Bullion

Volume 39 | Number 1 | Article 1

9-2015

Crude oil price volatility: implications for external reserves and exchange rate management in Nigeria

Moses K. Tule
Central Bank of Nigeria, mktule@gmail.com

CRUDE OIL PRICE VOLATILITY: IMPLICATIONS FOR EXTERNAL RESERVES AND EXCHANGE RATE MANAGEMENT IN NIGERIA

MOSES K. TULE
Director,
Monetary Policy Department
Central Bank of Nigeria

1.0 INTRODUCTION

Dramatic changes have occurred in the global oil market in the last few years. The most remarkable is the production of shale oil which has made the USA less dependent on crude oil from Africa and the rest of the world. For this reason and other global political issues, in the past one year, crude oil prices have remained volatile and substantially fallen to below $65 from over $100 per barrel with very little or no sign of a rapid rebound. Energy markets are generally volatile in nature (price rise or fall over a period) which creates uncertainty and heightened risk in the system.

Following recent developments in the world oil market, emphasis will be placed on falling crude oil price which has far reaching implications for economic management in Nigeria. Apparently, Nigeria depends heavily on crude oil for its revenue and foreign exchange earnings, hence, the declining oil price poses concerns for government revenue, external reserves, inflation and the exchange rate of the naira. These issues have been on the front burner of policy discussions particularly at the CBN. Going back memory lane, the experience of falling crude oil price is not new to Nigeria. For instance, in 2008, crude oil prices fell from over $100 to between $38 and $40 per barrel. Unlike previous crude oil price declines which were incidental, based on seasonality and regional conflicts, the current decline is hinged on improved technologies like horizontal drilling and hydraulic fracturing which has provided alternatives for large oil importing countries like the USA. The looming reality is that this price decline may be prolonged.

Given the volatile nature of oil price and its importance for economic management in Nigeria, there is need to understand the issues and highlight ways of cushioning the economy from the adverse effects of the declining oil price.

Against this background, the paper examines the issues around recent declines in the international price of crude oil and implications for the Nigerian economy with specific reference to the management of foreign reserves and the naira exchange rate. Following the introduction, the rest of the paper is discussed in various sections. Section 2 presents an overview of the structure of the Nigerian economy. Section 3 discusses the implications of the declining oil price on the Nigerian economy. In section 4, measures implemented by the CBN to cushion the effects of the declining oil price are discussed. The paper concludes by presenting the way forward for Nigeria within the context of the current global oil price developments.

2.0 STRUCTURE OF NIGERIAN ECONOMY: AN OVERVIEW

Nigeria is Africa's most populous country with about 170m people and the biggest economy in the continent based on the rebased GDP figure of about US$510 billion or N80.2 trillion. It is also the continent's largest producer of oil and the sixth-biggest oil exporter in the world (The Economist 2007). The Nigerian economy has undergone different political and policy regimes from the pre-independence period to the post-independence period. Most of the country's governance since independence in 1960 was characterized by prolonged military regimes.

Before independence in 1960, the economy was characterized by the dominance of exports and commercial activities; hence there was no viable industrial sector. After independence in 1960, agriculture continued as the mainstay of the economy. In spite of the fluctuations in world commodity prices, agriculture contributed about 65 per cent to GDP and represented almost 70 per cent of total exports. Agriculture provided the foreign exchange that was utilized in importing raw materials and capital goods as the peasant farmers produced enough to feed the entire population. The various Marketing Boards generated much revenue, the surplus of which was used by government to develop the basic infrastructure needed for long term development. The main thrust of policy then was to maximize the benefits of the export-led development strategy.

Since the emergence of the oil industry in the late 1960s and its rapid build- up in the 1970s, it has become the main revenue source for Nigeria. However, the discovery of oil is believed to have contributed in stagnating growth of Nigeria' economy as it has overheated the economy and fuelled inflation. For instance, during the oil boom era in 1971, the share of agriculture to GDP stood at 48.23 per cent but by 1977, it had declined to almost 21 per cent. Agricultural exports, as a percentage of total exports, which was 20.7 per cent in 1971, reduced to 5.71 percent in 1977. The discovery of oil in commercial quantity in the mid-1950s, coupled with the oil-boom resulting from the Arab oil embargo on the USA in 1973, affected the agricultural sector adversely. The economy became heavily dependent on oil. By this time, oil revenue represented almost 90 per cent of foreign exchange earnings and about 85 per cent of total exports. While the boom afforded the government much needed revenue, it also created serious structural problems in the economy.

It led to many liabilities including the syndrome of policy changes, price distortions, and the overvalued exchange rate that undermined the traditional industry and domestic agriculture. Many observers have linked Nigeria's poor economic records to the perverse effects of the oil sector (Osaghae, 1998). Apart from the syndrome of price effect, and resource shifts, oil windfalls are also associated with a number of common problems including fiscal instability, poor financial oversight, wasteful expenditure, growing indebtedness, and heightened corruption and vulnerability to external fluctuations.

It is well recognized that the country depends largely on oil receipts; this makes up about 95 per cent of foreign exchange earnings and 70 per cent of government revenue. Indeed, the pulse of the economy is determined mainly by happenings in the international oil market where the vagaries of demand and supply, coupled with socio-political influences, determine the international price of oil and by extension, the size of oil sale inflows and external reserves position.

The foreign exchange rate regime encouraged imports thus making the economy heavily dependent on imports as almost everything is imported. The industrial sector also depended on imported inputs, machinery and raw materials. The economy is yet to fully diversify from the oil and gas sector, thus causing a marginal foreign investment in non-oil activities. As the World Bank development report, (1994) observed, Nigeria's economy remains unhealthily dependent on its volatile oil sector. The current fragile state of the Nigerian economy is thus unacceptable more so given the fact that Asian countries, such as Singapore and Malaysia, with similar colonial heritage and natural resource endowments, have recorded significant successes in the development of their economies since 1965 when they were at par or even behind Nigeria. This poses significant challenges particularly with the decline in crude oil prices at the international oil market.

However, recent initiatives by the government have sought to open up prospective areas that could guarantee more activities and expand the economic space. Widespread reforms, largely hinged on privatization and deregulations, have been implemented in various sectors including agriculture, SMEs and manufacturing, among others. The outcomes so far have been mixed but largely positive. It is imperative that these initiatives are sustained considering the volatile nature of the energy market and the implications for government revenue, foreign exchange reserves and the value of the Naira.

2.1 Oil Commodity and the Nigerian Economy

Crude oil became an export commodity in Nigeria in 1958 following the discovery of the first producible well in 1956. Prior to that, exports were mainly primary agricultural commodities that comprised groundnuts, cocoa beans, palm oil, cotton and rubber. Palm oil was the leading export from 1946-1958, followed by cocoa beans while groundnut/oil ranked third. From a production level of 1.9 million barrels per day in 1958, crude oil exports rose to 2.35 million barrels per day in the early 2000s. However, it had fluctuated between 1.26 and 1.8 million barrels per day economy. In addition, the prices of energy-intensive goods and services are linked to energy prices, of which oil makes up the single most important share. Finally, the price of oil is linked to some extent to the price of other fuels. Therefore, abrupt changes in the pi-ice of oil have wide-ranging ramifications for both oil-producing and oil-consuming countries. The sharp decline in world oil prices since late 1997 certainly qualify as an abrupt and significant change.

Oil behaves much as any other commodity with wide price swings in times of shortage or oversupply. In the pre-embargo era, crude oil prices ranged between $2.50 and $3.00 from 1948 through the end of the 1960's (Ibrahim 1998). Throughout the post war period, exporting countries found an increasing demand for their crude oil. In 1972, the price of crude oil was about $3.00 and by the end of 1974, the price of oil had quadrupled to $12.00. Low oil prices since late 1997 have been caused by several main factors, including OPEC's December 1, 1997 agreement to raise the group's production quota by 10%.

Contained in Figure 1 are oil price movements over a period, showing wide swings since the mid-2014. As observed by Williams

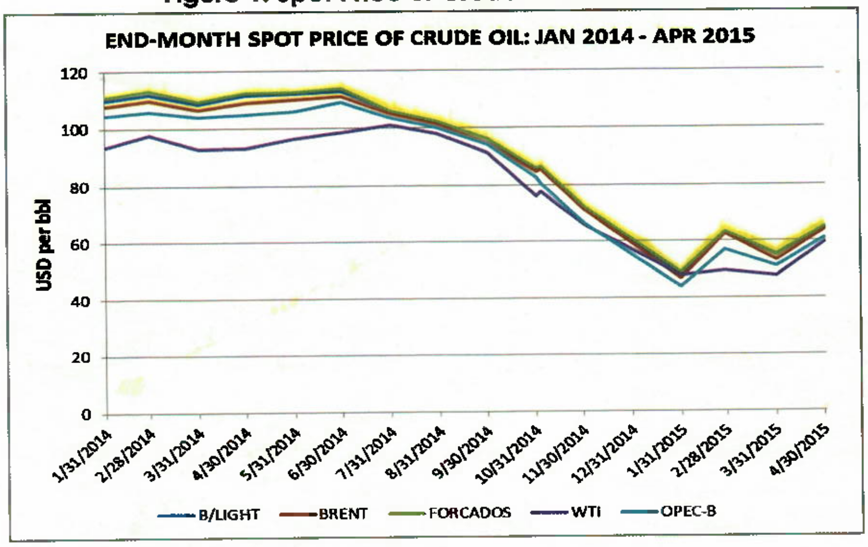
(1998), sharp decline in oil prices benefits oil importing nations and hurts oil exporters. For importers, lower oil prices act similarly as a tax cut, increasing consumer disposable income. This allows for looser monetary policy and hence lower interest rates with lower inflation and stronger economic growth (as in the case of the US). For example, oil revenues earned by exporting countries especially Nigeria are to a large extent "recycled" back to consumers in imports of all types of goods and services. In this way, oil-importing nations earn back much of the petrodollars they originally spend on oil purchases. Thus, a drop in oil revenue for oil exporters, as in the present situation, leaves oil producers with fewer petrodollars to "recycle".

Oil Price Volatility

Volatility in oil prices refers to the degree of rise or fall in oil price over a period. To Ebrahim et al 2014, it is expressed as a percentage and computed as the annualized standard deviation of the percentage change in the daily price. The larger the magnitude of the change, or the more quickly it changes over time, the higher the volatility. As a mono-product economy, Nigeria remains susceptible to the movements in international crude oil prices. During periods of favorable oil price shocks triggered by conflicts in oil-producing areas of the world, the surge in the demand for the commodity by consuming nations, seasonality factors, trading positions, etc; the country experiences favourable terms-of-trade quantified in terms of a robust current account surplus and exchange rate appreciation.

On the converse, factors such as low demand, seasonality factors, excess supply and foreign currency appreciation often led to declining crude oil prices. Thus, anytime the Nigerian economy experiences significant drop in the level of foreign exchange inflows, it results in budget deficit, slower growth and external reserves. A recent example was the dramatic drop in the price of crude oil in the wake of the global financial and economic crises. The price of oil fell by about two thirds from its peak of $147.0 per barrel in July 2008 to $41.4 at end-December 2008. Prior to the crises, oil price was high, exchange rate was stable. However, with the advent of the global financial crisis (GFC) oil price crashed and the exchange rate caved-in, depreciating by more than 20 per cent. Since oil price volatility directly affects the inflow of foreign exchange into the country.

Figure 1: Spot Price of Crude oil Contained



Drivers of Oil Price Volatility

There are various factors that often drive oil price volatility and these include the following:

Market fundamentals: The demand and supply of oil constitute the fundamentals of the oil market. Therefore, the short-run demand and supply of oil are both strongly price elastic, meaning that marginal changes in either oil demand or supply induce greater than proportional oil price changes and often, large price deviations.

Speculations: A large body of evidence suggests that speculative activity has divorced oil prices from solely reflecting developments in market fundamentals on specific occasions. For instance, the increased volatility and upshot in crude oil prices during the 1990-1991 Persian Gulf War, occurred with no corresponding alteration in oil supply. Price developments during this period solely reflected uncertainty

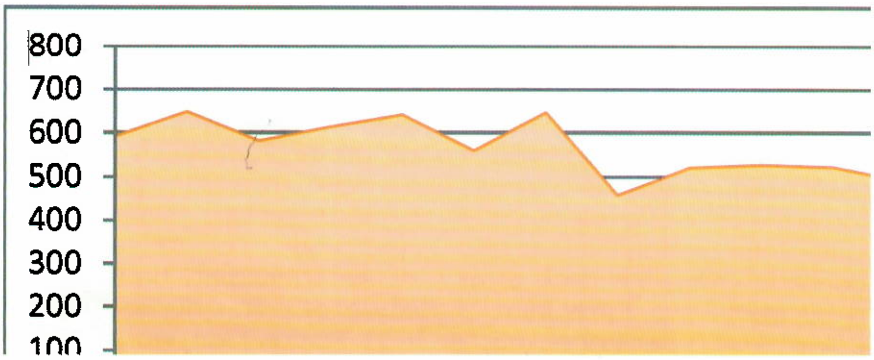
Inadequate market data: Inadequacies in the transparency, accuracy, and availability of critical oil market data, including inventories and estimations of current as well as future quantities of oil demand, supply, production, stocks, and reserves affect oil prices. These issues create uncertainties in the market and result in OPV.

3.0 IMPLICATIONS OF DECLINING OIL PRICES ON THE NIGERIAN ECONOMY

In recent months, the price of crude oil has fallen by 30% to below $70 per barrel. The dwindling crude oil price has implications for Nigeria's economic management since oil receipts are the major source of revenue for the economy. The trend also has implications for some sensitive economic indicators such as, revenue, sovereign risk, foreign exchange reserves, sovereign wealth fund, and budget implementations.

As noted in USETA (1998) report, dwindling crude oil prices could have adverse effects on oil revenue, excess crude account and contribution to sovereign wealth fund thereby increasing sovereign risk. Crash in crude oil price will adversely affect oil revenue and limit government ability to implement its budget. For instance, the government oil revenue, which increased by 5.67 per cent from N570.15 billion to N602.47billion between May and June, 2014, has nose-dived (see figure 2). Crude oil price benchmark of USD75 per barrel for 2014 budget was not realistic. However, the approved benchmark of USD53 per barrel for 2015 might be realistic.

Figure 2: Government Oil Revenue



Shrinking Excess Crude Account

Figure 3: Federal Government of Nigeria Excess Crude Account ($)

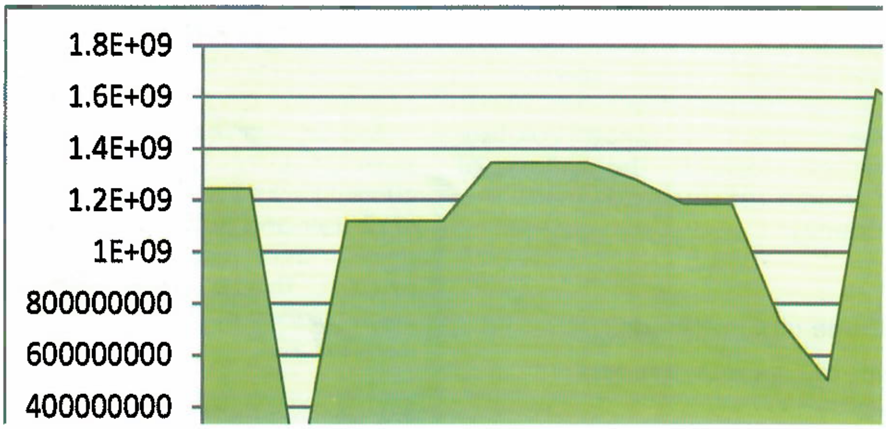
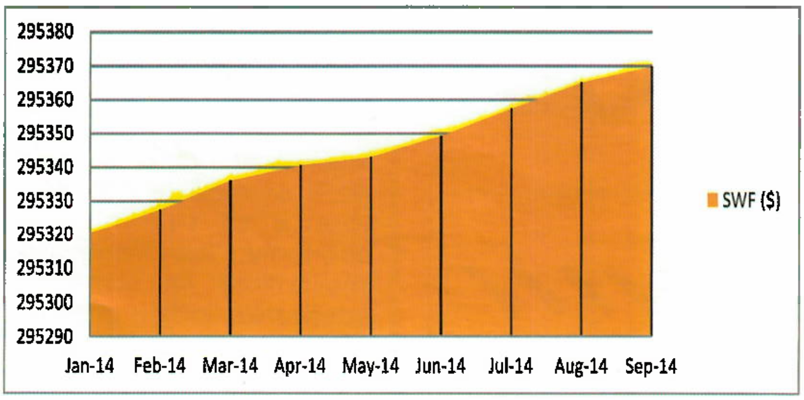


Figure 4: Sovereign Wealth Fund ($)



Notably, the slide in oil prices has resulted in a shrink of the Excess Crude Account (ECA) due to constrained savings. This squeeze is having downside risks to fiscal management. Specifically, the balance in the ECA has maintained a downward trend since July 2014 till date, as shown in Figure 3. This may force the government to resort to fiscal tightening. In fact, some states of the federation are unable to pay wages and meet other monthly obligations. This has put substantial pressure on the ECA with high demand from the states. The issue has created panic among workers and has the tendency to degenerate into social unrests if not addressed promptly.

It could be observed that further depletion of the ECA would affect contributions to the Sovereign Wealth. Contained in Figure 4 is the sovereign wealth fund - which was designed for infrastructure financing, stabilization and future generation. The fund has maintained steady growth in 2014, however, the continuous decline in oil prices precipitated a slowdown or stoppage in the growth of the Fund.

Declining External Reserves

Substantial depletion of the country's external reserves has been recorded owing to the falling crude oil price. Specifically, the reserves dropped to about $29billion in June 2015, from US$34.24 at end-December 2014, indicating a 14.3 per cent decline. The fall has been largely attributed to the funding of the rDAS and intervention at the interbank by the CBN to stabilize the Naira exchange rate. The current level of external reserves $31.2billion is capable of supporting only about 7 months of import commitments. Figure 5 shows a declining trend in Nigeria's external reserves over a sustained period from end-September to mid-October 2014 thus suggesting that incessant

decline in oil price would lead to

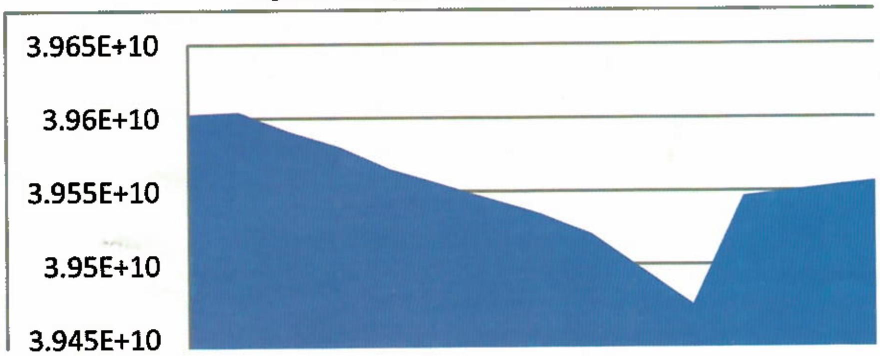
depletion of gross external reserves beyond the acceptable threshold. The decline triggered outflow of portfolio investments from the country and adversely affected external reserves.

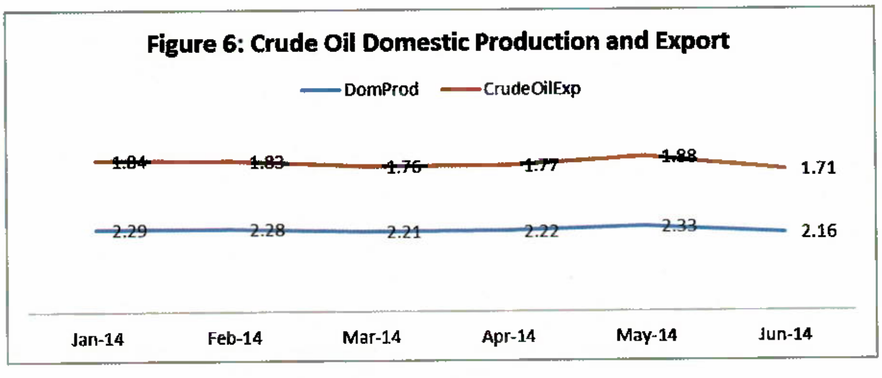
Declining external reserves is compounded by the continuous decline in domestic production and crude oil export since the mid-2014. Figure 5 shows that the average crude oil production decreased to 2.16 million barrels in June 2014 from 2.33 million in May 2014. Similarly, average crude oil export decreased to 1.71 barrels in June from 1.88 barrels in May. There are strong indications that the declining trend in oil price might not abate soon as Saudi Arabia, Iran and Iraq are unwilling to reduce their quota. They also offer the biggest discounts to crude buyers in Asia, amid speculation that they are seeking to maintain market share. Oil bunkering would also limit Nigeria's ability to increase production.

Generally, the economic outlook for Nigeria appears to be gloomy as occasioned by the recent free fall in oil prices. As a consequence, flurry of activities are surfacing in response to the impact of falling crude oil price on the economy notably;

- The country's foreign reserve dropped to $36.5 billion, down 18.3 percent from a year ago and has continued to fall to 29.8billion as at 19/05/2015 before rising to 31.89billion at July 7th 2015.
- The squeeze from lower oil prices is flowing through the fiscal system as some states are reporting that they are unable to meet their wage bills thereby requesting for the federal government bailout.
- Also, the Federal Government has revised the 2015-2017 Medium Term Expenditure Framework (MTEF), proposing a new benchmark of $65 per barrel of crude oil for the 2015 budget as against the earlier proposed figure of $78. However, $53 oil benchmark has been approved.

Figure 5: Nigeria's Gross Reserves





Exchange Rate Management

The decline in crude oil prices has resulted in an exchange rate slide. The CBN has spent about $5billion dollars since January 2015 trying to defend the naira. This is an expensive venture for the CBN and the nation as a whole. As earlier mentioned it is a drain on the external reserves which have been dwindling due mainly to the decline in crude oil prices.

Beyond the cost of maintaining a stable exchange rate, the situation is weakening investor confidence in the Nigerian economy. Volatile exchange rates make international trade and investment difficult because of the underlying uncertainties and exchange rate risks. The attendant consequence is capital reversal which is unfavourable for the economy at these trying times. The capital reversal will have direct effect on the stock market indices and this has manifested in sustained drop in the all share index.

Drop in the All Share Index

Market capitalization and the Nigeria All Share Index have exhibited volatilities and marked drop following the dwindling oil prices. Beginning October 2014, foreign investors have continued to sell off their stocks in Nigeria. Reuters reported huge sales of Nigerian stocks valued at N101.2 billion ($583.6million) at the end of 2014. This trend has persisted following the drop in the price of crude oil. Market capitalization also dropped by about 4.2 per cent to close at 33,926.18 in the later half of 2014 following the decline in crude oil prices.

Risk to Fiscal Management

The impact of the fall in crude oil price has also affected fiscal management adversely. For instance, the federal government revised the 2015-2017 medium term expenditure Framework (MTEF) to accommodate the fall in oil price. The benchmark of $78 per barrel initially proposed for the

MTEF and 2015 annual budget was revised more than once before the approved $53. Despite this revision, the price of crude oil remained below the benchmark in some period. This has made fiscal management a more daunting task for the tiers of government.

Other challenges currently arising partly from the dwindling oil price include the rising trend of inflation observed in the last 3 months. Inflation is currently 9.0 per cent as at June 2015, rising from 8.4 per cent in the preceding month. This rising trend in inflation can be partly attributed to high cost of production due to high cost of foreign inputs into the production process.

4.0 WHAT HAS THE CBN DONE?

In a bid to minimise the risks to monetary management occasioned by the dwindling oil prices, the CBN has implemented some policies which are highlighted below:

4.1 Demand Management Policies
Notably, the rDAS window of foreign exchange intervention by the CBN was closed in February 2015. This policy is designed to manage demand for foreign exchange, the sliding exchange rate and reserves owing to the fall in price of crude oil.

Next the CBN also introduced ban on access to foreign exchange at the official foreign exchange market by some importers of about 41 categories of items. The items on the list were included after thorough discussions with the highest policy making body of the Bank. Some of the items include, tooth pick, Indian incense, among others. The demand management policy of the CBN is already yielding results. It is reported that the external reserves are showing gradual recovery and beginning to inch upwards. As at July 7, 2015, the reserves stood at $31.89billion as against about $29.1billion dollars in the previous month. In addition, market sentiments are beginning to improve and relative stability in the exchange rate has been achieved.

4.2 Direct intervention: The CBN has also engaged in direct intervention to State governments to enable the states meet wage obligations and other financial demands. In particular, the sum of N300bn intervention fund has been extended to state governments by the CBN as a bail out strategy.

These polices are designed to minimise frivolous use of foreign exchange in the face of oil price decline. The current demand pressure on the dollar and depreciation of the naira is an opportunity to diversify the country's economic structure with a view to resuscitating local manufacturing, expanding job creation and making growth more inclusive.

5.0 WHAT SHOULD THE GOVERNMENT DO?

Recall that in 2008, crude oil prices fell from over $100 to between $38 and $40 per barrel. To cushion the effect of the fall on the financial system, the risk management system of banks was strengthened. This can be adjudged a positive outcome of the situation given that the financial system emerged stronger from the episode. Hence, there is hope that Nigeria will benefit from the current drop in oil prices as it presents an opportunity for economic diversification away from crude oil as the main revenue earner.

6.0 CONCLUDING REMARKS

It is no longer news that the Nigeria economy is currently facing difficult times due largely to the sustained decline in the price of crude oil which is a major source of revenue for the country. Presently, the economic situation is biting so hard that the Federal and State Governments' monthly receipts from the federation allocation have sharply declined. Consequently, some of the states can no longer meet up with their financial obligations. Some Federal Government agencies are equally not faring any better in this respect. The private sector is also not totally immune to the gloomy economic reality in the country as it has impacted negatively on the value of the naira. With the diminishing value of the naira, local industries are facing serious challenges that could actually lead to downsizing of workers if the situation does not improve. Hence, from every perspective, these are, indeed, trying times for the country. The nation's sole dependence on crude oil makes the economy vulnerable as fluctuation in the global crude oil price easily results in adjustment problems and instabilities.

The advent of oil exploration in Nigeria has brought immense benefits to the country. In spite of dissatisfaction over how the national wealth has been managed, proceeds from exports of crude oil have contributed towards huge developments in Nigeria over the years. With the development of the economy, the system has become more complex. New industries have emerged as well as new ways of tackling economic challenges. The economy has become the biggest in Africa, based on the rebased GDP of US$510 billion (N80.2 trillion). This makes managing the economy a more daunting task than previously imagined.

The undiversified structure of the economy is one major factor that exposes the country to external shocks, especially, changes in oil prices (Ogunbiyi 2015). One way of addressing the situation is to sustain the revamp of the country's agriculture sector. Government needs to really appreciate the potential of the sector as a catalyst for economic and industrial transformation. Consequently, government needs to recreate a modernized professional and commercial farming sector, supported by improved infrastructure and research into high performance seeds and livestock. Government should make access to loans meant for agriculture much easier while large scale farming powered by mechanized infrastructure should be the central goal.

Aside from revamping agriculture, improving the tourism sector could also be a boost to the country's economy. Tourism is a veritable instrument for socio-economic development. It impacts directly on the economy through the provision of resources and income that could be deployed to enhance economic growth, accelerate development and reduce poverty.

Continuous decline in oil prices might compel the government to pursue tighter fiscal policy that could slow economic growth, reduce income and infrastructure development. The Central Bank of Nigeria could consider sustaining the demand

management policies as a means of cushioning the effect of tighter fiscal policy in case it crystalizes. Current challenges arising from the turmoil in the international oil market, which led to low oil prices, should once more remind policy makers to implement appropriate reforms that will diversify the economy from large-scale dependence on oil. It presents an opportunity to reform fuel subsidies or energy taxes while creating appropriate structures that will open up other sectors of the economic and generate activities for the good of all. Then, foreign exchange receipts and government revenue will not be tied to oil export proceeds as domestic activities will create huge internally generated revenue.

REFERENCES

Ebrahim. Z., Inderwildi, O. R., and D. A. King (2014) Macroeconomic impacts of oil price volatility: mitigation and resilience. Higher Education Press and Springer-Verlag Berlin Heidelberg 2014

Economist, T. (2007), Will Africa ever get it right? The Economist, 383, 14, 68, 69,70.

Englama, et al (2010): Oil Prices and Exchange Rate Volatility in Nigeria: An Empirical Investigation CBN Economic and Financial Review Vol 48 (3)

Ibrahim, A., et al (2004) Oil Price Shock and the Nigerian Economic Growth European Scientific Journal Vol 10 (19)

Ibrahim, Y. (1998), 'Oi1 Producers Cope with Steep Drop in Revenues," New York Times Williams, J.L. (1998), 'Oil price History and Analysis', WTRG Economics

Krugman, P., (1983).Oil shocks and exchange rate dynamics In Exchange Rates and International Macroeconomics, University of Chicago Press

Ogunbiyi T. (2015) Dwindling oil revenue and the Nigerian economy: Punch Newspaper www.punch.org accessed on the 18/05/2015

Osaghae, E. (1998). Crippled Giant: Nigeria since Independent, Bloomington: Indiana University Press.

Ricken J. (2009). Oil Price and Real Exchange Rate Volatility in Oil-Exporting Economies: The Role of Governance, IFN Working paper No. 810, Research

USETA, (1998), 'OPEC Revenues Fact Sheet'

World Bank, (1994), Nigeria Structural Adjustment Program: Policies, Implementation and Impact (No. 13053-UNI). Washington DC: World Bank.