

Currency Depreciation and Money Demand in Nigeria

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Abstract. Over the years, there has been controversy whether or not currency depreciation induces increased money demand. Previous studies appeared to have concentrated on the effects of currency depreciation on macroeconomic policy, while its relationship with money demand is scantily documented in the literature. This study therefore, explored this relationship and analyses the effects of currency depreciation on money demand in Nigeria. The study adopts *ex-post facto* research design and used secondary annual time series data from 1986 to 2017, obtained from Central Bank of Nigeria (CBN) Statistical Bulletin, 2017. The data collected were analysed using line graphs, Autoregressive Distributed Lag (ARDL) model with inferences drawn at 5% significance level.

The results of trend and pattern of currency depreciation and money demand showed a pro-cyclical movement over the period of study relative to policies adopted by the government in the management of its currency exchange rate. Also, the results of the relationship between currency depreciation and money demand showed that currency depreciation (REXR) ($\beta = -0.003023$, $t = -0.245760$) had negative and insignificant effect on money demand. Therefore, the study concluded that depreciation of the naira against other foreign currencies currency depreciation had no significant influence on changes in money demand in Nigeria over the study periods. It thus recommended that, government should create policies to enhance flow of credit to the real sector and sustained the stability of naira exchange rate.

Keywords: Currency Depreciation, Money Demand, Macroeconomic policy, Exchange rate, ARDL.

1. Introduction

Currency depreciation is the loss of value of a country's currency with respect to one or more

foreign reference currencies, typically in a floating exchange rate system in which no official currency value is maintained (Pettinger, 2017). Currency depreciation raises production cost, domestic prices and as a result increases the demand for money (Cooper, 1971).

Exchange rate is an important determinant of trade and money demand within a country as it represents the price at which domestic goods and services are exchanged for the goods and services produced in exporting countries (Chowdhury, Khanom, Emu, Uddin, & Farhana, 2014). Currency depreciation increases the demand for domestic currency as more money will be required to purchase products which are relatively cheaper from the importing countries point of view. The consumers of domestic country realize that imports become more expensive thereby reducing the purchase of foreign goods and increase the consumption of domestic substitute goods. Therefore, currency depreciation affects trade, which in turn has a direct impact on the trade sector in the domestic economy leading to a shift in money demand.

The monetarists argued that currency depreciation reduce the real value of cash balances, increasing demand for money and leading to a change in the relative prices of traded and non-traded goods. Thus, currency depreciation improves trade balance, money demand and the balance of payments (Mundell, 1963; Frankel, 1999). Changes in currency exchange rate can influence investors decision positively or negatively and also determines the availability of money in government covers to expend. When currency depreciates, purchasing power reduces and living standard drops, these results in increased money demand as imported goods become more expensive.

Previous studies have identified exchange rates, interest rate and the level of economic activities as important determinant factor of money demand in an economy (Mundell, 1963; Dornbusch, 1976).

Furthermore, a measure of opportunity cost of money demand has been identified as interest rate and income level as determinants of all transactional values (Friedman, 1984; Zhang, 2008). Exchange rate, through the medium of currency depreciation rather than income and interest rate was also identified as an important factor in money demand for an open economy (Fleming, 1962). The medium of transmission of currency depreciation on money demand could either be through the channels of export or planned expenditure. Arango and Nadiri, (1981) identified two main transmission channels of currency rate on money demand as wealth and expectation.

Extant literature from developed, emerging and developing economies on the effects of currency or exchange rate depreciation is mixed, while studies like Bitrus, (2011); Nduka, Chukwu and Nwakaire, (2013); Apergis, (2015); and Farazmand, Ansari, & Moradi, (2016) showed negative effects of currency depreciation on money demand, others like Howard, (2002); Bahmani and Kutan (2010); and Bahmani-Oskooee, Satawatananon & Xi, (2015) showed positive effects of currency depreciation on money demand.

There is no consensus in the findings of previous empirical studies on the relationship between currency depreciation and money demand. Hence, no consistent conclusions are found from these studies. The research question emanating from the foregoing are: what is the trend and pattern of currency depreciation and money demand in Nigeria? What are the effects of currency depreciation on money demand in Nigeria? Resolving these issues will be the main focus of this paper. The paper aims to appraise the trend and pattern and examine the effects of currency depreciation on money demand in Nigeria. While the research hypothesis stated in the null form is: Currency depreciation has no significant effect on money demand in Nigeria over the years. The rest of the paper is structured as follows: section two literature reviews on currency depreciation and money demand; section three research methods and procedure; section four presents the research findings and discussion and section five is the conclusion.

2. Literature Review

Mundell (1963) introduced the idea of including the exchange rate as another determinant of the demand for money in the money demand function. He propounded that, a depreciation of domestic currency or appreciation of foreign currency results in an increase in domestic currency value of the assets held abroad by domestic residents. If this increase is perceived as an increase in wealth, public will tend to

increase their spending by demanding more money. On the other hand, when foreign currency appreciates, if there is expectation of further appreciation, public may hold more of foreign currency and demand less of domestic currency.

Follow up to this, the disequilibrium framework was put forth by Mundell (1963), Fleming (1962) and later by Dornbusch (1976). Conventional answer to currency depreciation is usually analyzed within the Mundell-Fleming model and the result is a positive effect on the trade account. Thus, devaluation is expansionary in terms of gross domestic product (GDP), since exports increase more than imports. The model, which is commonly known as IS-LM-BOP model is an economic model propounded by Robert Mundell and Marcus Fleming as an extension of the IS-LM model. The traditional IS-LM model deals with an autarky economy, while the modern Mundell-Fleming model describes a small open economy.

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

$$\text{The IS curve: } Y = C + I + G + NX \quad (2.1)$$

$$\text{The LM curve: } \frac{M}{P} = L(i, Y) \quad (2.2)$$

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

$$BOP = CA + KA \quad (2.3)$$

Where BOP is the balance of payments surplus, CA is the current account surplus and KA is the capital account surplus. Mundell-Fleming model might be naturally extended by considering many other important features, which determine the degree of the reaction of the current account.

Howard (2002) investigates the impact of exchange rate depreciation on the demand for real money balances during hyper inflation in Jamaica between 1968 and 1997. The methodology adopted was designed to estimate long-run models of the demand for real money balances, as well as error correction models. The model was analyzed using cointegration and error correction modeling. The result showed that exchange rate depreciation, which was severe in Jamaica after 1990, had a real balance effect on the demand for narrow money.

Bitrus, (2011b) examined the demand for money in Nigeria. The study used annual time series spanning 26 years on both narrow and broad money, Income, interest rate, exchange rate and the stock market. The

study employed the use of multiple regression analysis. The study found that money demand function was stable in Nigeria for the sample period and that income was the most significant determinant of the demand for money.

Nduka, Chukwu, and Nwakaire, (2013) examined the long-run demand for real broad money function and its stability in Nigeria for the period of 1986 to 2011. The study employed Augmented-Dickey Fuller (ADF) and Phillips-Perron (PP) tests for unit root, Engle-Granger approach for cointegration, CUSUM and CUSUMSQ tests for stability. The results of the stability and cointegration tests confirmed that a stable, long-run relationship existed between demand for real broad money and its determinants: income, domestic real interest rate, expected rate of inflation, expected foreign exchange depreciation, and foreign interest rate.

Apergis (2015) estimated the long-run properties of money demand specification for a number of East Asian economies with quarterly data spanning the period 1990-2012. He modeled demand for real money balances as a function of real income, and other independent variables within a panel framework with the presence of structural breaks, a simple average of all pair-wise correlation coefficients of the OLS residuals obtained from standard augmented Dickey-Fuller regressions for each variable in the panel as the basis of analysis. The study found that, (a) the demand for money in the long-run positively responds to real income and inversely to the interest rate spread, inflation, the real effective exchange rate and the US real interest rate; (b) the long-run income elasticity is greater than unity; and (c) both the currency substitution effects of depreciation and capital mobility hypotheses hold.

3. Research Methodology

Evaluating the effects of currency depreciation on money demand in Nigeria, the paper adopts ex-post facto research design, because the researcher has no direct control over the variables involved. This is because the issues investigated relates to events that have already taken place and for which a causal-comparative evaluation was carried out to analyze the objectives of the study. Nigeria data set was used as the sample size for the study.

In economic literature, money demand function includes a scale variable measured by income, an opportunity cost variable measured by interest rate or the rate of inflation and the exchange rate, which accounts for currency depreciation. Following

Apergis (2015) this study specify the demand for real money balances as a function of currency depreciation, money multiplier, the inflation rate, domestic credit and the lending rate as follows

$$\ln(m_d)_{it} = \beta_i + \beta_1 REXR D_{it} + \beta_2 A_{it} + \beta_3 INFL_{it} + \beta_4 \ln DC_{it} + \beta_5 RL_t + \varepsilon_{it} \quad 3.1$$

Where, M is the stock of nominal money, proxy for money demand; $REXR D$ denotes the real exchange rate which is used to test the effect of currency depreciation and; A is the money multiplier to capture transactions and precautionary demand for money after depreciation; $INFL$ is the inflation rate; DC represent the domestic credit and RL is the lending interest rate (a proxy for the rate of return on assets outside of money) as an opportunity cost of money demand (Baye, 2011).

The paper used an ARDL framework of order:

$$\Delta \ln(m_d)_t = \beta_0 + \sum_{i=1}^{P_1} \beta_i \Delta \ln(m_d)_{t-i} + \sum_{i=1}^{P_2} \beta_i \Delta REXR D_{t-i} + \sum_{i=1}^{P_3} \beta_i \Delta A_{t-i} + \sum_{i=1}^{P_4} \beta_i \Delta INFL_{t-i} + \sum_{i=1}^{P_5} \beta_i \Delta \ln DC_{t-i} + \sum_{i=1}^{P_6} \beta_i \Delta RL_{t-i} + \lambda_1 (m_d)_{t-1} + \lambda_2 REXR D_{t-i} + \lambda_3 A_{t-i} + \lambda_4 INFL_{t-i} + \lambda_5 DC_{t-i} + \lambda_6 RL_{t-i} + \varepsilon_t \quad 3.2$$

Where, Δ is a first difference operator and ε_t is an identically and independently distributed white noise error terms. In equation (3.2) the term with the summation sign represent the error correction dynamics while the second part (term with λ_s in equation) corresponds to the long run relationship. The null hypothesis in equation (3.2) exists when $\lambda_1 = \lambda_2 = \lambda_3 = \lambda_4 = \lambda_5 = \lambda_6 = 0$ which indicate the non-existence of the long run relationship. The ARDL method estimated $(P+1)^k$ number of regression in other to obtain the optimal lags for each variable, where P is the maximum number of lags to be used and k is the number of variables in the equation.

The paper made use of secondary data, which are annual time-series. The data covered a period of 33 years, 1986 to 2018. Data was sourced from Central Bank of Nigeria (CBN) various statistical bulletins, National Bureau of Statistics (NBS) Annual Reports and International Financial Statistic (IFS) data. The variables that was used in this study were selected on the basis of their theoretical importance, usefulness as a measure of the key construct of the study namely, currency depreciation, money demand and trade balance, and findings from their usage in previous empirical literature. The E-views 10 econometric software package was used to analyze the data.

4. Research Findings / Results

4.1 Descriptive Statistics

Table 1 presents the descriptive analysis of the time series properties of the variables included in the model. The table showed that the mean values of money multiplier (A), domestic credit (DC), inflation rate (INFL), money demand (MD), currency depreciation (REXRD), lending rate (RL) stood at 0.02, ₦1,207.578billion, 20.15 percent, ₦5,755.584billion, -8.44 percent, 18.76 percent respectively. Correspondingly from the table, the maximum values of money multiplier (A), domestic credit (DC), inflation rate (INFL), money demand (MD), currency depreciation (REXRD), lending rate (RL) were, 0.03, ₦4,532.10billion, 72.84 percent, ₦23,433.60billion, 7.27 percent, 29.80 percent; with the corresponding minimum values as, 0.002,

₦3.70million, 5.38 percent, ₦27.40million, -77.25 percent, 10.50 percent respectively.

The standard deviation of money multiplier (A), domestic credit (DC), inflation rate (INFL), money demand (MD), currency depreciation (REXRD) and lending rate (RL) from their respective long term mean values every year point stood at, 0.01, ₦1,533.263billion, 18.53 percent, ₦7,600.335billion, 19.16 percent and 3.80percent respectively. The probability value of Jarque-Bera statistics for all the variables shows their distribution level at mean zero and constant variance, while only money multiplier (A) and currency depreciation (REXRD) shows negative skewness, other variables are positively skewed to the right. This revealed that currency depreciation and money demand is normally distributed among all the incorporated variables of interest.

Table 1: Descriptive Statistic

<i>Variables</i>	<i>A</i>	<i>DC</i>	<i>INFL</i>	<i>RL</i>	<i>MD</i>	<i>REXRD</i>
<i>Mean</i>	0.015406	1207.578	20.14684	18.75847	5755.584	-8.442597
<i>Median</i>	0.014750	223.9000	12.54679	17.96500	1457.700	-1.644750
<i>Maximum</i>	0.026300	4532.100	72.83550	29.80000	23433.60	7.266200
<i>Minimum</i>	0.001700	3.700000	5.382224	10.50000	27.40000	-77.25110
<i>Std. Dev.</i>	0.004423	1533.263	18.53470	3.791365	7600.335	19.15903
<i>Skewness</i>	-0.020859	0.829340	1.564982	0.956424	1.099770	-2.710732
<i>Kurtosis</i>	5.336364	2.090224	4.052610	4.568608	2.725934	9.493241
<i>Jarque-Bera</i>	7.280451	4.771877	14.53955	8.159354	6.550786	95.40593
<i>Probability</i>	0.026246	0.092003	0.000696	0.016913	0.037802	0.000000
<i>Sum</i>	0.493000	38642.50	644.6988	600.2710	184178.7	-270.1631
<i>Sum Sq. Dev.</i>	0.000606	72877772	10649.59	445.6080	1.79E+09	11379.12
<i>Observations</i>	32	32	32	32	32	32

The correlation matrix shown in table 2 expressed the partial correlation of the currency depreciation and money demand variables employed for this paper in Nigeria within the period of 1986-2017. The table shows the magnitude, strength and direction of their linear relationship, with some negative linear relationships and some exhibiting positive among them. It indicates the existence of a variable showing strong positive correlation between money demand and domestic credit (0.505874), this is in line with economic theory because correlations among the explanatory variables neither violate any assumptions, nor affect the unbiasedness of the regressors' coefficients (Wooldridge, 2013)

Table 2: Correlation Matrix

Correlation	A	LOG(DC)	INFL	LOG(MD)	REXRD	RL
A	1.000000					
LOG(DC)	0.063965	1.000000				
INFL	0.055617	-0.241524	1.000000			
LOG(MD)	0.035543	0.541878	-0.441739	1.000000		
REXRD	0.164177	-0.054825	0.158222	-0.233929	1.000000	
RL	0.044554	-0.353768	0.375586	-0.322390	-0.061375	1.000000

Figure 1 shows the graphical representation of currency depreciation and money demand in Nigeria between 1986 and 2017. The graph shows that currency depreciation was stable between 1986 and 1998 with a little downward variation in 1992 and 1993, whereas, money demand experienced positive trend with mild fluctuation. It is observable that the relationship between currency depreciation and money demand experienced a sharp opposite trend in 1992 and 1999, while for the rest of the period under investigation, money demand varied mildly in the opposite direction of currency depreciation. These suggest that, as currency depreciates, money demand (for transactional, precautionary and speculative purposes) increases depending on the magnitude of the currency depreciation. Furthermore, the chart revealed that, the sharp depreciation of currency depreciation in 1999, could be as a result of the foreign exchange market that was fully deregulated to reduce the behaviours of rent seekers and establish some level of macroeconomic stability.

The policy of Inter-Bank Foreign Exchange Market (IFEM) then was established in October 1999 and was implemented daily with banks as major participants and the CBN as a moderator. The money demand showed a reverse trend which could be as a result of persistent expansionary fiscal policy and excess liquidity in the system with increased money demand. Despite these policy efforts, the figure showed that there was a constant rise in the depreciation rate of naira from 1999 to 2004, while reversed currency depreciation (appreciation) was experienced from 2005 to 2008. Overall, the study observed critically that, the differences in the volatility of currency depreciation rate and money demand reflected the outcome of the various policies adopted by the Government in the management of foreign exchange rate in Nigeria.

Trend in Currency Depreciation and Money Demand

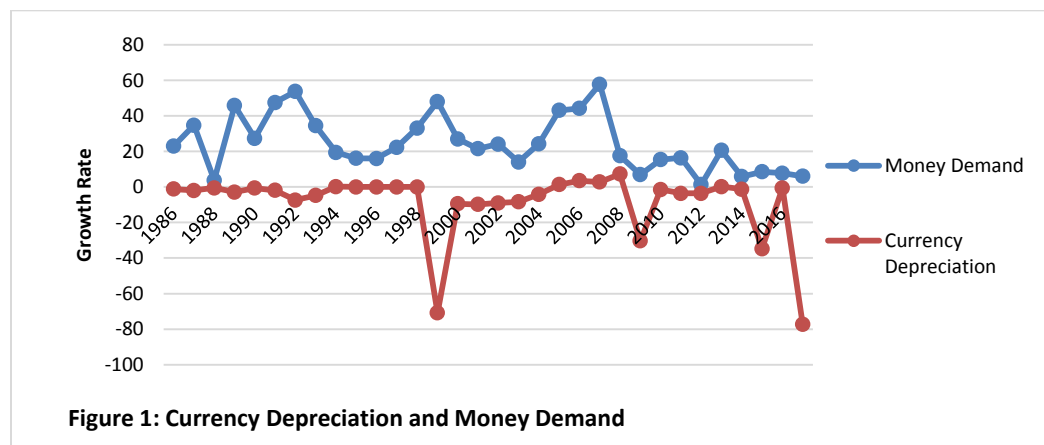


Table 3 shows the results of the unit-root test using Augmented Dickey Fuller (ADF) approach. The results show that the variables had mixture of integration of order zero I(0) and one I(1). Specifically, money multiplier (A), inflation rate (INFL), currency depreciation (REXRD) and lending rate (RL) were stationary at level at 5% significant level while domestic credit (DC) and money demand (MD), were all stationary at first difference at 5% significant level. Having noted that the variables were integrated of different orders of level and first difference, the study therefore applied Autoregressive Distributed Lag technique (ARDL) in line with the work of Pesaran et al (2001) since one of the dependent variables (money demand) is non-stationary; none of the variable is I(2) in normal condition (ADF test); and none of the variable is I(2) in structural break.

4.2 Unit-Root Test Results

Table 3: Augmented Dickey Fuller Unit Root Results

<i>Variables</i>	<i>Level</i>	<i>First Difference</i>	<i>Order of Integration</i>
<i>A</i>	-3.1846	-	<i>I(0)</i>
<i>INFL</i>	-4.3880	-	<i>I(0)</i>
<i>LnDC</i>	-1.9739	-7.9341	<i>I(1)</i>
<i>LnMD</i>	-1.9483	-3.3552	<i>I(1)</i>
<i>REXRD</i>	-4.5245	-	<i>I(0)</i>
<i>RL</i>	-4.5286	-	<i>I(0)</i>

4.3: Results of the Effect of Currency Depreciation on Money Demand

Table 4: ARDL Results of the Effect of Currency Depreciation on Money Demand

Dependent Variable: LOG(MD)				
<i>Variable</i>	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-Statistic</i>	<i>Prob.*</i>
<i>LOG(MD(-1))</i>	1.135924	0.183266	6.198225	0.0000
<i>LOG(MD(-2))</i>	-0.214957	0.174914	-1.228926	0.2321
<i>REXRD</i>	-0.000239	0.000990	-0.241364	0.8115
<i>A</i>	3.208866	4.150571	0.773114	0.4477
<i>INFL</i>	-0.002915	0.001234	-2.362518	0.0274
<i>LOG(DC)</i>	0.047059	0.015717	2.994193	0.0067
<i>RL</i>	-0.000851	0.006205	-0.137147	0.8922
<i>C</i>	0.496007	0.211350	2.346850	0.0283
R-squared	0.542522	F-statistic		3.727100
Adjusted R-squared	0.396960	Durbin-Watson stat		2.119100

Source: Researcher’s Computation, 2019

Table 4. showed the results of the Autoregressive Distributed Lag of order (2) on the effect of currency depreciation on money demand. The explanatory power of the model explained 54.2 per cent of the total variations in the money demand. This showed that 45.8 per cent of the total variations in the money demand was not explained indicating that the explanatory variables played major roles in explaining the significant changes in demand for money in Nigeria. Thus, the model had goodness fit. The value of the F-statistic showed that the joint explanatory variables significantly explained the demand for money at 5% significant level, implying that the model was statistically significant at 5% level. The value of the Durbin-Watson d* statistic was approximately 2 indicating that the model had no serial autocorrelation problem.

Table 5: Long-Run Co-movement Results (currency depreciation/ money demand)

ARDL Bounds Test		
Test Statistic	Value	k
F-statistic	7.864392	1
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	4.04	4.78
5%	4.94	5.73
2.5%	5.77	6.68
1%	6.84	7.84

Source: Researcher’s Computation, 2019

Table 5 showed that the F-statistic value which was (7.8644) in the ARDL Bound test was higher than the critical value bounds of I(0) Bound with (4.94) and I(1) Bound with (5.73) at 5% significant level. This showed that the variables in the model had long-run co-movement among themselves. Hence, there was long-run relationship among the variables. Meaning that, the variables had long-run co-movement and long-run relationship.

Table 6: Short-Run Results of the Effect of Currency Depreciation on Money Demand

<i>Dependent Variable: LOG(MD)</i>				
<i>Variable</i>	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-Statistic</i>	<i>Prob.</i>
<i>DLOG(MD(-1))</i>	0.214957	0.174914	1.228926	0.2321
<i>D(REXRD)</i>	-0.000239	0.000990	-0.241364	0.8115
<i>D(A)</i>	3.208866	4.150571	0.773114	0.4477
<i>D(INFL)</i>	-0.002915**	0.001234	-2.362518	0.0274
<i>DLOG(DC)</i>	0.047059**	0.015717	2.994193	0.0067
<i>D(RL)</i>	-0.000851	0.006205	-0.137147	0.8922
<i>CointEq(-1)</i>	-0.079033	0.020639	-3.829344	0.0009
R-squared	0.542522		F-statistic	3.727100
Adjusted R-squared	0.396960		Durbin-Watson stat	2.119100

Source: Researcher's Computation, 2019

N.B. **Significant at 5% level

Table 6: explained the short-run relationship between currency depreciation and money demand. This was confirmed by the negative and significant t-statistic of all incorporated variables at 5% level and as shown in the coefficient of Error Correction variable (*CointEq(-1)*) which explained the speed of adjustment that took short-run periods to converge to long-run periods. It indicated that it would take 2.52 years for all the variables to converge to long-run relationship.

The short-run coefficient of currency depreciation had negative sign and statistically insignificant at the 5% level. The negative sign exhibited by the coefficient of currency depreciation in relations to money demand indicated that depreciation in Nigerian currency would lead to decrease in demand for money depending on the household point of view. This implied that the household demands for more money to fulfill his economic activities in terms of transactionary, precautionary or speculative motives. The household demanded for more money to fulfil his day-to-day activities as a result of currency depreciation or to fulfil his unforeseen circumstance and/ or invest more on interest bearing assets or securities were not sacrosanct due to insignificant level of the coefficient of currency depreciation in the short-run.

The short-run coefficients of inflation rate and domestic credits were negatively and positively signed respectively and statistically significant at 5% level. The negative and significant level of the coefficient of inflation rate showed that in the short-run, increased in inflation rate would lead to increase in demand for money and this was tantamount to mild inflation since the coefficient of inflation rate was 0.29% which was less than the 3-10% that did not benefit economic growth. Thus, as prices increases, consumers demand for money increases because this kind of inflation keeps consumers to demand for more goods as price increases. This was only applicable in the short-run based on the result. Also, the positive and significant coefficient of domestic credits showed that a unit increase in domestic credit would significantly result to 4.7% increase in demand for money.

The coefficients of money multiplier and lending rate were positive and negative respectively but statistically insignificant at 5% level. The insignificant relationships exhibited by money multiplier and lending rate showed that both variables had no significant influence on demand for money in the short-run.

Table 7: Long-Run Results of the Effect of Currency Depreciation on Money Demand

<i>Dependent Variable: LOG(MD)</i>				
<i>Variable</i>	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-Statistic</i>	<i>Prob.</i>
<i>REXRD</i>	-0.003023	0.012300	-0.245760	0.8081
<i>A</i>	40.601500	54.906125	0.739471	0.4674
<i>INFL</i>	-0.036889**	0.014311	-2.577617	0.0172
<i>LOG(DC)</i>	0.595429**	0.119032	5.002243	0.0001
<i>RL</i>	-0.010768	0.077903	-0.138218	0.8913
<i>C</i>	6.275932	2.057067	3.050912	0.0059
R-squared	0.542522		F-statistic	3.727100
Adjusted R-squared	0.396960		Durbin-Watson stat	2.119100

Source: Researcher's Computation, 2019

N.B. **Significant at 5% level

Table 7 showed the results of the long-run relationship between currency depreciation and money demand. The long-run result had no serial correlation problem as evidence in the value of Durbin Watson d^* -statistic and the explanatory variables significantly explained the influence had on demand for money (dependent variable) as evidence in the value of F-statistic.

Also, the long-run coefficient of currency depreciation was negatively signed and statistically insignificant at 5% level. The negative relationship exhibited by the coefficient of currency depreciation in the long run had no significant influence on money demand. Thus, a unit percent decrease in currency depreciation would lead to 0.003 percent insignificant decrease in demand for money in the long-run. In summary, currency depreciation had no significant influence on change in money demand in both short-run and long-run in Nigeria in the periods under study.

The coefficients of inflation rate and domestic credit had negative and positive signs respectively and statistically significant at 5% level. Thus, a unit percent decrease in inflation rate would result to 0.037 percent decrease in money demand and this showed that during inflationary period, consumers demand less of money for economic activities. Whereas, a unit percent increase in domestic credit would lead to 0.60 percent increase in money demand. Hence, consumers demand for more money when domestic credit increases. The coefficients of money multiplier and lending rate had negative and positive signs respectively and statistically insignificant at 5% level. The increase or decrease in money multiplier and lending rate had no significant influence on money demand.

Table 8: Diagnostic Tests Results for Effects of Currency Depreciation on Money Demand

Tests	Statistic	Values	Probability
<i>Normality</i>	<i>Jarque-Bera</i>	0.3822	0.8261
<i>Serial Correlation LM</i>	<i>Breusch-Godfrey</i>	0.7928	0.4663
<i>Heteroskedasticity</i>	<i>Breusch-Pagan-Godfrey</i>	0.7342	0.6456
<i>Stability</i>	<i>Ramsey RESET</i>	3.3541	0.0308

Source: Researcher’s Computation, 2019

Table 8 showed the diagnostic tests results that confirmed the authenticity of the results emanated from ARDL technique. The tests were in four folds: the normality test, serial correlation LM test, heteroskedasticity test and stability test. These tests were carried out to determine whether the results are normally distributed, free from serial autocorrelation problem, had constant variance or suffer from functional form misspecification when it does not properly account for the relationship between the dependent and observed explanatory variables. The value of the *Jarque-Bera* showed that the results were normally distributed since its value was statistically insignificant at 5% level. Furthermore, the result of the serial correlation LM test using *Breusch-Godfrey* method indicated that the results of the analysis had no serial autocorrelation problem since its value was not statistically significant at 5% level. The result of the Heteroskedasticity test using *Breusch-Pagan-Godfrey* technique showed that the results of the analysis had constant variance with the evident of not statistically significant F-statistic value at 5% level. Finally the results of stability test using Ramsey RESET (Regression Equation Specification Error Test) test revealed that the results of the analysis had no evidence of non-linearity since its F-statistic value was statistically significant at 5% level.

5. Discussion of Findings

The study analysed the effects of currency depreciation on money demand in Nigeria. To achieve this, the study employed both descriptive statistics and econometric techniques to analyse annual time series data from Nigeria over a period from 1986-2017. The results of the Autoregressive Distributed Lag of order (2, 0) on the effect of currency depreciation on money demand revealed that the explanatory power of the model explained 54.2 per cent of the total variations in the money demand. This showed that 45.8 per cent of the total variations in the money demand was not explained indicating that the explanatory variables played major roles in explaining the significant changes in demand for money in Nigeria. Thus, the model had goodness fit.

Overall, the study revealed that currency depreciation had negative and insignificant influence on change in money demand in both short-run and long-run in Nigeria in the periods under study. With these findings we accept hypothesis I: (H_{01} : Currency depreciation had no significant effect on money demand in Nigeria over the years). The result conformed to previous studies found in the literature, such as: Bitrus, 2011a; Nduka, Chukwu and

Nwakaire, 2013; Apergis, 2015; and Bahmani-Oskooee, Satawatananon and Xi, 2015.

6. Conclusions

Apparent from the above discussion, the trend analysis and the results of the Autoregressive Distributed Lag model estimation of the coefficient of the variables used revealed that, currency depreciation had no significant influence on changes in money demand in Nigeria over the study periods. The notion that economic agents demands for more money to fulfill his/her economic activities as a result of currency depreciation or to fulfil his unforeseen circumstance and/or invest more on interest bearing assets or securities is not supported by these findings. This was due to the insignificant level of the coefficient of currency depreciation in both the short-run and the long-run. The paper therefore recommends that the CBN and the Monetary Policy Committee that Nigerian currency should be allowed to depreciate freely through market forces and efficient money market system. Since currency depreciation had no significant influence on changes in money demand both in the short run and in the long-run in Nigeria, official depreciation should be discouraged. The monetary authorities should harmonise expansionary monetary policy and restrictive monetary policy in its strategic implementation plan of Economic Recovery and Growth Strategy (ERGS). This was to reduce the rate differential between productive and unproductive credit demand and supplied to the economy, in order to enable the productive sector of the economy to increase the flow of output from the private sector and increase trade flows which will in turn leads to appreciation of the Nigeria currency.

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