International Journal of Management and Human Science (IJMHS), Volume 4, Issue 4, Pages 11-18, 2020
eISSN: 2590-3748
URL: http://www.ijmhs.org

The Relationship Between the Exchange Rate Fluctuations and Economic Growth in Nigeria

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Abstract

This study investigated the relationship between the exchange rate fluctuations and economic growth in Nigeria to determine the extent at which exchange rate fluctuations influence economic growth in Nigeria between 1997 and 2017. Descriptive research design was adopted. Secondary data on gross domestic product (GDP), exchange rate and inflation rate were obtained from the Central Bank of Nigeria (CBN) bulletins between 1997 and 2017. Ordinary least square method and Pearson's product moment correlation were used to analyse the data collected. The study revealed decline in Nigeria economic growth since 2002 as shown by continuous drop in GDP. Study also showed that there is a significant relationship ($F (1, 19) = 34.627$; Adj $R2 = 0.627$; $p<0.05$) between exchange rate fluctuation (inflation rate, foreign exchange and debt) and economic growth. The findings of this study indicated a multiple regression coefficient ($R = 0.042$), which means that though inflation rate was found to be positive and high but without significant relationship to economic growth. It is therefore recommended that fiscal and monetary policy authority should implement policies and programmers that will ensure that the country's currency is in high demand in the exchange market. This will increase the nation's gross domestic product and foreign earnings thereby strengthening the nation's currency in the exchange market, enhancing exchange rate stability and reduce inflation rate.

Keys words: Economic growth, exchange rate fluctuations, inflation rate, gross domestic product

1- Introduction

Productivity and level of human capital development of a country are important indices for determining the level of economic growth. Economic growth is usually measured in terms of increase in physical capital, human capital, labour force, and technology. Every nation aims at achieving sustainable economic growth. Sustainable economic growth cannot be achieved without exchange rate stability. This is because fluctuation of real exchange rate can cause high fluctuation in foreign trade and balance of payments. Inappropriate exchange rate policies are capable of having adverse effects on economic growth of a country This is because there is a positive relationship between economic growth and exchange rate system. According to Umaru and Zubairu, (2012)

exchange rate stability will promote purchasing power of the domestic currency which is instrumental to economic growth.

Economic growth is a positive change in the production of goods and services in an economy. It can also be referred as increase in inflation-adjusted market value of goods and services produced by an economy over a period of time. It occurs when there is an increase in capital goods, labour force, technology, and human capital. It is measured in terms of the increase in aggregated market value of additional goods and services produced, using estimates such as gross domestic product (GDP). When an increase in the quantity of physical capital goods in the economy results to increase in productivity of labor, an economy is said to be growing. Meaningful economic growth cannot be achieved without stable exchange rate.

Exchange rate is the rate at which a country's currency is exchanged for another country's currency. It is the price of one country's currency expressed in terms of some other country's currencies. It determines the relative prices of domestic and foreign goods, as well as the strength of external sector involvement in international trade. Aliyu (2011) opined that an appreciation in exchange rate will lead to an increase in imports and a reduction in exports while a depreciation would expand export and discourage import. Also, depreciation of exchange rate tends to cause a demand shift from foreign goods to domestic goods. Hence, it leads to diversion of income from importing countries to exporting countries through a shift in terms of trade and this tends to have impact on the exporting and importing countries' economic growth.

Hossain (2002) agreed that exchange rate assists in connecting the price systems of two different countries. This is because it gives room for international trade, which has direct effect on the volume of imports and exports. A properly managed exchange rate can enhance a country's economic growth because there seems to be strong connection between economic growth and real exchange rate depreciation. Hausmann, Pritchett, and Rodrik (2005) and Rodric (2009) argued that real undervaluation enhances economic growth and increases profitability of the tradable sector. This leads to an increase in the share of trade in domestic value added. They claimed that the tradable sector in developing countries can be too small because it suffers more than the non-tradable sector from institutional weaknesses and market failures. A real exchange rate undervaluation works as a second-best policy to compensate for the negative effects of these distortions by enhancing the sector's profitability. Higher profitability promotes investment in the tradable sector, which then expands, and promotes economic growth. It is noteworthy that countries with more flexible exchange rate grow faster.

Nigerian economy had experienced fluctuations in different sectors in the 70s and mid 80s under the regulated regime. Gbosi, (2005) argued that the inconsistency in economic policy formulation promotes instability in the country currency exchange rate. Adewuyi, (2005) submitted that Nigerian government has over the years engaged in international trade with series of exchange rate policies to promote trade. Although a number of exchange rate reforms or depreciations have been carried out by successive governments, the extent to which these policies have been effective in promoting export has remained uncertain. This is because Nigeria non-oil export is very small.

According to Ogun (2006) the non-oil export grew at an average of 2.3% between 1960 and 1990, while its share of total export declined from about 60% in 1960 to 3.0% in 1990. This made the country to experience series of changes in inflation rate, fluctuating foreign exchange rate and economic instability. This study aims at investigating the relationship between the exchange rate fluctuations and economic growth with the view to identify factors that are responsible for exchange fluctuations and provide solutions to reduce their effects on Nigeria economy.

2- Statement of the Problem

Exchange rate stability is an important index that promotes foreign trade and balance of payments. Sustainable economic growth cannot be achieved without exchange rate stability. Nigerian economy appears to have been experiencing low growth due to fluctuations in exchange rate in different sectors arising from inconsistent economic policy formulation and series of exchange rate policies. Although a number of exchange rate reforms or depreciation has been carried out by successive governments, the extent to which these policies have been effective in promoting export has remained elusive. This is because Nigeria non-oil export accounts for less than 9% of the nation's total annual export in more than two decades ago. Since price of crude oil is determined by Organisation of Petroleum Exporting Countries (OPEC) at the international market, any change in the price of crude oil usually results to serious fluctuation in the foreign exchange. This seems to cause series of changes in inflation rates, foreign exchange rate and economic instability in Nigeria. This study attempts to investigate the relationship between the exchange rate fluctuations and economic growth with a view to identifying factors that are responsible for exchange rate fluctuations and provide solutions to reduce their effects on Nigerian economy.

3- 3- Objectives of the Study

This study is designed to investigate the relationship between exchange rate fluctuations and economic growth. The specific objectives of this study are:

i. to determine the rate of economic growth in Nigeria between 1997 and 2017 using gross domestic product (GDP).

ii. to investigate the extent at which exchange rate fluctuations influence economic growth in Nigeria between 1997 and 2017.

4-RESEARCH QUESTIONS

The following research questions were answered in this study;

i. What is the economic growth rate in Nigeria as measured by the growth in gross domestic product (GDP) between 1997 and 2017?

ii. To what extent did exchange rate and inflation rate influence economic growth as measured by the gross domestic product (GDP) in Nigeria between 1997 and 2017?

4- 5- Research Hypotheses

The following hypotheses were tested:

H_1: There will be no significant relationship between exchange rate fluctuation and economic growth
H_2: There will be significant relationship between economic growth and inflation rate.

6-*Literature Review*

6.1 An Overview of Nigerian Economy and its Growth

Before the discovery of crude oil in Nigeria in 1956, Nigeria economy relied on exportation of primary products mostly agricultural products and solid mineral resources like barites, coal, gold, graphite, marble, iron ore, salt, soda, sulphur, tantalite, tin, and uranium. Since 1970s, petroleum has become the most important single commodity in the Nigerian economy and sales of petroleum accounts for about 90 per cent of the Nigeria's export earnings and about 75 per cent of government revenues. Balogun (2007) asserted that the growth and development of the Nigerian economy from self-rule to current period can be categorised into five phases: The pre-oil boom phase (1960- 70); the oil boom (1971 -1977); stabilisation and structural adjustment (1986-1993); deregulation era (1994-1998); and consolidation (1999 to date). In the pre-oil boom phase, agriculture accounted for 65 per cent of GDP and about 70 per cent of total exports. the economy was exemplified by an intense dependence on crude oil production. According to Iyoha and Oriakhi, (2002), the contribution of agriculture to the GDP reduced to about 21 per cent in 1977 because of the discovery of crude oil. This led to various modifications in the real sector of the economy.

The weak productive base and heavy reliance on crude oil exportation contributed to unfavorable policy formulation and implementations that resulted to substantial increase in Nigeria's external debt from \$4.3 billion to \$ 11.2 billion. Majority of the borrowings were short-term loans with floating interest rates. In order to address structural financial imbalance in Nigerian economy, a structural adjustment programme (SAP) was adopted in 1986 as a mechanism to appropriate and stabilize the imbalances within the Nigerian economy. The benefits from Structural Adjustment Programme was short-lived and insignificant because GDP over this period increased by 1.1% (from 1.3% in 1994 to 2.4% in 1 998). This is because population growth in relation to the GDP during this period had negative effect on the welfare of the population coupled with high rate of inflation that reduced the living standard of an average Nigerian. This led to policies on economic deregulation which constrained economic growth and contributed to the problem of low capacity utilization, unemployment and inflation.

The consolidation period was characterized with the imposition of fiscal discipline through a fiscal responsibility bill (FRB). This led to tax reform to encourage private investments and interest rate liberalization to enable banks' and other financial institutions' operations to be governed by market forces. This made market to determine exchange rates which resulted to currency devaluations. According to (2013) world bank report, Nigerian economy reflected positive growth over the last decade with an average growth of about 8% .This implies that the size of the Nigerian economy is 170% times larger today than at the beginning of the decade. Growth in the non-oil sector was about 240% greater than what it was a decade ago. Annual GDP growth did not decline below 6%.

Trade and agriculture comprised 75% of the non-oil sector. Significant growth was also observed in the telecommunications sector. Real estate and housing/construction also witnessed two-fold digit growth in recent years.

6-2 Developments in Exchange Rate Policy in Nigeria

Exchange rate policies are aimed at determining an appropriate rate and ensuring their stability. Exchange rate arrangements in Nigeria transited from a fixed regime in the 1960s to a pegged regime between the 1970s and the mid-1980s. Finally, to the various variants of the floating regime from 1986 with the deregulation and adoption of the structural adjustment programme (SAP).

The failure of the variants of the flexible exchange rate mechanism (i.e AFEM introduced in 1995 and IFEM in 1999) at ensuring exchange rate stability led to the re-introduction of the Dutch Auction System (DAS) on July 22, 2002. The DAS was designed to provide three purposes of reducing the parallel market premium conserve the dwindling external reserves and achieve a realistic exchange rate for the naira. The DAS assisted in stabilizing the naira exchange rate, reduce the widening premium, conserve external reserves and minimize speculative tendencies of authorized dealers among other. The foreign exchange market has been relatively stabilized since 2003. Mordi (2006) opined that the requirements that facilitated the re-introduction of DAS in 2002 included, the external reserve position which could assure adequate funding of the market by the

CBN. It was also aimed at reducing inflationary pressures; instrument autonomy of the CBN and its prompt deployment of monetary control instruments in support of the DAS as well as the bi- weekly auctions as against the previous fortnightly auctions, thus assuring a consistent supply of foreign exchange.

The CBN introduced Wholesale Dutch Auction System (WDAS) in February 20, 2006 to liberalize the market, narrow the arbitrage premium between the official interbank and bureau de change segments of the markets and also to achieve convergence. This was to consolidate the benefits of the retail Dutch Auction System as well as deepening the foreign exchange market in order to develop a realistic exchange rate of naira. This arrangement enabled the authorized dealers to deal in foreign exchange on their own accounts for onward sale to their customers. Akpan (2008) conducted a study on foreign exchange market and economic growth in an emerging petroleum-based economy from 1970-2003 in Nigeria. Positive relationship was found to exist between exchange rate and economic growth. Obansa, *et_al* (2013) investigated the relationship between exchange rate and economic growth in Nigeria between 1970–2010. The findings of the study revealed that exchange rate has a strong impact on economic growth. The study recommended that exchange rate liberalization will promote Nigerian economy. Further, Azeez, Kolapo and Ajayi (2012) examined the effect of exchange rate volatility on macroeconomic performance in Nigeria between 1986 and 2010. The study showed that exchange rate is positive related to gross domestic product. Adeniran, Yusuf and Adeyemi (2014) adopted correlation and regression of ordinary lease square (OLS) to analyse the impact of exchange rate fluctuation on the Nigeria economic growth between 1986 and 2013. The study found that exchange rate has positive impact but not significant on Nigeria economy. Their findings further revealed that interest and inflation rates have negative impact on Nigeria economic growth.

7-*Methodology*

This study adopted descriptive survey research design. Data on Nigeria gross domestic product (GDP), exchange rate and inflation rate were collected from Central Bank of Nigeria (CBN) bulletins between 1997 and 2017. Ordinary least square method and Pearson’s product moment correlation were used to analyse the data.

8-Results and Discussion of Findings

Research question one: What is the economic growth rate in Nigeria as measured by the gross domestic product (GDP) between 1997 and 2017?

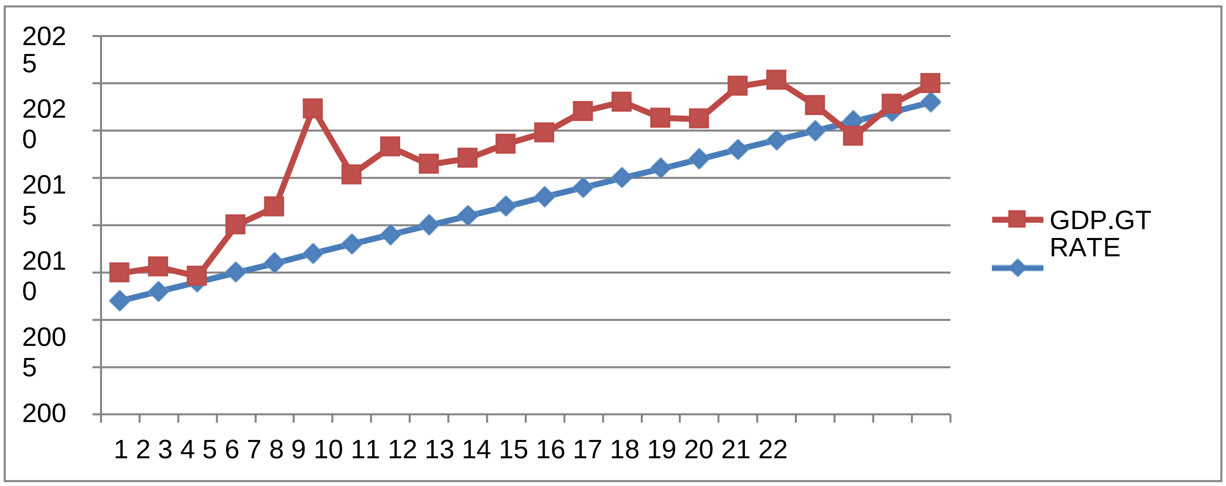
Table 1 : Showing Nigeria Gross Domestic Product Growth Rate (GDP), Exchange Rate and Inflation Rate

YEARS	GDP ANNUAL GROWTH RATE in %	ANNUAL EXCHANGE RATE	ANNUAL INFLATION RATE in %
1997	2.94	21.8861	-5.6657
1998	2.58	21.886	17.0501
1999	0.58	92.3381	35.2295
2000	5.02	101.697	-0.3226
2001	5.92	111.231	39.8967
2002	15.33	120.578	11.1409
2003	7.35	129.222	-0.1578
2004	9.25	132.888	22.0244
2005	6.44	131.274	17.3378
2006	6.06	128.652	4.77074
2007	6.59	125.808	10.8353
2008	6.76	118.546	-4.3206
2009	8.04	148.902	103.823

2010	8.01	150.298	9.5101
2011	5.31	153.862	9.27125
2012	4.23	157.499	5.8733
2013	6.67	157.311	4.66262
2014	6.31	158.553	2.86367
2015	2.65	192.441	9.54367
2016	-1.62	253.492	9.54367
2017	0.81	287.232	0

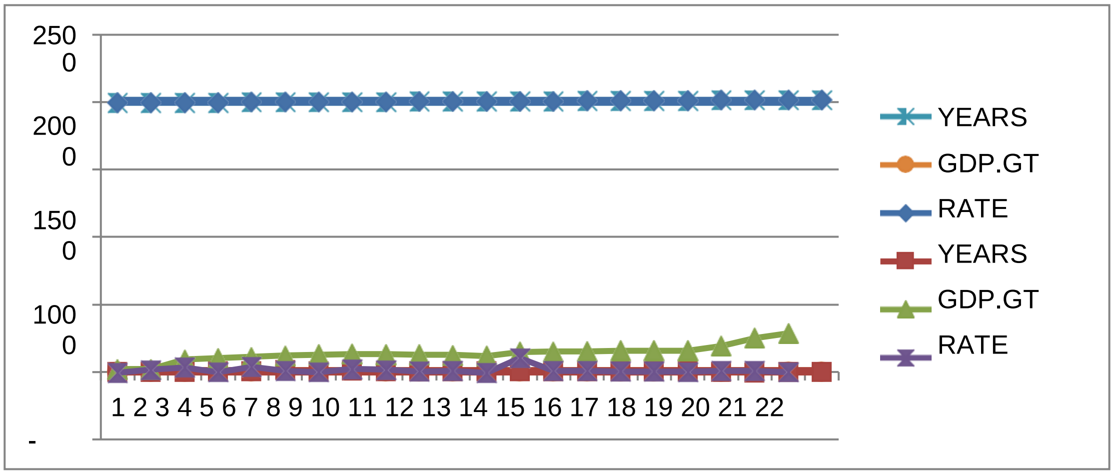
Source: Central Bank of Nigeria (CBN) bulletins between 1997 and 2017

Chart showing Annual Growth Rate in Gross Domestic Product(GDP) Between 1997 and 2017



According to the above table and chart, the gross domestic product (GDP) as a measure of economic growth through productivity increased by 80.8% from 2.94 in 1997 to 15.33 in 2002 and reduced by 57% to 6.59 in 2007. Also between 2007 and 2012, the GDP declined by 35.8% between 2007 and 2012 and further declined by 88.9% in 2017.This shows that Nigeria economy has been experiencing decline in her economic growth since 2002 occasioned by continuous drop in GDP. **Research question two:** To what extent did exchange rate and inflation influence economic growth as measured by the gross domestic product (GDP) in Nigeria between 1997 and 2017.

Chart showing Annual Growth Rate in Gross Domestic Product (GDP), Exchange Rate and Rate of Inflation in Nigeria between 1997 and 2017



The study revealed a continuous increase in exchange rate which caused a wide fluctuation in inflation rate. The inflation rate was -5.65 in 1997. It increased to 11.14 in 2002, reduced to 10.84 in 2007, increased to 5.87 in 2012 and dropped to 0 in 2017. This made the gross domestic product (GDP) as a measure of economic growth through productivity increased by 80.8% from 2.94 in 1997 to 15.33 in 2002 and reduced by 57% to 6.59 in 2007. Also, between 2007 and 2012, the GDP declined by 35.8% between 2007 and 2012 and further declined by 88.9% in 2017. The decline in GDP was as a result of continuous increase in exchange rate between Nigeria currency and other countries' currencies which was 22.89 in 1997, 120.58 in 2002, 125.81 in 2007, 157.50 in 2012 and 28,23 in 2017. This shows that there is a positive relationship among exchange rate, inflation rate and economic growth in Nigeria. The findings of this study agreed with the findings of Akpan (2008), Azeez, Kolapo and Ajayi (2012) and Obansa, et_al (2013) that reported positive relationship between exchange rate and economic growth in Nigeria.

Hypotheses Tested

H_1: There will be no significant relationship between exchange rate fluctuation and economic growth.

Table 2: Relationship between exchange rate fluctuation and economic growth

Sources of Variance	Sum of Squares	Df	Mean Square	F	Significant
Regression	4221.182	1	46761.862	34.627	0.000*
Residual Total	13560.790	19	1350.441		
	17781.972	20			

R = 0.042

R Square = 0.002

Adjusted R Square = 0.052

Std. Error of the Estimate = 61.684

Source: Author's Compilation from E-view Output

Table 2 shows the regression result in which GDP was used as a proxy for economic growth which expressed as an explanatory variable that revealed variations in the dependent variables namely: inflation rate, foreign exchange and debt which is used as a proxy for exchange rate fluctuation. There was relationship between exchange rate fluctuation (inflation rate, foreign exchange and debt) and economic growth. This relationship is shown to be significant ($F_{(1, 19)} = 34.627$; Adj $R^2 = 0.627$; $p<0.05$). This means that when inflation rate, foreign exchange and debt are taken together, they jointly contributed to economic growth. Hence, hypothesis 1 is therefore rejected. In order to explore the relationship between the two variables, exchange rate fluctuation and economic growth, the table further revealed a multiple regression coefficient (R = 0.804), which means that exchange rate fluctuation variables altogether have a positive and moderate significant relationship with economic growth. The table also shows a multiple regression adjusted ($R^2 = 0.627$). An evaluation of the result as shown in the table reveals that 62.7% systematic variation of economic growth can be explained by variation in all explanatory variables of the equation. The remaining 37.3% may be due to other factors and residuals not under investigation in this model. This is in line with the findings of Akpan (2008), Obansa, *et_al* (2013) and Adeniran, Yusuf and Adeyemi (2014) that found positive relationship between exchange rate and economic growth in Nigeria.

H_{o2}: There will be significant relationship between economic growth and inflation rate.

Table 3: Relationship between economic growth and inflation rate.

	Sum of Squares	Df	Mean Square	F	Not significant
Regression	127.133	1	127.133	0.033	0.857
Residual	72293.111	19	3804.901		
Total	72420.244	20			

R = 0.042
R Square = 0.002
Adjusted R Square = 0.052
Std. Error of the Estimate = 61.684

Source: Author's Compilation from E-view Output

Table 2 in the model equally shows the regression result of inflation rate and economic growth. There was relationship between inflation rate and economic growth. This relationship is shown to be insignificant ($F_{(1, 19)} = 0.033$; Adj $R^2 = 0.052$; $p>0.05$). Therefore, the hypothesis is retained. In order to determine the relationship between inflation rate and economic growth, the table further indicates a multiple regression coefficient (R = 0.042), which means that inflation rate was found to be positive and high but insignificant relationship with economic growth. Table 2 also shows a multiple regression adjusted ($R^2 = 0.052$). This is an indication that independent variable accounted for 5.2% of the variance in economic growth. The remaining 94.8% might be captured by other exogenous variables that were not included in the model.

9- Discussion and Conclusion

This study examined exchange rate fluctuation and economic growth in Nigeria between 1997 and 2017. Findings of this study revealed that the official exchange rate of Nigeria had a statistically significant relation with the economic growth of the country between 1997 and 2017. This may be attributed to a rising demand for the country's currency in the exchange market. The analyses also revealed the existence of a negative and statistically insignificant relationship between inflation rate and economic growth. This finding may be attributed to chance or the length of the time series data utilized for this study.

91. Implication to Research and Practice

This study is conducted to fill gaps in the literature on relationship between exchange rate fluctuation and economic growth. The results of this study will be useful to the policy makers on Nigerian economy to formulate policies that will promote Nigeria economic growth through export promotion and reduction in imported goods and services. This will strengthen Nigerian currency and reduce exchange rate fluctuation to barest minimum.

9.2 Future Research

This study was carried out on the relationship between exchange rate fluctuation and economic growth in Nigeria. Further studies can be conducted on the influence of micro and macroeconomic indices on Nigeria economic growth.

9.3 Recommendations

Based on the findings of this study, the following recommendations are made:

The fiscal and monetary policy authorities should implement policies and programmers that will ensure that the country's currency is in high demand in the exchange market. Such policies should

be geared towards reducing import, reducing over dependence on revenue from crude oil, encourage the consumption of locally manufactured goods and services as well as promoting exportation of locally made goods and services. This will increase the nation's gross domestic product and foreign earnings thereby strengthening the nation's currency in the exchange market, enhancing exchange rate stability and reduce inflation rate.

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