

An Empirical Evaluation of the Impact of Exchange Rate on the Nigeria Economy

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ABSTRACT

The research is aimed at empirically evaluating the impact of exchange rate on the economy. Economic inducers such as exchange rate and inflation rate were considered in determining change in Gross Domestic Product (GDP) in Nigeria.

Secondary data collected from Annual Reports of Central Bank of Nigeria (CBN), Nigerian Stock Exchange (NSE), and Nigeria Securities and Exchange Commission (SEC) were analysed through the multiple regression analysis using the Ordinary Least Squares (OLS) method. The result shows that the two factors – exchange rate and inflation rate- impact significantly on the Gross Domestic Product and economic growth of Nigeria.

Exchange rate has a negative impact on the GDP because as it increases, the economic growth is negatively affected, while inflation rate exerts a positive impact on GDP, indicating that firms are more willing to produce when inflation rate is high and vice versa.

In order to enthrone a favourable exchange rate that would boost the nations GDP, the government is therefore advised to make Nigerian economic climate investment friendly by restoring security of lives and property, infrastructural development and improvement of local production in order to reduce the pressure on the dollar. This would go a long way to boost the exchange rate in favour of the naira and hence improve the Gross Domestic Product.

KEYWORDS

- (1) Exchange rate: - This is the rate at which a currency is exchanged for another currency.
- (2) Foreign Exchange Market: - This is a market for trading in foreign currencies and other financial instruments available for international transactions.
- (3) Economic growth: - This refers to the increase in the Gross Domestic Product (GDP) or national output or national income of a country.
- (4) Bureau De Change: - A company or an agent that provides lowvalue foreign exchange services for foreign transactions.

INTRODUCTION

The movement of goods and services across national frontiers in one direction involves the movement of foreign exchange in the opposite direction. This creates the needs for a rate of exchange between the currencies of two trading partners to settle indebtedness arising from trade involving them (Nzotta, 2004).

Exchange rate is a price at which a currency is regulated in the market, which varies at one time or the other. Some factors which cause variations in the exchange rate are government policy, interaction of demand and supply, activities of the Nigerian Stock Exchange (NSE), international trade oil glut and recession.

In the 70s and 80s, agricultural products like cocoa, palm oil, groundnut, rubber etc. contributed majorly to the foreign earnings in Nigeria. However, there were inadequacies in the exchange control system as a major control mechanism. This led to the introduction of the Second-Tier foreign exchange market (SFEM) in 1986. The SFEM was a market established by law for the buying and selling of foreign exchange at market-determined rates.

According to Adekanye (2010), the objectives of the SFEM was to evolve a realistic market-oriented exchange rate for the naira, so as to reduce the demand for foreign exchange to the available supply, reduce the pressures on the balance of payments in order to stop further accumulation of trade debts, reduce imports, stimulate export and pave the way to a self-reliant and sustainable growth.

Unfortunately, the Nigeria foreign exchange market has not performed maximally, even with the introduction of various institutional reforms like Bureau De Change (1989), the Autonomous Foreign Exchange Market (AFEM) (1995), and the Inter-Bank Foreign Exchange Market (IFEM) (1999). The dividing foreign exchange earnings, according to Obadan (2006) has been as a result of some factors like weak capital market, poor management of diversified risk and weakness on the part of Bureau De Change in earning a stable and efficient exchange rate in the Nigeria economy.

The study therefore aimed at examining the impact of the exchange rate system on the economy of Nigeria as a whole, through an empirical evaluation. And also investigate the relationship between the exchange rate and economic growth of Nigeria and thereafter proffer some solutions to the problem of unstable and unpredictable nature of Nigerian exchange rate and foreign exchange earnings.

THEORETICAL FRAMEWORK

The Concept Of Exchange Rate.

Exchange rate is the rate at which a currency is exchanged for another currency. It is referred to as the ratio at which a unit of currency of one country is expressed in terms of another currency. According to Jhingan (2004), the exchange rate between the dollar and the pound refers to the number of dollars required to purchase a pound. dollars required to purchase a pound. The rate is normally determined in the foreign exchange market.

The foreign exchange market is a market where currencies of different countries are bought and sold. It is a market where the values of local and foreign currencies are determined. As noted by Jhingan (2004), the national currencies of all countries are the stock-in-trade of the foreign exchange market, and as such, it is the largest market to be found around the world which functions in every country.

Theories of foreign exchange rate

There are three main theories of the determination of foreign exchange rate. They are as follows:

- (i) The Mint Parity Theory – This theory is associated with the working of the international gold standard. Under this system, the currency in use was made of gold or was convertible into gold at a fixed rate (Jhingan 2004). Here, the value of the currency unit was defined in terms of certain weight of gold and the Central Bank of the country concerned was always ready to buy and sell gold at the specified price. The rate at which the naira could be converted into gold is called the mint price of gold.
- (ii) The Purchasing Power Parity Theory – This Theory states that spot exchange rate between currencies will change to the differential in inflation rate between countries. The theory states that the equilibrium exchange rate between two inconvertible paper currencies is determined by the equality of their purchasing power. That is, the exchange rate between two countries is determined by their relative price levels (Obadan, 2006).
- (iii) The Balance of Payment Theory – This theory stipulates that under free exchange rates, the exchange rate of the currency of a country depends upon its balance of payment. According to Jhingan (2004), a favourable balance of payments raises the exchange rate, while an unfavourable balance of payments reduces the exchange rate. Thus the theory implies that the exchange rate is determined by the demand for and supply of foreign exchange.

Foreign exchange rate policy

- (i) Fixed or Pegged Exchange Rates

The fixed exchange rate is a phenomenon which occurs when the rate of a currency against other currencies is fixed. Under the pegged exchange rates, all exchange transactions take place at an exchange rate that is determined by the monetary authorities (Adetifa, 2005). This connotes that the exchange rate of a currency to other currencies is stable. This allows for an increase in reserve of the country if there is a favourable balance of trade. International trade is encouraged because prices of goods are more predictable and long term capital flows in an orderly manner can be encouraged.

- (ii) Flexible or Fluctuating Exchange Rates

This occurs when the currency of a country against other currencies is not stable. The rates are determined by market forces. This implies that the market is unpredictable, thus, leading to economic instability, high risk, possibility of incurring loss on investment in foreign exchange.

Under a regime of freely fluctuating exchange rates, if there is an excess supply of a currency, the value of that currency in foreign exchange market will fall. This will lead to depreciation of the exchange rate. For example, like we have in Nigeria at present, where the exchange rate of Nigeria naira to America dollar was ₦158 to \$1 as at December 2012 but has moved to ₦168 to \$1 by December 2013 in the open market. This is as a result of high demand for dollar and excess supply of naira.

On the other hand, shortage of a currency will lead to the appreciation of exchange rate thereby leading to restoration of equilibrium in the exchange market. These market forces operate automatically without any actions on the part of monetary authorities (Adetifa, 2005).

Effect of exchange rate on developing nations

The following have been adduced as the effect of exchange rate on economic growth of many developing nations from the research carried out by Roderick (1993), Ajakaiye (2002) and Afolabi (2006).

- (i) Increase in foreign exchange earnings – The foreign exchange reserve of a country is responsive to its exchange rate which has a multiplier effect on the economic growth of a country. When there is more export due to increase in value of a country's currency, this would increase the foreign exchange reserve of the country at the Central Bank. There is a possibility of the increase in export enhancing economic growth of the country. However, in Nigeria, the foreign exchange reserve has not translated to enhanced economic growth due to low exports and more imports.
- (ii) Improvement in Technology – There is empirical evidence that most of the countries having high external reserves are countries with advanced technology. The increase in currency reserves would lead to advanced countries investing their capital in Nigeria.
- (iii) Appreciation of National Currency – Increase in foreign exchange according to Afolabi (2006) would strengthen the value of national currency in relation to the other currencies being traded in the foreign exchange market. This would also lead to increase in the confidence of investors to trade in the national currency. However, this has not worked out for Nigeria as the naira is being weakened day in day out due to high level of corruption and capital flight ravaging the economy.
- (iv) Increase in the standard of living – In economies like China, Japan, USA and Switzerland with favourable external reserves, there is usually the positive effect on the people living or carrying on business in such countries. This was manifested in the Nigerian economy in the 1960s before the discovery of oil which has resulted into higher National income but lower standard of living at present. What a paradox!
- (v) Inflation – Increase in external reserve was supposed to dampen the inflationary effect in the economy. Unfortunately, the reverse has been the case in Nigeria as more Nigerian naira is being spent on imported goods.
- (vi) High cost of maintenance – foreign exchange rate management usually leads to a country procuring high debt through loans from the international monetary fund (IMF) or the World Bank to finance it projects. In Nigeria for example, when the naira becomes weak compared to other currencies like dollar or pound and there is the need to transact foreign trade with USA or any of European countries, Nigeria would require extra cost in floating these other currencies for effective trade deals. This has also led to exposure to transaction risk, commercial risk and political risk.

METHODOLOGY

Data collection technique.

Secondary data were used for the study. They were second from the various annual reports of the Central Bank of Nigeria and those of Nigerian stock exchange and from the publications of the Nigerian Security and Exchange commission.

The data covered 13 years from year 2000 to year 2012 of the dependent variable (GDP) indicating economic growth of Nigeria and the independent variables (exchange rate and inflation rate) representing economic indicators affecting the economic growth of Nigeria. The data are as reported below.

GDP at current Basic Price, exchange rate of naira to 1\$(EXR) and inflation rate (IFR) (2000 to 2012)

Year	GDP ₦'Billion	EXR	IFR
2000	4582.127	102.11	48.22
2001	4725.086	111.94	57.32
2002	6912.381	120.97	64.70
2003	8487.032	129.36	73.78
2004	11411.067	133.50	84.84
2005	14572.239	132.15	100.00
2006	18564.595	128.65	108.24
2007	20657.318	125.83	114.07
2008	24296.329	118.57	127.27
2009	24794.239	148.90	141.96
2010	29205.783	150.30	164.43
2011	37543.650	153.45	172.33
2012	39893.558	157.79	180.66

Source: (1) Centre Bank of Nigeria (CBN) Annual Reports (2000-2002)
 (2) Nigeria stock Exchange (2010 and 2012)
 (3) Nigeria Securities Exchange Commission (2010 & 2012)

ANALYSIS OF DATA

Multiple regression models was used to analyze the collected data, this was to establish a functional relationship between foreign exchange and inflation rate on one hand and Gross Domestic product on the other hand. The data were computed with the use of Statistical Package for Social Sciences (SPSS).

The model is as started below.

$$GDP = f(EXP, IFR)$$

Explicitly, $GDP = B_0 + B_1EXR + B_2IFR + U$ where $B_0, B_1, B_2 =$ Parameters to be estimated and $U =$ error term

The computation is shown below

Dependent variable

Method: Least spaces

Sample: 2000 – 2012

Included Observation: 13

Variable	Coefficient	Standard Error	T – Statistic	Prob.
C	-1393.512	6586.244	-0.211579	0.8367
EXR	-92.58499	67.50597	-1.371508	0.2002
IFR	293.7827	25.48707	11.52673	0.0000

R – Squared	0.978942	Mean Dependent Variable	18895.800
Adjusted R - Squared	0.974731	S. D. Dependent variable	1188.2983
S. E. Of Regression	1888.955	Akaike Info.	31.94012
Sum Squared Residual	-204.6108	Schwarz Criterion	32.07049
Log Likelihood	-204.6108	F – Statistic	232.4429
Durbin – Watson Stat.	1.486252	Prob. (F – Statistic)	0.0000

The above result can be represented in an equation form as follows:

$$GDP = - 1393.512 - 92.58499 EXR + 293.7827 IFR.$$

RESULTS AND DISCUSSION

The above result is a product of time series analysis concerning the values of Gross Domestic product (GDP), Exchange rate of naira to dollar (EXR) and Inflation Rate (IFR) in Nigeria.

From the model above, there exists a negative relationship between GDP and Exchange Rate movement but a positive relationship between Inflation and GDP. Therefore, for every ₦1 decrease in exchange rate value, Gross Domestic Product (GDP) increases by ₦92.585 million and for every ₦1 increase in inflation rate (IFR), GDP increases by ₦293.783 million.

In reality, if GDP will have to be improved, Exchange Rate (EXR) will definitely have to be reduced because the higher the exchange rate, the lower the importation of Equipment and raw materials that can boasts the GDP and vice versa. The high value of coefficient of determination (R^2) shows that about 98% about the GDP was explained by the independent variable while the remaining 0.02 or 2% was explained by other variable outside the model.

Test of hypothesis.

The F-ratio was used to test the overall significance of the model. The hypothesis tasted is as follows.

Null hypothesis (Ho): There is no significance relationship between the exchange rate and inflation rate on one hand and economic growth of Nigeria on the other hand.

From our analysis, F-calculated = 232.4429 and F-table value at 5% significance level = 4.10. Therefore, since the F-calculated is greater than the f-table value, the mill hypothesis is rejected and we uphold the alternative one, meaning that both exchange rate and inflation rate relate significantly with the economic growth of Nigeria. The test is therefore significant and the independent variables put together are good and reliable indicators of the dependant variable (GDP).

CONCLUSION AND RECOMMENDATIONS

From the foregoing, it was found out that both Exchange rate and inflation rate individually and jointly have significance impact on the economic growth of Nigeria as represented by GDP. The inflation rate has positive correlation with GDP while the exchange rate of naira to dollar has negative correlation with the GDP.

Though the Nigeria GDP keeps increasing every year, the negative effect of exchange rate has not allowed the GDP to grow maximally as expected. In fact, the naira exchange to \$1.00 is ₦160.00 at the parallel market instead of the official rate of ₦158.00. This is as a result of the naira being cheaper compared to the dollar. The demand for dollar has remained so high, hence the increase in exchange rate and ultimately resulting to high cost of imported goods.

Based on the findings therefore, the following recommendations were made.

(1) Nigeria government should be more serious about its economic reforms like the national Economic Empowerment and development Strategy (NEEDS), Small and Medium Enterprises Equity investment Scheme (SMEEIS) and others in order to boost the GDP internally so as to reduce pressure on imported goods which will automatically reduce the demand for dollar. This would lead to favorable exchange rate for the country.

(ii) The government should try to make the economy investment friendly by putting in place political stability, security of lives and good economic climate to draw home foreign investors to boost the nation's productivity. This will also reduce capital flight plaguing the country.

(iii) Infrastructural development should be provided in order to reduce costs of production of some goods and services.

(iv) The government, as a matter of urgency, through the relevant agencies should reduce the interest rate prevailing in the economy. The current situation where investors have to borrow at 25% interest rate from the Nigerian Banks seems unpalatable for the economy.

Therefore, if the above itemized points, and solutions are considered and implemented, it will surely lead to buoyancy on the Gross Domestic Product (GDP) through the impact of favorable foreign exchange rate and sustainable inflation rate.

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