

## **Exchange Rate Fluctuations, Global Financial Crisis and External Reserves of Nigeria: A Cointegration Analysis**

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**Abstract:** *The study evaluated the effect of exchange rate fluctuations on external reserves in Nigeria with the use of a cointegration approach. This study originates from the master's thesis of the first (principal) author. The study was based on time series data spanning from 1981 to 2014. The study concluded that exchange rate fluctuations significantly affect external reserves in Nigeria. The findings of the study suggests that monetary policies particularly exchange rate have been volatile. This volatility implies that the conservative monetary management policies put in place in Nigeria for stabilizing the exchange rate of a unit U.S dollar to naira over the years has been ineffective. There is therefore a need for CBN to put in place sound monetary policy measures to attain stability in monetary tools. There also arises the need to ensure effective foreign exchange management measures particularly in terms of meeting the high demands for foreign currency which characterized the balance of trade and the overall economic performance in Nigeria.*

**Keywords:** *Exchange Rate Fluctuations, External Reserves, Global Financial Crisis, Cointegration, Nigeria.*

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### **I. Introduction**

Globally, external reserves have improved considerably since the 1990's as most developing economies hold external reserves as a preventive measure to curb against the effect of external shocks in the economies. According to Oputa and Ogunleye (2010), in June 2009, China, Japan, and Saudi Arabia were ranked first, second and third respectively, in terms of external reserves holdings. Similarly, the International Monetary Fund (2014) estimates that the global external reserves holding have increased from US\$1.57 trillion in 1996 to US\$11.69 trillion in 2013, with the share of developing and emerging economies increasing from US\$0.55 trillion to US\$7.87 trillion. The phenomenal increase in external reserves holdings across many emerging markets and oil exporting countries in recent years has been motivated largely by the drive for self-insurance against adverse external shocks (Gong, 2012).

Nigeria's external reserves have been on an increasing trend over the past two decades. In 2005, the country's external reserves holdings amounted to US\$28.63 billion; this is a significant increase from the US\$4.33 billion reported in 1996. In 2008, the external reserves increased to US\$53.60 billion (World Bank, 2014). However, in 2014, the external reserves declined to US\$37.50 billion and this decline has been continuous (Central Bank of Nigeria, 2014). Despite government measures put in place, the external reserves of Nigeria drastically decreased from about US\$35 billion in the year 2014 to US\$ 28 billion in the beginning of the second quarter of 2016 (Akinkunmi, 2017). The Central Bank of Nigeria uses the external reserves to meet the country's transactionary needs. Equally, the regulator uses the external reserves for precautionary purposes in order to provide a framework necessary to absorb unexpected fiscal shocks in terms of trade and capital outflows (Gong, 2012).

The rationale for holding reserves varies from one country to another; however, the most common reason for holding reserves is to back monetary policy (Sajal, 2012). Nigeria like other developing countries relies on external reserves for import cover, and also for exchange rate stability (Central Bank of Nigeria, 2015). Charles-Anyagou (2012) identified exchange rate as one of the key determinants of external reserves. Exchange rate is an important monetary policy tool used by the monetary authority, which determines the value of foreign exchange transactions in the nation.

How the exchange rate fluctuations influence the overall economic activity in a country has been an issue of many controversies, both in macroeconomics theory and empirical literature (Khondker, Bidisha, & Razzaque, 2012). Calvo and Reinhart (2011) observed that developing countries seem to be more tolerant to external reserves fluctuations than exchange rate volatility; this is because exchange rate volatility influences the level of reserves. Also, Heller and Klan (1978) identified exchange rate as a major element that drives the level of external reserves. When exchange rate appreciates, it enhances the accumulation of external reserves

(Elhiraika & Ndikumana, 2007). Irefer and Yaaba (2012) opined that in periods of exchange rate fluctuations, the monetary authority of a country may use their external reserves stock to stabilize the exchange market with the aim of dampening the exchange rate volatility. However, this in turn leads to the depletion of external reserves thereby making a nation vulnerable to economic shocks.

### 1.1 Statement of the problem

Macroeconomic stability is essential for the accumulation of external reserves and growth of the economy at large. Adequate external reserves enhance the growth and development of an economy. The fall in Nigeria's external reserves has been of great concern as this has caused panic in both the economic and political environment (Sajal, 2012). This is because Nigeria greatly depends on her external reserves for import cover, international ranking and exchange rate stability.

The exchange value of the Nigerian currency against foreign currencies has been highly volatile thereby discouraging traders from engaging in imports and exports activities as their rate of return is threatened. The fall in the value of the Nigerian currency which has made it a less attractive investment and store of value option is largely attributed to low level of reserves, as there are inadequate reserves to ensure its stability. This is further linked to the surplus demand of foreign currencies by traders in the Nigerian foreign exchange market as this has continued to mount pressure on the Nigerian currency (CBN, 2015).

In response to this excess demand, the CBN has authorized commercial banks in Nigeria to ban the use of automated teller machine (ATM) cards overseas. The ban, which is backed by the CBN, is as a result of the dwindling external reserves and the inability of banks to settle transactions involving dollars arising from the use of Nigerian ATM cards overseas. This has however raised concerns in the society especially from Nigerians in Diasporas. The study sought to establish the effect of exchange rate fluctuations and global financial crisis on external reserves of Nigeria.

## II. Literature Review

### 2.1 Theoretical Review

#### 2.1.1 Liquidity Preference Theory

Liquidity Preference Theory was propounded by Keynes (1936). According to this theory, interest rate is the reward for parting with liquidity. Liquidity preference theory is key to success in acquisition of goods and services. Every individual in the world desires to hold money with him for various reasons which sum up his demand for money to hold. Therefore, the sum total of all individual demands for money constitutes the total demand for money in the economy (Mankiw, 2005). This theory attributes the motives for holding liquidity to transactionary motive, which includes business motive, day to day financing of activities and business transactions. Precautionary motive, which attributes the demand for money to cover for the rainy days, and to meet unforeseen emergencies. Lastly, speculative motive which attributes the demand for money to take advantage of the uncertainty of the future due to fluctuations in rate of interest in the market. Some money is set aside to speculate on these probable changes in order to earn some profit (Frank & Bernanke, 2012). The rate of interest is established by the interaction between supply and demand of money in an economy (see Figure 1).

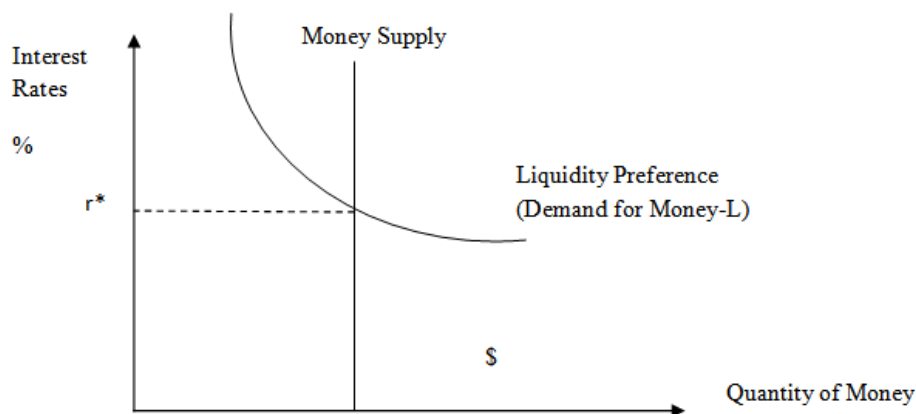


Figure 1: Liquidity Preference

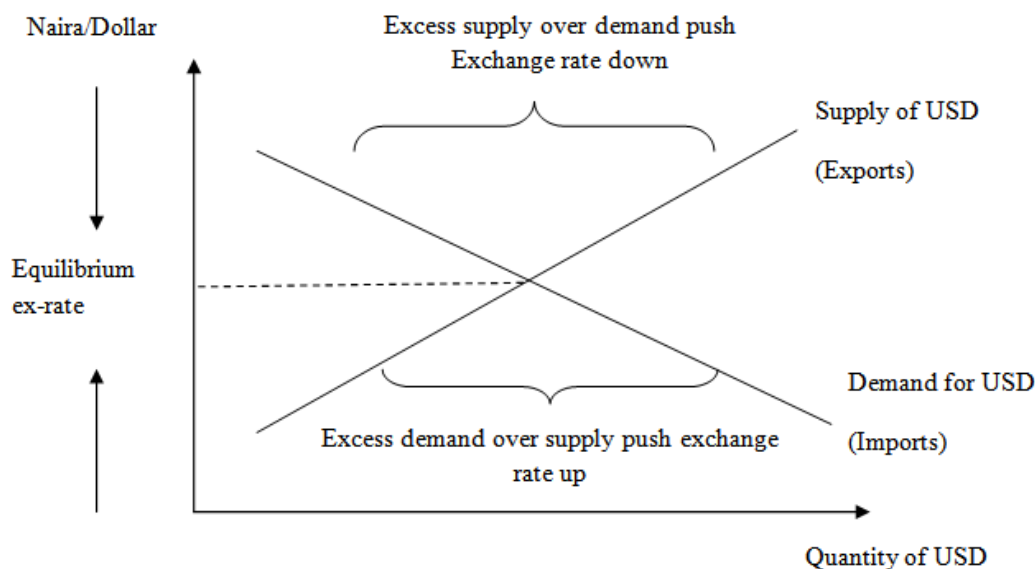
Supply of money is exogenous, usually determined by the monetary authority. Therefore, the money supply curve is vertical. However, the demand for money is downward sloping and is largely determined by the prevailing rate of interest in the money market. The equilibrium rate of interest ( $r^*$ ) is therefore arrived at a point of interception between the supply and demand.

Liquidity preference theory is relevant for the study as it explains the rationale behind accumulation of external reserves by countries. Similarly, CBN (2015) opines that the federal government of Nigeria holds external reserves, which constitute mainly revenue from oil exports for transactionary, precautionary and speculative motives. The need to finance foreign trade gives rise to demand for liquid reserves which are readily accessible and easily convertible for use to settle trade obligations. Adequate external reserves ensure stability of the economy as the higher the external reserves position, the better the capacity of monetary authorities to curb the volatility in balance of payments and to ensure smooth consumption in the long run (Charles-Anyago, 2012). Also, external reserves are used as a form of backing or support for the local currency. Thus, the external reserves position can change as the Central Bank implements its monetary policies (CBN, 2015).

**2.1.2 Purchasing Power Parity (PPP)**

Purchasing Power Parity (PPP) Theory was propounded by Cassel (1916). It is widely known as the law of one price. Purchasing Power Parity Theory postulates that exchange rates between two currencies are at equilibrium when the purchasing power of these currencies is the same in each country (Amano & Norden, 2003). This means that exchange rate between two countries should equal the ratio of these two countries' price level of a fixed basket of goods and services. When the domestic price level of a country is increasing that is, when a country experiences high inflation, the exchange rate of that country's currency must depreciated in order to return to PPP.

Cassel (1916) postulate that nominal exchange rate of a country's currency reflects the purchasing power of that currency, when compared with another country's currency. Cassel (1916) further opined that a purchasing power exchange rate existed between any two countries; this is measured by the reciprocal of one country's price level against that of the other. According to the purchasing power theory, movements of exchange rates are influenced by the difference between the domestic and foreign rates of inflation. When domestic inflation relative to changes in foreign prices increases, there would be an appreciation in exchange rate value, and vice versa (Khondker *et al.*, 2012). Figure 2 provides an illustration of exchange rate determination for Naira/Dollar.



**Figure 2: Exchange Rate Determination for Naira/Dollar.**

The equilibrium rate of exchange (Naira/Dollar) is established by the interception of supply of and demand for dollars in the Nigerian foreign exchange market. The supply of dollar primarily arises from funds received from the country's exports while the demand for dollars emanates from the need for imports. A rise in exports without a corresponding rise in imports will tend to raise the supply of dollars relative to demand. This will in turn create a high supply of dollars in the foreign exchange market that will pressure the exchange rate downwards thus, resulting to an increase in value of Naira against the dollar. Conversely, an increase in imports implies a rise in the demand for dollars. Without a corresponding rise in exports, an increase in imports will create excess demand over supply, which will exert an upward pressure on rate of exchange and thus, resulting in the depreciation of naira against the dollar.

## 2.2 Empirical Review

Various researchers have attempted to investigate the relationship between exchange rate and external reserves in both country specific and cross-country studies. Gokhale and Raju (2013) studied the relationship between exchange rate and foreign exchange reserves in the Indian Context. The study employed the Johansson Co-integration test, Unit Root test, and Vector Auto Regression (VAR). Time series data was used covering the period 1980 to 2010, the empirical findings of the study concludes that there is no long and short run relationship between exchange rate and foreign exchange reserves in India.

Chinaemerem (2012) studied the relationship between external reserves and exchange rate in Nigeria. The study employed VAR with the use of time series data covering the period 1980 to 2009. The empirical findings provided evidence of a negative relationship between external reserves and exchange rate in Nigeria. However, the period covered in the study did not capture the aftermath of the global financial crisis.

Fang and Lili (2011) examined the relationship between exchange rate and external reserves in China. The authors used monthly data ranging from the period 1994 to 2011 while employing the ADF test, Johansen test, and Granger causality test. The findings from the study reveal that a long-term equilibrium relationship exists between exchange rate and external reserves. The exchange rate has a negative relationship with external reserves. The study was however, centered on China. Due to varying economic conditions of countries, such findings may not be applicable to Nigeria.

Olayungbo and Akinbola (2011) studied the relationship between exchange rates (real and nominal) and Nigeria's external reserves. The authors made use of quarterly data ranging from the period 1970:Q1 to 2006:Q4. The study employed the Cointegration test, unit root test and the Granger causality test and Error Correction Model (ECM). The findings of the study indicate that there exist both short run and long run relationship between external reserves and nominal exchange rate. There exists also a faster adjustment of external reserves to changes in nominal exchange rate than changes in real exchange rate. However, the study focused on periods before the 2007/2008 global financial crisis. Hence, there was a need to conduct a study that will capture the post era of the global financial crisis.

Ahmed and Pentecost (2009) investigated the long run relationship between exchange rates and external reserves in a sample of eight African countries which included Nigeria for the period 1980Q1-2004Q4. The study used the threshold cointegration method and found evidence of non-linear Cointegration between the variables. The results of the estimated threshold vector error correlation model (TVECM) reveal that the threshold Cointegration parameter varied from country to country, depending on the prevailing exchange rate regimes in the countries. The study concluded that countries having more flexible exchange rate regime have high threshold than those operating a fixed exchange rate regime. For Nigeria, a threshold parameter of 0.97 and adjustment in the second regime of the TVECM was principally due to external reserves. However, the study applied the threshold Cointegration procedure based on a cross country study and not country specific and it predated the 2007/2008 global financial crisis.

Paresh and Russell (2006) studied the dynamic relationship between exchange rates, interest rates and external reserves in China. The authors made use of monthly data ranging from 1980 to 2002. The study employed unit root test and the findings show that there exists a single long-run relationship between the three variables. In the long run, there is evidence of exchange rate having a statistically significant positive effect on external reserves. In the short-run, the study indicated that the relationship between the exchange rate and external reserves is non-monotonic.

Thus, their study contradicts that of Fang and Lili (2011) who reveal that exchange rate has a negative relationship with external reserves in China. However, their study was focused on China and the study was centered on periods before the global financial crisis. Due to the disparities and contextual gaps in previous researches there was a need to conduct a study using current data to investigate the effect of exchange rate on external reserves in Nigeria, which is a developing country with unique economic conditions, covering periods before and after the global financial crisis, making it one of the objectives of the study.

## III. Methodology

### 3.1 Empirical Model

The study employed time series regression model (Autoregressive Distributed Lag approach). External reserves was expressed as a function of exchange rate fluctuations and 2007/2008 global financial crisis.

$$Y_t = \beta_0 + \sum_{i=0}^P \delta_i X_{1t-i} + \sum_{i=0}^Q \alpha_i X_{2t-i} + U_t$$

$$t = 1, 2, 3, \dots, n$$

Where:

$Y_t$  = External reserves at time t.

$X_{1t-i}$  = Exchange rate fluctuations t-i.

$X_{2t-i}$  = 2007/2008 Global financial crisis at time t-i.

P,Q = Possible number of lags per variable. The number of lags per variable were determined by the Akaike Information Criteria (AIC).

$\beta_0$  = Constant term

$\delta_i \alpha_i$  = Regression coefficients. The regression coefficients are used to measure the sensitivity of the dependent variable to unit change in the independent variables.

$U_t$ -error term

### 3.2 Data, Data Sources and Measurements

The sources of data for the study were Central Bank of Nigeria, World Bank. Yearly data were used for all the research variables for the period 1981 to 2014. External reserves was measured using the total external reserves for Nigeria, this was transformed into logs. Exchange rate fluctuations was measured using the Naira/USD exchange rate. Global financial crisis of 2007/2008 was captured using structural breaks based on a dummy variable.

## IV. Empirical Analysis and Results

### 4.1 Descriptive Statistics

Descriptive statistics were used to provide summary of the study data. Firstly, data capturing external reserves was presented in billions of dollars. In this regard, the log form was used to ensure that the data is consistent with other time series data. Table 1 shows a summary of the descriptive statistics.

**Table 1: Summary of Descriptive Statistics**

	LEXTRES	EXCH
Mean	22.65	67.849
Standard Deviation	1.379	63.689
Minimum	20.65	0.62
Maximum	24.7	158.55
No. of Observations	34	34

Source: Authors' computations using Study data (2019)

Note: LEXTRES: Log of external reserves, EXCH: exchange rate fluctuations

Descriptive statistics shows that exchange rate fluctuations had a large standard deviation between 1981 and 2014. The results show that the dispersion - measured using standard deviation - of exchange rate fluctuations were significantly high. The mean of exchange rate fluctuations (estimated as NAIRA/USD) was 67.849 with standard deviation of 63.689. Large variations in exchange rate may signify instability in the foreign exchange environment which in turn impacts on external reserves of Nigeria.

### 4.2 Results of Pre-Estimation and Diagnostics Tests

#### 4.2.1 Stationarity Test

The test for stationarity is key when conducting a time series analysis. This is because non stationary variables can result to several model mis-specifications. Stationarity was tested using Augmented Dickey fuller with provision structural break. Table 2 presents the result of stationarity test.

**Table 2: Stationarity Tests Results**

		ADF Test		Remark
		Test statistic	Critical value	
Log of External reserves	Level	-0.614	-2.954	Stationary at 1 <sup>st</sup> difference. Integrated of order one $I(1)$
	1 <sup>st</sup> Difference	-5.194		
Exchange rate fluctuations	Level	-0.194	-2.954	Stationary at 1 <sup>st</sup> difference. Integrated of order one $I(1)$
	1 <sup>st</sup> Difference	-5.387		

*Critical values at 5 percent significant level*

Source: Authors' computations using Study data (2019)

The null hypothesis for the ADF test states that the variable being tested is not stationary. If the calculated ADF statistic is less than the critical value, reject the null hypothesis. Table 2 shows that all variables' ADF statistics were less than the critical values. This means the variables were integrated of order  $I(1)$ .

#### 4.2.2 Normality Test

Normality test is done to check if the research variables have a normal distribution. Normality test is conducted using Jacques-Bera (JB) test. Table 3 represents normality test for each of the distribution.

**Table 3: Normality test**

	LEXTRES	EXCH
Skewness	0.2	0.22
Kurtosis	1.58	1.24
Normality test:JB Stat:	3.085	4.629
JB P-Value	0.214	0.099

Source: Authors’ computations using Study data (2019)

Jarque-Bera (JB) test for normality assumes that the series are stationary. Table 3 shows that evaluation of JB statistics and corresponding values show that the null hypothesis of normality could not be rejected for the research variables, thus, the variables were stationary.

**4.2.3 Heteroskedasticity Test**

Breusch-Pagan-Godfrey test was used to check whether the model residual has constant variance as shown in Table 4.

**Table 4: Heteroskedasticity Test (Breusch-Pagan-Godfrey)**

F-statistic	0.643195	Prob. F(20,9)	0.8036
Obs*R-squared	17.65087	Prob. Chi-Square(20)	0.6104
Scaled explained SS	2.429480	Prob. Chi-Square(20)	1.0000

Source: Authors’ computations using Study data (2019)

The null hypothesis in Breusch-Pagan-Godfrey tests assumed a constant variance. The estimated F-statistic was 0.643 corresponding probability value of 0.8036. This mean the null hypothesis could not be rejected at 5 percent significance level. Therefore, the model did not suffer from heteroskedasticity.

**4.2.4. Serial Correlation Test**

Serial correlation was tested using Breusch-Godfrey test as shown in Table 5.

**Table 5: Serial Correlation Test (Breusch-Godfrey)**

Table 5: Breusch-Godfrey Serial Correlation LM Test:

F-statistic	2.825036	Prob. F(1,8)	0.1313
Obs*R-squared	7.829173	Prob. Chi-Square(1)	0.0051

Source: Authors’ computations using Study data (2019)

The null hypothesis as no first order serial correlation. The F statistics of 2.825 has a corresponding probability value of 0.1313. This mean the null hypothesis could not be rejected at 5 percent significance level. Therefore, the results show that there is no first order correlation. The Q-Statistics in Table 5 confirms that the residuals are not serially correlated.

**4.2.5 Multicollinearity Test**

Variance Inflation Factor (VIF) test was used to check for presence of multicollinearity among regressors and the results presented in Table 6

**Table 6: VIF Test**

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
LEXTRES(-1)	0.071159	8018.946	28.43306
LEXTRES(-2)	0.096980	10813.11	38.24211
LEXTRES(-3)	0.104263	11513.72	38.96585
LEXTRES(-4)	0.072896	7996.690	25.45166
EXCH	6.86E-05	144.6115	56.48074
EXCH(-1)	8.79E-05	169.1976	71.24191
EXCH(-2)	8.44E-05	147.3071	66.47315
EXCH(-3)	0.000104	162.6078	78.18116
EXCH(-4)	5.51E-05	76.78140	39.17602
GLOFINCRISIS	0.538223	31.24148	22.91042
C	101.2944	22048.86	NA

Source: Authors’ computations using Study data (2019)

Table 6 shows that there is presence of multicollinearity among the regressors. It should be noted that high centered and uncentered VIF indicate presence of multicollinearity among regressors. However, these results are expected in time series model with dynamic regressors. Moreover inclusion of dummy might also be a cause of multicollinearity. Multicollinearity problem in time series maybe ignored especially with a time series models provided the other diagnostics are okay (Wooldridge, 2003).

**4.2.6 Model Specification Test**

Ramsey reset test checks whether the model is correctly specified. Table 7 shows the model specification test results.

**Table 7: Ramsey-Reset Test**

	Value	Df	Probability
t-statistic	0.520317	8	0.6169
F-statistic	0.270730	(1, 8)	0.6169

F-test summary:			
	Sum of Sq.	Df	Mean Squares
Test SSR	0.040603	1	0.040603
Restricted SSR	1.240404	9	0.137823
Unrestricted SSR	1.199802	8	0.149975

Source: Authors’ computations using Study data (2019)

The null hypothesis for Ramset-Reset states that the equation is well specified and there are no omitted variable. Table 7 shows that the F statistic in Ramsey reset test is 0.27 with probability value of 0.6169. Therefore the null is not rejected meaning that the equation is specific.

**4.2.7 Cointegration Test**

Given that the data include variables that are integrated of order one  $I(1)$ , Cointegration test was conducted using Pesaran and Shins’ bounds testing approach. The null hypothesis for the test holds that there is no co integration (or no long run relationship) among variables. The F statistics of 8.8368 is greater than the critical value of 5.61 at 1 percent significance level. Therefore, the null hypothesis is rejected. This shows that there exists a long run relationship among the study variables. Given the findings from the ARDL bounds test both short run and long run ARDL model can be used for the analysis.

**4.3 Cointegration Analysis**

The study makes use of time series regression (ARDL) model. The ARDL approach has the advantage of being flexible as it has no restriction of having all the research variables to be integrated of the same order (Pesaran, Shin, and Smith, 2001). The study incorporates structural breaks to capture the periods before and after the global financial crisis. In this regard, a dummy variable was used to capture the global financial crisis.

**Table 8: ARDL Cointegration and Long Run Form**

Cointegration Form				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LEXTRES(-1))	1.639850	0.467899	3.504709	0.0172
D(LEXTRES(-2))	0.976111	0.318397	3.065702	0.0279
D(LEXTRES(-3))	0.456947	0.257294	1.775972	0.1359
D(EXCH)	0.016916	0.006883	2.457768	0.0574
D(EXCH(-1))	0.008420	0.007130	1.180969	0.2907
D(EXCH(-2))	0.032424	0.012078	2.684571	0.0436
D(EXCH(-3))	-0.022341	0.008643	-2.584867	0.0491
D(GLOFINCRISIS)	-0.864988	0.535993	-1.613804	0.1675
CointEq(-1)	-3.095408	0.699097	-4.427720	0.0068

Cointeq = LEXTRES - (0.0069\*EXCH -0.2794\*GLOFINCRISIS + 20.7923 )

Long Run Coefficients				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
EXCH	0.006935	0.001384	5.009576	0.0041
GLOFINCRISIS	-0.279442	0.164870	-1.694929	0.1509
C	20.792291	0.090142	230.661118	0.0000

**Source: Authors' computations using Study data (2019)**

Firstly, the results of the co integrating equation reveal that the error correction coefficient (CointEqn(-1)) is -3.095 with a p value of 0.0068 which is significant at 0.05 significance level. A significant negative error correction term implies that external reserves adjust towards long run equilibrium path due to exchange rate fluctuations. The first part of Table 8 presents the short run model results, which includes the dynamic regressors, while the second part presents the long run model results.

The short run model indicates that the coefficients of the lagged values of exchange rate fluctuations are largely significant. The results also reveals that the dummy representing global financial crisis was -0.8649 with a p value of 0.1675. This was insignificant in the short run. The long run model shows that the effect of global financial crisis was insignificant. These results indicate that the global financial crisis of 2007/2008 had no significant short run and long run effect on changes in external reserves of Nigeria. These results suggest that Nigeria may have been resilient to the global crisis of 2007/2008. The long run model indicates that the coefficient for exchange rate fluctuations (0.0069) has a probability value of 0.0041 which indicates significance. Therefore, exchange fluctuations were significant in predicting the external reserves of Nigeria. This means that the depreciation of NAIRA against the USD by one unit increases the log of external reserves by approximately 0.0069.

The findings of the study on effect of exchange rate fluctuations on external reserves is consistent with that of Paresh and Rusell (2006) who found exchange rate to have a statistically significant positive relationship with external reserves in China. In contrast, Chinaemerem (2012) and Fang and Lili (2011) found varying results in their studies. However, Chinaemerem (2012) employed the VAR methodology with the use of time series data from 1980 to 2009 and found exchange rate to have a negative relationship with external reserves for Nigeria. Similarly, Fang and Lili (2012) employed the VAR methodology with the use of monthly data from 1994 to 2011 and found exchange rate negatively affecting external reserves for China. The variation in the findings of this study and that of Chinaemerem (2012) and Fang and Lili (2012) maybe attributed to the type of methodology used each of the studies.

## V. Conclusions and Recommendations

The study evaluated the effect of exchange rate fluctuations and global financial crisis on external reserves of Nigeria with the use of a cointegration approach. The study was based on time series data spanning from 1981 to 2014. The study concluded that exchange rate fluctuations significantly affect external reserves of Nigeria. The findings of the study suggest that monetary policies have been weak as indicated by the volatile exchange rates for Nigeria. This volatility implies that the conservative monetary management policies put in place in Nigeria over the years for stabilizing the exchange rate of a unit of U.S dollar to naira has been ineffective. Therefore, there is a need for the Central Bank of Nigeria to put in place sound monetary policy measures to attain stability in monetary tools. There is also a need to ensure effective foreign exchange management measures particularly in terms of meeting the high demands for foreign currency which relates to the balance of trade and the overall economic performance of Nigeria. The Federal Government of Nigeria should uphold restriction policies on importation especially for similar goods which are also manufactured in Nigeria.

## VI. Contribution to Knowledge

The study contributes to knowledge in many folds. The study contributes to knowledge on the effect of exchange rate fluctuations on external reserves. With the findings of this study, policy makers are better informed on the underlying linkages between exchange rate fluctuations and external reserves. Thus better management of reserves can be undertaken by the Central Banks. The study concluded that the 2007/2008 global financial crises had insignificant effect on external reserves. The study therefore contributes to knowledge by providing more insight on the effect of the global financial crisis on external reserves.



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