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Conceptual and Theoretical Discourse on Oil Price and Exchange Rate: Nigerian Economy in Perspective

Hussaina Sanusi[1], Alhassan Mohammed Aminu[2] & Sani Rabiu[3]
[1,2&3]Department of Economics and Development Studies
Federal University Dutsin-Ma, Katsina State - Nigeria.
Corresponding Email: maalhassan@fudutsinma.edu.ng

Abstract
Historically, oil price fluctuation began in the early 1970s and it has since its first occurrence in 1973 attracted the attentions of scholars and researchers to examine the relationship between oil price fluctuations and various macroeconomic variables like exchange rate and its volatility. However, large number of literatures concentrated on the sources of real exchange rate fluctuations in developed countries with less attentions paid to the developing economies like Nigeria; while Nigerian economy is highly susceptible to the impacts of interaction between oil price and exchange rate fluctuations. Therefore, this study contributes conceptually and theoretically to this subject of oil price and exchange rate volatility with focus on the Nigerian economy. Consequently, historical and trend analysis were adopted as methods of analysis. Admittedly, the resulting effects of global oil price fluctuations and exchange rate depreciation bears overburden effects on domestic oil price that thus affects the general price level in Nigeria. Subsequently, petroleum price subsidy regime surfaces and this significantly distorts growth of Nigerian economy through driving away of the economy from free enterprising state. In this view, this study recommends among others, the needs for an improved FOREX management measures particularly, in the time of escalating demand for foreign currency that is in agreement with trade balance for Nigeria. Importantly, rehabilitation of existing refineries aimed at fullest capacity utilizations and private-public partnership in the supply of refined petroleum products should be encouraged to limit the effect of Global oil price fluctuations on domestic petroleum product prices.
Keywords: Exchange Rate, Oil Price, Nigerian Economy, Equilibrium Models, Monetary Theory

1. Introduction

Over the post-Breton era, a lot of researches were conducted to examine the vital role played by crude oil price volatility in influencing the pattern and behavior of exchange rate (Adeniyi, Oyinlola & Omisakin, 2011). Krugman (1983) posited that, rise in oil prices induces exchange rate appreciation and decline in oil prices

prompts exchange rate depreciation in an oil exporting countries; while, the reverse is the case for an oil importing countries. Volatility in exchange rate triggers many difficulties in international investments and trade as a result of increasing tendency for risk in exchange rate fluctuations (Englama, Duke, Ogunleye & Isma'il, 2010). Similarly, according to Jin (2008), international transactions including oil exports become unprotected from sharp changes in the rate of risk and uncertainty resulting from increasing rate of volatility and exchange rate related risks.

Following the discovery of oil in Oloibiri area of the coast of Niger-Delta region of Nigeria by Shell-BP in 1956, Nigeria emerged among the League of Nations exporting crude oil in the year 1965 which also serves as additional source of complementing revenue from Agricultural sector for the Nigerian government (Alhassan, Salisu & Sulu-Gambari, 2020). Prior to the discovery of crude oil in 1956, primary agricultural commodities such as groundnuts, cocoa beans, palm oil, cotton and rubber were the main source of exports earnings and major contributor to GDP (that is, it accounted for about 60% share to the GDP) in Nigeria. Sooner after the discovery of crude oil in large commercial quantity in 1956, crude oil became enlisted among the Nigerian exporting commodities in 1958. Admittedly, Nigeria is among the major exporters of crude oil globally and the largest producer of oil in the African continent (Ogundipe, Ojeaga & Ogundipe, 2014). This therefore became increasingly major contributor to Nigerian GDP where its share to GDP increases from 1.17% in 1963, 40% in 1970 (Olomola & Adejumo, 2006).

Hence, in the early 1970, crude oil export began to represent a significant fraction of the trade balance for Nigeria, which made Nigerian oil sector a major productive sector claiming about 99% share of export and about 40% shares of GDP; while its share in government revenue accounts for about 86% in 2005 (Adeniyi, et al., 2011). In other words, since early 1970s oil contribution to the total revenue in Nigeria has been consistently rising where the receipts from oil represented 26.3 per cent of the revenue collected by the federal government in 1970. The revenue further rise to 82.1 per cent in 1974 and 83.0 per cent in 2008, this is occasioned by rise in crude oil prices at the international oil market (Englama, et al., 2010). Admittedly, Nigerian economy significantly gained from the nearly 36 months' oil boom as it generates remarkable revenues needed to meet the required growth and development.

Accordingly, Nigeria became enlisted in the membership of the Organization of Petroleum Exporting Countries (OPEC) in 1971 and subsequently, the Nigerian National Petroleum Company (NNPC) was established in 1977, which is a government owned and controlled enterprise (Ogundipe, et al., 2014). However, in the late sixties and early seventies, Nigeria reached a significant level of production where it produces over 2 million barrels of crude oil in a day before it eventually experienced drawbacks in the eighties occasioned by economic downturn. Even though it bounced back and still surpasses the production level it

recorded in the seventies by producing 2.5 million barrels per day in the year 2004, yet the events of civil unrest in the oil-producing areas of the country (such as activities of Niger-Delta militants) and the global financial crises significantly reduced Nigerian oil production level and the world oil price respectively (Adeniyi, et al., 2011). Consequently, developing economies like Nigeria is highly susceptible to fluctuations in both local oil production and global oil price in a manner that when the crude oil price is unfavorable, the country experiences a drastic decline in the foreign exchange inflow which affects the growth of the economy negatively (Englamma, et al., 2010).

Admittedly, Nigeria is richly endowed nation with a large quantity of crude oil deposition. According to Energy Information Administration-EIA (2010), Nigeria has an estimated 37.2 billion barrels of proven oil reserves. Admittedly, over 95 per cent of exports and foreign exchange earnings and 65 per cent of government revenues depend on the oil sector revenue. This therefore, made Nigerian economy more prone to be gravely affected by both oil price exchange rate changes. Though, Nigeria being a major oil exporter, increased oil prices avail Nigeria an opportunity to earn more oil revenue to achieve high growth rate but bears the associated risk of exchange rate appreciation; while decreased oil price open Nigerian economy to the decline in revenue from oil sales with consequential effects of exchange rate depreciation (Ojebiyi & Olugbenga, 2011; Englamma, et al., 2010).

Flowing from this direction, Nigeria's stock of oil wealth and Nigeria's chronic tendency towards exchange rate over valuation have been linked to the increasing volatility in the exchange rate (Akram, Dagfinn & Lucio, 2008; Graveline, 2006). Since the first oil price fluctuations in 1973, large volume of literature has extensively documented the relationship between oil price and various macroeconomic variables like exchange rate and its volatility, notably, the influential seminal work of Hamilton in 1983 where he identified a strong relationship between oil price changes and variations in macroeconomic variables. Since then, other researchers have attempted to examine the oil price-macro economy relationship using different theoretical background and estimation techniques on data sets for macroeconomics variables in Nigeria. For instance, Adubi and Okunmadewa (1999) posited that, the adoption of floating exchange rate policy as a major component of SAP aggravated the turbulence and volatility in exchange rate with consequential effects on the value of Nigerian Naira that up to present, Nigerian economy has not been completely freed from such devastating effects.

Therefore, as an economy that is mainly dependent on oil for export earnings, Nigeria remains susceptible to the instability in exchange rate and fluctuating crude oil prices in international oil market (Englama, et al., 2011; Birol, 2004). Essentially, during periods of favorable oil price shocks that is triggered by

conflicts in oil-producing areas of the world, the surge in the demand for the commodity by consuming nations, the oil exporting countries experiences favorable terms-of-trade (occasioned by rising and high oil price) quantified in terms of a strong current account surplus and exchange rate appreciation. Conversely, when crude oil prices are low occasioned by factors such as falls in demand for oil, excess supply of oil and exchange rate depreciation, an oil exporting economies like Nigerian economy experiences significant drop in the level of foreign exchange inflows that often result in budget deficit and subsequent slow down the growth rate in an economy (Englamma, et al., 2010; Olumide, 2009; Omisakin, 2008). From the foregoing, this study is therefore an attempt to explore conceptual and theoretical perspectives in providing more understanding of the relationship between oil price and exchange rate volatility in Nigeria using stylized facts and figures.

2. Literature Review

2.1 Conceptual Review

2.1.1 Concept of Oil Price

Generally, crude oil price is classified into various benchmarks like OPEC reference basket, Dubai crude, Oman crude, Urals oil, Brent crude and the West Texas intermediate. Though, there is price differential per barrel of crude oil depending on the grade of crude oil in question which is determined by such attributes as specific gravity otherwise refers to as API gravity and its sulfur contents as well as location of crude oil (European Commission-EC, 2012). Accordingly, the major trading classification of crude oil is Brent crude which serves as the dominant benchmark price for oil transactions globally (Muhammad, Suleiman & Kouhy, 2012). Therefore, crude oil price is according to Brent crude oil classification defined as a yard stick upon which a barrel of crude oil is priced which is also the reference price for buyers and sellers of crude oil in the international market (Energy Information Administration-EIA, 2011). Thus, this study defines oil price in terms of Brent crude price classification.

2.1.2 Concept of Exchange Rate Volatility

In a simple term, exchange rate volatility can be referred to as the tendency of foreign currencies to fluctuate in value (either appreciate or depreciate), thus affecting the profitability of international exchanges and trades (Adubi, & Okunmadewa, 1999). Therefore, there are many circumstances that are mostly affected by the volatility in exchange rate, and this includes among others, business dealings between parties in two different countries and international investments. However, there is mixed opinions on the measure of exchange rate volatility, instead the adoptable measure of volatility depends on the scope of study and time period over which fluctuations is to be measured, as well as the nature of the

volatility whether it is unrestricted volatility or the sudden movement in the exchange rate parallel to its predicted value (Ogundipe, et al., 2014).

2.2 Theoretical Review

In the literature, opinion differs among scholars on the efficiency of any particular theory in detailing the explanation of the long-run relationship that exist between exchange rate and other macroeconomic fundamentals like oil price. On one hand, are the scholars who favor the efficiency of theory in detailing the explanation of the long-run relationship between exchange rate and economic fundamentals, as such this group of scholars are regarded as "Pro-theorist"; while on the other hand, are the scholars that disapproved the efficiency of the theory in detailing the explanation of the long-run relationship between exchange rate and economic fundamentals and this group of scholars are regarded to as "Anti-theorist".

The "Pro-theorists" held the view that exchange rate structure in relation to economic fundamentals can be explained from theoretical perspectives and thus classified the theories into three categories: Partial exchange rate equilibrium model, general exchange rate equilibrium model and disequilibrium model (Yin-Wong Cheung & Kon Lai, 2005; MacDonald & Taylor, 1993; Diebold, Stephen & Mark, 1991). Under the partial exchange rate equilibrium model, there are two dominant models specifying the relationship between exchange rate and economic fundamentals, this includes: relative purchasing power parity (RPPP) model and absolute purchasing power parity (APPP) model that only consider the exchange rate equilibrium in goods market; covered interest rate parity (CIRP) and uncovered interest rate parity (UCIRP) models that consider the exchange rate equilibrium in assets market only; while the external equilibrium model states that the exchange rate equilibrium is determined by the external factors like balance of payments.

Accordingly, General exchange rate equilibrium models includes: the Mundell-Fleming model which in spite of its shortcomings for lack of some micro-foundations to a certain extent, it deals with equilibrium conditions in the goods market, money market and balance of payments; the Balassa-Samuelson model built on profit maximization of firms; the Redux model and the Pricing to Market (PTM) models are centered on the maximization of consumer's utility (Yin-Wong, et al., 2005). However, the effectiveness of each of these theories in explaining the relationship that exist between the exchange rate and economic fundamentals like oil price fluctuations relies on its efficiency in describing the relationship between the exchange rate and macroeconomic fundamentals such as oil price fluctuations and balance of payments.

In this view for instance, Frenkel (1976); Dornbusch (1973) in their respective studies averred that the purchasing power parity under the partial

exchange rate equilibrium is a theory of exchange rate determination in both short-run and long-run equilibrium condition, and as an efficient arbitrage condition in either goods or asset markets and therefore assumed the existence of fairly stable exchange rate particularly during the period of fixed exchange rate regime. More so, the empirical studies by Yin-Wong, et al. (2005); MacDonald and Taylor (1993); Abuaf and Jorion (1990) held the views that favored the long-run purchasing power parity hypothesis even in the period of floating exchange rate regime. Similarly, Diebold, et al. (1991) applies fractional integration techniques built on the purchasing power parity model and on nineteenth century data to find the evidence of long-run relationship between exchange rate and economic variables. Likewise, empirical studies built on CIRP model by Frenkel (1979) utilizing weekly observations from Jan. 1962 to Nov. 1967 and confirmed that CIRP is a model sufficient enough to detail the relationship among exchange rate, interest rate and price level (inflation rate).

In the same direction, Balassa (1964) and Samuelson (1964) in their examination of the determinants of exchange rate to aver that the producer's behavior (which is a microeconomic foundation of exchange rate theory) and productivity plays a key role in the determination of interaction between exchange rate and inflation rate. In the same vein, they stressed that, given the level of productivity at home and abroad, when the domestic nominal GDP growth is higher than that of foreign counterpart, then the domestic economy experiences real exchange rate appreciation favoring domestic currency that thus aggravates inflation rate in the domestic economy. Similarly, at a given economic growth rate, when the domestic productivity of non-tradable goods is higher than that of the foreign counterparts, then the domestic economy experiences real exchange rate depreciation putting the domestic currency at disadvantage side thereby suppressing the inflation rate problem in the domestic economy.

Therefore, the Balassa-Samuelson model is one of the important traditional theories of the real equilibrium exchange rate. The key empirical observation underlying the model is that a country with higher productivity in tradable goods compared to non-tradable goods tend to be favored by exchange rate appreciation and resultant high price levels (inflation rate); while the country with higher productivity in non-tradable goods tend to be bounded by exchange rate depreciation and low inflation rate. The B-S model hypothesis states that productivity gains in the tradable sector allow real wages to increase proportionately, since the wages are assumed to link the tradable sector to the non-tradable sector, therefore wages and prices increases in non-tradable sector. This consequently birthed the inflationary pressure in an economy, which in turn results in an appreciation of the real exchange rate. From the foregoing, the long-run relationship between exchange rate and economic fundamentals is theoretically ascertained. In essence, since theory is efficient in explaining the relationship that

exist between exchange rate and macroeconomic variables such as inflation and exchange rate volatility, therefore, the relationship between exchange rate and crude oil price fluctuations can be explained from theoretical perspectives.

While on the other hand, the "Anti-theorist" held view that there is little of theoretical sufficiency in explaining the long-run relationship that exist between the exchange rate and economic fundamentals like oil price. For instance, empirical studies by Meese and Kenneth (1983) and MacDonald (1993) argued that the existing exchange rate models particularly, the purchasing power parity (PPP) models are unsatisfactory. This was evident from the results obtained from time series models built on the purchasing power parity and monetary models respectively, in its efforts to established the link between real exchange rate behavior and economic fundamentals that thus futile to find a strong relationship between the real exchange rate and its determinants like export commodities of the domestic economy. Similarly, Meese and Kenneth (1983); Edison and Pauls (1993) examine the link between real exchange rate and real interest rate differential built on the general exchange rate equilibrium model that though failed to established a long-run relationship between these two variables.

In the light of the foregoing discussions, the "Anti-theorist" views can be assumed reality that there is lack of theoretical base to establish the relationship between the exchange rate and economic fundamentals like oil price. However, on the basis of sample sizes/observations of the specified variables, adopted estimation techniques built on prescribed models in the various studies and estimated results obtained from the studies which are considered inadequate, the view of "Anti-theorist" can be corrected by addressing the problems that lead to this held opinion of deficiency of the theory to explain the relationship between the exchange rate and economic fundamentals. In this connection therefore, MacDonald and Nagayasu (1999) conclude that, the failure of previous researches to theoretically establish the relationship between the exchange rate and economic fundamentals may be due to inappropriate estimation method used rather than any theoretical deficiency. Therefore, it can be inferred that the view of "Pro-theorist" (after addressing the earlier issues that amounted to the deficiency of theory) and the "Pro-theorist" can be assumed more acceptable on the note of more empirical studies that theoretically establish the long-run relationship between exchange rate and economic fundamentals built on the different exchange rate models than the "Anti-theorist" view.

2.3 Overview of Exchange Rate Management Practices in Nigeria

Nigeria has since 1960s to date witnessed different exchange rate regime occasioned by the need to preserve the domestic economy and the value of its currency from international policy on exchange rate. Nigerian exchange rate policy has since independent been characterized by different regimes: fixed exchange rate

regime; pegged arrangement exchange rate regime and; floating exchange rate regime. For instance, sixties was characterized by a fixed regime which is followed by a pegged arrangement between the seventies and the mid-eighties and as a result of the introduction of the Structural Adjustment Program (SAP) in 1986, various types of the floating exchange rate regime were enforced (Adubi & Okunmadewa, 1999).

Nigeria has through the fixed exchange rate regime practiced from 1960s through 1970s experienced over appreciation of the Nigerian currency (Naira and kobo) owing to adherence to the guidelines of exchange regulator that consequently yield positive and significant alterations in the Nigerian economy (Ojebiyi & Olugbenga, 2011). This situation steered drastic growth in the importation of finished goods over and above expectation that thus leaves the dreadful effects on the domestic production and Nigeria's balance of payment as well as Nigeria's foreign reserve (Bahmani-Oskooee, Bolhassani & Hegerty, 2012).

Accordingly, the result of this situation alongside with many other confronting problems necessitated the acceptance of a more flexible exchange rate regime as a viable exchange rate policy upon which to build the economy particularly, during the period of Structural Adjustment Program in Nigeria in 1986. However, a continued distortion in the value of exchange rate in the foreign exchange market has continued to leave adverse effects on Nigeria's economic performance over the years, hence, the need to pursue and maintain equilibrium exchange rate for stabilizing cardinal indicators for Nigerian economy. Given the nature and structure of the Nigerian economy, it is imperative to maintain a realistic exchange rate for the Nigerian Naira so as to exert positive influences on the pattern of production and consumption, improve the performance of non-oil export earnings and the decisions of foreign investors to invest in Nigeria.

Traditionally, a smooth and clear fixed exchange rate regime requires the fixing of the domestic currency exchange rate to a piece of gold, a locus currency like the dollar or a bag of monies or the SDR, with the main goal of maintaining a bearable rate of inflation needed to stimulate the growth of an economy (Dickson, 2012). However, the positive and negative effects of the fixed exchange rate regime have been very well acknowledged by a number of studies in literatures. This positive effects of fixed exchange rate includes a cut in the trading cost, improved macroeconomic stability, dependability increase arising from exchange rate stability and steady response to local nominal shocks, among others; while its main negative effects includes causing alteration to the monetary policy independence. Consequently, the chief negative effect of fixed exchange rate regime birthed the adoption of floating exchange rate policy particularly, freely floating exchange rate policy during the period of SAP in 1986 in Nigeria.

The adoption of freely floating exchange rate regime induced the forces of demand and supply in determining and controlling the exchange rate in foreign exchange market in Nigeria. Accordingly, this system was independent of external forces (even the government) in the control of foreign exchange market; hence, the market mechanism corrects any forms of maladjustment in the foreign exchange market without the intervention of the public sector in the market (Désiré, Mahbub & Sharma, 2012). In this connection, the freely floating exchange rate serves as a "jumbo" for external shocks that only permits the monetary authorities to exercise a complete discretion through the use of monetary policy. Therefore, the freely floating exchange rate regime is efficient for guarantying monetary policy freedom, illuminating the capacity of a country to influence its monetary totals and advances measures to control the nation's interest and inflation rates. However, the freely floating exchange rate policy regime has also been associated with shortfalls and this includes persistent variations in exchange rate, increased inflation rate and increased transaction cost.

Following the shortfalls associated with freely floating exchange rate regime, the managed floating exchange rate regime came into being with clear stated guidelines on how to interfere with existing foreign exchange market by the domestic government through monetary authority so as to normalize the fluctuations in the exchange rate (Muhammad, Suleiman & Kouhy, 2012). At this point, it is less necessary to adopt and maintain a fixed exchange rate. The chief goal of Nigeria's exchange rate policy as stipulated in CBN Act of 1959 is aimed at conserving the external value of the local currency and safeguarding the balance of payments position for Nigeria, which certainly is a foremost provision of the aiding law (Bahmani, 2013). More so, with aiding roles of Inter-Bank Foreign Exchange Market (IFEM), the monetary authority was to play a role of mutual quote system through changing the foreign exchange supply in the economy thereby enhancing the financial base of the inter-bank jobs from foreign exchange earned privately. This consequently supports the goal of boosting naira to attain an applied exchange rate. It is important to mention that IFEM operations also encountered some temporary malfunctions and delays due to rigidities of the guidelines on the supply side. Thus, the aiding roles of IFEM suffered some hiccups in the midst of frequent expansionary fiscal activities by the Nigerian government and the resultant difficulty to regulate the surplus liquidity in the economy (Olanipekun, 2013).

In this view, Central Bank of Nigeria acknowledged the introduction of the Dutch Auction System (DAS) to play the functions of IFEM in monetary circle of the country. The introduction of DAS was mainly to accomplish the goal of attaining the stability in naira exchange rate thereby lessening undue demand for foreign exchange, safeguarding the Nigerian external reserves from any form of threats that arises from exchange rate related risks and uncertainties (Haile &

Pugh, 2013). Therefore, the DAS was viewed as a give-and-take auction system which allows the monetary authority and legal dealers to participate in the foreign exchange rate market for trading the foreign exchange. Hence, the quantity and the price at which the foreign exchange is traded is decided and determined solely by CBN (Haile & Pugh, 2013).

It is imperative to state that over 90% of the Nigerian foreign exchange earnings depend on the revenue realized from crude oil exports. This means that the volatile nature of the world's oil prices leaves immediate overburden effect on the in-flow of foreign exchange in Nigeria which causes unstable revenue to the government of Nigeria. For instance, a rise in the world oil prices results to a corresponding increase in the revenue accrued to the federation of Nigerian government ever since Nigeria began to depend heavily on oil earnings (in early 1970s) that consequently results in increases in Government spending which most of the times assumes difficulties to cut down even when the revenues from oil sales falls due to declined oil price in the global oil market (Bahmani, 2013).

It is therefore instructive to state that such unstable level of government revenues from oil sales due to volatility of oil price in the global oil market is one of the factors responsible for deficit spending of the Nigerian government. Consequently, the government of Nigeria results to maintenance of foreign reserves in order to meet the expenditure needs when the price of crude oil falls below the expectation in the global oil market. A key concerning point here is the economic situation in Nigeria, position of which it sets in the global outlook and the resultant effect of various hit on the domestic economy. Hence, a developing nation and oil dependent economy like Nigeria are most likely to adopt a system that is more flexible, because such kind economy can easily be affected by the shocks of the internal financial situation and external instability, which would, necessitates the depreciation of real exchange rate to take course.

It is worthwhile to state that, when the instability in macroeconomic variables are mostly caused by internal forces, a fixed exchange rate policy is considered suitable to address such instability; while a flexible exchange rate system is favorably prescribed when the volatility in macroeconomic variables is mainly external in nature. On this notes, the dominant and most accepted view is that, irrespective of what exchange rate policy adopted by a nation, the overall achievement of such policy is acknowledged by its capacity to maintain sound economic nitty-gritties and a good banking system (Sanusi, 2004). Accordingly, Schnabl (2007) theoretically posited that, flexible exchange rate proffer an easier way for a country to adjust to irregular shocks in real exchange rate. For instance, the micro economic effects of low exchange rates fluctuations under fixed exchange rate system are tied to the reduced transaction costs for international trade and reduced cost of moving capital thereby increasing economic growth;

whereas, in the event that the exchange rate volatility is reduced or eliminated, the international arbitrage enhances efficiency, productivity and welfare.

2.4 Oil Price and Exchange Rate Scenarios

According to Adedipe (2004), the different exchange rate regimes in Nigeria as related to instabilities in the international oil market can be broadly classified into different periods.

2.4.1 Post -Independent Period (1960 – 1971)

In order to preserve the value of Nigerian Naira and to sustain the Nigerian Naira parity, the monetary authority in Nigeria utilized administrative measure and pegged the Nigerian currency at par to the pound sterling of Great Britain. In 1967, Great British pound sterling (GBP) was devalued which necessitate Nigeria to adopt US dollar which was considered more precious to support the import substitution industries that rested heavily on net imported inputs (Olanipekun, 2013). During this period, Nigerian economy experienced overvalued pound sterling which hindered the optimal growth in both agriculture and other exporting products.

2.4.2 Oil Boom Period (1972 – 1986)

During this period, the exchange rate exhibits the same pattern as the oil prices; whereas the Nigerian Naira remained overvalued as induced by the huge increase in foreign exchange earnings. Though, prior to 1972, the currency was pegged to GBP when the GBP was floated and that necessitated pegging Nigerian Naira to US dollar. However, in 1978, the Naira was anchored on a basket of currencies of Nigerian 12 major trading partners. This therefore induced changes in exchange rate in 1985 where Naira was reverted to quotation against the US dollars (Muhammad, Suleiman & Kouhy, 2012).

2.4.3 Post – SAP Period

During this period, the continuing efforts to restructure the economy away from oil dependency, Naira was subject to a managed float exchange rate policy. Similarly, the policy of deregulation of the foreign exchange market in 1986 was to show the real value of the Nigerian Naira which was also in the view of improving oil/non-exports. Conversely, the exchange rate depreciated from N0.89388/$ towards the last quarter of 1985 to N2.0206/$ in the end last quarter of 1986 (Ojebiyi & Olugbenga, 2011). Consequently, in March 1992 Nigerian Naira was devalued by 44 per cent thereby leaving the value of naira to US dollar at N17.2984/US$ with a view of view of promoting non-oil exports (Englama, et al., 2010). However, devaluation of the Naira in 1992 in a bid to boost non-oil export has yielded not the desired return thus, affecting the Nigerian appropriation bills as

budget deficit was recorded during this period. It is therefore suffice to say that, exchange rate value of Nigeria is very critical to the Nigerian Annual budget, the Gross domestic product (GDP) and the level of development, among other things.

2.5 Overview of Oil Price Movement

Towards the end of 1940s to the beginning 1970s, oil price was very stable at the international oil market, though with negligible changes. Subsequently, the disruption in the supply of crude oil between late 1970s and early 1980s prompted by the formation of OPEC and its exercise of authority particularly, the imposition of restriction of oil during Yom Kippor War in 1973 led to sharp increase in the price of oil beyond expectation at global oil market (Nwosa, 2014; Muhammad, Suleiman & Kouhy, 2012; Adeniyi, Oyinlola & Omisakin, 2011). Concisely, the aftermath of such restrictions of oil to certain countries caused reduction in total global oil output by five million barrels per day representing about 7 % of the world oil production and this thus lead the price of oil to increase by 400%t in six months. Although, crude oil price was relatively stable that slightly increase from $12 to $14 per barrel between 1974 and 1978 (Uwubanmwen & Omorokunwa, 2015).

More so, the Iranian revolution and Iraq war in the period between 1979 and 1980 sparked global decline in the production of oil by 10 per cent which resulted to rise in the price of crude oil by 150 % (that is, from $14 to $35 per barrel) (Birol, 2004). High global oil price induced non-OPEC members to intensify efforts in search for new oil spot and improve the production of oil from existing oil spot. Though, increased oil prices forced leading oil consuming nations and firms to adopt a more energy conserving approaches so as to limits the overburden effects of oil prices on their respective economies and organizations (Phan, Sharma & Narayan, 2015).

From the foregoing, between 1982 through 1985, OPEC was strongly determined to stabilize the price of oil through exercising of quota system in the production of oil among the member countries which was though frustrated by the OPEC's anti-clock policy of safeguarding member countries like wrongful quotas produced by OPEC participant countries and global economic meltdown which thus plunge oil prices below $10 per barrel (Nwosa, 2014). And this marked the beginning of more frequently instabilities in the price of oil at international market. As an international oil price and production regulating cartel, OPEC has continually been instrumental to influence global oil price stability through allocation of production quotas to its member countries, even though such goal of global oil price stability was hindered by the declined share of the OPEC to the world oil production from 55% in 1976 to the present day 42% (Muhammad, Suleiman & Kouhy, 2012).

Accordingly, Sanusi (2004) stressed that, the important of the influential roles of oil prices on the economy cannot be overstated and this includes among others: direct effects on transportation costs, hiking bills and the instability in the prices of goods made of petroleum products. Increase in oil price induced a higher rate of future uncertainty which affects households and firms spending decisions. Also changes in oil prices leads to reallocations of major factor inputs like labor and capital between energy intensive sectors of the economy and the non-energy intensive sectors.

3. Methodology

This study utilizes secondary data obtained from various published sources such as journal articles (written on oil price, exchange rate and other macroeconomic variables such as interest rate and inflation rate) and reports, among others. Consequently, this study adopts graphical presentation as a tool of analysing the stylized facts (data) on oil price and exchange rate as well as inflation rate in Nigeria.

4. Stylized Facts on Oil Price, Exchange Rate and Inflation Rate in Nigeria

The relationship between exchange rate and oil price has over the four decades depicted in Figure 1 is a pointer to the fact that exchange rate for naira and oil price are characterized by both negative and positive relationships. As can be inferred from the Figure 1 that from the inception (that is the starting of sample observations) of over four decades of the sample observations while exchange rate is directly related to Oil price; they are inversely related for certain periods like 1987, 1989, 1990, 2000 and 2002 through 2014 within the study period.

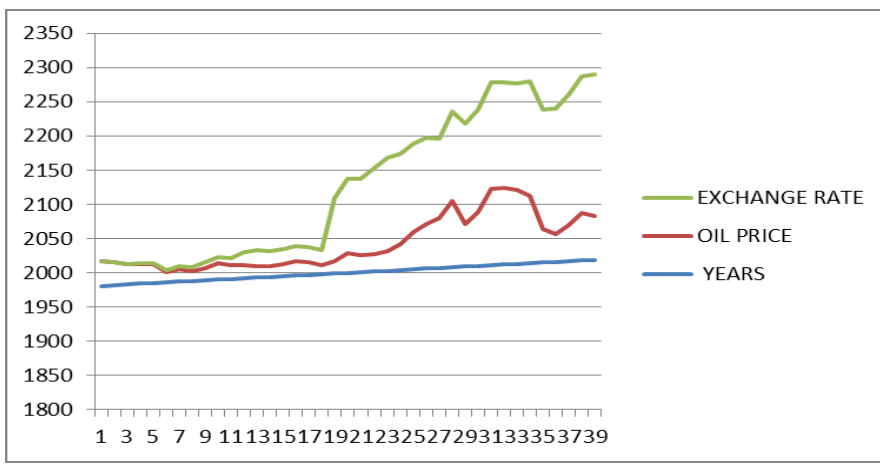

Figure 1: Oil Price and Exchange Rate in Nigeria

Over these aforementioned periods, exchange rate and oil price is characterized by the movements in an inverse direction that is while exchange rate rises, oil price falls. Thus, over this study periods, exchange rate and oil price are predominantly characterized by inverse relationships. Similarly, from the beginning of the sampled period through 1998, rise in inflation rate is not associated with or caused by the rise in exchange rate, while inflation rate was on rapid rise, exchange rate only rise with less than one digit. This scenario can be attributed to other factors like government expenditure instead of exchange rate as the causes of inflation rises. From 1999 through 2019, the rise in inflation rate is in direct proportion with the rise in exchange rate as depicted in the figure 2 and this therefore support the "Pro-theorist" view.

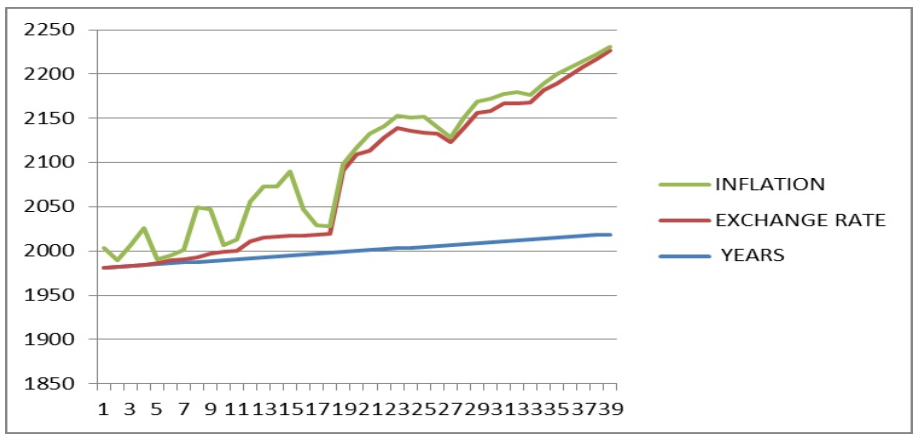

Figure 2: Exchange Rate and Inflation in Nigeria

Lastly, the movement in price level (inflation rate) is directly influenced by movement in oil price as thus depicted in figure 3 that price level rises and falls as oil prices rises and falls from 1981 through 2003. Beyond this period, oil price and inflation rate moves in disproportionate manner.

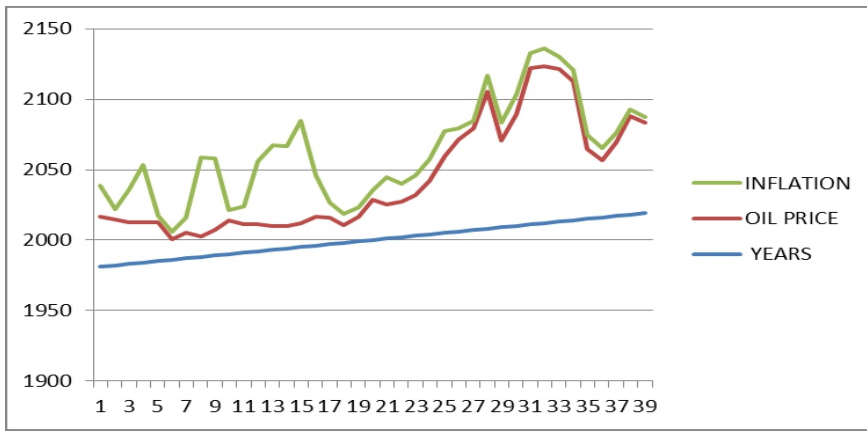

Figure 3: Oil Price and Inflation Rate in Nigeria

5. Conclusion and Recommendations

Nigeria as a mono-product economy that depends majorly on crude oil for its export earnings is grossly affected by the instabilities in the price of oil at international market. Though, as a major oil producer in African and key exporters of crude oil globally, Nigeria has disturbingly remained importer of almost all the refined petroleum products from the international economies. Admittedly, shocks in oil prices coupled with the volatile nature of exchange rate have greater implication for the growth of a developing economy like Nigeria. As such, there exist quite a number of studies in literature that has comprehensively examine the relationship between oil price and various macroeconomic variables like exchange rate and its volatility worldwide with less emphases on less developed countries like Nigeria.

In this direction, this study serves as a contribution to the subject matter of oil price and exchange rate volatility through the exploration of conceptual and theoretical scrutiny, utilizing stylized facts and figures from the Nigerian economy. Therefore, from the theoretical perspective, the study identified two classes of scholars which include Pro-theorist and Anti-theorist, in which the Pro-theorist favors the efficiency of theory in explaining the long run relationship between exchange rate and crude oil price volatility; while the Anti-theorist disapproved the efficiency of the theory in explaining the long run relationship between these two variables. Thus, the study found that, there exist relationships between exchange rate fluctuations and oil price volatility as well as other examined variables like general price level (inflation rate) giving credence to the "Pro-theorist". In this regards, this study suggests that:

i. The needs for improved FOREX management measures that are in agreement with trade balance and overall economic performance in Nigeria should

be accorded high priority particularly, in the time of escalating demand for foreign currency in the country.

ii. Rehabilitation of existing refineries aimed at utilizing them to the fullest capacity should be put in place; as well as encouraging private-public partnership in the supply of refined petroleum products through expansion of the existing refineries and building of new ones, in order to reduce the over bearing burden of oil price and exchange rates changes on the government .

iii. Full deregulation of upstream petroleum sector is also critical, in order to allow for the domestic determination of market price of petroleum by the market forces.

iv. There is the need for scholars to formulate a widely acceptable theory that is self-sufficient in explaining the behavior of exchange rate and crude oil price fluctuations.

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