

CURRENCY DEVALUATION AND NIGERIAN ECONOMIC GROWTH (2000-2015)

Okaro, Celestine Sunday

Department of Banking & Finance, Faculty of Management Sciences, Nnamdi Azikiwe University, Awka

Abstract

This paper investigated the effect of currency devaluation on the economic growth of Nigeria. Specific objectives of the study were; to examine the relationship between currency devaluation and the following variables, the real gross domestic product, Nigerian external debt, and private domestic investment in Nigeria. This was achieved through a review of related literature and a test of hypothesis. This study relied on time series data generated for a period of 16years, from 2000-2015. The Ordinary Least Square (OLS) regression method and the computer software application E-views 8.0 were used for the analysis. The result of the analysis which is in line with the a priori expectation shows that: there is a significant relationship between Currency devaluation and real GDP in Nigeria; there is a significant relationship between Currency devaluation and external debt in Nigeria and there is no significant relationship between Currency devaluation and private domestic investment in Nigeria. Thus currency devaluation reduces importation encourages exportation and increases interest rate. Inflation and unemployment are the side effects of devaluation in the short run. It is recommended that discretionary policies, such as combination of monetary and fiscal measures should be utilized to curb the associated increase in inflation; while currency devaluation should be the last measure to be taken by the Nigerian government to bring the country out of recession.

1.0 Introduction

Devaluation is a deliberate downward adjustment to the value of a country's currency, currencies or standard. In other words, devaluation is a reduction in the value of a currency with respect to those goods, services or other monetary units with which that currency can be exchanged (Yioyio, 2015).

According to Cooper (1971), currency devaluation is one of the most traumatic economic policy measures that the government may undertake and as a result, most governments are reluctant to devalue their currencies. However, a country can be forced into devaluation by an ominous trade deficit. Thailand, China, Mexico, Czech republic- all devalued strongly, willingly or unwillingly after their trade deficit exceeded 8% of the real gross domestic product (RGDP).

One reason a country may devalue its currency is to combat trade imbalances and it is decided by the government issuing the currency and is the result of governmental activities. Devaluation causes a country's exports to become less expensive making them more competitive on the global market. This in turns means that imports are more expensive, making domestic consumers less likely to purchase them. By making domestic currency relatively cheaper (i.e. devaluation), local production and exportation of commodities are encouraged. This helps to enhance the level of output growth of the economy (Yioyio, 2015).

According to Yaqub (2010), governments of different countries devalue their currencies only when they have no other way to correct the economic problem. While devaluation can be seen as an attractive option, it can have negative consequences because by making imports more expensive it protects domestic industries which may then become less efficient without the pressure of foreign competition. Also Higher exports relative to imports can also increase aggregate demand which can lead to inflation.

Aguiar (2005) states that a nation experiencing the balance of payment deficit has to adopt both short and long term measures to correct the disequilibrium, and one of the measures is to devalue the nation's currency relative to another currency, group of currencies or standard.

The effect of currency devaluation on the economy has long been recognized in literature. While the traditionalist argued that devaluation would promote trade balance, alleviate balance of payments difficulties and accordingly expand output and employment, provided the Marshall-Lerner conditions are met. The Marshall-Lerner conditions states that – devaluation would lead to expansion in output if the sum of price elasticity of demand for export and the price elasticity of demands for imports is greater than unity. The mechanism behind these positive effects, according to Imimole and Enoma (2011) is that devaluation switches demand from imports to domestic produced goods by increasing the relative prices of imports and making export industries more competitive in international market, thus stimulating domestic production of tradable goods and inducing domestic industries to use more domestic inputs. The monetarists on the other hand, argued that devaluation has no effect on real variables in the long-run.

The monetarist view is that exchange rate devaluation affects real magnitudes mainly through real balance effect in the short-run but leaves all real variables unchanged in the long-run. This approach is based on the assumption that the purchasing power parity (PPP) holds. It predicts that in the short-run, an increase in the exchange rate leads to increase in output and improves the balance of payments but in the long-run, the monetary consequence of the devaluation ensure that the increase in output and improvement in the balance of payment is neutralized by the rise in prices. These arguments are continuous and therefore require further investigations.

Nigeria's GDP was recently rebased with the result placing the country as Africa's largest economy with an annual GDP of \$510 billion. Nigeria's population and the size of the market has remained an attraction for FDI inflow with the current population estimated projected at 183million people in 2015 (growing at a projected rate of 2.82%). The country is currently ranked the 7th most populous country in the world and has enjoyed a positive GDP growth rate in the last 10 years and a relatively stable exchange rate regime. Between the first quarter of 2013 and the last quarter of 2014, Nigeria posted an average GDP growth rate OF 5.8%, a single digit inflation of 8.2% in the last quarter of 2014 and a relatively stable exchange rate regime (CBN, 2015).

The Nigerian government is thus in dilemma of the effect of further devaluation of naira as the former CBN governor, Sanusi Lamido and some other renowned Nigerian economists are clamoring for it while others like Tella, Teriba and Utomi see this as no solution to the economic problem facing the country. Also in 2015, the Central Bank of Nigeria Governor, Godwin Emefelie announced the devaluation of the naira against the dollar with the aim of strengthening the currency (naira) in the course of the dwindling oil price (Osundiana & Osundiana, 2016).

According to Akpan and Atan (2012), the government of the day relies on foreign exchange reserve generated from crude oil to manage excessive volatility in exchange rate that exerts severe strain on the foreign exchange earnings. It is evident that the demand for foreign exchange has continuously been on the rise in the past few years as a result of factors like dependence on imported finished products, reversal of capital flow by investors and high speculative demand which has caused uncertainty in the foreign exchange market which also is caused by increased demand for foreign exchange in the face of unstable supply. Also the increasingly adverse balance of payment position and the inflationary pressures which the economy finds itself in which also affected the Real Gross Domestic Product (RGDP) of the economy has left the researcher in search for solution and how this myriad of economic challenges can be successfully tackled.

The specific objectives of the study are to: determine the relationship between currency devaluation and RGDP in Nigeria; evaluate the relationship between currency devaluation and Nigerian external debts; and to access the relationship between currency devaluation and Private Domestic Investments (PDI) in Nigeria.

The following research questions guide the paper: Is there any significant relationship between currency devaluation and Real Gross Domestic Product (RGDP) in Nigeria? Does currency devaluation have any significant relationship with Nigerian external debts? and what is the relationship between currency devaluation and Private Domestic Investment (PDI) in Nigeria?

Review of Related Literature

Conceptual Framework

Concept of Devaluation: The term devaluation is often used loosely to mean the same thing as currency depreciation. It refers to the deliberate lowering of the value of a country's currency in relation to other country's currency within the context of a fixed exchange rate management system (Yilkal, 2014).

Devaluation or depreciation of a country's currency is usually triggered when the country is experiencing in adverse balance of payment/balance of trade (BOP/BOT) Crises or by worsening economic conditions transmitted into the domestic economy from the foreign market. The current devaluation of the naira is linked to shocks emanating from the falling oil price driven by a global supply glut and a declining world demand for crude oil.

Nigeria's economy is a mono product economy that relies on crude oil sales for over 85%-90% of her annual revenue. Between 2006 and February 2015, Bonny light crude oil price average \$94/barrel while the average monthly oil price between 2010 and end of 2014 stood at \$104.4/barrel.

Despite positive windfall gains arising from the benchmark oil price of \$79, \$77.5 and \$65 in 2013, 2014 and 2015 respectively, the country's external reserves declined precipitously from \$53.6 billion in 2008 to the current \$30.9 billion in March 2015 (CBN, 2015).

This declining trend in external reserves reflects the current concern of the CBN in devaluing the naira as continuous defending of the naira in the face of the dwindling reserves became unsustainable.

Between October 2008 and July 2009, oil price declined slightly below \$50/barrel, this was followed by rising exchange rate and a massive devaluation of the naira.

Similarly, between October 2014 and February 2015, oil price fell below \$50/barrel, this again triggered a rise in exchange rate and a massive devaluation of the naira from ₦155/\$1 to ₦199/\$1. Currently, IFXEM is trading at ₦199.7/\$1 while BDC is trading at between ₦225/\$1 and ₦227/\$1 (CBN, 2015)

Economic growth is the increase in the market value of the goods and services produced by economy overtime. It is conventionally measured as the percent rate of increase in real gross domestic product (RGDP). Between 1960 and 1970, GDP recorded 3.1 percent growth annually as driven by agricultural sector, between 1970 and 1980 which is oil boom era, Nigeria recorded a remarkable increase in GDP of 6.3 percent annually.

In the early 1980's, the growth rate reduced, but from 1986, as a result of the structural adjustment program (SAP) and economic reforms, there was an improvement because the GDP increase at the rate of 4 percent. In 2013 to 2015 the GDP averaged 1.32 percent (Osundiana & Osundiana, 2016)

The highest growth rate was achieved in the third quarter of 2015 which was 9.19 percent. Services sectors being the largest sector of the economy accounted for 50 percent of the GDP while the fastest segment is information and communication. Agricultural sector which used to be the biggest sector with high potential for employment, accounts for 26 percent and oil sector accounts for just 11 percent. The effect of the under devaluation on growth appears to be large and highly significant also stronger for developing countries (Rapetti, Skott, & Razmi, 2012).

Theoretical Framework

Mundell- Fleming Model

The conventional answer to currency devaluation is analyzed within the Mundell-Fleming model and the result is a positive effect on the account. Thus, devaluation is expansionary in terms of gross domestic product (GDP), since exports increase more than imports.

The Mundell-Fleming model, which is commonly known as IS-LM-MOP model is an economic model set forth by Robert Mundell and Marcus Fleming as an extension of the IS-LM model. The tradition IS-LM model deals with economy under autarky, while the modern Fundell-Fleming model describes a small open economy.

The Mundell-Fleming model shows the short-run relationship between an economy's nominal exchange rate, interest rate and output in contrast to the closed-economy is LM model which focuses only on the relationship between the interest rate and output. The argument that an economy cannot simultaneously maintain a fixed exchange, free capital movement and an independent monetary policy has been solved by Mundell-Fleming model. This principle is frequently called the "impossible Trinity" "unholy trinity" "irreconcilable trinity" "inconsistent trinity" or the "mundell-fleming trilemma". This model uses the following variables: 'Y' is GDP, 'C' is consumption, 'I' is physical investment, 'G' is government spending (an exogenous variable), 'M' is the nominal money supply, 'P' is the price level, 'i' is the

nominal interest rate, 'L' is liquidity preference (real money demand), 'T' is taxes and 'NX' is net exports.

The Mundell-Fleming model is based on the following equations:

The IS curve: $Y=C+I+G+NX$

The LM curve: $M/P = L(i, Y)$

A higher interest rate or a lower income (GDP) level leads lower money demand.

The balance of payment (BOP) curve: $BOP = CA+KA$

Where BOP is the balance of payments surplus CA is the current account surplus and KA is the capital account surplus.

Mundell-Fleming model might be naturally extended by considering many other important features, which determine the degree of the reaction of the current account as:

- i. The price elasticity of country's demand for tradable goods, i.e. the variation of the exports (imports) in response to a real exchange rate variation.
- ii. The presence of supply shocks due to the presence of intermediate inputs and raw materials, e.g. oil which might generate inflationary pressures (Saibene & Siccour, 2012).

Marshall-Lerner Condition Model

Devaluation reduces balance of payment deficit but may not be true in all cases. Thus the effectiveness of devaluation depends on Marshall-Lerner condition which states that when the sum of price elasticity of the demands for imports of any two countries trading their goods between them is greater than unity, then devaluation increases exports and decreases imports (Dwivedi, 2001).

He states further that devaluation reduces balance of payment (BOP) deficit when the sum price of elasticity of A's demand for imports and price elasticity of B's demand for A's exportable, in absolute terms is greater than unity. Also it increase BOP deficit when the sum of price elasticity of demand for imports of a country and the price elasticity of demand for its exportable in absolute terms is less than unity. Further, when the sum of price elasticity of demand for importable of a country and the price elasticity of demand for its exportable in absolute equals one, then devaluation leaves the trade balance unchanged and hence BOP remains unaffected.

The empirical evidence shows that in the short run, devaluation causes deterioration in the BOP, this is due to the tendency for import prices to rise faster in the domestic market immediately after devaluation than the export prices, without much changes in the quantities imported or exported. This is what produces a J- shaped curve which the economists call J- curve effect of devaluation (Osundina & Osundina, 2016). Davidson (2006), asserts that Marshall-Lerner's condition does not apply to a country like United States because despite a significant decline in the value of the dollar, the trade imbalance has almost doubled which may lead to depression if not properly handed.

The Purchasing Power Parity (PPP) Theory

According to Jhingan (2011), this theory states that equilibrium exchange rate between two inconvertible papers currencies is determined by the equality of the relative change in the price levels in the two counties.

International competitiveness is measured by comparing the relative prices of the goods from different countries when these are measured in a common currency.

The purchasing power parity path for the nominal exchange rate is the path that would keep competitiveness constant overtime. According to this theory, countries with higher domestic inflation than their competitors would face a depreciating nominal exchange rate, while countries with lower domestic inflation than their competitors would face appreciating exchange rates.

The Balance of Payment Theory

As demonstrated by Jhingan (2011), under a free exchange rate regime, a country's exchange rate depends upon its balance of payments. A favourable balance of payments raises the exchange rates, while an unfavourable balance of payments reduces the exchange rate. By implication, exchange rate is determined by the demand and supply of foreign exchange. According to this theory, adjustments in the balance of payments can be made through devaluations and revaluations of some currencies in the case of deficits and surpluses respectively, in the balance of payments. Mckinnon and Schnabi (2003) have argued that for small open east Asian economies, fluctuations of the Japanese yen against the U.S dollar strongly affected the growth performance of the whole region. They identified trade with Japan as a crucial transmission channel.

Before, 1965, the appreciation of the Japanese yen against the U.S dollar enhanced the competitiveness of the smaller east Asian economies who kept the exchange rate in the region accelerated. The strong depreciation of the yen against the dollar from 1965 into 1967 slowed growth contributing to the 1997/98 Asian crises.

The Portfolio Balance Theory

This theory developed by Benson (1975) assumes that residents distribute their wealth among three forms of assets, monetary base, domestic bonds, and foreign bonds. Exchange rate is in equilibrium when the holding of these assets are in their desired proportion. In portfolio analysis, the current account balance becomes the reflection of the government budgetary imbalance when the private sector is satisfied with the holding of financial assets. The inability of government to sell bonds to foreigners without an excessive fall in their prices reflected in BOP deficit.

Empirical Review

Momodu and Akani (2016) investigated the impact of currency devaluation on economic growth of Nigeria. The Johansen Co-integration method was used for this analysis because the study involves the use of multivariate estimations. The result from the multivariate co-integration test shows that there is at least one co-integrating vector in the relationship between economic growth and the independent variables. This implies that a long run relationship exists among these variables. The autoregressive distributed lags (ARDL) approach is used for the ECM. The error correction mechanism result indicates that short term changes in economic growth may actually be sufficiently explained by currency devaluation and other factors selected in the model. They accepted the hypothesis of a significant short term relationship between economic growth and currency devaluation. The study shows that in the short run currency devaluation leads to increase in output and improves the balance of payments but in the long run the monetary consequence of the devaluation ensures that the increase in output and improvement in the balance of payment is neutralized by the rise in prices.

Aiye (2014) assessed people's perception on the impact of devaluation of Nigerian currency on the performance of poverty alleviation programmes in Edo state, Nigeria using primary data and Chi square statistical analysis, he found that currency devaluation limits the performance of poverty alleviation programmes in Edo state. He recommends that there should be proper funding of poverty alleviation programs because the devaluation of currency as often recommended by the Bretton wood institutions such as IMF and the World Bank has resulted in hyper inflationary trend in the economy. Hence, devaluation is expansionary in terms of GDP since exports increases more than imports according to Mundell-Fleming model.

Saibene and Siccour (2012) concludes that devaluation is contractionary for countries with a large amount of debt dominated in a foreign currency whereas, they are not for the countries whose debt is denominated in their own currency all things being equal. They also assert that after sharp currency devaluations, the debt burden increases in real terms, leading to the following chain of events: Firms profits decrease, bank lending is constrained, and thus the amount of investment is sharply reduced, reducing also next period output.

Kogid, Asid, Lily, Mulok and Lognathan (2012), carried out a research on the effect of exchange rates on economic growth, using nominal and real exchange rate, they found out that both exchange rates (nominal and real) are considered to have similar effects on economic growth. The results of Autoregressive distributed lags (ADRL) bounds test carried out by them suggest that long-run co integration exist between both nominal and real exchange rates and economic growth with a significant positive coefficient recorded for real exchange rate. In addition, the results of ECM-based ARDL also reveal that both exchange rates have a similar casual effect towards economic growth.

Siddig (2012) examined exchange rate devaluation in Sudan using computable general equilibrium. The paper reports the impact of devaluation on several economic indicators considering domestic commodity markets, the factors market and institutions. Responses of specific economic variables such as prices, household demand, welfare and the balance of payment are used to describe the resulting equilibrium of the economy as a result of devaluation in the three scenarios. The results reveal that devaluation of the Sudanese pound will considerably increase most domestic commodity prices. This is desirable for producers who target the world market because their returns in the local devalued currency will tend to be higher. Accordingly, export oriented sectors, which have a larger share of exports and in their total output, show the greatest increase in output and exports compared to other

sectors. He concludes that, devaluation of Sudan's currency would increase domestic prices of tradable goods and encourage producers to export. However, domestic consumers are unaccompanied by similar increase in household income. This could also lead domestic production to deteriorate at a certain point in time since the cost of intermediate inputs will also increase especially imported intermediate inputs. Therefore, devaluation would encourage producers of some sector to increase output and exports, while it would hinder consumers to enjoy the previously cheaper imported and domestic commodities since domestic prices increased.

Farhi, Gopinath and Itskhoki (2012), considered the case of producer and local currency price setting with some price stickiness, as the real effects of nominal devaluations depends on whether prices are set in the producer's currency or in local currency. Their model features two countries, home and foreign, the foreign with a passive policy of a fixed money supply and also potentially use six different fiscal instruments to achieve the policy goal that mimics a nominal devaluation but maintains a fixed nominal exchange rate: import and export tariffs, a value-added tax (with border adjustment) a payroll tax paid by producers and consumption and income taxes paid by consumers. The authors consider various degrees of capital account openness: Balanced trade, complete risk-sharing with Arrow-Debru securities (securities that are paid in only one time period) and an arbitrary net foreign asset position. They found out that the two fiscal devaluation policies that mimic nominal exchange rate devaluations are:

1. A uniform increase in import tariffs and export subsidies.
2. A uniform increase in value added taxes and a reduction in payroll taxes.

Eme and Johnson (2010), in their study of exchange rate movements in Nigeria for the sample period of 1986-2010, examined the possible direct and indirect relationships between exchange rate and GDP growth, using a simultaneous equation model within a fully specified (but small) macroeconomic model, coupled with a generalized method of moment (GMM) technique. The empirical results suggest that there is no evidence of strong direct relationship between changes in exchange rate and output growth. Hence, they concluded that Nigeria's economic growth had been directly affected by monetary variables and that improvements in exchange rate management were necessary but not sufficient to revive Nigerian economy.

Maga (2004) examined the effect of exchange rate fluctuations to real output growth and price inflation in a sample of 22 developing countries. By introducing a theoretical rational expectation model, he decomposed movements in exchange rate into anticipated and unanticipated components. The model demonstrated the effects of demand and supply channels on the output and price responses to changes in exchange rate in general, he concluded that exchange rate devaluation, both anticipated and unanticipated decreases real output growth and increase price inflation. The result confirms concerns about the negative effects of currency devaluation on economic performance in developing countries

Newton (2010), while reviewing sterling devaluation between 1968 and 1970 explained the travails of the British labour government and that it took a year to convince people on the need for devaluation which paid off at last.

Using different measures of real exchange rate and different estimation techniques, Dani (2008), showed that devaluation (high exchange rate) stimulates economic growth, particularly in developing countries, while revaluation hurts economic growth. Employing the same methods, Gala (2007) arrived at similar conclusion with Dani (2008).

Oduola and Aikinlo (2001), used a six-variable VAR model consisting of official exchange rate, parallel exchange rate, prices, money supply, and interest rate for Nigeria and revealed the existence of mixed results regarding the impact of exchange rate depreciation on output. Their conclusion is that the contractionary impact of devaluation on output can only be represented in the first quarter, after which devaluation generates expansionary impact on output.

Adekoya and Fagbohun (2016) examined the impact of currency devaluation on manufacturing output growth in Nigeria between 1980 and 2014. They employed Augmented Dickey Fuller for stationarity test, Engel-Granger co-integration for long run relationship, ordinary least square for long-run estimate and Granger causality test for causal relationships. The findings revealed that although all the variables are stationary at first difference, a long-run relationship exists between the variables. It further showed that all the variables except import exert positive effect on manufacturing output growth. The result suggests the need for currency appreciation rather than depreciation as the sector depends heavily on

the importation of equipment's, machineries as well as most of its raw materials. The causality test showed that there is a unidirectional causality running from, exchange rate, import and Credit to Private Sector to manufacturing output.

3.0 Research Methodology

Research Design

This applied qualitative and quantitative techniques based on the ex-post facto research design to study the effect of currency devaluation on economic growth of Nigeria. Using quantitative research methodology for this is clearly in line with Cooper, Tindal-Ford and Chandler (2001) who explained that the approach allows for the use of numerical facts and model specification. Also, the ex-post facto research design was adopted because the study will involve the use of data on variables which the researcher cannot change or manipulate (Onwumere, 2009).

Model Specification

The study adopted four currency devaluation and economic growth variables. These variables include Real Gross Domestic Product (RGDP), external debts, Private Domestic Investments (PDI) and foreign exchange rate. The choice of these variables is grounded in the overall goal of the researcher. The study adapted the empirical model used by Dani (2008). The model was used to examine the impact of naira devaluation and economic growth in Nigeria and it is specified as:

Model 1: $RGDP = f(EXCR) \dots(i); RGDP = \beta_0 + \beta_1 EXCR + \mu t \dots\dots (ii)$

$\ln RGDP_t = \beta_0 + \beta_1 \ln EXCR_t + \mu t \dots\dots\dots (iii)$

Model 2: $EXTDS = f(EXCR) \dots(iv); EXTDS = \beta_0 + \beta_1 EXCR + \mu t \dots (v)$

$\ln EXTDS_t = \beta_0 + \beta_1 \ln EXCR_t + \mu t \dots\dots\dots (vi)$

Model 3: $PDI = f(EXCR) \dots(vii); PDI = \beta_0 + \beta_1 EXCR + \mu t \dots\dots\dots (viii)$

$\ln PDI_t = \beta_0 + \beta_1 \ln EXCR_t + \mu t \dots\dots\dots (ix)$

Where: $\ln RGDP_t$ = Real Gross Domestic Product; $\ln EXCR_t$ = Exchange Rate;

PDI = Private domestic investment; $EXTDS$ = External debt stock; β_0 = slope of the regression equation; μt = stochastic theorem; $\beta_1 - \beta_2$ = parameter estimates;

The data for this paper were presented in tables and analysed based on the research questions and hypotheses. The method of analysis used was the Ordinary Least Square (OLS) method. It was chosen because the alternative econometric techniques such as Two Stage Least Squares (2SLS) give limited information. The computer software application E-Views 8.0 was used for the analysis.

4.0 Data Presentation and Analysis

Presentation of Data

Table 4.1: Data for evaluating the effect of currency devaluation on the Nigerian economic growth (2000-2015)

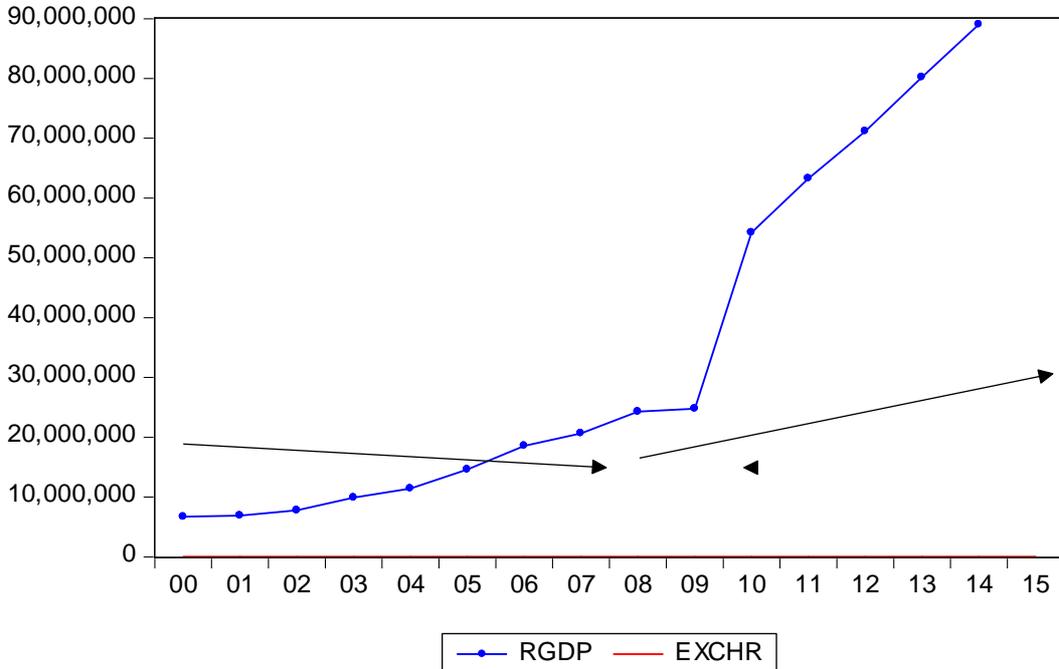
Year	GDP	EXTD	EXCHR	INFD	FOREx	PDI
2000	6,713,600	3,097.4	102.11	72.80	N/A	15.88
2001	6,895,200	3,188.5	111.94	9.30	3,070.0	18.56
2002	7,795,800	3,917.4	120.97	8.50	2,124.7	23.11
2003	9,913,500	4,456.9	129.36	10.00	3,006.2	18.93
2004	11,411,100	4,768.8	133.50	6.60	N/A	17.06
2005	14,610,900	2,668.1	131.66	6.90	3,658.2	16.02
2006	18,564,600	454.7	127.51	18.90	5,425.5	16.63
2007	20,657,300	431.1	124.76	12.90	6,005.7	19.301
2008	24,296,300	493.2	117.78	14.00	7,025.6	15.99
2009	24,794,200	590.4	147.27	15.00	5,977.1	21.59
2010	54,204,800	689.8	148.51	00	4,483.6	17.29
2011	63,258,600	864.7	152.59	16.2	4,758.8	16.19
2012	71,186,600	1,019.7	156.23	18.6	6,438.0	14.9
20013	80,222,100	1,376.5	156.03	20.45	6,280.9	14.9
2014	89,043,620	1,667.5	171.7	19.09	5,398.4	15.8
2015	85, 345,200	2,111.5	197.0	21.31	5,802.2	14.48

Source: DMO,CBN and NBS Publications for various years

KEY: Gross domestic product (GDP), external debt (EXTD), exchange rate (EXCHR), infrastructural development as percentage of GDP (INFD), foreign exchange earnings (FOREx), private domestic investment as percentage of GDP (PDI).

Analysis of data

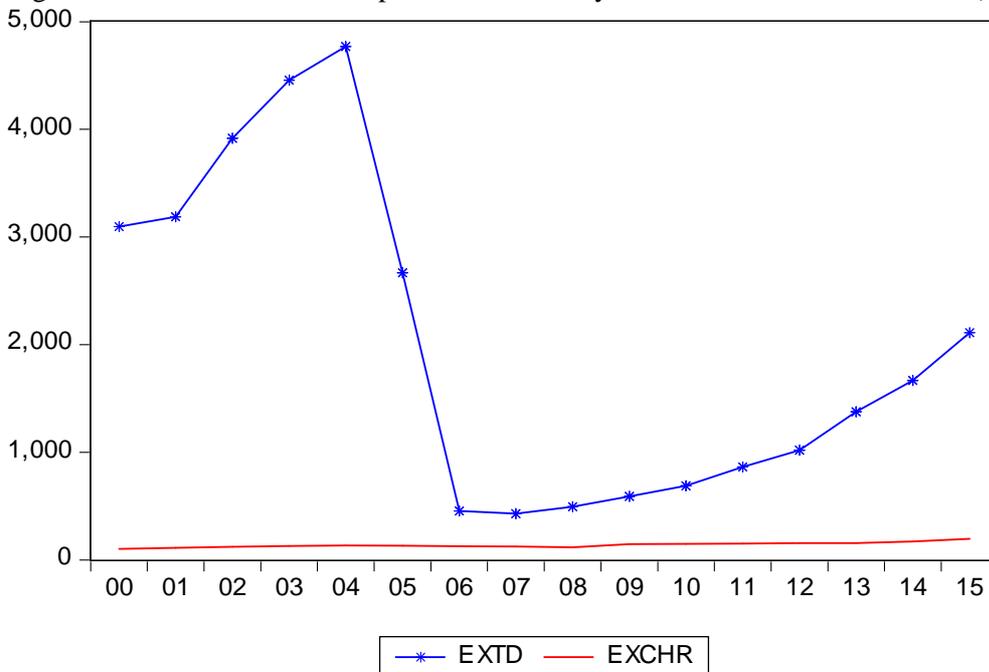
Figure 4.1: Trend of relationship between currency devaluation and real GDP (2000-2015)



Source: Table 4.1

Figure 4.1 shows that there was a continuous increase in real GDP, from 2000 to 2015, while exchange rate slightly varied, until 2008 when it gradually started rising.

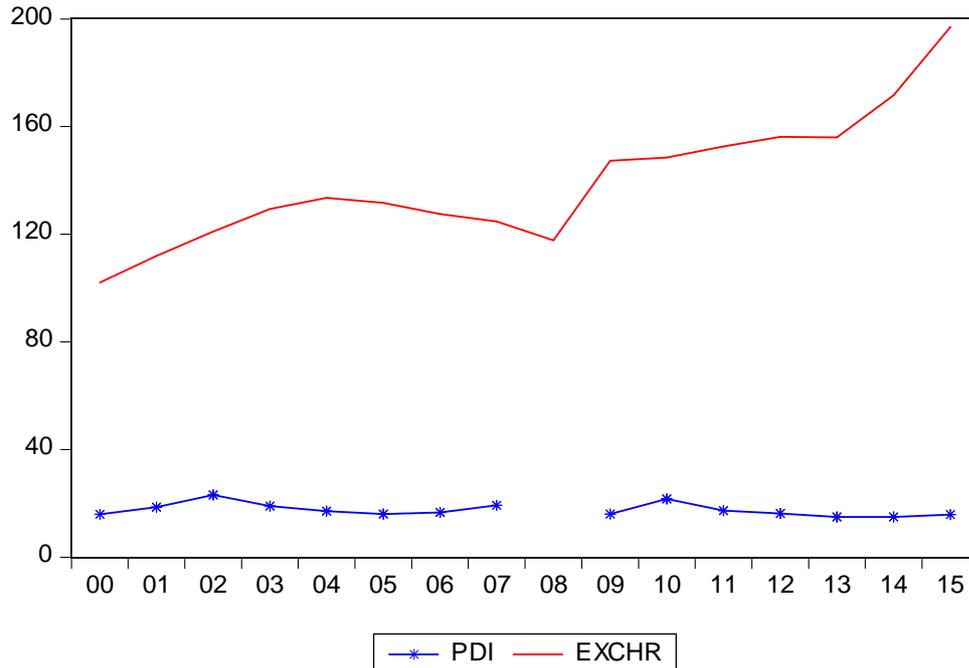
Figure 4.2: Trend of relationship between currency devaluation and external debt (2000-2015)



Source: Table 4.1

Figure 4.3 shows that external debt rose from 2001 to 2005, after which it had a free-fall in 2006, though it started rising again from 2007, but the rise was minimal and steady.

Figure 4.4: Trend of relationship between currency devaluation and private domestic investment (2000-2015)



Source: Table 4.1

Private domestic investment slightly changed, while the exchange rate fell in 2008, after which it picked up and continued to rise till 2015.

Test of hypotheses

1.Ho: There is no significant relationship between Currency devaluation and real gross domestic product in Nigeria.

H1: There is a significant relationship between Currency devaluation and real gross domestic product in Nigeria.

Table 4.2 Table testing the relationship between real GDP and currency devaluation

Dependent Variable: RGDP

Method: Least Squares

Date: 08/24/16 Time: 02:38

Sample (adjusted): 2000 2014

Included observations: 16

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.49E+08	26795312	-5.565831	0.0001
EXCHR	-1.348794.	195968.1	6.882721	0.0000
R-squared	0.784668	Mean dependent var		33571215
Adjusted R-squared	0.768104	S.D. dependent var		29323428
S.E. of regression	14120872	Akaike info criterion		35.88777
Sum squared resid	2.59E+15	Schwarz criterion		35.98218
Log likelihood	-267.1583	Hannan-Quinn criter.		35.88677
F-statistic	47.37185	Durbin-Watson stat		3.272752
Prob(F-statistic)	0.000011			

Source: Regression result, 2016

The result of the various coefficients on Table 4.2 shows that real GDP will decrease by 1.49% if exchange rate remains constant. The exchange rate coefficient shows a significant negative relationship between exchange rate and real GDP for the period. The Durbin Watson statistic of 3.27 shows no autocorrelation problem, while the p-value (F-stat) of 0.000 being less than the 0.05

significant value leads to the rejection of the null hypothesis and hence the conclusion that there is a significant relationship between Currency devaluation and real GDP in Nigeria.

2.Ho: There is no significant relationship between Currency devaluation and external debt in Nigeria.

H1: There is a significant relationship between Currency devaluation and external debt in Nigeria.

Table 4.3 Table for testing the relationship between external debt and currency devaluation

Dependent Variable: EXTD

Method: Least Squares

Date: 08/24/16 Time: 02:39

Sample: 2000 2015

Included observations: 16

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	43.83.143	2263.883	1.936117	0.0733
EXCHR	17.19850	16.02692	-1.073101	0.0014
R-squared	0.076002	Mean dependent var		1987.263
Adjusted R-squared	0.010002	S.D. dependent var		1506.092
S.E. of regression	1498.541	Akaike info criterion		17.57884
Sum squared resid	31438751	Schwarz criterion		17.67541
Log likelihood	-138.6307	Hannan-Quinn criter.		17.58379
F-statistic	1.151546	Durbin-Watson stat		3.411545
Prob(F-statistic)	0.001375			

Source: Regression result, 2016

The result of the various coefficients on Table 4.3 shows that external debt will decrease by 43.8% if exchange rate remains constant. The exchange rate coefficient shows a significant positive relationship between exchange rate and external debt for the period. The Durbin Watson statistic of 3.41 shows no autocorrelation problem, while the p-value (F-stat) of 0.000 being less than the 0.05 significant value leads to the rejection of the null hypothesis and hence the conclusion that there is a significant relationship between Currency devaluation and external debt in Nigeria.

3.Ho: There is no significant relationship between Currency devaluation and private domestic investment Nigeria.

H1: There is a significant relationship between Currency devaluation and private domestic investment Nigeria.

Table 4.4 Table testing the relationship between PDI and currency devaluation

Dependent Variable: PDI

Method: Least Squares

Date: 08/24/16 Time: 02:39

Sample: 2000 2015

Included observations: 16

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	22.80955	3.618889	6.302915	0.0000
EXCHR	-0.037891	0.025363	-1.493920	0.1591
R-squared	0.146522	Mean dependent var		17.47673
Adjusted R-squared	0.080870	S.D. dependent var		2.402674
S.E. of regression	2.303474	Akaike info criterion		4.630280
Sum squared resid	68.97789	Schwarz criterion		4.724686
Log likelihood	-32.72710	Hannan-Quinn criter.		4.629274
F-statistic	2.231796	Durbin-Watson stat		2.780313
Prob(F-statistic)	0.159068			

Source: Regression result, 2016

The result of the various coefficients on Table 4.4 shows that external debt will decrease by 22.8% if exchange rate remains constant. The exchange rate coefficient shows a significant positive relationship between exchange rate and private domestic investment for the period. The Durbin Watson statistic of 2.78 shows no autocorrelation problem, while the p-value (F-stat) of 0.159 being higher than the 0.05 significant value leads to the acceptance of the null hypothesis and hence the conclusion that there is no significant relationship between Currency devaluation and private domestic investment in Nigeria.

Discussion of findings

Results from the hypotheses tested are evaluated here under:

There is a positive relationship between Currency devaluation fluctuation and real GDP. An increase in exchange rate will lead to an increase in real GDP. This shows the extent to which a developing economy like Nigeria depends on imported goods and services. It therefore means that an increase in exchange rate will lead to increase in imported goods in the economy, thereby forcing the citizens to turn to domestic products, which encourages more production in the country. The finding however, confirms the a priori expectation of the study of a positive relationship between Currency devaluation and real GDP, while it also confirms the study by Momodu and Akani (2016)

There is a positive relationship between Currency devaluation fluctuation and movement of external debt stock in Nigeria. The finding also conform with the a priori expectation of the study, while it also agrees with the finding of Eme and Johnson (2010) which stated that when the value of a dollar to naira increases, it will lead to increment in the amount spent by the government in servicing the external debt, which means more income is needed, and when the revenue is not enough to cover for the budget, as is always the case with Nigeria, the government may resort to borrowing to finance her budget, thereby leading to an increase in external debt of Nigeria.

The other findings of this study also showed that private domestic investment have a significant relationship with Currency devaluation. It shows that exchange rate fluctuation will distort the budget of the general public, thereby causing a drop in the level of investment, as the high level of uncertainty increases. The finding negates the finding of the study by Nwaozuzu (2011), which concluded that even when exchange rate fluctuates, it does not necessarily change people's plan for investment. It was also found that Currency devaluation means that Nigeria will receive lower value for her exports to the more advanced countries and this will decrease the value of the amount earned from foreign exchange. The finding agrees with the a priori expectation of the study, while it also confirms the work of Maga (2004).

5.0 Conclusion and Recommendations

Conclusion

Exchange rate policy in Nigeria has undergone a good number of changes, from a fixed exchange regime in 1960, and a pegged regime between 1970s and mid 1980s and finally to various variants of the floating/flexible regime from 1986 with the deregulation and adoption of the Structural Adjustment Policy (SAP). The SAP policy, among other objectives, was aimed at evolving a realistic exchange rate for the naira and recently, in 2016 CBN again liberalized the exchange rate in Nigerian system all in a means to promote growth of the economy. Based on the findings of this study, it can confidently be concluded that currency devaluation should be the last option towards Nigerian economic growth.

Recommendations

Sequel to the findings, the following recommendations were made towards maintenance of stable exchange rate and promotion of economic growth in Nigeria.

1. The government should create incentive such as loans subsidy etc. to small scale industries, thereby encouraging them to process domestic goods into processed goods that will help boost our export and the government should encourage the export promotion strategies in order to maintain a surplus balance of trade.
2. An effective policy should be made based on the fiscal and monetary policies which should be aimed at achieving a realistic exchange rate for naira. There is need to improve on the existing exchange rate management framework in Nigeria. This can influence the rate of income growth, but only in the context of a broad based economic reform involving a complementary monetary policy.
3. An appropriate environment and infrastructural facilities should be provided so that foreign investors will be attracted to invest in Nigeria and promote private domestic investment. This will provide job, increase income and level of the standard of living of the people.

4. Strict foreign exchange control policies should be adopted in order to help in determination of appropriate exchange rate value. This will go a long way to strengthen the naira and increase the value of Nigerian foreign exchange earnings and hence, economic growth.

References

- Adekoya, O. M. & Fagbohun, A. (2001). Currency Devaluation and Manufacturing Output Growth in Nigeria. *Journal of Economics and Sustainable Development*, 6(7), 207-218.
- Aguiar, M. (2005). Investment, devaluation, and foreign currency exposure: The case of Mexico. *Journal of Development Economics*, 78(1), 95-113.
- Aiya, F. (2014). People's Perception of the impact of Currency Devaluation on the Performance of Poverty Alleviation Programme in Nigeria, *Developing Country Studies IISTE*, 4(10), 7-16.
- Akpan E.O. & Atan, J.A. (2012). Effects of Exchange Rate Movements on Economic Growth in Nigeria. *CBN Journal of Applied Statistics*, 2(2), 1-14.
- Benson, J.K. 1975. The inter organizational network as a political economy. *Administrative Science Quarterly*, 5(2), 229-248.
- Bahmani-Oskooee, M. (1985). Devaluation and the J-Curve: Evidence from LDCs. *The Review of Economics and Statistics*, 67(3), 500-504.
- Central Bank of Nigeria (2015). *Annual Report and Statement of Accounts*. Abuja: Central Bank of Nigeria.
- Cooper, R. (1971). Currency devaluation in developing countries. *Essays in international finance*, No.86, Princeton, New Jersey : Princeton university Press.
- Cooper, G., Tindal-Ford, S., Chandler, P., & Sweller, J. (2001). Learning by Imagining. *Journal of Experimental Psychology: Applied*, 7(1), 68-82.
- Dani, R. (2008). *Real Exchange Rate and Economic Growth*. Unpublished Paper. John F. Kennedy School of Government: Harvard University.
- Davidson, P. (2006). The declining dollar, global economic growth, and macro stability. *Journal of Post Keynesian Economics*, 28(30), 473-493.
- Dwivedi, D.N. (2001). *Macroeconomics Theory and Policy*. New Delhi: Tata McGraw-Hill Publishing Company Limited.
- Eme, O.A. & Johnson, A.A. (2010). Effects of Exchange Rate Movements on Economic Growth in Nigeria. *CBN Journal of Applied Statistics*, 2(2), 103-116.
- Farhi, E., Gopinath, G. & Itskhoki, O. (2012). Fiscal Devaluations. *Research Review*, 4(18), 4043-4057.
- Fleming, J. M. (1962). Domestic financial policies under fixed and floating exchange rates. *IMF Staff Papers*, 9, 369-379. Retrieved from doi: 10.2307/3866091.
- Gala, P. (2007). Real Exchange rate levels and Economic Development: Theoretical Analysis and Empirical Evidence. *Sao Paulo Business Admin School*, Getulio Vargas Foundation.
- Hevia, C. & Nicolini, J. P. (2013). Optimal Devaluations. *IMF Economic Review*, 61(1), 22-51. Retrieved from doi: 10.1057/imfer.2013.2.
- Imimole, B. & Enoma, A. (2011). Exchange rate depreciation and inflation (1986-2008). *Business and Economics Journal*, 12(1), 1-12.
- Jhingan, M.L. (2011). *International Economics*. 6th Ed. India: Vrinda Publications Ltd.
- Kogid, M., Asid, R., Lily, J., Muloke, D. & Loganathan, N. (2012). The Effect of Exchange Rates on Economic Growth: Empirical Testing on Nominal versus Real. *Journal of Financial Economics*, 10(1), 7-17.
- Maga, K (2004). Exchange Rate Fluctuations and Economic Activity in Developing Countries: Theory and Evidence. *Journal of Economic Development*, 29(2), 186-200.
- McKinnon, R. & Schnabel, G. (2003). The East Asian Dollar Standard, Fear of Floating, and Original Sin. In: G. Ortiz, ed. *Macroeconomic Stability, Financial Markets, and Economic Development*, Bank of Mexico. 33 –61.
- Momodu, A.A. & Akani, F.N. (2016). Impact of Currency Devaluation on Economic Growth of Nigeria. *International Journal of Arts and Humanities*, 5(11), 151- 163.
- Mordi, C.N.O. (2006). Challenges in Exchange Rate Volatility in Economic Management in Nigeria. *CBN Bulletin*, 30(3), 3-16.

- Mundell, R. A. (1963). Capital mobility and stabilization policy under fixed and flexible exchange rates. *Canadian Journal of Economic and Political Science*, 29 (4), 475–485. Retrieved from doi:10.2307/139336.
- Newton, S. (2010). The Sterling Devaluation of 1967, the International Economy and Post-War Social Democracy. *English Historical Review*, CXXV(515), 912-945. Retrieved from <https://orca.cf.ac.uk/13695/1/912.full%20Newton.pdf>
- Odusola, A.F. & Akinlo, A.E. (2001). Output, Inflation and Exchange Rate in Developing Countries; An Application to Nigeria. *The developing Economies*, Xxxix(2), 199-222.
- Onwumere, J. U. J. (2005). *Business and Economic Research Methods*, Lagos: Don-Vinton Limited.
- Osundiana, K.C. & Osundiana, J.A. (2016). Effectiveness of Naira Devaluation on Economic Growth in Nigeria. *International Journal of Science and Research*, 5(3), 1944-1948.
- Rapetti, M., Skott, P., & Razmi, A. (2012). The real exchange rate and economic growth: are developing countries different?. *International Review of Applied Economics*, 26(6), 735-753. doi:10.1080/02692171.2012.686483
- Saibene, G., & Sicouri, S. (2012). Effects of Currency Devaluations on the Economic Growth in Developing Countries: The Role of Foreign Currency-Denominated Debt. *Atlantic Economic Journal*, 40(2), 191-209. Retrieved from doi: 10.1007/s11293-011-9300-4.
- Siddig, K. H. (2012). The Controversy of Exchange Rate Devaluation in Sudan: An Economy- wide General Equilibrium Assessment. *African Development Review*, 24(3), 245-254. Retrieved from doi:10.1111/j.1467-8268.2012.00320.x.
- Yaqub, J. O. (2010). Exchange rate changes and output performance in Nigeria: A sectorial analysis. *Pakistan Journal of Social Sciences*, 7(5), 380-387.
- Yilkal, W. A. (2014). The Effect of Currency Devaluation on Output; the Case of Ethiopian Economy. *Journal of Economics and International Finance*, 16 (5), 103-111.
- Yioyio, C. G. (2015). What caused the Asian currency and financial crisis? Part I: A macroeconomic overview. *NBER Working Paper* 6833.