

## **The Impact of Floating Exchange Rate Regime on Economic Growth in Nigeria (1986 – 2015)**

Dr. Chioma, Dorothy Oleka<sup>1</sup> and Paschal I. P. Okolie<sup>2</sup>

<sup>1</sup>*Department of Banking and Finance, Enugu State University of Science and Technology, (ESUT), Enugu, Nigeria*

<sup>2</sup>*Department of Banking and Finance, Enugu State University of Science and Technology, (ESUT), Enugu, Nigeria*

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**Abstract:** *This paper examined the impact of floating Exchange rate regime on economic growth in Nigeria. The study analyzed the impact of exchange rate on economic growth using Nigerian Gross Domestic Product (GDP) as dependent variable in relation to her exchange rate, interest rate and inflation rate as independent variables. The study covers the period of between 1986 and 2015, using secondary sources of data. The ordinary Least Square Regression (OLS) model was used to analyse the data obtained from the CBN Statistical Bulletin of various issues. The result revealed that exchange rate has positive impact on economic growth. This is in line with our apriori expectation as it is suggestive that if exchange rate is allowed to float as is currently the case in Nigeria, there will be favourable economic growth. Hence, the paper suggests that for this to be possible the country should embark on diversification of the economy, reduction in importation and increase in domestic production and exportation of non-oil goods and services. It concludes that Nigeria will benefit from floating the exchange rate in the long run, despite the present harsh effect on the citizens if the above measures are embarked upon.*

**Keywords:** *Gross Domestic Product, Exchange Rate, Interest rate Regression Model, Inflation Rate*

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### **I. Introduction**

Exchange rate is the price of one currency in terms of another currency. How it is determined is known as foreign exchange rate policy. It is the rate at which one currency may be converted into another, also called rate of exchange or exchange rate or currency exchange rate. The main objectives of exchange rate policy in Nigeria are to preserve the value of the naira and to maintain enough foreign exchange reserves. The Bank is responsible for the management of the foreign exchange rate. The apex bank floated the naira as it introduced the foreign exchange policy which allows for the determination of the exchange rate by market forces of demand and supply. But despite the policy shift, scarcity of dollar has not allowed naira any relief as demand for dollars always surpasses supply. Generally, different types of exchange rate regimes exist to shape the strength of the currency of a nation. In support of this assertion, Oleka, (2012) noted that the determination of price of a currency is dependent upon the decision of central authority's monetary policy and some time by the forces of demand and supply. The decision can allow any of the followings, floating, fixing intermediation between floating and fixing or managed floating. Whichever one a country adopts determines the level of impact the policy will have on the economic growth of such a nation. In Nigeria, this usually could be fixed or floating/fluctuating exchange rate regimes. The level of impact varies from country to country depending on the relationship between her import and export, the extent to which the economy is diversified, the quantum of foreign direct investment in the economy and other such related factors. It is important to point out that Nigeria introduced the second-tier foreign exchange market (SFEM) in 1986 sequel to SAP. Under SFEM, the determination of the naira exchange rate was based on market forces. This is a regime which allowed the exchange rate to be determined by the interactive forces of demand and supply. Nigeria later moved into the regime of managed float where monetary authorities intervene periodically in the foreign exchange market with a view to attaining strategic objectives, (Mordi, 2006).

#### **1.2 Statement of the Problem**

A lot of empirical literatures have been done in the past on the impact of exchange rate on economic growth mainly on the economies of developed nations, only very few have been carried out in emerging economies in which Nigeria is one of them. Even the few available ones in Nigeria, the concentrations are mainly on the effects of exchange rate movements on economic growth, not using floating exchange rate as a single variable. Many have agreed that there is no direct relationship between foreign exchange rate policy and economic growth in Nigeria, (Adeniran, Yusuf and Adeyemi 2014), Asher, (2012). Others have argued that there is a significant and positive link between exchange rate movements and economic growth, (Akpan and Atan, 2014). These arguments have not been empirically settled in Nigeria and thus, the essence of this research.

In view of the above, the objective of this study is to examine the impact of floating exchange rate on economic growth of Nigeria and finally look into the mitigating measures to navigate the harsh effect of the policy on economic growth in Nigeria. To achieve this objective, the study hypothesized that floating exchange rate has no impact on economic growth of Nigeria.

Following this introduction, the paper presents the theoretical framework and empirical evidence on the potential links between floating exchange rate and economic growth. This is extended to include the opinion of analysts from Cowry Assets Management Limited on the policy decision of floating the naira exchange rate by the Central Bank of Nigeria. Next, how the decision can impact the economy on several fronts is highlighted. Analytical framework is then presented and empirical results discussed. The last section provides the conclusion, recommendations and contribution of the study to knowledge.

## **II. Theoretical Framework**

Recent theoretical studies have tried to establish precise mechanism through which exchange rate movements influence economic growth. For example, the major theory regarding the development of exchange rate regimes dates back to July 1944, in the Bretton Woods Conference which took place in New Hampshire. In that conference, 44 countries which are allies in the World War II met and established the International Monetary Fund (IMF) and the International Bank for Reconstruction and Development (IBRD). The aim was to set guiding rules for a fixed exchange rate regime and this was actualized. This regime operated until 1971, when “President Richard Nixon took the United States off the gold standard” and by 1973 the system completely collapsed and participating countries were allowed to float their currencies freely.

The upshot of these theoretical studies is that floating exchange rate policy leads to stronger economic growth. Floating exchange regime takes place when the currency price is allowed to be determined by the forces of demand and supply of other currencies in the foreign market without undue intervention of regulatory authorities. These theoretical studies postulate that floating exchange rate regime occurs through a private market determined situation involving the supply and demand of currencies. This theoretical definition is supported by the view held by Montiel (2003) that the exchange rate of one currency versus the other is influenced by numerous fundamental and technical factors. The factors include but are not limited to the followings; supply and demand of two currencies, economic performance, inflationary trend, interest rate differentials, and capital flows, technical supply and resistance level.

The Optional Currency Area theory propounded by McKinnon (1963) is another widely used theory which discusses the decision as to the choice of exchange rate regime a country can adopt. This theory discusses trade and liberalization of businesses and conceptualizes what they called the symmetry of shocks, the degree of openness and labour market mobility. It postulates that a fixed exchange rate can increase trade and growth in output by lowering uncertainty in exchange rate and encourage investment by reducing interest rates. This is not always the case as it was also shown that a fixed exchange rate can equally reduce trade and growth in output by delaying or slowing down relative price adjustment mechanism. This situation supports the argument for a floating exchange rate regime which allows monetary policies to be useful for other purposes. For instance, a system of floating exchange rate allows policy makers like CBN the freedom to pursue other goals such as achieving employment, interest rate and price stabilities as against being solely committed to the single goal of maintaining exchange rate at a fixed level under fixed exchange regime.

Azeez, Kolapo and Ajayi (2012) noted that the CBN policy decision of floating the naira exchange rate will impact the economy on several expectations, like capital market activities witnessing gradual recovery as a result of reduction of foreign exchange risk that will accrue from the adoption of floating exchange rate regime by the CBN. Again, foreign exchange inflows from domiciliary accounts increasing as a result of minimization in foreign exchange risk.

However, the choice of adopting fixed or floating exchange rates regime varies from country to country. However, there is no theoretical agreement as to the choice of regime and its impact on economic growth. In support of this assertion, Montiel (2003) noted that there are factors such as market dept, political environment; institutional frameworks, financial structures determine which exchange rate regime is appropriate for an emerging economy like Nigeria. Some studies in developing economies in which Nigeria is one of them recognise the importance of the effect of the level of development to the relationship between exchange rate regime and economic growth, (Bornstein and Lee (2002).

### **2.1 Empirical Review**

A lot of empirical literatures have been done in the past on the impact of exchange rate on economic growth. Findings from those works threw up many revelations on the responsiveness of GDP to exchange rates in Nigeria. For example, Adeniran, Yusuf and Adeyami, (2014) carried out an empirical study on the impact of exchange rate fluctuations on the Nigerian economic growth and found out that exchange rate has significant relationship with economic growth. Their findings equally revealed that a fall in exchange rate brings about a

decrease in growth rate of the Nigerian economy. This result is in total agreement with the result of the empirical study carried out by Asher, (2012) on the impact of exchange rate on the Nigerian economic growth for the periods between 1980 and 2010. The findings of his work revealed that real exchange rate has a positive impact on economic growth. The empirical study carried out by Akpan and Atan (2014) on the effects of exchange rate movement on economic growth in Nigeria found that Nigeria's economic growth has been directly affected by monetary variables which include exchange rates. Thus, floating exchange rate has positive and significant impact on the economic growth of Nigeria. This finding is in line with the findings in the study of Obansa, Okoroafor, Aluko and Millicent (2013) which empirically examined the relationship between exchange rate and economic growth in Nigeria between 1970 and 2010. The findings of their work revealed that exchange rate liberalization was good for Nigeria economy as it would promote economic growth. In a similar vein, Azeez, Kolapo and Ajayi (2012) did a work on the effect of exchange rate volatility on macroeconomic performance from 1986 to 2010 and found that floating exchange rate impacts positively on the Gross Domestic Product (GDP) which is a measure of economic growth. From this finding it can be deduced that floating exchange rate (liberalization) rather than fixed exchange rate impacts on the economic growth significantly and positively.

This finding is in total contrast with the findings of Aliyu (2011) in an empirical study which he carried out on the impact of floating exchange rate regime on economic growth of Nigerian economy. His result revealed in contrast that floating exchange rate brings about currency depreciation especially in developing countries like Nigeria with weak export potential. His results explained that exchange rate depreciation gives rise to increased export and reduced import while exchange rate appreciation will increase import and reduce export, (Aliyu 2011).

### III. Methodology

In this study, data were sourced from CBN Statistical Bulletin of various issues and through the website. The study period covers from 1986 to 2015. The use of 1986 as base year is significant and justifiable because that was the year the Nigerian government introduced Structural Adjustment Programme (SAP). From that period, the monetary authority shifted from fixed exchange rate regime to flexible exchange rate regime of varying degrees up to 2015.

The data used for this study were arrived at by using annualized data on some of the major Nigerian's macro-economic indicators like Gross Domestic Product (GDP), Exchange Rate (EXR), Interest Rate (INTR) and Inflation Rate (IFR). The ordinary Least Square (OLS) regression was used as the estimation technique in the study to determine the impact of floating exchange rate on economic growth proxy by GDP growth rate.

#### 3.1 Model Specification.

The model for this study was structured to empirically reveal the impact of floating exchange rate on the growth of Nigerian macroeconomic variables. These variables- exchange rate, interest rate and inflation rate are independent variables that impacted on the GDP which is the dependent variable. In this study, floating exchange rate is the variable of interest while, interest rate and inflation rate are moderators (controllers) moderating or controlling the relationship between floating exchange rate and GDP. To represent these, the hypothesis of this study which stated that floating exchange rate has no impact on economic growth of Nigeria was modelled using a classical linear regression equation adopted by Brooks (2014) thus:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots + \beta_n + e \dots\dots\dots 1$$

To capture the floating exchange rate regime on gross domestic product (GDP), the essential variables are fitted into the Classical Linear Regression Model (CLRM) as shown thus:

$$GDPGR_t = \beta_0 + \beta_1 (EXR_t) + \beta_2 (INTR_t) + \beta_3 (INR_t) + e_t \dots\dots\dots 2$$

**Where:**

GDPGR = Gross Domestic Product Growth Rate

EXR = Exchange Rate

INTR = Interest Rate

INFR = Inflation Rate

$\beta_0$  = Intercept of the regression equation

$\beta_1 - \beta_3$  = Coefficient slope of the independent variables

e = Error term

Apriori expectation=  $\beta_1, \beta_2 > 0$  and  $\beta_3 < 0$

**Table 1:** Research Data Nigerian GDP Growth Rate, Exchange Rate, Interest Rate and Inflation Rate (1986 to 2015)

Year	GDP Growth Rate	Exchange Rate	Interest Rate	Inflation Rate
1986	3.7	2.02	9.93	6.25
1987	0.5	4.02	13.96	11.65
1988	9.2	4.54	16.62	34.24
1989	7.3	7.39	20.44	49.02
1990	8.3	8.04	25.30	7.80
1991	4.6	9.91	20.04	12.195
1992	3.0	17.30	24.76	44.565
1993	2.7	22.05	31.65	57.14
1994	1.3	21.89	20.48	57.42
1995	2.2	81.20	20.23	72.73
1996	3.4	81.20	19.84	29.29
1997	3.2	82.00	17.80	10.67
1998	2.4	84.0	18.18	7.86
1999	2.8	93.95	20.29	6.62
2000	3.9	102.10	21.27	6.94
2001	4.6	111.93	23.44	18.87
2002	3.5	121.00	24.77	12.88
2003	10.335	129.30	20.71	14.03
2004	10.5	133.50	19.18	15.00
2005	5.393	131.66	17.95	17.86
2006	6.211	128.65	16.90	8.22
2007	6.972	134.05	16.94	5.42
2008	5.9846	132.37	15.48	11.58
2009	6.96	132.60	18.36	12.54
2010	7.161	148.68	17.59	13.72
2011	7.356	146.20	16.02	10.80
2012	6.322	150.20	12.00	12.20
2013	7.161	156.00	12.00	10.67
2014	6.31	158.55	11.36	8.0
2015	2.653	192.44	13.60	9.0

Source: CBN Statistical Bulletin of various issues

Table 2: Regression Result and Analysis

Unrestricted Test Equation:

Dependent Variable: GDPGR

Method: Least Squares

Date: 09/13/16 Time: 13:52

Sample: 1986-2015

Included observations: 30

**Table 2:** Regression Result and Analysis

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.150732	1.440283	0.798963	0.4316
LNEXR	0.127142	0.094703	1.342530	0.1910
LNINFR	-0.129163	0.196866	-0.656099	0.5175
LNINTR	0.059619	0.537606	0.110898	0.9125
R-squared	0.104041	Mean dependent var		1.483445
Adjusted R-squared	0.000662	S.D. dependent var		0.657681
S.E. of regression	0.657463	Akaike info criterion		2.122709
Sum squared resid	11.23870	Schwarz criterion		2.309535
Log likelihood	-27.84064	Hannan-Quinn criter.		2.182476
F-statistic	1.006399	Durbin-Watson stat		1.552756
Prob(F-statistic)	0.405718			

The regression result was arrived at after using unit root test for exchange rate, interest rate and inflation rate to sanitize and confirm the data used in the work. See Appendices I-V for guidance and clarification.

#### **IV. Discussion of the Regression Results**

From the regression result showed above, the two explanatory variables of interest Floating Exchange Rate (LNFEXR) showed a positive and significant relationship with economic growth. However, the estimated coefficients of 0.127142 (Exchange Rate) indicates that a unit change in exchange rate will cause 12.71% increase in GDP. It can be deduced in other words, that a 1% increase in LNFEXR produces a 13% increase in economic growth rate when other variables are being equal. In other words, the result from the analysis revealed that floating exchange rate has positive and significant impact on the economic growth of Nigeria, since the rate of increase in exchange rate in relation to the rate of increase in GDP growth rate is positive (13%). This finding is in line with the results from the works of Adeniran, Yusuf and Adeyemi (2014) which established that floating exchange rate has positive and significant impact on economic growth and Asher (2012) who held the same view that floating exchange rate has positive and significant impact on Gross Domestic Product (GDP).

But for LNINTR, it showed a positive but not significant relationship with economic growth (GDP), as it produces just a 06% increases in economic growth. This is very low and insignificant, showing that the economy of Nigeria will record only 06% increases if all other variables are held constant. In other words, the estimated coefficient of 0.059619 (Interest Rate) is an indicative that a unit change in interest rate will cause an insignificant increase of 06% in GDP. This is enough indicative that though the relationship is positive but not significant enough as the outcome (06%) is less than 1%.

For inflation as a control variable, it produces a reduction in economic growth as indicated by the estimated coefficient of minus sign thus; -0.129163 (Inflation rate). This is an indicative that a unit change in inflation rate will cause more than 100% decrease in GDP, hence inflation has negative impact on economic growth. This finding is in total agreement with the results in the empirical work of Bornstein and Lee (2002) which revealed that high inflation rate impacts negatively on economic growth.

#### **V. Summary of Findings**

The findings of this study were summarized thus:

1. Floating exchange rate regime has positive and significant impact on economic growth (GDP).
2. Economic growth (GDP) is impacted positively but not significantly by interest rate
3. High inflation rate impacts negatively on the growth of Nigerian economy.

#### **5.1 Conclusion and Recommendations**

The outcome out of the above findings is that floating exchange rate has positive and significant impact on economic growth (GDP) in Nigeria. Though, contrary to our findings, now that Nigeria has floated her exchange rate, leaving it to be determined by the forces of demand and supply, the value of the naira has depreciated not because of the policy but because of our weak export potential. In other words, it is not the floating exchange rate policy that has bastardized the value of our naira but over dependence on importation and income from oil. Nigeria has weak export base and depends largely on income from oil which prices has plummeted in the international oil market. These coupled with the vandalism of the pipelines and insurgent activities by militants have crippled our economy, hence naira depreciation. Worst still, income from non-oil sectors like agriculture, manufacturing, mining, etc is not sufficient as to write home about. As a matter of facts, the combination of these factors bastardized the goal of floating exchange rate regime and brought about negative economic snores on the citizens.

Hence, this study suggested that the ways out of this economic quagmire are;

1. Nigeria Government should show committed leadership by discouraging importation and encourage exportation at all cost.
2. There is need to encourage diversification of the economy away from oil with a view to expanding export of non-oil goods and services to strengthen naira exchange rate under the floating regime.
3. In addition, there should be heavy investment in infrastructural development such as good road, electricity, pipe born water to encourage industries and manufacturing companies to go into massive production of goods and services enough to serve the surging population.
4. There is urgent need to tighten up security in this nation to create enabling environment in Nigeria for the mass entrant of Foreign Direct Investment (FDI). The government should make serious move to curb insecurities in this nation, ranging from waging a hazardous war against the Boko Haran sects to flushing out treats from Fulani herds' men in this country. This will guarantee security of lives and properties hence, increase in FDI inflows with the resultant expansion in employment opportunities and thus increase economic activities which will in turn engender robust economic growth.

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APPENDICES

1. Descriptive Statistics of the Work

	EXR	GDPGR	INFR	INTR
Mean	90.95800	5.197287	19.84350	18.56967
Median	107.0150	4.996500	12.19750	18.27000
Maximum	192.4400	10.50000	72.73000	31.65000
Minimum	2.020000	0.500000	5.420000	9.930000
Std. Dev.	58.94382	2.622766	18.07692	4.668589
Skewness	-0.349029	0.264210	1.621757	0.455134
Kurtosis	1.736429	2.239940	4.401223	3.618044
Jarque-Bera	2.604872	1.071150	15.60476	1.513206
Probability	0.271869	0.585333	0.000409	0.469258
Sum	2728.740	155.9186	595.3050	557.0900
Sum Sq. Dev.	100756.8	199.4881	9476.472	632.0761
Observations	30	30	30	30

II. Unit Root Test for Exr

Null Hypothesis: D(LNEXR) has a unit root

Exogenous: None

Lag Length: 0 (Automatic - based on SIC, Maxlag =7)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-4.788945	0.0000
Test critical values:		
1% level	-2.650145	
5% level	-1.953381	
10% level	-1.609798	

\*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(LNEXR,2)

Method: Least Squares

Date: 09/13/16 Time: 13:35

Sample (adjusted): 1988 2015

Included observations: 28 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LNEXR(-1))	-0.836672	0.174709	-4.788945	0.0001

R-squared	0.458224	Mean dependent var	-0.017660
Adjusted R-squared	0.458224	S.D. dependent var	0.405795
S.E. of regression	0.298687	Akaike info criterion	0.456221
Sum squared resid	2.408779	Schwarz criterion	0.503800
Log likelihood	-5.387097	Hannan-Quinn criter.	0.470767
Durbin-Watson stat	2.102627		

### 111 Unit Root Test for GDPGR

Null Hypothesis: D(LNGDPGR) has a unit root

Exogenous: None

Lag Length: 1 (Automatic - based on SIC, Maxlag=7)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-5.222739	0.0000
Test critical values:		
1% level	-2.653401	
5% level	-1.953858	
10% level	-1.609571	

\*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(LNGDPGR,2)

Method: Least Squares

Date: 09/13/16 Time: 13:38

Sample (adjusted): 1989 2015

Included observations: 27 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LNGDPR(-1))	-1.151118	0.220405	-5.222739	0.0000
D(LNGDPR(-1),2)	0.050234	0.118672	0.423300	0.6757

R-squared	0.756712	Mean dependent var	-0.139955
Adjusted R-squared	0.746980	S.D. dependent var	0.828492
S.E. of regression	0.416741	Akaike info criterion	1.158482
Sum squared resid	4.341820	Schwarz criterion	1.254470
Log likelihood	-13.63951	Hannan-Quinn criter.	1.187024
Durbin-Watson stat	1.806575		

### 1V Unit Root for INFR

Null Hypothesis: D(LNINFR) has a unit root

Exogenous: None

Lag Length: 0 (Automatic - based on SIC, Maxlag=7)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-4.825904	0.0000
Test critical values:		
1% level	-2.650145	
5% level	-1.953381	
10% level	-1.609798	

\*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation  
 Dependent Variable: D(LNINFR,2)  
 Method: Least Squares  
 Date: 09/13/16 Time: 13:41  
 Sample (adjusted): 1988 2015  
 Included observations: 28 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LNINFR(-1))	-0.909468	0.188456	-4.825904	0.0000
R-squared	0.462865	Mean dependent var		-0.018384
Adjusted R-squared	0.462865	S.D. dependent var		0.881237
S.E. of regression	0.645854	Akaike info criterion		1.998575
Sum squared resid	11.26245	Schwarz criterion		2.046154
Log likelihood	-26.98005	Hannan-Quinn criter.		2.013121
Durbin-Watson stat	1.948515			

**V Unit Root for LNINTR**

Null Hypothesis: D(LNINTR) has a unit root  
 Exogenous: None  
 Lag Length: 0 (Automatic - based on SIC, Maxlag=7)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-4.825904	0.0000
Test critical values: 1% level	-2.650145	
5% level	-1.953381	
10% level	-1.609798	

\*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation  
 Dependent Variable: D(LNINTR,2)  
 Method: Least Squares  
 Date: 09/13/16 Time: 13:41  
 Sample (adjusted): 1988 2015  
 Included observations: 28 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LNINTR (-1))	-0.909468	0.188456	-4.825904	0.0000
R-squared	0.462865	Mean dependent var		-0.018384
Adjusted R-squared	0.462865	S.D. dependent var		0.881237
S.E. of regression	0.645854	Akaike info criterion		1.998575
Sum squared resid	11.26245	Schwarz criterion		2.046154
Log likelihood	-26.98005	Hannan-Quinn criter.		2.013121
Durbin-Watson stat	1.948515			