is considered as the largest consumer of the world.

Macroeconomics deals in economics and fiscal policy management. It explains that the fiscal policy helps in stabilizing economic growth by managing and controlling economic activities. The equilibrium demonstrates that the economy will rapidly come back to its full limit at whatever point aggravations uproot it from full business (Blinder, 2006).

According to Blinder (2006) explained that an economy can never be stabilized if there are changes in fiscal policy and monetary policy. Changes in fiscal policy and monetary policy will bring about economic instability, unavoidable deferrals in perceiving monetary unsettling influences, the establishing of the financial reaction, and economy's response to the adjustment in approach that might irritate the business-cycle vacillations.

Many researchers (Adeoye, 2006 and Omitogun & Ayinla, 2007) believe that the fiscal policy and monetary policy play a significant role in modifying the rate of inflation in any economy and also help to prevent and control depression.

Omitogun and Ayinla (2007) explained that the expansionary fiscal policy allowed a government to plan for budget deficit due to economic recession or depression. In the same way contractionary fiscal policy would allow the government to plan for budget surplus and in that situation government could also reduced the domestic production. The administration does this by lessening open consumption and expanding assessments.
According to Gray et al. (2007) fiscal policies help the governments in many useful ways and by using this; governments can control the demand for goods and services. An effective fiscal policy helps in preventing depressions by encouraging government expenditure. It will help in controlling inflation rate by discouraging spending. It is noted that fiscal policy determines the tax rates and fiscal influences the spending pattern of people. Fiscal policy also helps government to manage inflation and depression by managing its expenditures.

Husain et al. (2008) clarified a theoretic VAR analysis to investigate the effect of oil costs on monetary approach. Pieschacon (2009) likewise introduced a general balance model to look at the economy and effect of oil worth shocks on the economic growth of Mexico and Norway. The study uncovered that the financial strategy was a key variable that would transmit oil price shocks in the household economy.

The way resources will be used in an economy, is decided by the government. So that is because of increase in government expenditure and as a result increases aggregate demand which is termed as expansionary or “loose.” Contrary to this, that fiscal policy will be contractionary or “tight” which will reduce the demand by lower spending (Horton and El-Ganainy, 2009).

Horton and El-Ganainy (2009) clarified that the goals of the financial arrangement change incredibly in fleeting and long haul. In the short term, governments more often than not concentrate on adjustment of macroeconomic. For an oil-delivering nation, monetary strategy will work distinctively and it will plan to set expert patterned spending at a sensible level.

Fiscal policies will tend to increase future taxes due to the economic deficit and the intensity of this increase will depend on the effects of policies, both monetary and fiscal, on incentives for investing in human or physical capital. This will help in raising living standards of country in future. When there is budget deficit, the fiscal and monetary policies will promote investment and it will reduce government saving and capital formation will increase (Horton and El-Ganainy, 2009).

Richard et al. (2009) additionally clarified that monetary strategy influences different elements and variables including the circulation of riches, total interest, and the limit of the
economy to deliver products and administrations. The adjustments in spending and assessment structure will change the example and structure of interest for products and administrations for brief time.

Be that as it may, with the progression of time, the total interest will have direct effect on the assignment of assets and the profitable limit of an economy in light of the fact that it influences the profits of the variables of generation. These variables of generation are; the improvement of human capital, the distribution of capital spending, and interest in mechanical developments.

Antonio and Ricardo (2009) presented the empirical analysis of some developed countries and the effects of fiscal policy of those countries on their economy from 1964 to 2007. The countries in study included United States, United Kingdom, Italy and Germany. Study used the Bayesian Structural Vector Auto-regression approach and the results find that the government expenditure shocks don’t effect the GDP so much. Results also showed that the price of stock will fall and “crowding-out” will effect the housing prices and further results as the depreciation exchange rate.

Corsetti, Meier and Müller (2010) analyzed the government expenditure shocks and the response of economy towards this. The study was focused on the changes in government expenditure from 1975 to 2008 of 17 Association for Economic Cooperation and Development (OECD) nations: Belgium, Norway, Austria, Netherlands, Sweden, Canada, Spain, Denmark, Italy, Finland, France, Ireland, Portugal, the United Kingdom, Australia, Japan, and the United States. Structural Auto regression model (VAR) was used to find out the results and results showed that government expenditure shocks received unconditional responses with positive effects on production output. As a result there was no major movement in investment, consumption and trade balance. Studies found that the result was quite different when they studied for different regions. The reactions of the genuine conversion scale and net fares especially fluctuate altogether crosswise over exchange rate administrations. Yield and utilization multipliers, thus, turn out to be vast amid monetary emergency.
Al-mulali et al. (2010) investigated the genuine exchange rate of UAE and the impact of oil price fluctuations on the genuine rate of exchange of the UAE dirham from 1977 to 2007. The study used annual time series data and VECM model. This model had five variables including dependent and independent variables. The genuine exchange rate was the needy variable and the free variables were total national output per capita, oil value, exchange adjust, and outside direct speculation inflows. The results of this study showed that when there was fixed exchange rate and the oil price increased, this would result in financial surplus and it would have positive impact on government expenditures and investment. This will also increase the liquidity and thus the price of assets will increase. Furthermore, inflation will get high and economy will get unstable as a result due to the higher consumer prices.

Katsuya Ito (2010) inspected the expansion rates in Russia from 1995 to 2009 by utilizing the VAR model. The study was centered on discovering the levels of swelling and likewise discovered the effect of oil costs on the genuine powerful conversion scale and genuine GDP for Russia. The result showed that the real GDP in long term would grow due to oil prices fluctuations. When there will be a decrease in oil prices, it will stimulate inflation and consequently it will effect the economic growth. This will ultimately result in appreciation of real exchange rate.

Zeno, Gernot and Almuth (2011) provided new evidences after studying the effects of government expenditure and technological stocks on the trade stipulations and the real exchange rate. They mainly studied industrial countries and used vector auto regressions (VAR) model. They used nine key variables while studying US industries during 1975 and 2005 and those variables were; government expenditure, inflation rate, GDP, net exports, investment, budget balance, interest rate and real exchange rate. The results defined that the exchange rate and trade stipulations will depreciate due to more government expenditures and exchange rate and trade stipulations will appreciate due to positive technology shocks.

Antonio & Ricardo (2011) additionally broke down the macroeconomic impacts of monetary strategy in Portugal from 1987 to 2007 by utilizing two models; a Bayesian Structural Auto relapse model (VAR) and a Simultaneous System approach. The results demonstrated that
the broad government consumption shocks will adversely influence the genuine Gross Domestic Product (GDP) and it will bring about "swarming out" impacts. These impacts comprise of private utilization and venture and they will emphatically influence the value level and government obligation. This model affirms that the sudden positive spending shocks make significant "swarming out" impacts.

Fransisco and Laura, (2011) analyzed the impact of fiscal shocks on Spain and studied the effectiveness of their exchange rate from 1981 to 2008. They used the standard structural VAR framework for their research and the results of that research showed positive outcome responses between government expenditures and real appreciation. Higher oil prices and nominal appreciation are the main determinants of real appreciation of currency. The results of those investigations also discovered that the fiscal shocks effect relative price and the method through which those shocks effect external competitiveness was quite significant. But these results cannot be achieved by using single currency. So when the government expenditure arises, the current account declines. This happens because real appreciation decreases the exports. In addition, the study also explained that real appreciation was the result of purchases of goods and services and public investment and there will be depreciation whenever there is higher personnel expenditure.

2.2.1 Summary

Chu (1989) revealed that the fiscal cycles in 18 non-oil countries are correlated with the trade cycle of the rest of the world and that the fluctuations in government revenues will drive the fluctuations in government expenditures. (Pereira& Manuel), (Jean & Alain) explained that the fiscal policy has a significant contribution to economic growth of any economy. Fashola (2001) characterized the monetary arrangement as the arranging of income and used levels and examples by government to impact the roundabout stream, or particularly to advance full vocation generation, value security and national welfare.

An IMF staff survey (2003) studied the fiscal policy reaction functions for emerging and industrial countries and found that the debt level will increase with primary surplus. The other factor that can effect fiscal policy was trade openness. Rodrick (1998) argued that
openness will increase the exposure to external shocks and as a result it will increase the demand for government safety nets and public goods. Blinder (2006) explained that the fiscal policy helped in stabilizing economic growth by managing and controlling economic activities. The equilibrium demonstrated that the economy would rapidly come back to its full limit at whatever point aggravations uproot it from full business.

Adeoye (2006), Omitogun and Ayinla (2007) believed that the fiscal policy and monetary policy play had a significant aspect to modify the rate of inflation in any economy. Omitogun and Ayinla (2007) explained that the expansionary fiscal policy allows government to plan for budget deficit due to economic recession or depression. In the same way contractionary fiscal policy will allow the government to plan for budget surplus and in this situation government also reduces the domestic production. Gray et al (2007) argued that fiscal policies help the governments in many useful ways and by using this fact governments can control the demand for goods and services. Fiscal policy also helps in preventing depressions by encouraging government expenditure and in controlling inflation rate by discouraging spending.

Husain et al. (2008) clarified and investigate the effect of oil costs on monetary approach and find a strong association among the variables. Pieschacon (2009)’s study uncovered that the financial strategy is a key variable that will transmit oil price shocks in the household economy of Mexico and Norway. Richard et al. (2009) additionally clarified that monetary strategy influences different elements and variables including the circulation of riches, total interest, and the limit of the economy to deliver products and administrations. Antonio and Ricardo (2009)’s results found that the government expenditure shocks didn’t effect the GDP so much. Results also showed that the price of stock would fall and “crowding-out” would effect the housing prices and further results as the depreciation exchange rate in United States, United Kingdom, Italy and Germany.

Corsetti, Meier and Müller (2010) analyzed the government expenditure shocks and the response of economy towards this. The results showed that government expenditure shocks received unconditional responses with positive effects on production output in Economic Cooperation and Development (OECD) nations: Belgium, Norway, Austria, Netherlands,
Sweden, Canada, Spain, Denmark, Italy, Finland, France, Ireland, Portugal, the United Kingdom, Australia, Japan, and the United States. Al-Mulali et al. (2010) investigated and showed when there was fixed exchange rate and the oil price increased, this was resulted in financial surplus and it would have positive impact on government expenditures and investment in UAE. This will also increase the liquidity and price of assets will be increased. Inflation will get higher and economy will get unstable as a result due of higher consumer prices.

Katsuya Ito (2010) discovered the effect of oil costs on the genuine powerful conversion scale and genuine GDP for Russia. (Zeno, Gernot and Almuth, 2011) provided new evidences after studying the effects of government expenditure and technological stocks on the trade stipulations and the real exchange rate. The results defined that the exchange rate and trade stipulations will depreciate due to more government expenditures and exchange rate and trade stipulations will appreciate due to positive technology shocks. Antonio and Ricardo (2011) studied and demonstrated that broad government consumption shocks would adversely influence the genuine Gross Domestic Product (GDP) and it would bring about "swarming out" impacts in Portugal.

Fransisco and Laura (2011) analyzed the impact of fiscal shocks on Spain and studied the effectiveness of their exchange rate from 1981 to 2008. The research showed positive outcome responses between government expenditures and real appreciation.

2.3Oil Price and Economic Growth

Oil volatility is the major and most critical constituent of world economy. In spite of the fact that there are numerous option assets to oil like wind, water, atomic and sunlight based power however the part of unrefined petroleum is still critical. Because of this focal significance, any adjustment in oil costs can effect both oil importing and oil sending out nations. Oil is of extraordinary significance for oil importing and in addition oil exporting economies.
Most of the research was conducted on developed countries because the developed economies and their economic growth were mainly effected by oil price fluctuations. The observational confirmation demonstrates that the fluctuations of oil price have a huge impact on monetary development through some immediate and indirect channels.

The experimental studies have likewise demonstrated an uneven association between fluctuations of oil price and financial subsidence on the planet. Research explains this as raise in oil price which results in a decrease of GDP of the country and economic activity and investment are not encouraged due to decline in oil price. The sudden boost in oil demand results in increase in oil prices and study shows that it leads to the economic growth of the countries involved in crude oil exports mainly OPEC (Organization of Petroleum Exporting Countries) countries.

Oil value changes have an immediate impact on monetary movement concerning mechanical creation and GDP. It was found that if changes in oil costs influenced the monetary action, it would influence the income of organizations for which oil was an essential expense to generation. This shows the negative relationship between oil and output production.

If price will increase, it will have adverse effects on output production because overall price increase will also increase the price of input and as a result the earnings will drop. The stock market, if efficient, will experience an immediate decline in stock prices after sudden increase in oil price. Then again securities exchange, if not proficient, will achieve a slacked decrease in the share trading system with an increment in oil cost in oil market.

The research has shown that oil price shocks adversely effect different macroeconomic variables and economic growth. This is all due to the raise in the expenditure of production triggered by means of oil price fluctuations. Oil price fluctuations also increase the risk and uncertainty and thus effect the investment due to higher prices of resources involved in production.

Hamilton, Bruno and Sachs (1982 and 1983) clarified instance of the United Kingdom and said that oil costs precariousness influences the budgetary development, financial development and expansion in United Kingdom. All the examination demonstrated that every
one of the variables was enormously associated. The study focused on the era between 1950 and 1979 and used the periodic data to find out the results.

Bruno and Sachs (1982) have broken down the impacts of the oil costs on yield and swelling rate amid 1970. For the exploration they mulled over the UK assembling firms and built up a model. The model clarified that higher info costs assume a huge part in the retreat all through the association of financial participation and advancement (OECD) since 1973.

Bernanke (1983) argued that changes in oil prices effect the economic activity in such a way that in short run purchases of input material got expensive and cost of production got increased. Hamilton (2003) argued that volatilities and uncertainties in oil market were triggered by price changes of crude oil and due to these uncertainties; consumers would spend less on consuming goods like houses, vehicles and appliances as well as industrial goods.

Though researchers have found solid reasons for these changes and factors involved in these changes but it diverge greatly from economy to economy and there is not a single study that fits all. There are inter country differences, different oil trade statuses of different nations and structural differences are mainly responsible for these differences.

Bernanke (1983) explained that when oil price is uncertain and it is expected to increase, then the firms will not further invest to avoid uncertainty associated with oil price increase. When oil price is expected to increase, the firm found it difficult to decide whether it should use energy efficient resources for production or inefficient resources of energy. This makes the investment delayed and due to risk and uncertainty, ultimately firm postpones its investment decisions and decreases the economic growth in developing and developed economies.

Hamilton (1983) contributed greatly to the US economy and explained a model for price shocks and elaborated its impact on US economy. He argued that oil prices rise after post World War II time was because of the price shocks in oil market. Other than this, these oil value changes macroeconomic variables additionally indicated incredible reactions. At the point when oil cost builds the expense of creation increments and there had been seen a decrease in yield and speculation likewise diminished.
It was assumed that the investment will not tend to rise significantly as oil prices fall (Ferderer, 1996; Elder and Serletis, 2009; Cunado and Gracia, 2003; Cunado and Gracia, 2005; Lee et al., 1995; Davis, 1987; Davis and Haltiwanger, 2001 and Mork & Olson, 1994).

In the last few decades, due to political unrest and political crisis, economic activities are greatly affected by the oil price changes. (Ferderer, 1996; Elder & Serletis, 2009 and Pindyck, 1991). It is to be noted that developing countries also showed extraordinary advancement and industrialization in few decades but all the studies and researches conducted on oil price changes and stock price fluctuations are mainly focused on developed nations and developing nations have mainly not been focused for such fluctuations and changes.

Bernanke (1983) and Henry (1974) argued that the oil costs have incredible effect on financial exercises and the higher the uncertainty is, the lower will be the investment activities and it will ultimately effect the output of industrial sector.

Hamilton (1983) found a negative linkage among oil price and other macroeconomic variables. Furthermore, it accentuated on the significance of oil costs in macroeconomic exercises amid retreat in US. Numerous specialists and financial experts concurred with Hamilton's work by utilizing diverse estimation methods, instruments and strategies and on the premise of that information were tried by Hamilton.

Hamilton (1983) clarified that the connection between oil value advancement and monetary yield was not of a verifiable happenstance for the 1948-1972 periods. An increase in oil prices will decelerate the output growth and after some time its recovery will start.

Burbridge and Harrison (1984) collected on different methods of data related to OECD and analyzed the economies of Germany, Japan, US, UK, and Canada. The study reveals that the industrial production is negatively affected by oil price changes in United States and United Kingdom and shows very little negative impact on other countries. The study also uses an empirical model and the results of the models also find negative association between oil prices and economic activities.
Gisser and Goodwin (1986) studied US economy from 1961 to 1982 by using a reduced-form approach. The study was aimed to investigate the effect and magnitude of oil price changes on the economy of United States. They also investigated that monetary policies and fiscal policies effect the oil price changes which in return effect the output growth.

Mork (1989) investigated the GNP growth of United States from 1948 to 1988 and found the relationship between oil price change and GNP growth shows upward trend and movements in oil prices effect prices significantly and there is a negative relationship found between them. The investigation of Mork examined that the association between prices of oil and economic growth is asymmetric.

Mork, Olsen and Flo (1992) clarified the observational study on oil value unpredictability and the impact of this oil price instability on important development variables of economies. Their outcomes demonstrated that the expansion results from oil value variances and it is not the outcome in residential cash supply.

Mory (1993) finds an asymmetrical impact of oil prices on Gross Domestic Production and observes that when oil price increases, it effects the economic activities and GDP as a result. This was first observed in 1980 when oil price fluctuations lead to economic recession and as a result the GDP of effected nations dropped significantly.

Mork and Olsen (1994) studied 7 OECD countries including Japan, France, USA, Canada, West Germany, Norway and UK from 1967 to 1992. So as to study the relationship between rise in oil cost and GDP, study has found that these two variables are highly negatively correlated. The study involved a reduced-form macroeconomic model and found partial co-relation and bi-variant correlation between the two variables in most of the countries studied. As the study figured out negative relationship between oil cost and GDP among all nations, however the instance of Norway is distinctive. There is positive co-relation found between oil price and GDP in Norway because Norway is an oil producing country and this sector dominates the overall economy. At the point when the cost of oil will drop, there will be sure relationship in the middle of GDP and oil costs and basically the economies that are essentially influenced by this linkage are United States and Canada.
Lee and Ni (1995) examined the effect of oil prices on Gross National production and unemployment. Oil price shocks will increase cost of production and input material thus inflation will increase and unemployment will also decrease due to decrease in investment. Inflationary pressure will decrease the demand and thus economic growth will decrease drastically. In this manner there is a critical relationship between oil cost and unemployment. There is no impact of oil value changes on financial exercises, as extent US economy is concerned.

Similarly, Lee, et al. (1995) also discovered the constancy of asymmetric effects and their dependence on other variables during 1985. The literature explains that macroeconomic impacts on oil price shocks is triggered by indirect transmission mechanisms.

Hooker (1996) challenged the work of Hamilton to explain that the steadiness of oil price is quite significant. Oil prices are considered as endogenous and the oil price interaction with various variables is misrepresented by linear and symmetric specifications. He also explained that found that oil prices were exogenous before 1973.

Hooker’s study (1996) studied the situation after 1985 and observed a weak and negative association between oil prices and economic activities. On other hand the oil prices determined by OPEC have significant impact on economic activities.

Ferderer (1996) explained that when there is sound and updated information available to the firm, then decision of investment will become. Accordingly, as the level of oil cost unpredictability builds, the alternative quality ascents and the motivating force to invest in the economy decreases. Thus all the sectors and economic activities will face decline in investment due to oil price uncertainty. Research shows large macroeconomic fluctuations due to oil price changes in 1973 but their effect on 1980-1982 recessions cannot be studied fully. The macroeconomic investigation of the late 1980s demonstrates that the relationship between oil costs and macroeconomics can't be clarified by basically breaking down oil value changes.

Ferderer (1996) analyzed the US economy and studied it from 1970 to 1990 by using standard deviation. The study found that oil value unpredictability has critical effect on
macroeconomic execution furthermore influence generation development. Oil price changes also effect the inflation rate, employment and output growth because of the disturbances in production cost, production process and production output.

As Adelman (2000) studied the oil price instability and its result on financial development. They explained that prices of crude oil are more volatile and unstable than any other commodity price. He also explained that seasonal changes in demand of oil have mainly caused the oil price fluctuations though these movements were considered very small.

Abeysinghe (2001) studied various economies in order to investigate the effect of oil price volatility on their economic activities. These economies include Singapore, Indonesia, Malaysia, Hong Kong, Philippines, Korea, Thailand, Japan, China, Taiwan, the United States and other OECD countries. The impact was found in two folds; direct impact and indirect impact. Indirect effects are mainly due to economic and trade partners. Malaysia and Indonesia are oil exporting countries and their trade partner is Singapore that is oil importing country. When oil price increases, Indonesia and Malaysia tend to increase their exports and Singapore will increase their imports and as result the economic growth and GDP are negatively effected in Singapore. Therefore the size of indirect influence will determine the intensity of negative influence. The study shows that though Malaysia and Indonesia are effected positively due to oil price increase but as Singapore is effected negatively so this negative effect will also suffer the Malaysian and Indonesian economies in long run.

Oil is the major source of revenue for oil exporting countries and any sudden change in oil price can trigger the revenue system. While it is the major source of input in oil importing countries and any sudden increase in oil prices can also effect the production and output of oil importing countries and thus it can effect the whole trade balance. Due to all these reasons, oil price is very sensitive to changes and this it can impact the whole economy of the world (Dehn, 2001).

Kolawole (2002) also studied this situation deeply and he was in total agreement with Adelman (2000). The only difference was on production quotas. Ayadi (2005) was also in agreement with the both researchers and explained that the assumption surrounding OPEC
gatherings can also stimulate volatility. He explained that meetings of OPEC lead to upward movement of oil prices. Osije (1983) said that the oil prices are settled by the market trends and results in price volatility of oil.

Garratt, et. al (2003) studied the economy of UK and found that when oil price increases, it increases the economic activities in UK as well as the inflation rate.

Doroodian & Boyd (2003) studied US economy to found the effect oil prices on US economy. The study found that the association between oil prices and economic growth was highly negative during 1970 when oil prices first increases. But in 1980 there was very little impact. The reason was that US economy transformed greatly from manufacturing to service sector and as a result oil price has little impact due to small manufacturing sector.

Andersen et al. (2004) used the realized volatility to study oil price volatility in Asian region. The report explained volatility of oil price has a direct effect on output growth for China in short run. While studying the Indian economy and the economy of the Philippines, it was noted that earlier than and afterward of Asian financial crisis, oil price volatility has influenced the Gross Domestic Production growth and inflation rate. In Malaysia, oil price fluctuations effect Gross Domestic Production growth and in Thailand, oil price volatility influenced the output growth. These impacts and effects have vanished after financial crisis finished. In Thailand, the administration presented the oil endowment and produced the oil stores which assumed a huge part in enhancing financial execution of Thailand. It decreases the unfavorable impact of oil value unpredictability on macroeconomic markers and aided in balancing out the economy of Thailand.

Guo and Kliesen (2005) likewise clarified the connection between oil costs and GDP and found there is a negative impact of oil costs on GDP in future because of predictable oil cost increment. It was found that the negative effect becomes larger due to oil price changes in regression. His findings were in total agreement with the findings of Hamilton (1996, 2003) and both have found that an increment in the cost of oil has less impact when contrasted with the future vulnerability about the bearing of costs.
The factors that trigger the oil price volatility are exogenous events that include political unrest, terrorist attacks and the recent Middle East crisis which effects the oil price volatility greatly and adversely.

Guo and Kliesen (2005) studied US economy to find the result of oil price volatility on its economic growth from 1984 to 2004. They used the facts and figures of NYMEX and analyzed the daily changes in oil prices. They found that oil price volatility effects fixed investment rate, consumption rate, employment rate, and the unemployment rate. The results showed that people are more concerned about the future oil price volatilities than current oil price changes.

Cunado and Gracia (2005) explore the effect of oil value volatilities on monetary exercises and currency exchange rate from 1975 to 2000. The study was focused on 6 Asian economies including South Korea, Japan, Singapore, Thailand, Malaysia, and the Philippines. The research found that economic growth and inflation rate are influenced significantly by oil prices. The impact was found more positive and greatly effected when the oil prices are in local currencies. The research used a co-integrated vector-auto- regressive (VAR) model and found that increase in oil price will increase the inflation rate and inflationary pressure will increase interest rates. This study is not applied to the economy of Japan and the UK.

Kumar (2005) additionally investigated the relationship between oil cost and large scale economy of India. Cunado, et al. (2005) broke down the economies of six Asian nations including Malaysia, Japan, Philippines, South Korea Singapore, and Thailand what's more, focused on the impact of oil worth volatility on fiscal activity and purchaser expense records.

Mork (1989); Mork, et al. (1994); Huang, et al. (2005) and Sadorsky (1999) in like manner underlined the uneven effects of the oil quality paralyzes and their impact on financial activities. It was watched that oil lessened and the relationship between oil costs and fiscal advancement sponsored off due to the decrease in oil cost.

Anshasy et al. (2005) studied relationship among various variables in Venezuela. He used the VAR/VECM model and examined the relation between oil prices, GDP, investment and
government expenditures. He found that economic growth is effected by the fiscal balance. The effect was observed in short term as well as long term.

Qian et al (2005) concentrated on the Chinese economy and explored the linkage between changes in world oil costs and macroeconomics variables of China including GDP, remote exchange and interest in altered resources. The study shows that there is a negative impact on GDP of china and trade pattern of China due to oil price increase.

The economic developments at a large scale are also a factor of oil price volatility. As the China and India are among the emerging economies and world oil market has experienced a huge oil demand from this region. There was also seen a decline in trade value of US dollar. As a result of this, the oil prices get more unstable and ultimately the price of oil increased (Guo and Kliesen, 2005).

Lardic & Mignon (2006) deliberate the effect of oil price on economic growth in US and Canadian economy. Same results were found for European economies and OECD states as well.

Lardic and Mignon (2006) studied twelve European economies in order to find the association among oil prices and GDP. The investigation was focused on the period from 1970 to 2003. The study found that there is an asymmetric association between oil price and economic activities. When oil price increases, it effects the economic activities. The effect is not found so intense when oil price decrease than it effect the economic activity and economic growth when oil price increases.

Research shows that the oil price volatility has considerable effect on economic aggregates of any economy and researchers argued this in their studies. Gounder and Bartleet (2007) explained that there will be higher inflation and higher unemployment rate and the demand-side influence the energy crisis.

The exploration demonstrates that these elements lead to the instability in the oil market. Ewing and Thompson (2007) clarified that the oil costs are regularly viewed as an essential
data of developments and focus the mixed bag of macroeconomic variables. One study likewise found that oil value unpredictability has an effect on oil price shocks.

Hsing (2007, 2008) concentrated on the non-direct association among genuine yield and genuine oil costs. Not at all like the Hamilton which concentrates on non-straight oil price volatility and the effect of oil price shocks on yield. He examined the German and US economy and connected the fiscal strategy capacity to an open economy and found the segregating estimation of oil expenses for Germany and US.

These studies have found that there is a negative effect of genuine oil costs on yield and other full scale variables. Accordingly oil importing economies are likewise adversely influenced by the increment in oil value and influenced the structure of different economies (Gounder, et al. 2007).

Mehrara & Oskui (2007) explored the reasons for macroeconomic changes by examining the economies of Kuwait, Iran, Indonesia and Saudi Arabia. They utilized the auxiliary VAR approach-(Variance Decomposition and Impulse Response factor) investigation. Oil price volatility is viewed as the principle purpose for yield vacillations in Iran and Saudi Arabia. While, yield vacillations in Kuwait and Indonesia, are chiefly because of total supply shocks. Furthermore the study also explained that these shocks have increased the prices in Saudi Arabia alone and in other countries no such impact was found.

Numerous exploration studies have been directed in discovering the relationship between oil costs and financial development. The researchers have found many useful techniques and other monetary and fiscal policies that can help avoiding the adverse effects of oil price changes on economic growth (e.g. Hamilton, 1983, 1996; Pindyck & Rotemberg, 1983; Bernanke et al., 1997; Bernanke, 2004; Devlin & Lewin, 2004 and Cologni & Manera, 2007). These investigations established that increase in oil price will badly effect the economic growth.

Schmidbauer and Kalaycioglu (2008) demonstrated that there is an effect of oil price instability on economy. Gronwald et al (2009) considered the effects of oil price volatility on Kazakh economy. The examination found that different elements influence the worldwide
monetary improvement and these elements incorporate OPEC power, and theoretical conduct.

There is a negative association between oil expenses and asset qualities and it demonstrates that budgetary danger connected with oil value vacillations is clear and obvious. A standard account hazard pointer Beta can be utilized to discover the covariance between vacillations in an advantage's quality and variances in the estimation of a broadly broadened resource portfolio. By utilizing distinctive information and diverse strategies of gauge, scientists find that the assessed Beta for oil is negative which infers that there is a negative covariance risk with a for the most part extended asset portfolio (Mork, 2008).

The major focus of oil market studies and the factors effecting the oil price is mainly the developed economies and very limited study has been done on developing economies. Though the trend is changing towards emerging Asian economies and the study focused on the economic activities of emerging nations and the impact of oil price on them. Rafiq, et al. (2008) investigates the macroeconomic variables and the impact of oil price volatility on them on the economy of Thailand.

Jbir, et al. (2008) likewise inspected the relationship between oil cost and large scale economy of Tunisia. They likewise concentrated on the part of endowment approach in Tunisia and its effects on economy of Tunisia.

Malik (2008) likewise examined the effect of oil cost on distinctive macroeconomics variables. He examined the relationship between oil value and yield development. He argued that oil price increase will effect the economic growth and when there will be decrease in oil prices, it will increase the economic activities and as a result economic growth will be increase. Output and oil price also has strong linkage between them and they ultimately effect the GDP growth in the economy. When the manufacturing, industrial and other sectors work efficiently, it will assure economic growth and GDP growth for a long period of time.

Numerous journalists found that the oil costs has a noteworthy inverse consequence on the full scale economy in both created and the creating nations. Jayaraman & choong (2009)
examined Asian Pacific region and found that oil costs have a noteworthy effect on financial development both in short and long run.

Jalles (2009) checked the impact of oil value changes and shocks on total financial execution and impact of oil value variances and shocks on the economic performance by using inflation rate and industrial production index. They used the multivariate VAR approach to check the influence and effect. The outcomes demonstrated that the changes in the cost of oil have imperative impacts on expansion rate and the unemployment rate. The force was watched littler and less receptive to oil value variances and shocks. The Granger causality test clarifies that there is a causal associations exists among oil cost and assorted variable including development rate, unemployment rate, and modern creation list.

Ward & siregar (2001) in Indonesia; Boye (2001) in Ecuador; Boye (2002) in Mexico and Farzanegan & Markwardt (2009) in Iran, studied the economy by using the same research. Researchers and economists also studied oil price fluctuations in oil producing countries by analyzing individual equations for each state that produces oil.

Hanabusa (2009) studied the economy of Japan, Malaysia, South Korea, Thailand, Philippines and Singapore and also found the positive associations among oil price fluctuations and economic behavior and economic growth. (Cunado & Gracia, 2005) studied Chinese economy and (Du et. Al, 2010) studied the economy of Greece and found similar results.

The same results can applied to the time from 1973 to 1980. It was observed that in inflationary times, negative relationship is stronger. Some variables including output, prices, or money supply can be used to anticipate the reductions in real GNP growth (Gisser, 2009).

Berument et al. (2010) utilized different individual S-VAR models to discover the impact of oil value changes on economic growth. He studied the Middle East and some countries of North Africa to study the output growth influenced by oil price shocks. The effect was studied on oil exporters as well as oil importers that real in net oil commodities.

The analysis explained that oil price effect GDP positively in oil exporting economies and oil importing economies. Oil exporting economies includes Kuwait, Algeria, Qatar, Iraq, Jordan,
Oman, Syria, Iran and UAE. There was also a one oil importing country as well that is Tunisia. Research also finds that there is insignificant effect of oil price changes on GDP on Lebanon, Morocco, Egypt, Bahrain, and Yemen.

Kiani (2011) argued there is a continuous increase in the oil prices in Pakistan by OGRA and the reason for this increase is the high demand of energy at all sectors of the economy.

Jamali et al. (2011) explained the Pakistan economy and the impact of oil price on Pakistani economy. They concluded that due to increased oil prices all other variables like inflation rate, interest rate, exchange rate movements, unemployment, low investment, low economic activities, low GDP and low economic growth are adversely effected.

Zamanet et al. (2011) described the usage of oil in different sectors of the economy and argued that industrial division is the largest customer of oil. Afterward transport sector and then household sector followed the usage trend. All these demand patterns by different sectors ultimately effect the economic growth.

Ji and Fan (2012) utilized bivariate EGARCH model with time differing connection development to study oil price instability overflow on other non-vitality items and found that the effect of raw petroleum market on other merchandise markets was more prominent when raw petroleum costs were high than when they were low.

Salim and Rafiq (2013) used the Vector Auto Regressive (VAR) and Granger causality test and generalized variance decompositions for empirical studies. This investigation discovers the impact of oil price instability on six noteworthy rising economies of Asia including Indonesia, China, Thailand, India, Philippines and Malaysia.

It is presently very much archived in both exact and hypothetical writing that oil price volatility applies unconstructive impacts on distinctive macro-economic pointers in the course of raising creation and operational costs. This may influence the economy unfavorably on the grounds that they postpone business venture by inducing so as to raise vulnerability or excessive asset reallocation (Salim and Rafiq, 2013).
Muhammad (2013) argued that oil price volatility also has an effect on the economic development while they effect the oil exporting economies as well as the oil importing economies in a different way. On the basis of the results the GDP and economic growth will effect.

Ahmad (2013) explained the industrial sector and the high demand of industrial sector to consume oil. When the oil price will increase, the production cost will also increase and as a result the overall production growth will slowed down. It was observed that industrial production decreased to a threatening level due to oil price increase.

Ahmad (2013) examined the situation of Pakistan and also finds out that it depends on the oil in every sector. So when oil price increases it increase the production cost, which decrease the investment rate and as a result unemployment decreases.

Jawad (2013) studied different variables that cause the oil price volatility. He also analyzed the extent to which these variables effect the oil prices and as a result their impact on economic growth and economic development.

Monjazeb et al (2013) defined the noteworthy impact of oil costs on monetary development. Diverse variable used to figure the outputs. The facts and figures of oil trading nations used to establish the consequence of oil price volatility influence on financial development. The outputs depicted that positive oil price volatility has positive impact and the other way around.

Siddiqui (2014) explained that investment in oil effect significantly the economic development, economic growth and GDP growth. He also suggested that oil price increase will effect all these variables and also the stock and exchange market.

2.3.1 Summary

Hamilton, Bruno and Sachs (1982 and 1983) clarified instance of the United Kingdom and said that oil costs precariousness influences the budgetary development, financial development and expansion in United Kingdom. Bruno and Sachs (1982) have broken down the impacts of the oil costs on yield and swelling rate and clarified that higher info costs
assume a huge part in the retreat all through the association of financial participation and advancement (OECD) since 1973. Bernanke (1983) argued that changes in oil prices effect the economic activity in such a way that in short run purchases of input material got expensive and cost of production got increased. Hamilton (1983) argued that oil prices rise after post World War II time is because of the price shocks in oil market.

It was assumed that the investment will not tend to rise significantly as oil prices fall (Ferderer, 1996; Elder and Serletis, 2009; Cunado and Gracia, 2003; Cunado and Gracia, 2005; Lee et al., 1995; Davis, 1987; Davis and Haltiwanger, 2001 and Mork & Olson, 1994). In the last few decades, due to political unrest and political crisis, economic activities are greatly effected due to oil price changes. (Ferderer, 1996; Elder and Serletis, 2009; Pindyck, 1991). Bernanke (1983) and Henry (1974) argued that that oil costs have incredible effect on financial exercises and higher the uncertainty is, lower will be investment activities and it will ultimately effect the output of industrial sector. Hamilton (1983) found a negative linkage among oil price and other macroeconomic variables.

Hamilton (1983) clarified that an increase in oil prices will decelerate the output growth. And after some time its recovery will start. Burbridge and Harrison (1984) find negative association between oil prices and economic activities of Germany, Japan, US, UK, and Canada. Gisser and Goodwin (1986) investigate the effect and magnitude of oil price changes on the economy of United States and found negative association between them. They also investigated that monetary policies and fiscal policies significantly effect the oil price changes which in return effect the output growth. Mork (1989) investigates and found that relationship between oil price change and GNP growth shows upward trend and movements in oil prices effect prices significantly and there is a negative relationship found between them of United States.

Mork, Olsen and Flo (1992) demonstrate that the expansion results from oil value variances and it is not the outcome in residential cash supply. Mory (1993) finds an asymmetrical impact of oil prices on Gross Domestic Production and observed that when oil price increases, it effects the economic activities and GDP as a result. Mork and Olsen (1994) studied 7 OECD countries including Japan, France, USA, Canada, West Germany, Norway.
and UK. So as to study the relationship between rise in oil cost and GDP, study found that these two variables are highly negatively correlated; however the instance of Norway is distinctive. There is positive co-relation found between oil price and GDP in Norway because Norway is an oil producing country and this sector dominates the overall economy.

Lee and Ni (1995) examined and find that there is no impact of oil value changes on financial exercises, as extent US economy is concerned. Hooker (1996) challenged the work of Hamilton to explain that the steadiness of oil price is quite significant and observed a weak and negative association between oil prices and economic activities. On other hand the oil prices determined by OPEC have significant impact on economic activities. Fdererer (1996) explained that all the sectors and economic activities will face decline in investment due to oil price uncertainty. He also analyzed that oil value unpredictability has critical effect on macroeconomic execution furthermore influence generation development. Oil price changes also effect the inflation rate, employment and output growth because of the disturbances in production cost, production process and production output.

Adelman (2000) studied and explained that prices of crude oil are more volatile and unstable than any other commodity price. Abeysinghe (2001) study shows that though Malaysia and Indonesia are effected positively due to oil price increase but as Singapore is effected negatively so this negative effect will also suffer the Malaysian and Indonesian economies in long run. Kolawole (2002) also studied this situation deeply and he was in total agreement with Adelman (2000). The only difference was on production quotas. Ayadi (2005) was also in agreement with the both researchers and explained that the assumption surrounding OPEC gatherings can also stimulate volatility. He explained that meetings of OPEC lead to upward movement of oil prices. Osije (1983) said that the oil prices are settled by the market trends and results in price volatility of oil.

Garratt et al. (2003) studied the economy of UK and found that when oil price increases, it increases the economic activities in UK as well as the inflation rate. Hamilton (2003) argues that volatilities and uncertainties in oil market are triggered by price changes of crude oil and due to these uncertainties; consumers will spend less on consuming goods like houses, vehicles and appliances as well as industrial goods. Doroodian & Boyd (2003) studied and
found that the association between oil prices and economic growth was highly negative in US economy. Andersen et al. (2004) explained volatility of oil price has a direct effect on output growth for China in short run. While studying the Indian economy and the economy of the Philippines, it was noted that earlier than and afterward of Asian financial crisis, oil price volatility has influenced the Gross Domestic Production growth and inflation rate.

Guo and Kliesen (2005) found that there is a negative impact of oil costs on GDP in future because of predictable oil cost increment. Guo and Kliesen (2005) studied US economy and found that oil price volatility effects fixed investment rate, consumption rate, employment rate, and the unemployment rate. Cunado and Gracia (2005) were focused on 6 Asian economies including South Korea, Japan, Singapore, Thailand, Malaysia, and the Philippines. The research found that economic growth and inflation rate are influenced significantly by oil prices. The impact was found more positive and greatly effected when the oil prices are in local currencies. Kumar (2005) additionally investigated the relationship between oil cost and large scale economy of India and found negative association between them.

Mork (1989), Mork, et al. (1994), Huang, et al. (2005), Sadorsky (1999) found that oil lessened and the relationship between oil costs and fiscal advancement sponsored off due to the decrease in oil cost. Anshasy et al. (2005) studied and found that economic growth is effected by the fiscal balance. The effect was observed in short term as well as long term. Qian et al (2005) concentrated on the Chinese economy and explored that there is a negative impact on GDP of china and trade pattern of China due to oil price increase. Lardic & Mignon (2006) deliberate the negative effect of oil price on economic growth in US and Canadian economy. Same results were found for European economies and OECD states as well.

Lardic and Mignon (2006) studied twelve European economies and found that there is an asymmetric association between oil price and economic activities. Gounder and Bartleet (2007) explained that there will be higher inflation and higher unemployment rate and the demand-side influence the energy crisis. Ewing and Thompson (2007) clarified that the oil costs are regularly viewed as an essential data of developments and focus the mixed bag of
macroeconomic variables. Likewise found that oil value unpredictability has an effect on oil price shocks.

Hsing (2007, 2008) concentrated on the non-direct association among genuine yield and genuine oil costs. He examined the German and US economy and connected the fiscal strategy capacity to an open economy and found the segregating estimation of oil expenses for Germany and US. Gounder, et al. (2007) studies have found that there is a negative effect of genuine oil costs on yield and other full scale variables. Mehrara & Oskui (2007) explored the reasons for macroeconomic changes by examining the economies of Kuwait, Iran, Indonesia and Saudi Arabia. Oil price volatility is viewed as the principle purpose for yield vacillations in Iran and Saudi Arabia. While, yield vacillations in Kuwait and Indonesia, are chiefly because of total supply shocks. Furthermore the study also explained that these shocks have increased the prices in Saudi Arabia alone and in other countries no such impact was found.

The researchers have found many useful techniques and other monetary and fiscal policies that can help avoiding the adverse effects of oil price changes on economic growth (e.g. Hamilton, 1983, 1996; Pindyck & Rotemberg, 1983; Bernanke et al., 1997; Bernanke, 2004; Devlin & Lewin, 2004 and Cologni & Manera, 2007). These investigations established that increase in oil price will badly effect the economic growth. Schmidbauer and Kalaycioglu (2008) demonstrated that there is an effect of oil price instability on economy. Gronwald et al. (2009) considered the effects of oil price volatility on Kazakh economy. Rafiq, et al. (2008) investigates the macroeconomic variables and the impact of oil price volatility on them on the economy of Thailand and found an inverse relationship between them.

Jbir, et al. (2008) likewise inspected the relationship between oil cost and large scale economy of Tunisia and observed a negative relationship between them. Malik (2008) likewise examined and argued that oil price increase will effect the economic growth and when there will be decrease in oil prices, it will increase the economic activities and as a result economic growth will be increase. Jayaraman and choong (2009) examined Asian Pacific region and found that oil costs have a noteworthy effect on financial development both in short and long run. Jalles (2009) checked and the outcomes demonstrated that the
changes in the cost of oil have imperative impacts on expansion rate and the unemployment rate.

Indonesia (Ward & siregar, 2001), Ecuador (Boye, 2001), Mexico (Boye, 2002) and Iran (Farzanegan & Markwardt, 2009) studied the oil price fluctuation and the economic growth of the countries. The studies found the economic growth is significantly effect by the oil price changes. Hanabusa (2009) studied the economy of Japan, Malaysia, South Korea, Thailand, Philippines and Singapore and also found the positive associations among oil price fluctuations and economic behavior and economic growth. (Cunado & Gracia, 2005) studied Chinese economy and (Du et. Al, 2010) studied the economy of Greece and found similar results. Berument et al. (2010) studied the Middle East and some countries of North Africa to study the output growth influenced by oil price shocks. The analysis explained that oil price effect GDP positively in oil exporting economies and oil importing economies.

Kiani (2011) argued there is a continuous increase in the oil prices in Pakistan by OGRA and the reason for this increase is the high demand of energy at all sectors of the economy. Jamali et al (2011) explained and concluded that due to increased oil prices all other variables like inflation rate, interest rate, exchange rate movements, unemployment, low investment, low economic activities, low GDP and low economic growth are adversely effected in Pakistan.

Salim and Rafiq (2013) investigation discovers the impact of oil price instability on six noteworthy rising economies of Asia including Indonesia, China, Thailand, India, Philippines and Malaysia.

Salim and Rafiq (2013) described that oil price volatility applies unconstructive impacts on distinctive macro-economic pointers in the course of raising creation and operational costs. Muhammad (2013) argued that oil price volatility also has an effect on the economic development while they effect the oil exporting economies as well as the oil importing economies in a different way. Ahmad (2013) explained and observed that industrial production decreased to a threatening level due to oil price increase.

Ahmad (2013) examined the situation of Pakistan and also finds out that it depends on the oil in every sector. So when oil price increases it increase the production cost, which decrease
the investment rate and as a result unemployment decreases. Jawad (2013) studied different variables that cause the oil price volatility. He also analyzed the extent to which these variables effect the oil prices and as a result their impact on economic growth and economic development. Monjazeb et al (2013) depicted that positive oil price volatility has positive impact and the other way around. Siddiqui (2014) explained that investment in oil effect significantly the economic development, economic growth and GDP growth.

2.4 Oil Price volatility

As the developed countries are the biggest consumers of the oil and they are focusing on the reconstruction and that is the reason of their increased demand and also the demand of oil is increasing in the world.

Moreover Asian region is considered an emerging region and many emerging economies are from Asia and due to this oil price fear they have started to search for their own oil reserves and started producing oil domestically. Crude oil is an important source of energy and used in domestic as well as transport and industrial sector widely.

This is the reason it is considered as the crucial and important factor of economical development of the country. Oil demand and supply and price fluctuation also effects currency exchange rate throughout the world. Middle East the largest supplier of the crude oil in the world and Asia is considered as the largest consumption of the world.

The most important factor contributing to oil price increase in the world is the unforeseen and increase premium of risk associated with oil and its products and it is observed that this risk is increasing with time. Oil supply is also facing instability and imbalance in oil producing countries.

Hamilton (2003) clarified the effect of oil price volatility on monetary advancement furthermore clarified the nonlinear oil price shock techniques. He likewise indicates contradiction for the general approach that both deviated and moral presentation of oil price shocks has an effect on money related improvement. They used various macroeconomics variables from 1983 to 2008 and explained the oil price instability.
Geopolitical uncertainties and extended market circumstances also help out the tentative resources to come into the market and this caused further increases in oil prices in last two decades that are experiencing vulnerable oil price increase (ADB 2004).

There is also observed a decline in reserve of oil base which is the reason of oil price volatility. Other factors include Middle East crisis, political unrest in many oil producing and exporting countries, demand supply forces and the quota system of OPEC effect the oil prices greatly and influence the investors to make decisions (Pirog, 2004).

Oil is considered a major input for many industries. Many studies conducted on oil market are focused on macroeconomics variables and the effect of these variables on oil prices and stock prices. Many researchers like Rebeca and Sanchez (2004, 2009) Nung et al. (2005), Sandrine and Mignon (2008), Jacobs et al. (2009) and Yazid Dissou (2010) argue that oil price fluctuations and oil price volatility are greatly influenced by macroeconomic variables.

This consistent increase in oil price is a growing concern for many developing countries including Pakistan. The increasing oil prices cause inflationary pressure on developing economies. As far as Pakistan is concerned, it has cause the inflation pressure on the developing economy of Pakistan and as a result there is a budget inconsistency and budget deficit and also balance of payment and economic growth is effected adversely (Malik, 2008).

The demand and supply forces determine the oil prices. When there is high demand, price will increase and when there is large supply as compared to demand, the price will decrease. As the countries are becoming modernized and advanced, the demand for oil is increasing and there is large consumption of oil to run domestic as well as industrial sector (Eryigit, 2009).

The change in oil prices also have great influence on stock market worldwide and investors and stock exchanges of oil exporting and importing countries always check the price fluctuation closely. Though the prices of crude oil is highly unpredictable but one thing is obvious that price fluctuations of crude oil depends on the demand supply mechanism. The
fluctuations in crude oil prices in highly unpredictable and thus this is the reason that many companies faced various challenges in the market of crude oil.

The reasons for oil cost increment are portrayed by Kilian (2009) and said that oil-price shocks can have extremely divergent belonging on the genuine oil value contingent upon the wellspring of the trouble. He contended that oil costs are for the most part dictated by interest supply system.

Thomas Helbling explained that volatility of oil prices may also raise uncertainties about the economic development of the country and it will also put a barrier on the foreign as well as domestic investment.

There are also concerns regarding oil shortage in oil market in the future due to increased oil prices and extended markets. It is said that oil importing countries will be most effected due to this oil shortage which is soon approaching in near future. Due to this consistent oil price increase, world oil market is also facing structural changes and it also contributed to high oil prices. An everlasting oil price volatility and shock will definitely effect global economy so policymakers are trying to control the increasing demand so price can be stabilized. Efforts are being made to increase energy competence, in order to, decrease the exposed susceptibility due to oil price volatility (Jawad, 2013).

To start with, oil worth ascent trade the conditions of trade pay from oil importing economies to oil conveying economies and along these lines the pay of oil importing countries decreases. Second, increments of oil costs build the expense of creation and influences the modern generation by immense edge. Third, inflation rate increases due to oil price increase and as a result price of imported goods including crude oil and petroleum goods increases. It is said that if increase in inflation will force the central banks to increase the interest rates. Oil price volatility is seemed to be the only reason of imbalance between net oil import economies and net oil export economies in the world. The oil value unpredictability is influencing the world GDP and it additionally influence the purchasing force of oil importing nations and at last the interest of oil from oil shippers will diminish. Consequently, Gross Domestic Production of the majority of the oil importing economies will decrease and their exports will also decrease. As being the oil net exporter, trade of Pakistan with other oil
importing countries will also decrease. Economic downfall in these economies will decrease their demand of consumer’s merchandises and as a result the Pakistani exports will decrease significantly (Muhammad Bachal Jamali, Asif Shah, Hassan Jawad Soomro, Kamran Shafiq and Faiz M. Shaikh, 2011).

The world events like the manifestation of newly huge consumers including China, and India, political unrest in Middle East, Iraq war, the US incursion of Iraq and the re-emergence of oil autonomy in many oil generating economies are the major factors that effect the oil market and increase the oil price volatility. Just like the other raw materials, increase in oil price forced many countries to search for oil and produce their oil and this also caused the downfall of demand worldwide. As many economists promoted energy efficiency and energy conservation to decrease the demand so finally decrease in oil will help a great deal in reducing the oil price.

Due to drop in oil price, demand will once again tend to increase and once again there is a chance of oil price increase in future. The distinctive purpose of perspectives about the oil showcase perceptibly is an indication of unique viewpoint about the expected movement of oil costs (Stevens, 2005).

Basher and Sadorsky (2006) argued that when there will be increase in oil prices, it will leads to inflation and increase in taxes. When there will be increase in oil prices, consumers will search for oil alternatives and they will look for other energy sources for the input of their industry. As other energy sources are not considered as best alternative as oil is and they can’t substitute oil perfectly so there are many risks involved with this new substitute.

The most widely used structure for the oil market in determining the prices is the demand supply mechanism (Bacon, 1991 and Dees et al., 2007). It is said that it is the most powerful mechanism that has great effect on the oil market and ultimately it determines the price of oil in oil market.

Numerous financial literary works have exhibited that oil costs unpredictability has negative effect on the total economies. Oil value unpredictability happens because of the unfavorable oil supply shock, i.e. an improve in oil costs moves the total oil supply expanding, results in
the increment in value rise and an abatement in efficiency and business (Dornbusch, Fisher and Startz, 2001).

In contrast of this, aggregate oil demand will also decrease with an increase in product prices. The large scale financial abundance of oil unpredictability is resolved through oil supply and oil interest and it is clear that monetary methodologies and approaches can minimize and control oil price instability.

There are widespread uncertainties in explaining the demand and supply of oil in future. Numerous eccentric future occasions supply intrusion, geo-political issues, ecological tragedies and innovative headways have brought on these instabilities among arrangement creators and specialists.

The other fundamental reason is the absence of satisfactory learning and data with respect to the elements that are incorporated in this vulnerability like the pay versatility of interest, and long time spam value, the response of supply (Non OPEC) or more all, conversely OPEC conduct.

Oil price and income are the two main factors that set the demand side. As price increases, demand decreases and when income will be more, demand will ultimately increase. To the extent the supply side is concerned, the instabilities and concerns are more adaptable in light of the fact that is the capacity of stores, innovation, diminishment impact, slacks and leads and structure of the business sector (Robert Meier, Janet Roundtree and Michael Schaefer).

Eksi et al. (2012) again documented that oil is play an important role in industrial sector and it is the main and major constitute of economic growth and economic crisis. When there will be increase in oil prices, it will lead to inflation because material and production cost will increase. Thus it will lead to unemployment ultimately.

2.4.1 Summary

Hamilton (2003) clarified the effect of oil price volatility on monetary advancement furthermore clarified the nonlinear oil price shock techniques and explained the oil price instability. Geopolitical uncertainties and extended market circumstances also help out the
tentative resources to come into the market and this caused further increases in oil prices in last two decades that are experiencing vulnerable oil price increase (ADB 2004). There is also observed a decline in reserve of oil base which is the reason of oil price volatility. Other factors include Middle East crisis, political unrest in many oil producing and exporting countries, demand supply forces and the quota system of OPEC effect the oil prices greatly and influence the investors to make decisions (Pirog, 2004).

Many researchers like Rebeca and Sanchez (2004, 2009) Nung et al. (2005), Sandrine and Mignon (2008), Jacobs et al. (2009) and Yazid Dissou (2010) argue that oil price fluctuations and oil price volatility are greatly influenced by macroeconomic variables. Oil price has cause the inflation pressure on the developing economy of Pakistan and as a result there is a budget inconsistency and budget deficit and also balance of payment and economic growth is effected adversely (Afia Malik, 2008). The demand and supply forces determine the oil prices. When there is high demand, price will increase and when there is large supply as compared to demand, the price will decrease. (Eryigit, 2009).

The reasons for oil cost increment are portrayed by Kilian (2009) and said that oil-price shocks can have extremely divergent belonging on the genuine oil value contingent upon the wellspring of the trouble. (Thomas Helbling) explained that volatility of oil prices may also raise uncertainties about the economic development of the country and it will also put a barrier on the foreign as well as domestic investment. (Muhammad Bachal Jamali, Asif Shah, Hassan Jawad Soomro, Kamran Shafiq and Faiz M.Shaikh, 2011) The world events like the manifestation of newly huge consumers including China, and India, political unrest in Middle East, Iraq war, the US incursion of Iraq and the re-emergence of oil autonomy in many oil generating economies are the major factors that effect the oil market and increase the oil price volatility.

Just like the other raw materials, increase in oil price forced many countries to search for oil and produce their oil and this also caused the downfall of demand worldwide. As many economists promoted energy efficiency and energy conservation to decrease the demand so finally decrease in oil will help a great deal in reducing the oil price (Stevens, 2005). Basher and Sadorsky (2006) argued that when there will be increase in oil prices, it will leads to
inflation and increase in taxes. The most widely used structure for the oil market in determining the prices is the demand supply mechanism (Bacon, 1991; Dees et al., 2007). It is said that it is the most powerful mechanism that has great effect on the oil market and ultimately it determines the price of oil in oil market. Numerous financial literary works have exhibited that oil costs unpredictability has negative effect on the total economies. Oil value unpredictability happens because of the unfavorable oil supply shock, i.e. an improve in oil costs moves the total oil supply expanding, results in the increment in value rise and an abatement in efficiency and business (Dornbusch, Fisher and Startz, 2001).

Oil price and income are the two main factors that set the demand side. As price increases, demand decreases and when income will be more, demand will ultimately increase. To the extent the supple side is concerned, the instabilities and concerns are more adaptable in light of the fact that is the capacity of stores, innovation, diminishment impact, slacks and leads and structure of the business sector (Robert Meier, Janet Roundtree and Michael Schaefer). Eksi et al. (2012) again documented that oil is play an important role in industrial sector and it is the main and major constitute of economic growth and economic crisis. When there will be increase in oil prices, it will lead to inflation because material and production cost will increase. Thus it will lead to unemployment ultimately.
CHAPTER 3

OIL PRICES, EXCHANGE RATE SYSTEM, FISCAL POLICY AND MACROECONOMIC EFFECT

This chapter defined the history of oil prices, main determinants of increase in oil prices, significance of Oil in Economy, Oil Price and Macroeconomic Effects, Oil price in Pakistan, Current Energy Scenario- Pakistan and World, Exchange system in Pakistan, Reason for devaluation of currency and Fiscal Policy Impact in Pakistan.

3.1 HISTORY OF OIL PRICES

Between the late 1930 and the late 1960s the Texas Railroad commission (TRC) was considered the major producer and exporter of oil considering the demand factor. This helped in reducing the volatility in prices to greater extent. Since the completion of the 1940s to the start of 1970s there were watched little changes in oil cost and the universal oil cost was extremely steady (Bacon, 2005).

In 1970 Organization for Petroleum sending out nations (OPEC) began and turned into the predominant oil maker. OPEC had an alternate model on the basics of Cartel in which it is a value producer and a focused model in which it is a value taker. These practices achieved oil value instability in the business sector. Besides this hegemonic behavior of OPEC, other factors which contribute to the oil price volatility are geopolitical situations and economic situations. Then from the early 1970 when the OPEC was formed, and till 1980s, there was seen a sudden dramatic increase in the prices of oil (Malik, 2007).

The essential oil quality stumbled amidst this time spam were in the year 1973, when Arab oil was blacklist. The occasions somewhere around 1979 and 1980 in Iran and Iraq, and in the year 1990 when ambush of Kuwait was take place. When in 1973 the Yom Kippor War started, OPEC experienced the power it had over oil for the first time. Due to this war, OPEC imposed strict conditions of western countries and the restrictions got tight when European nations and United States extend their support in favor of Israel (Jawad, 2013).
As a postponed consequence of the Yom Kippur war, rough petroleum regard, which had hang about in the midst of $2.5 per barrel and $3 per barrel subsequent to 1948, quadrupled from $3 per barrel in 1972 to $12 per barrel before the end of 1974. This results in the decrease in oil production and it was observed that the production of oil reduced by a huge margin of five million barrels a day. There was observed a total 7% cut back in total oil production worldwide. Due to decreased production, the price of oil increased drastically to 400% in a period of six months. From 1974 to 1978 crude petroleum expenses were for the most part relentless stretching out from $12 to $14 per barrel. By then some place around 1979 and 1980 in the midst of the Iranian insurrection and Iraq war world oil era fell by 10% and brought on the rising of foul petroleum from $14 per barrel to $35 per barrel (Muhammad, 2013).

Since the 1980s, the oil power shifted from OPEC to oil market. The oil markets got major power to determine the price of oil. The rise of OPEC has adversely effected the oil supply pattern and the price of oil increased beyond expectations. The angry in Iran and Iran-Iraq war has expanded costs from $14 per bbl in 1978 to $35 per bbl in 1981. The going with scene subsidence and movement of decision vitality sources incited a diminishing searched for after and falling costs for the vast majority of the 1980s. However, OPEC fizzled hopelessly because of wrong amounts generation by OPEC member nations and it brought about the drop of oil costs underneath $10 per barrel. From the Mid 1980s the oil value variances get more regular than any other time in recent memory (Jawad, 2013).

In 1981 it was the US that decides that oil prices will be determined by market forces not the OPEC. This historical decision was considered in order to minimize the role of state in oil industry. As an aftereffect of oil cost expand, the non oil nations and non OPEC individuals likewise expanded their examination on oil investigation and numerous techniques were acquainted with produce oil. From 1982 to 1985 OPEC embrace a few measures to balance out the cost of oil by setting up creation. Attempts by the OPEC to set era amounts, with a deciding objective to shore up expenses were, as it were, unsuccessful, as part nations routinely mishandled limits. Expenses surged another time in 1990-91, in light of the precariousness made by the Iraqi assault on Kuwait, yet withdrew despite a US-drove
military determination of the discord and extended supply from distinctive nations (Muhammad, 2013).

Retreat in the US saw expenses diminish, until in 1994; swelling adjusted expenses accomplished their most negligible level consequent to 1973. In this manner, an in number US country and improvement in Asia pacific incited a firming up looked for after. The world petroleum prices grew up by 2.8 percent in year 1995 and 2.2 percent in year 1996. Oil expenses have extended by generally 6 dollar per bbl through the compass of 1996 to 1997. Iraq re-entered on the planet oil market in 1996 and after that the worth recovery continued with well until 1997. The sharp downturn was acknowledged by the Asian money related crisis (Jawad, 2013).

OPEC has reliably been endeavoring to control oil esteem and to ensure the strength of oil expenses by era measures to its part countries yet has been not ready to control and settle oil worth changes. The offer of OPEC in world oil era has tumbled from 55 percent in 1976 to 42% today. Costs have as of late surpassed 22 dollar per barrel in light of war or clash in the Middle East (WTRG Economics, 1998).

The increase in oil prices lead to the energy conservation measures and firms and consumers were asked to conserve energy in order to stabilize the increasing oil price. Individuals acquired autos that could oversee fuel and associations bought machine that were more fuel effective (Sharma, 1998).

Oil costs assume critical part in economy and influence the economy in different ways. The adjustments in oil value influence the transportation expenses, warming bills and the costs of merchandise made with petroleum items. The adjustments in oil costs have made the vulnerability about the future furthermore influenced the modern and family unit area and enormously impact their spending and ventures choices. The adjustments in oil costs has influenced the vitality concentrated and also non vitality serious segment and prompts reallocations of work and capital between the two parts (Sill, 2009).

### 3.2 Main determinants for increase of Oil Price

#### 3.2.1 Demand
In 20th century, internal combustion engine was discovered and it triggered the demand of petroleum goods. After that scientists have discovered many more products that are significantly important for the firms and their production growth. This increased the demand for petroleum goods. These new and advanced products range from power generators to pens. This all helped to lower the dependency of all sectors on oil. Though still oil industry is considered the largest in the world but it has also become impossible to stop this increasing demand. Oil consumption and oil demand is considered a major contributor in economic development if any state. It was observed that mostly developed and rich countries have more demand of oil and that is the reason of their fast pace and economic growth regardless of the elevated oil prices and increased volatility in the oil prices (Muhammad, 2013).

All the developed countries including US, UK, China, and Japan etc use large amount of oil. This is because they have large industries and the living standard of people is also very high. So I order to meet their needs and in order to meet the growing industry demands, they tend to consume more oil. The world observed the rapid change in world industry almost more than eight folds from the year 1950 to 1973. Thus the industrialization grown almost 10% a year and this was rapid and fast paced industrialization observed in the world history (Jawad, 2013).

The transport sector as automobile industry is the major and important consumer of oil in the world and during that rapidly growing period almost 2.5 billion new motor vehicles were produced and most of them were produced in US alone (Wright, 2006).

3.2.2 Supply

Supply of oil is very important factor in the world and is considered the most important factor that contributes to oil price changes. In USA, Russia and Europe, there is large scale search and exploration of oil. In Europe in 1970 huge reserves of hydrocarbon were discovered and after that they never exported or produced oil in large scale. United States became a net oil importer in 1948. Developed countries mostly depend on oil for their economic growth. USA also produces oil and its production is 8.5 million barrel per day but its consumption is even more. And it use 20.5 million barrels per day (EIA, 2006).
Gulf war and Soviet Union collapsed in the year 1991. Saddam Hussein attack on the country of Kuwait and it also increased the oil crisis and as a result the supply of oil decreased. The breakdown of Soviet Union also affected the oil supply greatly. The greatest five American organizations effectively made a union with the 3 European firms. These firms were united to control oil supply and these firms combined also established business and legal structure. These firms also caused unrest among the members so it doesn’t stay long (Wright, 2006)

In 1973 major oil exporting countries created OPEC to keep the hold of oil reserves they have in abundance. As the demand of oil was increasing so OPEC decided to control the supply and demand of oil so now OPEC is also known as “Seven Sisters” and it control the supply of oil around the world. They also studied that the changes in nominal prices from 1948 to 1970 were observed between $2 per barrel and $3 per barrel. He explained that price of oil increased from $11 per barrel to $ 31 per barrel between the year 1998 and 2000. The further increase in oil prices was observed in 2000 and the price of oil reached $38 per barrel and in 2001 there was sudden drop and the oil price dropped to $18 per barrel (Muhammad, 2013).

Since then, there was seen an increasing movement in oil prices and in 2008 there was maximum oil price that is $147 per barrel and in 2010 the price was $90. He also studied the changes made by OPEC cartel to find out the instability of raw petroleum costs to the obsession of costs in the Middle East for different years (Malik, 2007).

3.3 The significance of Oil in Economy

Nature of world oil business is capital concentrated and complex affiliations get from the wide collection of things including transportation and limit issues and stringent environmental regulation. General usage of oil surpasses 500 billion dollar that is pretty about the 10% of the US GDP. Raw petroleum is the thing which is for the most part exchanged the world and records for around 10% of aggregate world exchange (Verleger, 1993).

Oil is a monetarily critical item and it assumes a pivotal part in deciding the financial development of oil importing and in addition oil sending out nations. Oil costs help the oil
sending out nations to create incomes and the oil fares embody more than 20% of the GDP. Then again, expenses of oil imports which are more than 20% of the aggregate import bill on the planet additionally influence the development design in creating nations. Vitality value shocks influence the total yield and work over the world (Malik, 2007).

3.4 Oil Price and Macroeconomic Effects

The measure of the extent to which oil price increase effect national income depends on three main factors;

- The share of oil revenue in national income
- Reliance on imported oil
- Degree of usage of oil substitutes

It is not important that if the economy is in surplus amount or having foreign exchange reserves. There will be low demand of imported goods and higher inflation rate due to increase in oil price. Consequently, the cost of input will also increase and investment ratio will tend to decrease in oil importing countries (Taghizadeh-Hesary and Yoshino, 2014).

When oil price will increase, it will reduce the tax revenue falls and will cause budget deficit. When the domestic consumption due to low income and high prices and domestic investment due to high cost of production will decrease, it will also reduce the imports and domestic production to a significant level. If real wages are showing downward trend, it will also increase the unemployment and decrease the investment. The general development rate will likewise diminish and the pay will spill out of oil importing nations to oil sending out nations. The expenditure and spending power of consumers will also drop due to the high price of imported goods (Bacon and Kojima 2006; IEA, 2004).

Proportion of the net imports of oil and oil items to GDP is the best technique to discover the effect of oil costs on genuine GDP. In the event that there is oil cost expands and value versatility of interest is additionally irrelevant, then the GDP will rely on upon the estimation of net imports. If there should arise an occurrence of Pakistan, examination demonstrates that
the family unit interest and mechanical interest for vitality items, for example, lamp oil and gas is very inelastic (Burney and Akhtar, 1990).

### 3.5 Oil price in Pakistan

Oil costs assume a critical part to focus the monetary exercises and the way of financial development in any economy. There are four principle components on which the measure of oil cost increment depends:

- Contribution of the oil expense in general Gross Domestic Production.
- The altitude of dependence on oil or the collective oil imports.
- Consumption of oil and its products locally or domestically.
- Reliance on option wellsprings.

It was by then expected and evaluated comprehensive that the oil hobby is depended upon its demand and the demand of oil is expected to increase by above 95 million per barrel per day and even increase after that in the midst of next a quarter century (Jawad, 2013).

Fast population increase is also a factor in oil price increase. This is because the oil price increases the demand of energy all over the world. It is evident that price of fuel will further increase and if energy conservation measures are taken and new technologies are developed to decrease the dependency of world on oil than it is possible that in future the oil price increase and uncertainty and volatility associated with this will also decrease significantly. In Pakistan, Oil and Gas Regulatory Authority (OGRA) is the regulatory unit that controls the domestic oil sector. The oil price increase has shifted the load of losses on household sector due to poor budget deficit on governmental level (Malik, 2007).

### 3.6 Current Energy Scenario- Pakistan and World

Economic Survey of Pakistan for the year 2008 and 2009 suggested that population of Pakistan is estimated 170 million. By population it is the sixth largest country but as far as
the consumption of oil is concerned, it is the lowest consumer of oil. Its oil consumption is around 0.50 TOE/capita. Pakistan produces very less amount of oil than it is required to meet its energy requirements of all sectors. So in order to meet the demand, Pakistan imports oil. The survey shows the consumption pattern of different sectors and it shows that industrial sector consumes 43% of oil, transport sector consumes 21% and household sector consumes 4% of oil and commercial sector consumes 2% of oil (Burton et al., 2011).

According to Economic survey of Pakistan for the year 2008 and 2009, 20 percent of the total energy requirements are produced in Pakistan but it is not enough to meet the growing energy demands of Pakistan. So Pakistan imports 80% oil of its requirement from abroad and pays foreign reserves to get the oil. This affects the exchange rate of Pakistan badly. Approach producers and geologists caution that the vitality stores are declining quickly and what's to come is very dubious. Exploration demonstrates that purchasers and firms are such a great amount of worried about the eventual fate of oil costs and oil value unpredictability. So it is essential for the approach creators to investigate and comprehend the developing vitality requests and make strategies likewise with a specific end goal to stay away from future vulnerabilities and unfriendly circumstances (Syed, 2010).

3.7 Exchange system in Pakistan

Zakaria & Ghauri (2011) explained the foreign exchange structure of Pakistan and explained that there is irregularity and instability in the exchange rate of Pakistan. In 1970 Pakistan settled its currency Pak-rupees against British currency. But after that there was major portion in Pakistani budget was US contribution so Pakistan changes its currency against US Dollar in 1971.

In 1972, Bretton Woods’s system demolished and exchange rate system was introduced in order to trade. So Pakistan also adopted flexible exchange rate in 1982 with its coin interfaced to an exchange weighted money crate. The currency of Pakistan was devalued greatly because Pakistan fares are very inelastic. Pakistan adopted floating exchange rate in 1982 and as a result the value of Pakistan currency dropped. The Pakistani rupee was 12.84
rupees for one dollar in 1982 and in 2010 it was 86 rupees. So it shows that currency of Pakistan was devalued significantly (Jawad, 2013).

After the adoption of floating exchange rate, the value of Pakistani currency decreased drastically and as a result the price of imported goods increased. Thus people started buying domestic goods. Thus domestic goods will become cheap for other countries due to currency devaluation and exports also increased. In consequence of this, the nominal rate of exchange is increasing and this will devalue currency more. The increase in exchange rate is also a major factor in currency devaluation and depreciation of Pakistani rupees. Currency appreciation and economic growth are closely related. When there is stable economic growth, the currency will appreciate and if the economic growth is decreasing, it will result in currency depreciation. In 1980, the official exchange rate of PKR was 10/$ and in 2011 it rose to PKR 90/$. Then increasing trend found in exchange rate and reached on peak on December, 2013 to PKR 107.88/$. After government intervention in currency market through stoppage of dollar export through illegal mean (method use to make black money into white, after receipt the portion of that amount against remittances), it was decrease and found by march, 2014 by PKR 97.50/$. Now in August, 2015 exchange rate is at the rate of PKR 103.69/$ (Muhammad, 2013)

### 3.8 Reason for devaluation of currency

The researchers found many reasons for the devaluation of currency of Pakistan. These reasons are:

- Reduction in the foreign Exchange reserves
- Gap between import and export bill
- Poor infrastructure
- Poor law and order situation
- Lack of foreign investment
- Budget deficit
- Heavy borrowing by the government of Pakistan
The Pakistani rupee is continuously depreciating and it is effecting the economy very badly. It is therefore needed to make effective policies in order to fill the gaps that are hindering economic growth (Deepa, 2014).

3.9 Fiscal Policy Impact in Pakistan

A fuel tax plays a significant function in the total revenue of Pakistan. Besides this, the other major contributors’ in government revenues are oil and gas. While talking about the indirect revenues, petroleum and the tax on petroleum products also contribute significantly in government revenues. Due to the taxes on Petroleum product, the prices of Petroleum goods are usually high than the imported price. In the year 2006-2007, custom duties, sales tax and excise duty in combine known as indirect taxes contributed a major sum of 120 billion Rupees to government revenues. Its share was 12% in 2001 and in 2007 it rises up to 23.2%. All these figures are without addition of. The sudden increase in oil demand results in increase in oil prices and study shows that it leads to the economic growth of the countries involved in crude oil exports mainly OPEC (Organization of Petroleum Exporting Countries) countries (Jawad, 2013).

In 2006 the Petroleum development levy (PDL) was about 25 million apart from indirect taxes. Thus in total there was total 129 billion rupees revenue in 2006-2007 for the government revenues. This tax from the Petroleum products only was the 26.6 % of total indirect taxes, whereas the share of PDL was 18.9. The sum for the development of both gas and Petroleum sectors was about 74 billion rupees in 2008. The survey of IMP shows that this figure was 54 billion rupees in 2006-2007. It was noted that the consumption of Petroleum products is income elastic and price inelastic, so the tax on fuel is major contributor to government revenues (Bacon, 2006).

As the international oil price is increasing, so in order to keep the end prices of Petroleum goods constant, government is using PDL to stabilize the prices in domestic market. And when the prices of oil decrease in international, government usually increase the PDL and the consumers don’t enjoy the low prices of oil domestically because if government will drop the prices domestically, it will leads to budget deficit. In 2006, the revenue of the government
due to PDL almost got doubled. This is because when in 2005 the global oil price decreased, government didn’t drop the price domestically and so in that year PDL revenue got doubled because of the increase in the PDL tax as per government policy to avoid budget deficit. But nowadays the price capping technique doesn’t allow PDL to increase and it tends to show downward trend in the government revenues. This is the reason the government revenue from petroleum products tax is decreasing significantly (Malik, 2007).

There is usually a fiscal deficit in relation to GDP is observed in Pakistan. So when there is small deficit or surplus, government don’t increase the prices domestically irrespective of the increase in oil price in international market. The domestic prices remain at relative level. Government has made huge efforts to maintain the fiscal balance and in this regard fiscal policy played an important role. The fiscal balance deficit balance in during 1990s was 7% which is reducing significantly in past few years and now it is only 3.5% of total GDP. In 2003 it was 2% but after that the trend is upward. The revenue growth is low in case of government revenues because of the fiscal deficit. This is because government is facilitating the domestic consumers increase oil price in international market and making efforts to freeze the price of oil and electricity on domestic level. This is return leads to fiscal deficit and drop of government revenues from the taxes (Jawad, 2013).

In 2008 the budget deficit was 535 billion rupees. The only reason behind this was that the rising of oil prices in international market is not transferred to domestic level and as a result government faced fiscal deficit in 2008. The research shows that total 136billion rupees are covered by the government in order to keep domestic prices stable. This figure was 5.4% of total GDP (Khan 2008).

If the ratio of tax revenue to GDP will high, it will help in reducing fiscal deficit. The GDP ratios of Pakistan are not very significant. When governments impose taxes and excise duties on petroleum products, it adds up to the revenue of the government. Thus in order to stabilize fiscal prices, the tax were reduces. This in result has reduces the total tax and as a result the government spending decreased significantly and thus there was symmetry observed in the economy (Bacon and Kojima 2006 p. 25).
CHAPTER 4
THEORETICAL FRAMEWORK, DATA AND METHODOLOGY

This chapter consists of theoretical framework of the research, variable explanation, data collection procedure and methods, and about the different test or analysis which are used in this study.

4.1 Theoretical Framework

The standard growth theories focus on primary inputs such as; capital, labour & land, while failing to recognize the role of primary energy inputs such as; oil price. However, efforts have been made at evolving some theories which capture the role of oil price volatility on economic growth, thus incorporating the linkage between energy resources; its availability and volatility and economic growth. Just as Moradi, Salehi and Keivanfar (2010), the theories reviewed are primarily reduced-form models, rather than a single theory. The study reviews the following theories: theory of economic growth, linear/symmetric relationship theory of growth, asymmetry-in-effects theory of economic growth, renaissance growth theory, trade economic theory, peak oil theory and dependency theory.

Mainstream theory of economic growth postulates that production is the most important determinant of growth of any economy, and production which is the transformation of matter in some way, requires energy. This theory categorizes capital, labour and land as primary factors of production; these exist at the beginning of the production period and are not directly used up in production (though they can be degraded or added to). While energy resources (such as; oil and gas, fuels, coal) are categorized as intermediate inputs, these are created during the production period and are entirely used up during the production process. In determining the marginal product of oil as an energy resource useful in determining economic growth, this theory considers in one part its capacity to do work, cleanliness, amenability to storage, flexibility of use, safety, cost of conversion and so on, it also considers other attributes such as; what form of capital, labour or materials it is used in...
conjunction with. The theory estimates the ideal price to be paid for crude oil as one that should be proportional to its marginal product.

Linear/Symmetric relationship theory of growth which has as its proponents, (Hamilton, 1983; Gisser, 1985; Goodwin, 1985; Hooker, 1986 and Laser, 1987) postulated that volatility in GNP growth is driven by oil price volatility. They hinged their theory on the happenings in the oil market between 1948 and 1972 and its impact on the economies of oil-exporting and importing countries respectively. Hooker (2002) after rigorous empirical studies demonstrated that between 1948 and 1972 oil price level and its changes exerted influence on GDP growth significantly. Laser (1987) who was a late entrant into the symmetric school of thought, confirms the symmetric relationship between oil price volatility and economic growth. After an empirical study of her own, she submitted that an increase in oil prices necessitates a decrease in GDP, while the effect of an oil price decrease on GDP is ambiguous, because its effects varied in different countries.

Asymmetry-in-effects theory of economic growth posits that the correlation between crude oil price decreases and economic activities in an economy is significantly different and perhaps zero. Mark et al. (1994), members of this school in a study of some African countries, confirmed the asymmetry in effect of oil price volatility on economic growth. Ferderer (1996) another member of this school explained the asymmetric mechanism between the influence of oil price volatility and economic growth by focusing on three possible ways: Counter-inflationary monetary policy, sectoral shocks and uncertainty. He finds a significant relationship between oil price increases and counter-inflationary policy responses. Balke (1996) supports Federer’s position/submission. He posited that monetary policy alone cannot sufficiently explain real effects of oil price volatility on real GDP.

Renaissance growth theory/model was an off-shoot of the symmetric and asymmetry in effect schools. Lee (1998) who was a leading proponent of this school focused her theoretical work on attempting to distinguish between oil price changes and oil price volatility. Lee (1998) defined volatility as the standard deviation in a given period. She submitted that both have negative impacts on economic growth, but in different ways: Volatility has a negative and significant impact on economic growth immediately, while the impact of oil price changes
delays until after a year. She concludes by stating that it is volatility/change in crude oil prices rather than oil price level that has a significant influence on economic growth.

The trade Economic theory proposed that oil volatility due to demand and supply shocks in the universal market have unusual effects or impacts on the non-oil trade balance and the oil trade balance of oil importers and exporters economies.

Peak oil theory which is also called Hubbert peak theory says that at some point oil production will decrease (supply) and prices will rise. When this happens it is going to have a dramatic effect on the global economy.

Dependency theory defined that the economic development of one country/ economy with respect to external influences like political influence, economic influence, and cultural influence which also the national development policies (Sunkel, 1969).

The term oil price volatility approach refers to specific nature of increase in oil prices with cause the economies for their future plan and targets and which is very important for governments to anticipate. My study topic is also related to exchange rate, fiscal policy, oil price volatility, macroeconomic variables (Trade Balance, Public Sector Investment and Private Sector Investment) and gross domestic production of Pakistan which are supported by above mentioned theories directly and indirectly.

4.2 Explanation of Macroeconomic variables

4.2.1 Gross Domestic Production:

Gross Domestic Production (GDP) is most important and one of the primary indicators utilized to measure the condition of any country's economy. The monetary worth of all the services and finished goods produced surrounded by a country's borders in a precise time period is called GDP. It is normally measured in annually basis.

4.2.2 Private Sector and Public Sector Investment:

The investment plays an important role in economic development. The investment which came from tax collection, foreign aids etc and government use for the betterment of the
people is called public sector investment and the investment which came from individuals and used for earning point of view is called private sector investment. The public sector investment normally found for building infrastructure like dams, roads, colleges and universities etc. Meanwhile, the private sector investments focus on goods and service sector like industries etc. These both investments jointly help to increase the efficiency of the economy.

4.2.3 Trade Balance:

The Trade Balance (balance of trade), also called net exports, is the disparity among the monetary values of country’s exports and country’s imports of output over a certain period in an economy. Trade balance (Balance of trade) is the major factor of balance of payments in a country's. A country has a condition of trade deficit when its imports are more than it exports; the reverse scenario is called trade surplus.

4.3 Statement of the Problem

This research is analysis the effect of exchange rate variation (fluctuations in Pakistani currency exchange rate with respect to US dollar) and the fiscal policy changes (increase and decrease in taxes and increase and decrease in subsidies) on the oil price volatility (short term variations) of Pakistan. Furthermore, this research also analysis the impact of oil price volatility and the macroeconomic variables on economic growth (economic development) of Pakistan.

4.4 Objectives

In this research, following are the key objectives:

- To determine the effect of exchange rate variation on oil price volatility.
- To analysis the effect of fiscal policy (increase and decrease in taxes and increase and decrease in subsidies) changes on oil price volatility.
- To analysis how much exchange rate variation and fiscal policy changes cause the oil price volatility.
• To evaluate the effect of oil price volatility (actual) excluding exchange rate variation and fiscal policy changes.
• To find out oil volatility impact on the economic growth of Pakistan and its aftershocks.

4.5 **Hypotheses**

On the base of the research problem and research objective, following are the hypothesis which will be incorporated for analysis and results

H$_1$: Exchange rate effecting the oil prices.

H$_2$: Fiscal policy effecting the oil prices.

H$_3$: oil price (international) effecting the oil prices (local).

H$_4$: Trade Balance effecting GDP of Pakistan.

H$_5$: Public Sector Investment effecting GDP of Pakistan.

H$_6$: Private Sector Investment effecting GDP of Pakistan.

H$_7$: Oil Price Volatility effecting GDP of Pakistan.

4.6 **Data collection procedure**

Secondary data is collected from 1973 to 2014 and used for estimation of coefficients from the following sources:-

i. Institute of Economic Affair (IEA)

ii. International Financial Statistics (IFS)

iii. World Bank (WB)

iv. Ministry of Petroleum & Natural Resources of Pakistan

v. Pakistan Bureau of Statistics
The data is collected for the yearly basis for analyses.

4.7 **Methodology:**

After gathered the secondary data, econometrics analysis is executed for the interpretation and estimation of the results.

4.7.1 **Data Analysis**

Different econometrics tests are used for analysis. Data stationarity test (Unit Root Test), Correlation coefficient test, GARCH (1, 1) test, Multiple linear regression model, Johansen co-integration test, Granger Causality test, Vector Auto Regression (VAR) model, Impulse Response Function and Variance Decomposition is used to complete the research objective.

4.7.2 **Tests for Stationarity**

Unit root test is used to define the trend, intercept and stationary of the secondary data for further usage. Unit root tests are performed on the log levels and first differentiations of our variables remembering the finished objective to investigate the universal properties of the data to define the game plan.

Consequently, three tests are used: Augmented Dickey-Fuller (Dickey and Fuller, 1981), Phillips Perron (Phillips and Perron, 1988) and Kwiatkowski, Phillips, Schmidt, Shin (Kwiatkowskietal, 1992) – with a consistent and design, and without example. The both ADF and PP tests is not valid stationarity a unit root, existing valid in each variable first difference, I(1) while the KPSS test is valid on I(0).

Augmented Dickey Fuller (ADF) test is used to analysis the stationarity of the secondary data. It makes non stationary data into stationary data. Normally it is observed that time series data is not stationary and the specified data is non stationary at level I made it stationary by taking at first difference.
Whenever, the time series data have trend (either in any direction up or down) and observed that it is potentially turning slowly around the trend line, Unit root test (ADF) test equation make it stationary (Dickey and Fuller, 1981).

Unit root tests are performed on the log levels and first differences of our variables: Oil Price volatility, Public sector investment, Private sector investment and Trade balance– in order to examine the integrational properties of the data series. For this purpose, three tests are employed: Augmented Dickey-Fuller (Dickey and Fuller, 1981), Phillips Perron (Phillips and Perron, 1988) and Kwiatkowski, Phillips, Schmidt, Shin (Kwiatkowskietal, 1992) – with a constant and trend, and without trend. The null of both ADF and PP tests is a unit root existing in each variable, I(1) while the null of KPSS test is testing for I(0).

\[ Y_t = a_0 + a_1 Y_{t-1} + \Delta y_{t-1} + u_t = \sum_{i=1}^{\beta} \]

Where \( y \) is the variable being tested, \( a \)'s and \( \beta \)'s are parameters to be estimated and \( \Delta \) is the first- difference operator. \( u_t \) is the error term.

**4.7.3 Correlation Coefficient Test**

The correlation coefficient is used to measure the linear relationship between two variables. The correlation coefficient values are always lying between negative one (-1) to positive one (+1). A value of +1 of correlation coefficient defined that two variables are perfectly associated in a positive linear sense and -1 define that two variables are perfectly associated in a negative linear sense. Meanwhile, it the value of correlation coefficient is 0 that indicates there is no linear relationship between the two variables (Pearson, 1898).

**4.7.4 GARCH(1,1) model**

GARCH (1, 1) model is used to analyze the volatility in oil prices. We use Annual oil price data (OPV\textsuperscript{d}) to figure out the oil price volatility.
To measure oil price volatility, the conditional standard deviation is commonly used. The time-variation conditional \( \sigma \) (standard deviations) are predictable through using uni-variate (G) ARCH (1, 1) model. (Gerard H. Kuper, 2006)

On the very large extent, volatility permeates the new recent and modern financial theories. GARCH model is extensively recognized to estimation of time variation and predict the volatility. (H.S. Ng and K.P. Lam, 2006)

1. Standard Deviation

\[
OPV = SD_t = \sigma = \sqrt{\frac{\sum (x_i - \bar{x})^2}{n-1}}
\]

2. GARCH(1,1) Model

\[
\sigma_t^2 = a + br_{t-1,t}^2 + c\sigma_{t-1}^2
\]

Model (1)

\[OPV= f(ERV) \ldots \ldots \text{GARCH (1, 1)}\]

- OPV = Oil price volatility (Dependent Variable)
- ERV = Exchange rate variation/volatility (Independent Variable)

Model (2)

\[OPV= f(FP) \ldots \ldots \text{GARCH (1, 1)}\]

- OPV = Oil price volatility (Dependent Variable)
- FP = Fiscal Policy changes (Either increase and decrease in taxes or increase and decrease of subsidies) (Independent Variable)

Model (3)

\[OPV= f(OPVA) \ldots \ldots \text{GARCH (1, 1)}\]
• OPV = Oil price volatility (Dependent Variable)

• OPVA= Oil price volatility actual (oil price –exchange rate variation – fiscal policy effect) (Independent Variable)

**Model (4)**

\[ \text{OPV} = f(\text{ERV, FP, OPVA}) \ldots \text{GARCH (1, 1)} \]

• OPV = Oil price volatility (Dependent Variable)

• ERV = Exchange rate variation (Independent Variable)

• FP = Fiscal Policy changes (Either increase and decrease in taxes or increase and decrease of subsidies) (Independent Variable)

• OPVA= Oil price volatility actual (oil price –exchange rate variation – fiscal policy effect) (Independent Variable)

### 4.7.5 Multiple Linear Regression Model

The Multiple Linear Regression is a statistical method which correlates the changes in the variable (the series data that reappear again at permanent intervals) to other variable or variables. The demonstration of the association is described as linear regression model. It is identify linear because the association is linearly preservative. Linear regression model is use for analysis with OLS techniques.

\[ \text{GDP} = \beta_0 + \beta_1 \text{OPV} + \beta_2 \text{PRS} + \beta_3 \text{PS} + \beta_4 \text{TB} + \varepsilon \]

- **GDP** ➔ Gross Domestic Production (Dependent variable)
- **OPV** ➔ Oil Price Volatility (Independent variable)
- **PRS** ➔ Private Sector Investment (Independent variable)
- **PS** ➔ Public Sector Investment (Independent variable)
4.7.6 Johansen Multivariate Co-integration Analysis

Johansen co-integration tests (Johansen, 1988 and Johansen and Juselius, 1990) are performed to test the existence of co-integrating relationships among the variables: Oil Price volatility, Public investment, Private investment and Trade balance. As a pre-test, variables are entered as levels into VAR models with different lag lengths and F-tests are employed to select the optimal number of lag lengths needed in the co-integration analysis. Three criterions, the Akaike information criterion (AIC) (Akaike, 1969), Schwarz criterion (SC) and the likelihood ration (LR) test are applied to determine the optimal lag length needed.

4.7.7 Granger Causality Analysis

Usually the VAR approach is used when we have an econometric hypothesis of interest that xt Granger causes Yt but Yt does not Granger cause . The Granger approach assesses whether past information on one variable would help in predicting the outcome of some other variable, given past information on the latter (Granger, 1969). It is important to note that, despite its name, Granger causality is not sufficient to imply true causality. Sims (1972) is a very famous paper showing that money Granger causes output, but output does not Granger cause money. Later Sims concluded that this does not hold if interest rates are included in the system. This illustrates a major drawback of the Granger causality test, namely the dependence on the right choice of the conditioning set, which, that we cannot assure, has been chosen large enough in practice. The Granger causality tests are most useful when the data are reasonably described by a 2-dimensional system. The tests may, however, produce misleading results when the true relationship involves three or more variables. Another potentially serious problem is the choice of sampling period: a long sampling period may hide the causality whereas for example VAR-systems of monthly data may give rise to serious measurement errors (e.g. due to seasonal adjustment procedures). Therefore, although Granger causality is a useful tool, it must be used and interpreted with care.

4.7.8 Vector Auto Regression model
The vector auto regression (VAR) model is known one of the most triumphant, flexible and simple to use models for the analysis of multivariate time series. It is an innate expansion of the uni-variate auto regressive model to dynamic multi-variate time series. The VAR model has established particularly helpful for describing the dynamic performance of economic time series, financial time series and forecasting.

Vector auto regression is used to analysis the impulse response factor to check the aftershock and policy implementation. Following are the Vector auto regression of GDP of Pakistan and Oil price volatility

\[ \text{Pakistani GDP}_t = \alpha_1 + \delta_1 t + \theta_{11} \text{Pakistani GDP}_{t-1} + \ldots + \theta_{1p} \text{Pakistani GDP}_{t-p} + \beta_{11} \text{OIL PRICE VOLATILITY}_{t-1} + \ldots + \beta_{1q} \text{OIL PRICE VOLATILITY}_{t-q} + \varepsilon_{1t} \]

\[ \text{OIL PRICE Volatility} = \alpha_2 + \delta_2 t + \theta_{21} \text{Pakistani GDP}_{t-1} + \ldots + \theta_{2p} \text{Pakistani GDP}_{t-p} + \beta_{21} \text{OIL PRICE VOLATILITY}_{t-1} + \ldots + \beta_{2q} \text{OIL PRICE VOLATILITY}_{t-q} + \varepsilon_{2t} \]

The same types of equations are implemented among oil price Volatility, Trade Balance, Public sector investment, Private Sector Investment and Gross Domestic production of Pakistan.

4.7.9 \textbf{Generalized Impulse Response Analysis}

We used the first differences of the logged variables in the unrestricted VARs to estimate the generalized IRFs and the generalized forecast error VDCs. IRF illustrates the impact of a unit shock to the error of each equation of the VAR.

The motivation reaction capacities are determined and used to look at the dynamic reactions of the variables to different shocks inside of the SVAR framework. Having distinguished the auxiliary shocks, we can then discover the motivation reaction of a variable to an onetime shock to any variable included in the model, which can be gotten from the accompanying:

\[ X_t = C \ast (L) \varepsilon_t \]
\[ C \ast (L) = C(L)A_0^{-1} \]
Where \( C * (L) = C(L)A_{0}^{-1} \) denoted the impulse response function of \( X_t \) to structural shocks to \( \varepsilon_t \). It would be worth specifying at this stage that since the essential goal of utilizing the SVAR framework is not to appraise the VAR coefficients, but instead to look at the effect of element shocks produced by oil value change and its unpredictability, the evaluations of VAR coefficients are regarded unprejudiced without changing the variables into stationary.

### 4.7.10 Stability Test

As a final step, the VAR for generalized impulse responses and variance decompositions are checked for stability. The results indicate that the VAR system for each country is stable in that all inverse roots of AR characteristic polynomial are within the unit circle.

### 4.8 Assumptions of the Study

There are some assumptions to conduct the research:

- **a.** The Exchange rate, Fiscal policy effect, international oil prices, domestics oil prices, oil price volatility, Trade Balance, Public sector investment, Private sector investment and Gross Domestic Production data are free of measurement errors.
- **b.** In the event, this research is being undertaken the Exchange rate, Fiscal policy effect, international oil prices, domestics oil prices, oil price volatility, Trade Balance, Public sector investment, Private sector investment and Gross Domestic Production values will remain unchanged.
- **c.** Moreover, the other factors, events, elements and variables effect remain constant which was not discussed in this research.
CHAPTER 5
RESULTS AND DISCUSSION

This chapter is used to illustrate the results and outcomes. Econometrics test (Unit Roots Test, Correlation Coefficient Test, GARCH (1,1), Multiple Linear Regressions, Johenson co integration test, Granger Causality test, VAR Model, Impulse Response Function and Variance Decomposition) are used for analyses.

5.1 Unit Roots Test

Unit root test is used to check the stationary of the data. The eight variables of time series data is stationary on the levels, at first difference and at second difference. The econometrics test Augmented Dickey-Fuller (ADF) unit root test is used for analysis of stationary The ADF test contains three type of situation for every time series. First, random selection process includes intercept (c) and trend (t). Second, random selection process includes intercept (c) but no trend (0). Third, random selection process includes lag length.

There is a trend in Oil Price, Exchange Rate and Selling Oil Price. Meanwhile, it is also anticipate a trend in Oil Price Volatility, Trade Balance, Private Sector Investment, Public Sector Investment and Gross Domestic Production (GDP) of Pakistan.

<table>
<thead>
<tr>
<th>Variables</th>
<th>ADF test Statistics</th>
<th>Probability</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oil Price</td>
<td>-2.2500</td>
<td>0.4506</td>
<td>I(0)</td>
</tr>
<tr>
<td>∆ Oil Price</td>
<td>-9.1797</td>
<td>0.0000</td>
<td>I(1)</td>
</tr>
<tr>
<td>Exchange Rate</td>
<td>-3.3776</td>
<td>0.0685</td>
<td>I(0)</td>
</tr>
<tr>
<td>∆ Exchange Rate</td>
<td>-8.1095</td>
<td>0.0000</td>
<td>I(1)</td>
</tr>
<tr>
<td>Variable</td>
<td>Coefficient</td>
<td>p-value</td>
<td>I(0)/I(1)</td>
</tr>
<tr>
<td>---------------------------</td>
<td>--------------</td>
<td>----------</td>
<td>------------</td>
</tr>
<tr>
<td>Selling Oil price</td>
<td>-2.9245</td>
<td>0.1657</td>
<td>I(0)</td>
</tr>
<tr>
<td>Δ Selling Oil price</td>
<td>-7.0326</td>
<td>0.0000</td>
<td>I(1)</td>
</tr>
<tr>
<td>Oil Price Volatility</td>
<td>-6.5313</td>
<td>0.0000</td>
<td>I(0)</td>
</tr>
<tr>
<td>Trade balance</td>
<td>-2.4905</td>
<td>0.3310</td>
<td>I(0)</td>
</tr>
<tr>
<td>Δ Trade balance</td>
<td>-7.5821</td>
<td>0.0000</td>
<td>I(1)</td>
</tr>
<tr>
<td>Private sector investment</td>
<td>-2.3140</td>
<td>0.4173</td>
<td>I(0)</td>
</tr>
<tr>
<td>Δ Private sector investment</td>
<td>-7.6049</td>
<td>0.0000</td>
<td>I(1)</td>
</tr>
<tr>
<td>Public sector investment</td>
<td>-3.5224</td>
<td>0.0501</td>
<td>I(0)</td>
</tr>
<tr>
<td>Δ Public sector investment</td>
<td>-6.2086</td>
<td>0.0000</td>
<td>I(1)</td>
</tr>
<tr>
<td>GDP</td>
<td>1.7332</td>
<td>0.9995</td>
<td>I(0)</td>
</tr>
<tr>
<td>Δ GDP</td>
<td>-4.7057</td>
<td>0.0005</td>
<td>I(1)</td>
</tr>
</tbody>
</table>

Table-1 Augmented Dickey-Fuller Test Results

The test result indicates that the variables Oil price, Exchange Rate, Selling Oil Price, Trade Balance, Private sector investment, Public sector investment and GDP have a unit root in their levels and are stationary in their first differences but variable Oil Price Volatility has stationary at level as Table -1 demonstrate the results.

5.2 Correlation Coefficient Test

The correlation coefficient is used to measure the linear relationship between two variables. The correlation coefficient values are always lying between negative one (-1) to positive one (+1). A value of +1 of correlation coefficient defined that two variables are perfectly associated in a positive linear sense and -1 define that two variables are perfectly associated
in a negative linear sense. Meanwhile, it the value of correlation coefficient is 0 that indicates there is no linear relationship between the two variables.

<table>
<thead>
<tr>
<th></th>
<th>ER</th>
<th>GDP</th>
<th>OP</th>
<th>OPV</th>
<th>PRS</th>
<th>PS</th>
<th>SOP</th>
<th>TB</th>
</tr>
</thead>
<tbody>
<tr>
<td>ER</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GDP</td>
<td>0.9161*</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OP</td>
<td>0.8603*</td>
<td>0.9038*</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OPV</td>
<td>-</td>
<td>0.1585**</td>
<td>-</td>
<td>0.2498**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRS</td>
<td>0.9850*</td>
<td>0.9183*</td>
<td>0.8843*</td>
<td>-</td>
<td>0.2010**</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PS</td>
<td>0.8991*</td>
<td>0.8067*</td>
<td>0.7108</td>
<td>-0.2194</td>
<td>0.9206*</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SOP</td>
<td>0.8985*</td>
<td>0.8685*</td>
<td>0.9185*</td>
<td>-</td>
<td>0.0401**</td>
<td>0.8986*</td>
<td>0.7687*</td>
<td>1</td>
</tr>
<tr>
<td>TB</td>
<td>0.4687*</td>
<td>0.6299*</td>
<td>0.6857*</td>
<td>-</td>
<td>0.1901**</td>
<td>0.5445*</td>
<td>0.3882**</td>
<td>0.5298*</td>
</tr>
</tbody>
</table>

*1% level of significance, ** 5% level of significance.

Table-2 Correlation Coefficient Test Results

Table 2 describes the correlation coefficient among the eight variables Oil Price, Exchange Rate and Selling Oil Price, Oil Price Volatility, Trade Balance, Private Sector Investment, Public Sector Investment and Gross Domestic Production (GDP) of Pakistan.

It is viewed in the above table that Exchange Rate has strong positive relation with Gross Domestic Production (correlation coefficient value of 0.9161), Oil Price (correlation coefficient value of 0.8603), Private Sector Investment (correlation coefficient value of 0.9850), Public Sector Investment (correlation coefficient value of 0.8991) and Selling Oil Price (correlation coefficient value of 0.8985). It is observed that Exchange rate has a
negative weak relation exist with Oil Price Volatility (correlation coefficient value of -0.1585). Meanwhile, Exchange Rate has moderate positive relationship with Trade Balance (correlation coefficient value of 0.4687).

It is described in the above table that Gross Domestic Production has strong positive relation with Oil Price (correlation coefficient value of 0.9038), Private Sector Investment (correlation coefficient value of 0.9183), Public Sector Investment (correlation coefficient value of 0.8067) Selling Oil Price (correlation coefficient value of 0.8685) and Trade Balance (correlation coefficient value of 0.6299). It is viewed that Gross Domestic Production has a negative weak relation exist with Oil Price Volatility (correlation coefficient value of -0.1774).

It is defined in the above table that Oil Price has strong positive relation with Private Sector Investment (correlation coefficient value of 0.8843), Public Sector Investment (correlation coefficient value of 0.7108) Selling Oil Price (correlation coefficient value of 0.9185) and Trade Balance (correlation coefficient value of 0.6857). It is also resulted that Oil Price has a moderate negative relation exist with Oil Price Volatility (correlation coefficient value of -0.2498).

It is defined in the above table that Oil Price Volatility has moderate negative relation with Private Sector Investment (correlation coefficient value of -0.2010) and Public Sector Investment (correlation coefficient value of -0.2194). Meanwhile, it is viewed that Oil Price Volatility has a weak negative relationship exist with Selling Oil Price (correlation coefficient value of -0.0401) and Trade Balance (correlation coefficient value of -0.1901).

It is observed in the above table that Private Sector Investment has strong positive relation with Public Sector Investment (correlation coefficient value of 0.9206) and Selling Oil Price (correlation coefficient value of 0.8986). Meanwhile, it is viewed that Private Sector Investment has moderate positive relationship with Trade Balance (correlation coefficient value of 0.5445).

It is described in the above table that Public Sector Investment has strong positive relation with Selling Oil Price (correlation coefficient value of 0.7687). Meanwhile, it is viewed that
Public Sector Investment has moderate positive relationship with Trade Balance (correlation coefficient value of 0.3882).

At last, it is defined that Selling Oil Price has a moderate positive association with Trade Balance by the correlation coefficient value of 0.5298. All values are significant at 1% and 5% level of significant.

5.4 GARCH (1,1)

To run the Generalized Autoregressive Conditional Heteroskedasticity (GARCH1, 1) test it is compulsory to make all variable data stationary. So for that aspect, make Oil Price (purchasing price from the international market), Exchange Rate and Selling Oil Price stationary at 1st difference and represent Oil price as DOP, Exchange Rate as DER, Fiscal policy effect as DFY and Selling Oil Price as DSOP.

After making these variable stationary, run the Generalized Autoregressive Conditional Heteroskedasticity (GARCH1, 1) on DER and DSOP. The following result revealed:

**Estimation Equation of GARCH (1, 1) Model (1):**

\[
DSOP = C(1)\times DER + C(2) \\
GARCH = C(3) + C(4)\times RESID(-1)^2 + C(5)\times GARCH(-1)
\]

The estimation equation of GARCH (1, 1) model described that dependent variable has auto-regress by its constant value which also include the GARCH value aspect and after that it is also auto-regress by its independent exchange rate.

**Substituted Coefficients of GARCH (1, 1) Model(1):**

\[
DSOP = -0.204801826082\times DER + 0.0863408390713 \\
GARCH = 0.0527557654046 - 0.0159644565338\times RESID(-1)^2 + 0.543480590538\times GARCH(-1)
\]

The substituted coefficients describe that the coefficient of GARCH value is 0.0863 which impact as positive on selling oil price, meanwhile the exchange rate impact negatively on selling oil price and its coefficient value is -0.2048 mean one unit increase in exchange rate decrease selling oil price by 0.2048 unit.
According to GARCH (1, 1) table the impact of GARCH coefficient and exchange rate is not significant at even 10% of significance level. The R square value is 0.6023 which describe that the 60.23% selling oil price volatility is due to exchange rate and the remaining portion of oil price volatility is due to other factors and variables.

Consequently, afterward we run the Generalized Autoregressive Conditional Heteroskedasticity (GARCH1, 1) on DFY and DSOP. The following result discovered:

**Estimation Equation of GARCH (1, 1) Model (2):**

\[
DSOP = C(1) \times DFY + C(2)
\]

\[
GARCH = C(3) + C(4) \times RESID(-1)^2 + C(5) \times GARCH(-1)
\]

The estimation equation of GARCH (1, 1) model described that dependent variable has auto-regress by its constant value which also include the GARCH value aspect and after that it is also auto-regress by its independent fiscal policy effect.

**Substituted Coefficients of GARCH (1, 1) Model (2):**

\[
DSOP = 0.540787146143 \times DFY + 0.0549894901047
\]

\[
GARCH = 0.0312638126482 + 0.242156542289 \times RESID(-1)^2 + 0.0758828335797 \times GARCH(-1)
\]

The substituted coefficients describe that the coefficient of GARCH value is 0.0550 which impact as positive on selling oil price, meanwhile the fiscal policy effect impact positively on selling oil price and its coefficient value is 0.5408 mean one unit increase in fiscal policy effect increase selling oil price by 0.5408 unit.
According to GARCH (1, 1) table the impact of GARCH coefficient and fiscal policy effect is significant at even 1% of significance level. The R square value is 0.7808 which describe that the 78.08% selling oil price volatility is due to fiscal policy effect and the remaining portion of oil price volatility is due to other factors and variables.

Furthermore, we run the Generalized Autoregressive Conditional Heteroskedasticity (GARCH1, 1) on DOP and DSOP. The following result discovered:

**Estimation Equation of GARCH (1, 1) Model (3):**

\[
DSOP = C(1)*DOP + C(2)
\]

\[
GARCH = C(3) + C(4)*RESID(-1)^2 + C(5)*GARCH(-1)
\]

The estimation equation of GARCH (1, 1) model described that dependent variable has auto-regress by its constant value which also include the GARCH value aspect and after that it is also auto-regress by its independent oil price.

**Substituted Coefficients of GARCH (1, 1) Model (3):**

\[
DSOP = 0.308670558287*DOP + 0.0588096968256
\]

\[
GARCH = 0.0578173197547 + 0.0246642490015*RESID(-1)^2 + 0.47071417079*GARCH(-1)
\]

The substituted coefficients describe that the coefficient of GARCH value is 0.0588 which impact as positive on selling oil price, meanwhile the oil price impact positively on selling oil price and its coefficient value is 0.3087 mean one unit increase in oil price increase selling oil price by 0.3087 unit.
<table>
<thead>
<tr>
<th></th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>z-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GARCH (1, 1)</strong></td>
<td>0.0588</td>
<td>0.1066</td>
<td>0.5514</td>
<td>0.5814</td>
</tr>
<tr>
<td><strong>DOP</strong></td>
<td>0.3087</td>
<td>0.1760</td>
<td>1.7540</td>
<td>0.0794</td>
</tr>
</tbody>
</table>

**Table-3(3) GARCH (1, 1)**

According to GARCH (1, 1) table the impact of GARCH coefficient and oil price is significant at 10% of significance level. The R square value is 0.6384 which describe that the 63.84% selling oil price volatility is due to oil price and the remaining portion of oil price volatility is due to other factors and variables.

At last, we run the Generalized Autoregressive Conditional Heteroskedasticity (GARCH1, 1) on DSOP, DER, DFY and DOP. The following result discovered:

**Estimation Equation of GARCH (1, 1) Model (4):**

\[
\text{DSOP} = C(1)\text{DER} + C(2)\text{DFY} + C(3)\text{DOP} + C(4)
\]

\[
\text{GARCH} = C(5) + C(6)\text{RESID(-1)}^2 + C(7)\text{GARCH(-1)}
\]

The estimation equation of GARCH (1, 1) model described that dependent variable has auto-regress by its constant value which also include the GARCH value aspect and after that it is also auto-regress by its independent exchange rate, fiscal policy and oil price.

**Substituted Coefficients of GARCH (1, 1) Model (4):**

\[
\text{DSOP} = -0.0502623560429\text{DER} + 0.703458031975\text{DFY} + 0.34249143866\text{DOP} + 0.00242201942895
\]

\[
\text{GARCH} = -0.000313170210005 + 2.2490279077\text{RESID(-1)}^2 + 0.552631272697\text{GARCH(-1)}
\]

The substituted coefficients describe that the coefficient of GARCH value is 0.0024 which impact as positive on selling oil price. Meanwhile, Exchange rate has the negative impact on selling oil price and its coefficient value is -0.0503. Furthermore, the fiscal policy effect and oil price (actual) impact positively on selling oil price and its coefficient value is 0.7035 and
0.3425 respectively, mean one unit increase in fiscal policy effect increase selling oil price by 0.5408 unit and one unit increase in oil price (actual) increase selling oil price by 0.3425 unit.

<table>
<thead>
<tr>
<th>Coefficient</th>
<th>Std. Error</th>
<th>z-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>GARCH (1, 1)</td>
<td>0.0024</td>
<td>0.0105</td>
<td>0.2297</td>
</tr>
<tr>
<td>DER</td>
<td>-0.0503</td>
<td>0.1221</td>
<td>-0.4118</td>
</tr>
<tr>
<td>DFY</td>
<td>0.7035</td>
<td>0.0072</td>
<td>97.2660</td>
</tr>
<tr>
<td>DOP</td>
<td>0.3425</td>
<td>0.0116</td>
<td>29.6358</td>
</tr>
</tbody>
</table>

Table-3(4) GARCH (1, 1)

According to GARCH (1, 1) table the impact of GARCH coefficient and exchange rate are insignificant even at 10% of significance level. Meanwhile, fiscal policy effect and oil price has a significant impact at 1% level of significance. The R square value is 0.8144 which describe that the 81.44% selling oil price volatility is due to exchange rate, fiscal policy effect and oil price and the remaining portion of oil price volatility is due to other factors and variables.

5.4 Multiple Linear Regressions

The Multiple linear Regression analysis is run on the dependent variable Gross Domestic Production and the independent variables Trade Balance, Public sector investment, Private sector investment and the Oil price volatility (defined through standard deviation) to find out the impact of oil price volatility and other macro economic variables on the economic growth of Pakistan. The results are described by the following equation

\[
\text{GDP} = 9.999 + 0.017 \text{OPV} - 0.123 \text{PRS} + 0.944 \text{PS} - 0.167 \text{TB}
\]
Table 4: Multiple Linear Regression Model Result

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Coef</th>
<th>St Dev</th>
<th>T</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>9.999</td>
<td>0.968</td>
<td>10.325</td>
<td>0.000</td>
</tr>
<tr>
<td>OPV</td>
<td>0.017</td>
<td>0.250</td>
<td>0.283</td>
<td>0.779</td>
</tr>
<tr>
<td>PRS</td>
<td>-0.123</td>
<td>0.136</td>
<td>-0.751</td>
<td>0.458</td>
</tr>
<tr>
<td>PS</td>
<td>0.944</td>
<td>0.079</td>
<td>5.296</td>
<td>0.000</td>
</tr>
<tr>
<td>TB</td>
<td>-0.167</td>
<td>0.064</td>
<td>-2.199</td>
<td>0.034</td>
</tr>
</tbody>
</table>

R-Sq = 93.3%  \quad R-Sq(\text{adj}) = 87.0%

The equation illustrates the constant value of 9.999 units which mean without any change in other independent variables, the constant independently change the GDP by 9.999 units. After that the oil price volatility have the coefficient value of 0.017 which positively impacted and also depict that one positive change in oil price volatility have positively change GDP of Pakistan by 0.017 unit. The regression equation also denominate that private sector investment (which is represented through PRS) has also a negative impact on GDP of Pakistan and one unit change in private sector investment would change GDP of Pakistan by 0.123 units. Consequently, the analysis about public sector investment, it has positive impact on GDP of Pakistan and one unit change in public sector investment may change the GDP of Pakistan by 0.944 units. In contrast with other independent variable Trade balance have a negative impact on GDP of Pakistan and if one unit change in Trade Balance would change GDP of Pakistan by negatively 0.167 units. The regression table describes that oil price volatility value and private sector investment value is not even significant at 10% level of significance but at the same time public sector investment value is significance at 1% level of significant. The table illustrates that trade balance value is significant at 5% level of significance.
The R square value in the Linear Regression equation described that the independent variables Trade Balance, private sector investment, public sector investment and oil price volatility describe the dependent variable Gross Domestic Production of Pakistan by almost 87%. The remaining portion of GDP of Pakistan is impact through other macro-economic variables which is only 13%.

5.5 Johenson co integration test

The Johenson co integration test is used to find out the short run and long run relation among the variables. The following results described by using the Johenson co integration test on oil price volatility, trade balance, private sector investment, public sector investment and gross domestic production:

<table>
<thead>
<tr>
<th>Hypothesized No of CE(s)</th>
<th>Eigen value</th>
<th>Trace Statistic</th>
<th>0.05 Critical value</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>None*</td>
<td>0.652978</td>
<td>128.5686</td>
<td>69.81889</td>
<td>0.0000</td>
</tr>
<tr>
<td>At most 1*</td>
<td>0.594215</td>
<td>87.29219</td>
<td>47.85613</td>
<td>0.0000</td>
</tr>
<tr>
<td>At most 2*</td>
<td>0.471945</td>
<td>52.11686</td>
<td>29.79707</td>
<td>0.0000</td>
</tr>
<tr>
<td>At most 3*</td>
<td>0.391162</td>
<td>27.21321</td>
<td>15.49471</td>
<td>0.0006</td>
</tr>
<tr>
<td>At most 4*</td>
<td>0.182554</td>
<td>7.861257</td>
<td>3.841466</td>
<td>0.0051</td>
</tr>
</tbody>
</table>

Table 5 Johenson co integration test Result

Johenson co integration test define that there is 5 co integration equations at level 0.05. So it is concluded that oil price volatility, trade balance, private sector investment, public sector investment and gross domestic production have a long run relationship.

5.6 Granger Causality test

Granger Causality test is used to describe the casual relationship between the variables in the different econometrics models. The idea of Granger Causality is that a variable X Granger causes variable Y if variable Y can be better predicted using the histories of both X and Y then it can be predicted using the history of Y alone.
<table>
<thead>
<tr>
<th>Null Hypothesis</th>
<th>Observations</th>
<th>F Statistics</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP does not Granger Cause OPV</td>
<td>39</td>
<td>0.00821</td>
<td>0.9918</td>
</tr>
<tr>
<td>OPV does not Granger Cause GDP</td>
<td></td>
<td>0.28185</td>
<td>0.7561</td>
</tr>
</tbody>
</table>

Table 6(1) Granger Causality Test Result

The above table of Granger Causality test described that neither gross domestic production Granger cause the oil price volatility and nor the oil price volatility Granger cause the gross domestic production. Meanwhile, it is observed that both statements are not significant even 10% level of significance, so it is concluded that the statement are not true or perfect or significant.

<table>
<thead>
<tr>
<th>Null Hypothesis</th>
<th>Observations</th>
<th>F Statistics</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRS does not Granger Cause OPV</td>
<td>39</td>
<td>0.33896</td>
<td>0.7149</td>
</tr>
<tr>
<td>OPV does not Granger Cause PRS</td>
<td></td>
<td>10.9927</td>
<td>0.0002</td>
</tr>
</tbody>
</table>

Table 6(2) Granger Causality Test Result

The above table of Granger Causality test described that private sector investment does not Granger cause the oil price volatility and the statement is not significant even 10% level of significance. Meanwhile, the test define that oil price volatility does not Granger cause private sector investment and the statement is significant at 1% level of significance, so it is concluded that there is no causality relation between oil price volatility and private sector investment.

<table>
<thead>
<tr>
<th>Null Hypothesis</th>
<th>Observations</th>
<th>F Statistics</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>PS does not Granger Cause OPV</td>
<td>39</td>
<td>0.71208</td>
<td>0.4978</td>
</tr>
<tr>
<td>OPV does not Granger Cause PS</td>
<td></td>
<td>1.05586</td>
<td>0.3590</td>
</tr>
</tbody>
</table>

Table 6(3) Granger Causality Test Result

The above table of Granger Causality test described that neither public sector investment Granger cause the oil price volatility and nor the oil price volatility Granger cause the public sector investment. Meanwhile, it is observed that both statements are not significant even 10% level of significance, so it is concluded that the statement are not true or perfect or significant.
Null Hypothesis | Observations | F Statistics | Probability
---|---|---|---
TB does not Granger Cause OPV | 39 | 0.49987 | 0.6110
OPV does not Granger Cause TB | | 0.58196 | 0.5643

**Table 6(4) Granger Causality Test Result**

The above table of Granger Causality test described that neither trade balance Granger cause the oil price volatility and nor the oil price volatility Granger cause the trade balance. Meanwhile, it is observed that both statements are not significant even 10% level of significance, so it is concluded that the statement are not true or perfect or significant.

Null Hypothesis | Observations | F Statistics | Probability
---|---|---|---
PRS does not Granger Cause GDP | 39 | 1.13798 | 0.3324
GDP does not Granger Cause PRS | | 0.16613 | 0.8476

**Table 6(5) Granger Causality Test Result**

The above table of Granger Causality test described that neither private sector investment Granger cause the gross domestic production and nor the gross domestic production Granger cause the private sector investment. Meanwhile, it is observed that both statements are not significant even 10% level of significance, so it is concluded that the statement are not true or perfect or significant.

Null Hypothesis | Observations | F Statistics | Probability
---|---|---|---
PS does not Granger Cause GDP | 39 | 1.80271 | 0.1803
GDP does not Granger Cause PS | | 5.02844 | 0.0122

**Table 6(6) Granger Causality Test Result**

The above table of Granger Causality test described that public sector investment does not Granger cause the gross domestic production and the statement is not significant even 10% level of significance. Meanwhile, the test define that gross domestic production does not Granger cause public sector investment and the statement is significant at 5% level of significance, so it is concluded that there is no causality relation between gross domestic production and public sector investment.
<table>
<thead>
<tr>
<th>Null Hypothesis</th>
<th>Observations</th>
<th>F Statistics</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>TB does not Granger Cause GDP</td>
<td>39</td>
<td>0.22402</td>
<td>0.8005</td>
</tr>
<tr>
<td>GDP does not Granger Cause TB</td>
<td></td>
<td>0.05458</td>
<td>0.9470</td>
</tr>
</tbody>
</table>

**Table 6(7) Granger Causality Test Result**

The above table of Granger Causality test described that neither trade balance Granger cause the gross domestic production and nor the gross domestic production Granger cause the trade balance. Meanwhile, it is observed that both statements are not significant even 10% level of significance, so it is concluded that the statement are not true or perfect or significant.

<table>
<thead>
<tr>
<th>Null Hypothesis</th>
<th>Observations</th>
<th>F Statistics</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>PS does not Granger Cause PRS</td>
<td>39</td>
<td>1.96515</td>
<td>0.1557</td>
</tr>
<tr>
<td>PRS does not Granger Cause PS</td>
<td></td>
<td>0.38791</td>
<td>0.6814</td>
</tr>
</tbody>
</table>

**Table 6(8) Granger Causality Test Result**

The above table of Granger Causality test described that neither public sector investment Granger cause the private sector investment and nor the private sector investment Granger cause the public sector investment. Meanwhile, it is observed that both statements are not significant even 10% level of significance, so it is concluded that the statement are not true or perfect or significant.

<table>
<thead>
<tr>
<th>Null Hypothesis</th>
<th>Observations</th>
<th>F Statistics</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>TB does not Granger Cause PRS</td>
<td>39</td>
<td>0.16114</td>
<td>0.8518</td>
</tr>
<tr>
<td>PRS does not Granger Cause TB</td>
<td></td>
<td>0.12671</td>
<td>0.8814</td>
</tr>
</tbody>
</table>

**Table 6(9) Granger Causality Test Result**

The above table of Granger Causality test described that neither trade balance Granger cause the private sector investment and nor the private sector investment Granger cause the trade balance. Meanwhile, it is observed that both statements are not significant even 10% level of significance, so it is concluded that the statement are not true or perfect or significant.
The above table of Granger Causality test described that neither trade balance Granger cause the public sector investment and nor the public sector investment Granger cause the trade balance. Meanwhile, it is observed that both statements are not significant even 10% level of significance, so it is concluded that the statement are not true or perfect or significant.

5.7 VAR Model

We estimated our results through stationary data although according to (Phillip Fanchon and Jeanne Wendel, 2006) VAR models can be predictable with raw data in the levels if the non-stationary data is also co-integrated because current theoretical work demonstrate that estimation with such data will yield consistent parameter estimates but at the same time all economist and econometrics professional is agreed that for VAR model we used stationary data for effective and accurate parameters.
<table>
<thead>
<tr>
<th></th>
<th>GDP (-2)</th>
<th>PRS(-1)</th>
<th>PRS(-2)</th>
<th>PS(-1)</th>
<th>PS(-2)</th>
<th>TB(-1)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>[-0.28998]</td>
<td>[1.23621]</td>
<td>[-0.49195]</td>
<td>[0.63681]</td>
<td>[0.22075]</td>
<td></td>
</tr>
<tr>
<td>GDP</td>
<td>0.059763</td>
<td>-0.197262</td>
<td>-0.036637</td>
<td>0.480729</td>
<td>-0.144857</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.25369)</td>
<td>(0.17827)</td>
<td>(0.11163)</td>
<td>(0.16807)</td>
<td>(0.83524)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[0.23557]</td>
<td>[-1.05768]</td>
<td>[-0.32819]</td>
<td>[2.86025]</td>
<td>[-0.17343]</td>
<td></td>
</tr>
<tr>
<td>PRS</td>
<td>-0.216679</td>
<td>-0.236448</td>
<td>0.078424</td>
<td>0.087925</td>
<td>0.789868</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.34018)</td>
<td>(0.23904)</td>
<td>(0.14969)</td>
<td>(0.22537)</td>
<td>(1.11999)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[-0.63695]</td>
<td>[-0.98914]</td>
<td>[0.52391]</td>
<td>[-0.39013]</td>
<td>[0.70525]</td>
<td></td>
</tr>
<tr>
<td>PRS</td>
<td>-0.127917</td>
<td>-0.221449</td>
<td>-0.137281</td>
<td>-0.083655</td>
<td>0.307370</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.31772)</td>
<td>(0.22336)</td>
<td>(0.13981)</td>
<td>(0.21049)</td>
<td>(1.04604)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[-0.40261]</td>
<td>[-0.99187]</td>
<td>[-0.98192]</td>
<td>[-0.39743]</td>
<td>[0.29384]</td>
<td></td>
</tr>
<tr>
<td>PS</td>
<td>-0.316807</td>
<td>0.096940</td>
<td>0.141545</td>
<td>-0.087893</td>
<td>0.472799</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.25041)</td>
<td>(0.17596)</td>
<td>(0.11019)</td>
<td>(0.16590)</td>
<td>(0.82444)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[-1.26513]</td>
<td>[0.55091]</td>
<td>[1.28456]</td>
<td>[-0.52980]</td>
<td>[0.57348]</td>
<td></td>
</tr>
<tr>
<td>PS</td>
<td>-0.023139</td>
<td>-0.229831</td>
<td>-0.246838</td>
<td>0.341179</td>
<td>-1.194313</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.21266)</td>
<td>(0.14943)</td>
<td>(0.09358)</td>
<td>(0.14088)</td>
<td>(0.70013)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[-0.10881]</td>
<td>[-1.53803]</td>
<td>[-2.63786]</td>
<td>[2.42169]</td>
<td>[-1.70585]</td>
<td></td>
</tr>
<tr>
<td>TB</td>
<td>-0.020457</td>
<td>-0.004693</td>
<td>-0.001275</td>
<td>0.081844</td>
<td>-0.240151</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.06175)</td>
<td>(0.04339)</td>
<td>(0.02717)</td>
<td>(0.04091)</td>
<td>(0.20330)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[-0.33130]</td>
<td>[-0.10816]</td>
<td>[-0.04694]</td>
<td>[2.00066]</td>
<td>[-1.18129]</td>
<td></td>
</tr>
</tbody>
</table>
The analysis described that Oil price volatility Auto Regress by itself, gross domestic production, private sector investment, public sector investment, trade balance, its coefficient value is -0.113916, -0.080780, -0.192589, 0.270975 and -0.539859 respectively and its t value is -0.60793, -0.61349, -2.33571, 2.18280 and -0.87508 accordingly at lag (1). Meanwhile, its coefficient value is 0.190564, -0.136090, 0.272156, 0.107838 and -0.426049 respectively and its t value is 1.06608, -1.08344, 3.46005, 0.91062 and -0.71477 accordingly at lag (2).

Consequently, GDP of Pakistan Auto Regress by oil price volatility, itself, private sector investment, public sector investment and trade balance, its coefficient value is -0.074239, 0.222397, -0.055420, 0.108009 and 0.186063 respectively and its t value is -0.28998, 1.23621, -0.49195, 0.63681 and 0.22075 accordingly at lag (1). Meanwhile, its coefficient value is 0.059763, -0.197262, -0.036637, 0.480729 and -0.144857 respectively and its t value is 0.23557, -1.05768, -0.32819, 2.86025 and -0.17343 accordingly at lag (2).

Meanwhile, private sector investment Auto Regress by oil price volatility, GDP of Pakistan, itself, public sector investment and trade balance, its coefficient value is -0.216679, -0.236448, 0.078424, 0.087925 and 0.789868 respectively and its t value is -0.63695, -0.98914, 0.52391, -0.39013 and 0.70525 accordingly at lag (1). Meanwhile, its coefficient value is -0.127917, -0.221449, -0.137281, -0.083655 and 0.307370 respectively and its t value is -0.40261, -0.99187, -0.98192, -0.39743 and 0.29384 accordingly at lag (2).
In the same time, public sector investment Auto Regress by oil price volatility, GDP of Pakistan, private sector investment, itself and trade balance, its coefficient value is -0.316807, 0.096940, 0.141545, -0.087893 and 0.472799 respectively and its t value is -1.26513, 0.55091, 1.28456, -0.52980 and 0.57348 accordingly at lag (1). Meanwhile, its coefficient value is -0.023139, -0.229831, -0.246838, 0.341179 and -1.194313 respectively and its t value is -0.10881, -1.53803, -2.63786, 2.42169 and -1.70585 accordingly at lag (2).

Meantime, trade balance Auto Regress by oil price volatility, GDP of Pakistan, private sector investment, public sector investment and itself, its coefficient value is -0.020457, -0.004693, -0.001275, 0.081844 and -0.240151 respectively and its t value is -0.33130, -0.10816, -0.04694, 2.00066 and -1.18129 accordingly at lag (1). Meanwhile, its coefficient value is 0.073846, -0.004928, -0.047826, 0.049897 and -0.111292 respectively and its t value is 1.19878, -0.11385, -1.76435, 1.22263 and -0.54875 accordingly at lag (2).

In the VAR Model the constant coefficient values of oil price volatility, GDP of Pakistan, private sector investment, public sector investment, trade balance are 0.203750, 0.206123, 0.179732, -0.026435 and 0.136343 respectively and its t value is 1.81203, 2.60872, 3.63254, -0.35486 and 0.36830 accordingly at lag (1).

5.8 Impulse Response Function
Graph 1 Impulse response function of OPV

After VAR Model, Impulse Response function is used to analyze the shocks and innovation. It is observed through Impulse Response Function that oil price volatility shock start its effect on oil price volatility and sharply decreases and goes in negative side. After that it was slightly increase and decrease and found in negative and positive side of the zero level. Oil price volatility shock was stable after 7 year and its stabilizing trend continued till the further instability policy effect again.

Meanwhile, oil price volatility shock effect the GDP and it dramatically start from the negative side of the zero line go downward and then upward but remain in the negative side and finished after 5 year and that stabilize condition continued at last.
Oil price volatility shock also effecting the private sector investment and it’s also start from negative side from the zero line but move upward in positive side till 5 year. The shock was stabilizing after 5 year and this stabilizing effect continued.

Furthermore, oil price volatility shock also effects the public sector investment and its start below from zero line. Afterward the shock slowly increasing and go on positive side after 5 year. The oil price volatility shock stabilizes after 8 year and stabilizing effect go on till end.

Consequently, oil price volatility shock also effect trade balance and as before it’s also start from negative side but afterward dramatic increasing and decreasing trend start. The shock was stabilized after 7 year and after that no further destabilization is found in it.

Graph 2 Impulse response function of GDP
The second impulse response function related to gross domestic production of Pakistan. It is observed through impulse response function gross domestic production shock effect the oil price volatility and its start from negative side of the zero line and slowly increasing till 6 year and afterward go on the positive side. The shock was stabilized after 8 year and no further instability was found.

Moreover, gross domestic production shock also effect gross domestic production. Its start from positive side and steeply decreased and go in negative side with respect to zero line and that instability was found till 9 year. Afterward stable response was found in gross domestic production.

In addition, gross domestic production shock effect private sector investment and its start from the negative side and after 3 year the shock response goes in positive side with respect to zero line. The shock stabilized after 9 year and further goes on.

Accordingly, gross domestic production shock also effect public sector investment. The shock start from positive side with the reference of zero line but later on it’s steeply goes to the negative side. Then the shock slowly moves upward and goes in positive size and stabilized after 7 year and further no instable effect was found.

At last, gross domestic production shock also effect the trade balance but the shock effect is so much minor but the instability goes its effect on negative and positive side continuously. The shock stabilized after 8 year.
Graph 3 Impulse response function of PRS

The third impulse response function is related to private sector investment on different macroeconomic variables. It is viewed that private sector investment shock effect the oil price volatility dramatically. Its start from negative side with respect to zero line but afterward it goes on positive side sharply. Then the shock effect goes down in negative side afterward low instability was found till 9 year and stability was found.

Furthermore, private sector investment shock effect on gross domestic production and its start from the negative side and increasing slowly toward the positive side. After a low volume in positive side with respect to zero line, the shock again goes in negative side and stabilized after 8 year and further no instability was found.

Moreover, private sector investment shock also effect private sector investment. Its start from positive side and steeply decreased and go in negative side with respect to zero line and that
instability was found till 8 year. Afterward stable response was found in private sector investment.

In addition, private sector investment shock also effect public sector investment and its start from positive side and goes upward. Afterward the shock decreases and goes in negative side with respect to zero line. Then slow positive trend was found and the shock was stabilized after 9 year till end.

Consequently, private sector investment shock also effect trade balance. The shock start from the negative side and increasing trend in negative side was found. Afterward the decreasing trend was found in the shock and goes in positive side with reference to zero line. The instability was found till 8 year and further no volatility was found.
The forth impulse response function is associated to public sector investment. It is observed via impulse response function that public sector investment shock effect the oil price volatility. Its start from the negative side but instantly goes on positive side with respect to zero line. Afterward dramatically change was found till 8 year and the public sector investment stabilized and no further instability was observed.

Consequently, Public sector investment shock effect the gross domestic production of Pakistan. At start the shock was found in positive side but after that a sharp increase and decrease was observed. The shock was stabilized after 8 year and further stable response was found.

Meanwhile, Public sector investment shock also effect the private sector investment and it is viewed that the shock was start from the negative side with respect to zero line and increasing and decreasing trend was found. The shock was stabled after 6 year and goes on.

Furthermore, public sector investment shock also effect public sector investment. Its start from positive side and steeply decreased and go in negative side with respect to zero line and that instability was found till 7 year. Afterward stable response was found in public sector investment.

Additionally, public sector investment shock effect trade balance and it is viewed that the shock was start from the positive side with reference to zero line and increased. Afterward the shock was decreasing and found stable after 5 year and further no instability was observed.
The fifth and the last impulse response function are related to trade balance. It is observed with respect to impulse response function that the trade balance shock effect the oil price volatility. The shock initiate from the negative side with reference to zero line and increasing...
slowly. Afterward the shock was found in positive side and stabled after 9 year. No further instability was found with respect to the effect of trade balance shock.

Meanwhile, trade balance shock also effect gross domestic production of Pakistan. The shock start from the negative side and continuous increasing and decreasing trend was found. The shock was stabled after 8 year and further goes on.

Consequently, trade balance shock effects the private sector investment. Its start from the positive side with respect to zero line but steeply decreasing. Afterward, the shock was observed in positive and negative side in different time spam and stabilized after 7 year. The stabilized effect was observed till end.

Furthermore, trade balance shock also effects the public sector investment. The shock initiate from the negative side but sharp movement which make the shock trend in positive side and negative side in different time spam was observed. The stability effect of the shock was observed after 7 year and remains stabled afterward.

At last, trade balance shock also effect trade balance and it is viewed that shock start from positive side with respect to zero line. Afterward, the shock decreased steeply and goes on the negative side and remains there till end. The increasing and decreasing trend was observed there but the shock never cross the zero line and lye in the positive side. The shock was stabilized after 5 year and that effect remain constant till end.

5.9 Variance Decomposition

The under mentioned table 8 described the variance decomposition of oil price volatility (OPV) by statistical analysis. It is viewed in the table that at first year all variation on OPV is due to itself 100 % and other macroeconomic variables trade balance (TB), private sector investment (PRS), public sector investment (PS), and gross domestic production (GDP) have no contribution on OPV variation. Consequently, it is observed that increasing variation contribution by public sector investment is viewed on OPV by 4.02% and OPV itself variation is decreased by 94.7% and TB, PRS and GDP jointly contributed 1.2% of variation. After 6 year the variation is viewed as constant and stabilized trend up to 10 year and the variation on OPV due to itself, TB, PRS, PS and GDP is 90.33%, 3.54%, 1.13%, 4.06% and 0.94% respectively.
### Table 8 Variance Decomposition of OPV

<table>
<thead>
<tr>
<th>Period</th>
<th>S.E.</th>
<th>OPV</th>
<th>TB</th>
<th>PRS</th>
<th>PS</th>
<th>GDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.217792</td>
<td>100.00</td>
<td>0.000000</td>
<td>0.000000</td>
<td>0.000000</td>
<td>0.000000</td>
</tr>
<tr>
<td>2</td>
<td>0.224481</td>
<td>94.70573</td>
<td>0.263740</td>
<td>0.778046</td>
<td>4.022915</td>
<td>0.229571</td>
</tr>
<tr>
<td>3</td>
<td>0.229563</td>
<td>92.44012</td>
<td>2.585186</td>
<td>0.881500</td>
<td>3.847384</td>
<td>0.245814</td>
</tr>
<tr>
<td>4</td>
<td>0.232018</td>
<td>91.35141</td>
<td>2.840396</td>
<td>1.032605</td>
<td>3.909416</td>
<td>0.866174</td>
</tr>
<tr>
<td>5</td>
<td>0.232696</td>
<td>90.82761</td>
<td>3.275761</td>
<td>1.069609</td>
<td>3.916949</td>
<td>0.910071</td>
</tr>
<tr>
<td>6</td>
<td>0.233150</td>
<td>90.47748</td>
<td>3.500935</td>
<td>1.132319</td>
<td>3.972974</td>
<td>0.916290</td>
</tr>
<tr>
<td>7</td>
<td>0.233295</td>
<td>90.40677</td>
<td>3.507708</td>
<td>1.320319</td>
<td>4.020954</td>
<td>0.923644</td>
</tr>
<tr>
<td>8</td>
<td>0.233387</td>
<td>90.35715</td>
<td>3.536413</td>
<td>1.131926</td>
<td>4.039932</td>
<td>0.934582</td>
</tr>
<tr>
<td>9</td>
<td>0.233425</td>
<td>90.33411</td>
<td>3.540039</td>
<td>1.132371</td>
<td>4.055994</td>
<td>0.937483</td>
</tr>
<tr>
<td>10</td>
<td>0.233431</td>
<td>90.33089</td>
<td>3.539863</td>
<td>1.132701</td>
<td>4.057948</td>
<td>0.938601</td>
</tr>
</tbody>
</table>

The following table 9 explained the variance decomposition of trade balance (TB). It is observed in the table that at first year maximum variation on trade balance is due to itself 97.39% but meanwhile trade balance also has a little variation due to oil price volatility (OPV) by 2.61% and other macroeconomic variables private sector investment (PRS), public sector investment (PS), and gross domestic production (GDP) have no contribution on trade balances (TB) variation. There is no dramatic contribution in variation upon trade balance is viewed due to other macroeconomic variables. After 10 year the variation is viewed on trade balances (TB) due to OPV, itself, PRS, PS and GDP is 4.59%, 87.85%, 0.77%, 5.81% and 0.97% correspondingly.
<table>
<thead>
<tr>
<th>Period</th>
<th>S.E.</th>
<th>OPV</th>
<th>TB</th>
<th>PRS</th>
<th>PS</th>
<th>GDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.717039</td>
<td>2.609978</td>
<td>97.39002</td>
<td>0.000000</td>
<td>0.000000</td>
<td>0.000000</td>
</tr>
<tr>
<td>2</td>
<td>0.746938</td>
<td>4.247174</td>
<td>93.99863</td>
<td>0.787689</td>
<td>0.836267</td>
<td>0.130245</td>
</tr>
<tr>
<td>3</td>
<td>0.764266</td>
<td>4.433250</td>
<td>90.15105</td>
<td>0.762580</td>
<td>4.492214</td>
<td>0.160910</td>
</tr>
<tr>
<td>4</td>
<td>0.772044</td>
<td>4.344853</td>
<td>89.76848</td>
<td>0.749265</td>
<td>4.974979</td>
<td>0.162427</td>
</tr>
<tr>
<td>5</td>
<td>0.779142</td>
<td>4.512049</td>
<td>88.15567</td>
<td>0.747728</td>
<td>5.659253</td>
<td>0.925301</td>
</tr>
<tr>
<td>6</td>
<td>0.779863</td>
<td>4.506595</td>
<td>88.00240</td>
<td>0.750868</td>
<td>5.809707</td>
<td>0.930428</td>
</tr>
<tr>
<td>7</td>
<td>0.780414</td>
<td>4.570671</td>
<td>87.90225</td>
<td>0.768242</td>
<td>5.805514</td>
<td>0.953326</td>
</tr>
<tr>
<td>8</td>
<td>0.780509</td>
<td>4.571366</td>
<td>87.88123</td>
<td>0.769521</td>
<td>5.810820</td>
<td>0.967065</td>
</tr>
<tr>
<td>9</td>
<td>0.780613</td>
<td>4.592273</td>
<td>87.85803</td>
<td>0.770416</td>
<td>5.810491</td>
<td>0.968789</td>
</tr>
<tr>
<td>10</td>
<td>0.780639</td>
<td>4.595855</td>
<td>87.85276</td>
<td>0.771710</td>
<td>5.810787</td>
<td>0.968886</td>
</tr>
</tbody>
</table>

Table 9 Variance Decomposition of TB

The subsequent table 10 clarified the variance decomposition of private sector investment (PRS). It is viewed, first year main variation on PRS is due to itself 76.48% but meanwhile PRS also have a moderate variation due to trade balance (TB) by 23.44%. Furthermore, PRS has a minute vibration due to oil price volatility (OPV) by 0.08% and other macroeconomic variables public sector investment (PS), and gross domestic production (GDP) have no contribution on PRS variation. There is an impressive contribution in variation upon PRS is viewed due to OPV, TB and PS in second year by 15.09%, 18.87% and 3.09% respectively. The variation is viewed on PRS after 10 year due to OPV, TB, itself, PS and GDP is 39.42%, 16.29%, 37.14%, 6.09% and 1.05% in the same way.
The under state table 11 explained the variance decomposition of public sector investment (PS). It is observed that at first year major variation on PS is due to itself 92.35% but meanwhile PS also has a considerable variation due to trade balance (TB) by 6.59%. Oil price volatility (OPV) and private sector investment (PRS) have a minor contribution in variation by 0.30% and 0.75% respectively and gross domestic production (GDP) have no contribution on PS variation. There is an impressive contribution in variation upon PS is viewed due to trade balance (TB) in second year by 16.63%. The variation observed later than 10 year on PS due to OPV, TB, PRS, itself and GDP is 8.91%, 13.15%, 3.27%, 59.20% and 15.46% respectively which mean variation in public investment (PS) is mainly contributed by trade balance and gross domestic production.
Table 11 Variance Decomposition of PS

The next table 12 gives details about the variance decomposition of gross domestic production (GDP). It is viewed that at first year most important variation on GDP is due to itself 89.62% but meanwhile private sector investment (PRS) also have a minor variation by 4.18%. Oil price volatility (OPV) and trade balance (TB), public sector investment (PS) have also contributed in GDP variation by 4.02%, 1.25% and 0.93% respectively. After 10 year the variation on GDP due to OPV, TB, PRS, PS and itself is 7.67%, 2.94%, 8.01%, 5.74% and 75.64% accordingly.
<table>
<thead>
<tr>
<th>Period</th>
<th>S.E.</th>
<th>OPV</th>
<th>TB</th>
<th>PRS</th>
<th>PS</th>
<th>GDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.153042</td>
<td>4.023553</td>
<td>1.249362</td>
<td>4.179429</td>
<td>0.930888</td>
<td>89.61677</td>
</tr>
<tr>
<td>2</td>
<td>0.162605</td>
<td>5.746131</td>
<td>2.885640</td>
<td>6.173488</td>
<td>1.882644</td>
<td>83.31210</td>
</tr>
<tr>
<td>3</td>
<td>0.168680</td>
<td>5.681864</td>
<td>2.682725</td>
<td>7.655217</td>
<td>5.608871</td>
<td>78.37132</td>
</tr>
<tr>
<td>4</td>
<td>0.169903</td>
<td>6.765538</td>
<td>2.746981</td>
<td>7.585831</td>
<td>5.628327</td>
<td>77.27332</td>
</tr>
<tr>
<td>5</td>
<td>0.171736</td>
<td>7.529868</td>
<td>2.910607</td>
<td>7.927013</td>
<td>5.567321</td>
<td>76.06519</td>
</tr>
<tr>
<td>6</td>
<td>0.171980</td>
<td>7.508517</td>
<td>2.903029</td>
<td>7.981543</td>
<td>5.755228</td>
<td>75.85168</td>
</tr>
<tr>
<td>7</td>
<td>0.172199</td>
<td>7.642630</td>
<td>2.940686</td>
<td>7.961434</td>
<td>5.742077</td>
<td>75.71317</td>
</tr>
<tr>
<td>8</td>
<td>0.172299</td>
<td>7.656586</td>
<td>2.940312</td>
<td>7.991941</td>
<td>5.735415</td>
<td>75.67575</td>
</tr>
<tr>
<td>9</td>
<td>0.172324</td>
<td>7.660485</td>
<td>2.939737</td>
<td>8.006580</td>
<td>5.737843</td>
<td>75.65536</td>
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<tr>
<td>10</td>
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<td>7.672687</td>
<td>2.940867</td>
<td>8.005676</td>
<td>5.738659</td>
<td>75.64211</td>
</tr>
</tbody>
</table>

Table 12 Variance Decomposition of GDP
CHAPTER 6

CONCLUSION & POLICY RECOMMENDATION

6.1 Conclusion

This chapter is defined the results and outcomes based on the time series data of oil price (international oil price), exchange rate of Pakistan, selling oil price in Pakistan (which have international oil price, exchange rate effect and fiscal effect of the local government is including), oil price volatility, trade balance, private sector investment, public sector investment and gross domestic production of Pakistan from 1973 to 2014.

It is observed that the time series data of variables (Oil price, exchange rate, selling oil price, Trade balance, Public sector investment, private sector investment and Gross Domestic production of Pakistan) have a trend and also not stationary at level. After using unit root test (ADF) it is found that all variables are stationary at first difference. Oil price volatility has a trend but the variable is stationary at level.

Afterward, correlation coefficient test is used to measure the linear relationship between the variables. Exchange Rate has strong positive relation with Gross Domestic Production, Oil Price, Private Sector Investment, Public Sector Investment and Selling Oil Price, negative weak relation exist with Oil Price Volatility and moderate positive relationship with Trade Balance.

Gross Domestic Production has strong positive relation with Oil Price, Private Sector Investment, Public Sector Investment, Selling Oil Price and Trade Balance and negative weak relation exist with Oil Price Volatility.

Oil Price has strong positive relation with Private Sector Investment, Public Sector Investment, Selling Oil Price and Trade Balance moderate negative relation exist with Oil Price Volatility. Oil Price Volatility has moderate negative relation with Private Sector Investment and Public Sector Investment, weak negative relationship exist with Selling Oil Price and Trade Balance.
Private Sector Investment has strong positive relation with Public Sector Investment and Selling Oil Price and moderate positive relationship with Trade Balance. Public Sector Investment has strong positive relation with Selling Oil Price and moderate positive relationship with Trade Balance. Selling Oil Price has a moderate positive association with Trade Balance. All the results are significant at 1% and 5% level of significance.

It is anticipated through Generalized Autoregressive Conditional Heteroskedasticity (GARCH1, 1) that exchange rate of Pakistan has an insignificant effect on the oil price in Pakistan even at the 10% level of significance. After the analysis it is prescribed that $H_1$ hypothesis rejected that exchange rate effecting the oil prices. The same results also conclude by the researchers (Chaudhuri and Daniel, 1998; Anderton and Skudely, 2001; Akram, 2002; Giovannini et al., 2004; Olomola & Adejumo, 2006; Aliyu, 2008; Mohamad et al. 2009; Apergis and Miller, 2009; Masih, 2011; Shaari, 2012; Ferraro et al., 2012 and Ansar & Asghar, 2013) in different part of the world.

Meanwhile, fiscal effect in oil price in Pakistan and oil price (international market price) has significant impact on oil price of Pakistan at the 1% and 10% level of significance respectively which is also same as the theoretical frame work described., $H_2$ Hypothesis accepted Fiscal policy effecting the oil prices. The results are also defined by (Chu, 1989; Rodrick, 1998; Horton and El-Ganainy, 2009; Blinder, 2006; Adeoye, 2006; Omitogun and Ayinla, 2007; Omitogun and Ayinla, 2007; Horton and El-Ganainy, 2009 and Amira et al., 2014) in different countries and economies of the world.

Furthermore, $H_3$ Hypothesis accepted that oil price (international) effecting the oil prices (local). This type of results also concluded by (Adelman, 2000; Awerbuch, 2003; Devlin & Lewin, 2004; Bloch et al., 2006; Olomola, 2006; Birol, 2007; Jelles, 2009; Aliyu, 2009; Akpan, 2009; Aliyu, 2009 and Muhammad, 2013) in different countries and economies of the world. Pakistan is a developing economy and the variation of fiscal policy and international oil prices may more effect on the price substitution then the exchange rate effect.

After GARCH (1, 1) model the linear regression model is used to find out the effect of oil price volatility and the other macro economic variables on the GDP. Public sector investment and Trade Balance has significant effect on Gross domestic production at 1% and 5% level of
significance accordingly. Meanwhile, the oil price volatility and private sector investment have insignificant effect on the Gross domestic production. That’s why $H_4$ Hypothesis trade balance effecting GDP and $H_5$ Hypothesis public sector investment effecting GDP are accepted but meanwhile $H_6$ Hypothesis private sector investment effecting GDP and $H_7$Hypothesis oil price volatility effecting GDP is rejected. The Linear Regression Model describe that these independent variable define 87% about the dependent variable. The remaining portion of GDP of Pakistan is impact through other macro-economic variables which is only 13 %.

Afterward, Johenson co integration test is used to find out the short run and long run relation among the variables (oil price volatility, trade balance, private sector investment, public sector investment and gross domestic production). It is observed that 5 co integration equations are found at 5% level of significance. So it is concluded that oil price volatility, trade balance, private sector investment, public sector investment and gross domestic production have a long run relationship.

Subsequently, Granger Causality test is used to describe the casual relationship between the variables (oil price volatility, trade balance, private sector investment, public sector investment and gross domestic production). The test indicate that oil price volatility does not Granger cause on public sector investment and gross domestic production does not Granger cause on public sector investment is significant. Except these relationship, all other variables relationship exist and possible.

After implementing the vector autoregression (VAR), we utilized impulse response function to define the effect of different shocks. Impulse Response Function described that oil price volatility (OPV) sock effect itself, gross domestic production (GDP), private sector investment (PRS), public sector investment (PS) and trade balance (TB) and stabilized after 7 year, 5 year, 5 year, 8 year and 7 year respectively. Furthermore, gross domestic production (GDP) shock effect oil price volatility (OPV), itself, private sector investment (PRS), public sector investment (PS) and trade balance (TB) and stabilized after 8 year, 9 year, 9 year, 7 year and 8 year accordingly. Moreover, private sector investment (PRS) shock effect oil price volatility (OPV), gross domestic production (GDP), itself, public sector investment (PS) and trade balance (TB) and stabilized after 9 year, 8 year, 8 year, 9 year and 8 year
correspondingly. In addition, public sector investment (PS) shock effect oil price volatility (OPV), gross domestic production (GDP), private sector investment (PRS), itself and trade balance (TB) and stabilized after 8 year, 8 year, 6 year, 7 year and 5 year respectively. At last, trade balance (TB) shock effect oil price volatility (OPV), gross domestic production (GDP), private sector investment (PRS), public sector investment (PS) and itself and stabilized after 9 year, 8 year, 7 year, 7 year and 5 year accordingly.

Variance decomposition described that variation of oil price volatility, trade balance, private sector investment, public sector investment and gross domestic production is 100%, 97.39%, 76.48%, 92.35%, and 89.62% accordingly due to itself at first year but it is decreasing after time to time and reached at 90.33%, 87.85%, 37.14%, 59.20% and 75.64% respectively.

6.2 Recommendation

As described prior, the directly impact of elevated oil prices (purchased from the foreign countries) on the economies (in the emerging economies) is anticipated through the deterioration of balance of payments, exchange rate and consequential contraction of the economies. So that’s why there is a requirement to explore the oil alternatives that steadily decrease the impact of the oil price volatility and will make potential of the economy more stronger to face volatility crisis.

In the context of Pakistan, it is viewed that not proper planning and forecasting was used to maintain the oil supply to meet the oil demand. Meanwhile, Pakistan only sustains 30 days reserve of oil which decreases some time due to delay in supply which also increases the oil price. Government should make a proper plan and procedure according to economic growth and requirement which would help to maintain the equilibrium and decrease the effect of oil price volatility. Meanwhile, government should decrease its fiscal effect which is the major source of its income but at the same time major effect to increase the oil prices. Government of Pakistan should develop a proper formula to decrease the effect of oil price volatility to increase its economic growth.
Government of Pakistan is hopeful and encourages further gas and petroleum exploration and production in the country, through providing inducements in the shape of relaxation in Petroleum strategies, discovering and Production policies.

6.3 Limitation of the study

This research is analyzing the exchange rate effect, fiscal effect implemented by the government and oil price volatility and its further effect on the GDP of Pakistan. The research limitation is that it is only describe the effect of Pakistan. If the research should proceed in oil importing and exporting economies or developed and underdeveloped economies, a universal strategy will be created which may help the domestic governments to decrease the after effect of oil on policies.
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## APPENDIX “A”

**Study of Various Macroeconomic Factors: A bird Eye View**

<table>
<thead>
<tr>
<th>Author</th>
<th>Methodology, Type of Data, Countries used for analysis and Scope</th>
<th>Variable used</th>
<th>Major Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Darby (1982)</td>
<td>Used data spanning between 1948 and 1978 for eight OECD countries</td>
<td>Oil price, money supply, inflation</td>
<td>Oil prices volatility could be attributed to three distinct causal factors; the shock to oil prices, tight monetary policy targeted at combating inflation and the imposition and eventual removal of price controls from 1971-1975.</td>
</tr>
<tr>
<td>Hamilton (1983)</td>
<td>Granger Causality in testing the direction of effects of oil shocks within a business cycle framework.</td>
<td>Oil price, real GDP, money supply</td>
<td>Concluded that in the short-run, oil price shock seemed to be a potential mechanism for yielding the unanticipated but transitory supply shocks usually assumed by real business cycle.</td>
</tr>
<tr>
<td>Marquez (1984)</td>
<td>Global perspective</td>
<td>channels of oil price</td>
<td>The study concluded that the direct channel of transmission is the transfer of actual income from oil importers to OPEC and depends on import price elasticities of LDCs and DCs, interest</td>
</tr>
</tbody>
</table>
Semboja (1994) calibrated a Computable General Equilibrium (CGE) model on the Kenyan economy. The responses suggest that increasing oil prices lead to deterioration in both the terms of trade and trade balance.

Bernanke et al. (1997) conducted a counterfactual analysis inVAR framework in U.S. Most of the reductions in U.S GDP during the recessions that followed the 1973, 1979/80 and 1990 episodes were attributable to monetary policy and not the oil price shocks.

Ayadi et al. (2000) The study spans between the period 1975 and 1992. VAR technique was used in their estimation. The results of their impulse response functions showed that a positive oil production shock was followed by rise in output, reduction in inflation and a depreciation of the domestic currency in Nigeria.

Eltony (2001) Linear oil price shocks were important explanations for fluctuations in macroeconomic variables in Kuwait. Their result showed that government expenditure which is the major determinant of economic activity in the country was significantly

<table>
<thead>
<tr>
<th>Author</th>
<th>Methodology</th>
<th>Variables</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semboja (1994)</td>
<td>calibrated a Computable General Equilibrium (CGE) model on the Kenyan economy</td>
<td>Oil price, terms of trade, trade balance</td>
<td>The responses suggest that increasing oil prices lead to deterioration in both the terms of trade and trade balance.</td>
</tr>
<tr>
<td>Bernanke et al. (1997)</td>
<td>counterfactual analysis in VAR framework in U.S</td>
<td>Monetary policy, oil price, GDP</td>
<td>Most of the reductions in U.S GDP during the recessions that followed the 1973, 1979/80 and 1990 episodes were attributable to monetary policy and not the oil price shocks.</td>
</tr>
<tr>
<td>Ayadi et al. (2000)</td>
<td>The study spans between the period 1975 and 1992. VAR technique was used in their estimation.</td>
<td>Oil production, output, inflation, domestic currency, exchange rate</td>
<td>The results of their impulse response functions showed that a positive oil production shock was followed by rise in output, reduction in inflation and a depreciation of the domestic currency in Nigeria.</td>
</tr>
<tr>
<td>Eltony (2001)</td>
<td>Linear oil price shocks were important explanations for fluctuations in macroeconomic variables in Kuwait.</td>
<td>Oil price, government expenditure, GDP</td>
<td>Their result showed that government expenditure which is the major determinant of economic activity in the country was significantly</td>
</tr>
<tr>
<td>Source</td>
<td>Region and Methodology</td>
<td>Measures</td>
<td>Results</td>
</tr>
<tr>
<td>--------</td>
<td>------------------------</td>
<td>----------</td>
<td>---------</td>
</tr>
<tr>
<td>Abeysinghe (2001)</td>
<td>Indonesia, Malaysia, Philippines, Thailand, Hong Kong, South Korea, Singapore, Taiwan, China, Japan, United States, and Rest of OECD</td>
<td>Oil prices, GDP growth</td>
<td>Measured the direct and indirect outcomes of oil prices on GDP growth which showed that these effects have critical importance for small economies but not so important for large economies.</td>
</tr>
<tr>
<td>Raguindin and Reyes (2005)</td>
<td>Data covering the period between 1981 and 2003 examine the effects of oil price shocks on the Philippine economy. In the non-linear VAR.</td>
<td>Oil price, real GDP, money supply, inflation</td>
<td>Their impulse response functions for a linear specification of oil prices revealed that oil price shocks lead to prolonged declines in real GDP.</td>
</tr>
<tr>
<td>Bacon (2005)</td>
<td>Global perspective</td>
<td>Oil prices, subsidies</td>
<td>Impact of upsurge in oil prices on developing nations is more than the developed nations. Removal of subsidies on petroleum products in most of the countries experienced politically a very contentious issue which provoked reaction from the public.</td>
</tr>
<tr>
<td>Anshasy et al (2005)</td>
<td>Investigated the effects of oil price shocks on Venezuela’s economic performance between 1950 and 2001. They</td>
<td>oil prices, government revenue, government spending on consumption, investment and real GDP</td>
<td>Their results showed two long run relationships consistent with economic growth and fiscal balance. These relationships were important for</td>
</tr>
<tr>
<td>Study</td>
<td>Methodology</td>
<td>Variables</td>
<td>Findings</td>
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<tr>
<td>Elanshasy et al. (2005)</td>
<td>Employed both VAR and VECM models</td>
<td>Oil Prices, government revenue, consumptions, investment and real GDP</td>
<td>Long-run relationships between economic growth and fiscal balance.</td>
</tr>
<tr>
<td>Olomola and Adejumo (2006)</td>
<td>Used a VAR model</td>
<td>Output, inflation, real exchange rate and money supply in Nigeria</td>
<td>Oil price shocks do not have substantial effects on output and inflation rate.</td>
</tr>
<tr>
<td>Bacon &amp; Kojima (2006)</td>
<td>Non-Oil Producers: Cambodia, Ethiopia, Honduras, Kenya, Lao People’s Democratic Republic, Madagascar, Malawi</td>
<td>Oil prices, monetary policy, macroeconomic performance</td>
<td>Used different case studies of different economies to cope with higher oil prices.</td>
</tr>
<tr>
<td><strong>Net Oil Importers:</strong></td>
<td><strong>Net Oil Exporters:</strong></td>
<td><strong>Regional Initiative:</strong></td>
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<td>------------------------</td>
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</tr>
<tr>
<td>Morocco, Mozambique, Nicaragua, Rwanda, Senegal, Sri Lanka, Tanzania, Uganda, Zambia</td>
<td>Arab Republic of Egypt, Argentina, Cameroon, Kazakhstan, Malaysia, Mexico, Nigeria, República Bolivariana de Venezuela, Vietnam</td>
<td>Petro Caribe</td>
<td></td>
</tr>
</tbody>
</table>

Olomola and Adejumo (2006) Used a VAR model. Output, inflation, real exchange rate and money supply in Nigeria. Oil price shocks do not have substantial effects on output and inflation rate in Nigeria.

Malik (2008a) Pakistan oil price, economy A strong nonlinear relationship of

the background of oil price shocks in 38 countries of the world and forecasted different plans for different countries.
<table>
<thead>
<tr>
<th>Author</th>
<th>Location</th>
<th>Focus</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malik (2008b)</td>
<td>Pakistan</td>
<td>balance of payment, budgetary position, international oil prices</td>
<td>The balance of payment and budgetary position both are adversely affected by fluctuation in international oil prices and this fall and rise created deflationary and inflationary pressures in economy respectively.</td>
</tr>
<tr>
<td>Alvarez, Hurtado, Sanchez, &amp; Thomas (2009)</td>
<td>Spanish and Euro Area</td>
<td>oil price variations, customer price inflation</td>
<td>The inflationary result of oil price changes was limited even though crude oil price variations were a major driver of inflation inconsistency.</td>
</tr>
<tr>
<td>Mohammad (2010)</td>
<td>Pakistan</td>
<td>oil price, Export earning</td>
<td>Explored a long run correlation between the oil price variability and export earning with reference to Pakistan while short effects were captured by applying vector error correction model.</td>
</tr>
<tr>
<td>Kilian (2010)</td>
<td>Global perspective</td>
<td>business cycle and oil price volatility</td>
<td>One alternative view in the study was that poor domestic policy adoptions have caused both the high oil prices and low productivity.</td>
</tr>
<tr>
<td>Olowe (2010)</td>
<td>UK</td>
<td>crude oil market, Asian economic crisis</td>
<td>The results have shown the effect of Asian economic crisis on oil prices.</td>
</tr>
<tr>
<td>Author(s)</td>
<td>Location</td>
<td>Methodology</td>
<td>Findings</td>
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<tr>
<td>---------------------------------</td>
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</tr>
<tr>
<td>Khan &amp; Ahmed (2011)</td>
<td>Pakistan</td>
<td>Generalized impulse response functions revealed that food and oil price shocks have different inflationary impacts while following oil price shocks, inflation immediately upsurges.</td>
<td></td>
</tr>
<tr>
<td>Omojolaibi, (2011)</td>
<td></td>
<td>Fiscal impulse has a positive effect on real output and money supply, however, its effect on inflation is negative.</td>
<td></td>
</tr>
<tr>
<td>Ghoshray (2011)</td>
<td></td>
<td>From a policy perspective, these interrelationships of agricultural and oil prices permitted careful consideration in the context of recent energy crisis, that may very well continue in future.</td>
<td></td>
</tr>
<tr>
<td>Musaddiq (2012)</td>
<td></td>
<td>Study revealed that trading volume and open interest do not reduce the persistence of volatility for these oil futures.</td>
<td></td>
</tr>
<tr>
<td>Aanye, (2013)</td>
<td></td>
<td>Oil price change hasn't not affected the lag values of money supply and growth output but seemed to affect CPI.</td>
<td></td>
</tr>
<tr>
<td>Jawad (2013)</td>
<td>Pakistan</td>
<td>Pakistan is basically an oil importer</td>
<td></td>
</tr>
</tbody>
</table>

The table above summarizes various studies on the effects of economic crises, food and oil prices, market equilibriums, interest rates, and fiscal impulse on real output, money supply, inflation, and other economic indicators. The studies highlight the importance of understanding these relationships in the context of recent energy crises, which may continue in the future.
<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Region</th>
<th>Perspective</th>
<th>Oil Price Association</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suleiman (2013)</td>
<td>Global perspective</td>
<td>oil association in the Gross National Product (GNP)</td>
<td>The study outlined different situations for different regions and hence projected for increase in world oil requirement to be doubled in next 15 years showing a long term association between GDP and oil prices.</td>
<td></td>
</tr>
<tr>
<td>Baghirov (2014)</td>
<td>Lithuania</td>
<td>Direct and indirect effects of oil price volatility on economic growth</td>
<td>The results revealed that indirect impacts of a 50 percent upsurge in oil price development on real GDP growth of the Lithuania are positive, while direct effects are expectedly negative.</td>
<td></td>
</tr>
<tr>
<td>(Beidas-Strom &amp; Pescatori (2014))</td>
<td>Global perspective</td>
<td>Oil demand, oil price variations</td>
<td>The oil demand shocks have contributed less when speculative demand shocks were allowed to have greater effects in short and long run.</td>
<td></td>
</tr>
<tr>
<td>Broadstock, Wang, &amp; Zhang (2014)</td>
<td>Asia and Pacific Region</td>
<td>oil price shocks, stocks</td>
<td>It decomposed the impact of direct and indirect oil price shocks and these effects together on stocks which showed that oil price shocks can affect the stocks directly as well as indirectly through the overall market risk or</td>
<td></td>
</tr>
<tr>
<td>Study</td>
<td>Country</td>
<td>Methodology</td>
<td>Oil Price Dimension</td>
<td>Research Findings</td>
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<tr>
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<tr>
<td>Wadud &amp; Ahmed (2014)</td>
<td>Thailand</td>
<td>Used SVAR model.</td>
<td>Conditional and transitory oil price volatility shock on Thailand’s total as well as sectoral level investments.</td>
<td>The study revealed significant diminishing effects of conditional and transitory oil price volatility shock on Thailand’s total as well as sectoral level investments.</td>
</tr>
<tr>
<td>Brogan, Byers, Castaneda, Fane, Munro, &amp; Preiss (2014)</td>
<td>Global perspective</td>
<td></td>
<td></td>
<td>Analyzed critically three different oil price scenarios i.e. low, medium, and higher; and defined the different ways for different companies to focus on in oil production and alarmed the current sharp drop in oil prices even after riding high of the oil and gas industry and US unprecedented growth in production.</td>
</tr>
<tr>
<td>Ebrahim, Inderwildi, &amp; King (2014)</td>
<td>General perspective</td>
<td></td>
<td></td>
<td>Mixture of demand-side and supply-side policies intended at providing solutions to the oil price volatility. In addition, speculation would also be a momentous driver of short term OPV. In medium and long run, governments should produce an easing environment which</td>
</tr>
<tr>
<td>Researcher(s)</td>
<td>Perspective</td>
<td>Focus</td>
<td>Summary</td>
<td></td>
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</tr>
<tr>
<td>Baffes, Kose, Ohnsorge, &amp; Stocker (2015)</td>
<td>Global perspective</td>
<td>international oil prices, geopolitical developments, appreciation of the US dollar, speculative demand and inventory management, relative contribution of supply and demand factors, and price outlook</td>
<td>It was highlighted different financial and economic consequences of current sharp drop in oil prices and devised policy implications including fiscal and monetary policy, subsidy, tax reforms and structural adjustments.</td>
<td></td>
</tr>
<tr>
<td>Hou, Keane, Kennan, &amp; Velde (2015)</td>
<td>Nigeria</td>
<td>oil price effects on importers and exporters</td>
<td>Changes in price of oil can have had huge distributional consequences between the oil exporters and importers, between the rich and the poor groups within a country, and between consumers and producers sectors, etc.</td>
<td></td>
</tr>
</tbody>
</table>
Oil Price and Exchange Rate Graphs

OIL PRICE PER BERRAL (US $)

Selling Price OF OIL PER BERRAL (PKR)