

AN ANALYSIS OF LONG-RUN RELATIONSHIP BETWEEN EXCHANGE RATE AND SMALL AND MEDIUM ENTERPRISES PERFORMANCE (SMES) IN NIGERIA: AN ARDL PERSPECTIVE

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Abstract

This study empirically examined long run relationship between exchange rate and performance of small and medium enterprises in Nigeria using ARDL approach. The study employed time series analysis data were collected on contributions of wholesale and retail trade output to GDP (a proxy for performance of small and medium enterprises, PSME) exchange rate (EXR), inflation (INF) and interest rate (INTR) spanning 38 years (1981-2018). Both descriptive and analytical tools were employed to analyse the data. Autoregressive Distributed Lag model was employed to determine the long run relationship between exchange rate and performance of SMEs in Nigeria. Additions to exchange rate were inflation rate and interest rate. The results of the estimated ARDL model showed that the disequilibrium in the previous periods has fallen back to equilibrium in the current period by about 8.01% of the speed of adjustment. The findings reveal that inflation rate (INF) and interest rate (INTR) respectively have negatively and positively significant long run effects on performance of small and medium enterprises (PSME) while exchange rate (EXR) has positive but insignificant long run effects on PSME (performance contributions of wholesale and retail trades to GDP as a proxy). This implies that changes in exchange rate do not contribute significantly to the performance of SMEs in the long run. Based on the findings, the study recommends that there is need for the federal government, Central Bank of Nigeria and other concerned regulatory authorities to come up with strong policies that would maintain a favourable and stable exchange rate. This is absolutely vital because a favourable and stable exchange rate will promote economic stability and hence enhances small scale business performance in Nigeria. The study further recommended that government should reduce borrowing and lending charges to enhance the performance of small and medium enterprises in Nigeria.

Keywords: Performance, SMEs, Exchange rate, ARDL, Adjustment.

Introduction

Prior to the introduction of Structural Adjustment Program (SAP) in 1986, Naira enjoyed appreciable value against US dollar, a factor that creates opportunity for rapid economic growth and stability (Okwuchukwu, 2015). With introduction of this new economic program, the country began to suffer unstable exchange rate that caused a high degree of uncertainty in the Nigeria business environment. Domestic investors in small and medium enterprises face enormous risk as no one, no matter how intelligent could predict the likelihood of the foreign exchange market performance. The situation must equally have an effect on importation level of the country. Abba (as cited in Jonathan, Emily & Kenneth, 2016) opined the Nigeria as a developing country striving to develop its industrial base needs to harness its foreign exchange market to enable domestic investors import relevant machineries, equipment and raw materials for the industrial consumption.

The exchange rate is among the most watched, analysed and government manipulated macroeconomic indicators. Since September 1986, when the market determined exchange rate system was introduced via the second tier foreign exchange market, the naira exchange rate has exhibited the features of continuous depreciation and instability. People have not been investing due to exchange rate volatility. This instability and continued depreciation of the naira in the foreign exchange market has resulted in declines in the investment, standard of living of the populace, increased cost of production which also leads to cost push inflation (Afolabi, 2013). It has also tended to undermine the international competitiveness of non-oil exports and make planning and projections difficult at both micro and macro levels of the economy. Adelowokan, Adesoye and Balogun (as cited in Jonathan, et al., 2016) pointed out that a good number of small and medium enterprises have been strangled out as a result of low dollar/naira exchange rate and so many other problems resulting from fluctuations in exchange rates can also be identified. This frequent appreciation of the dollar against the naira has led to sharp drop in private domestic investment in the country. At the firm level for instance, exchange rate movements and its volatility had led to poor performances of private domestic investment in Nigeria. For example, private domestic investment declined from 34% of GDP in 1981 to 10% of GDP in 1988. Private domestic investment declined further to 7% of GDP between 1995 and 1996 and hovered around 8% of GDP to 10% of GDP from 1997 to 2003 before dropping to all time low of 5% of GDP in 2005 (Jonathan, et al., 2016). This downward trend in private domestic investment may partly be due to instability in the exchange rate and political instability. Private domestic investment then increased to 17% in 2010 and fluctuates around 16% and 15% of GDP between 2011 and now. Also, despite various efforts by the government to maintain a stable exchange rate, the naira has depreciated throughout the 80's. It depreciated from ₦0.61 in 1981 to ₦2.02 in 1986 and further to ₦7.901 in 1990, all against the US dollar. The policy of guided or managed deregulation pegged the Naira at ₦21.886 against the US dollar in 1994. Further deregulation pushed it to ₦86.322 = \$1.00 in 1999. It depreciated further to ₦120.97 in 2002 (Jonathan, et al., 2016). Thereafter, the exchange rate appreciated to ₦132.15 in 2005 and later ₦118.57 in 2008. Towards the end of 2008 when the Global Financial Crisis took its toll, the naira depreciated to ₦150.0124 at the end of 2009 and presently the value of the naira against the US dollar is now about ₦390 = \$1.00. During this period, the economy recorded wide fluctuations in exchange rate and private domestic investment.

The significance of exchange rates to the success (or failure) of a business entity in recent times cannot be overemphasized. The importance being attached to the issue of exchange rates is no doubt due to current trends in the business environment where domestic companies, regardless of size and segment could no longer 'mind their own businesses' due to globalization. That is, exchange rate is a major technical instrument upon which businesses can survive and make profit. According to (Anita, 2013), "the increased importance being attached to exchange rates is to some extent a result of the internationalization of modern business, the continuing growth in world trade relative to national economies, the trend towards economic integration and the rapid pace of change in the technology of money transfer. It is also in large part a consequence of the fact that exchange rates are not only variable, but highly volatile". According to IFC's Sub Saharan Africa Regional Report 2003, Small and medium enterprises; companies with 10 to 300 employees and annual sales of \$100,000 to \$15 million are the lifeblood of developing economies, especially those that attract little foreign direct investment. Along with microenterprises, these businesses provide employment for vast portions of local populations and are a critical engine of economic growth and poverty reduction. Small businesses in this important sector of developing economies are however disadvantaged as a result of undue exposure to a number of risks associated with operating in an increasingly interdependent global environment. Prominent among these exposures are uncertainties about the magnitude of future cash flows due to possible changes in output and input prices which in turn is, to a great extent, a result of the variability and volatility of exchange rates.

In the face of increased trade liberalization and the move towards cost reduction through scale economies and mass production, the competitive edge of the Nigerian local small/medium enterprise have been threatened by the influx of competing brands from industrialized countries like Japan, Korea, China, and neighbouring Cote D'Ivoire and Togo (Okwuchukwu, 2015)

Exchange rate volatility has been one of the Achilles heels of many small businesses. Since Nigeria adopted open market exchange rate regimes, many businesses have suffered during free fall of the local currency (Jonathan, et al., 2016). The movement of the exchange rate along the path of depreciation since 1986 has raised a lot of questions on the impact of exchange rate policies on the Nigerian economy (Eze & Okpala, 2015).

The inability of Small and medium Enterprises (SMEs) to manage the trend exposed them to the negative effects of exchange rate volatility (Okwuchukwu, 2015). The vulnerability is reflected in the sporadic high rate of firm mortality which is a great concern to any government.

Most existing studies examined the effect of exchange rate volatility on trade and economic growth. Studies such as Ethier (1973), Clark (1973), Baron (1976), Cushman (1986), Peree and Steinherr (1989), as cited in Ozturk (2006) as well as Ozturk (2006) and Okwuchukwu (2015) and Lawal, K.A.A and Taiwo, A O (2017) examined the effect of exchange rate on trade. Jonathan, et al. (2016) examined the impact of exchange rate fluctuations on private domestic investment performance in Nigeria. In addition to exchange rate, the study also incorporated interest rate, government size, infrastructure and inflation as the determinants of private investment performance.

More so, Theresa, Ikechukwu, and Nkiru (2015) examined the impact of Financial Intermediation on Small and Medium Enterprises Performance in Nigeria (an aggregated analysis:1980-2013), and Iloh and Chioke (2015) examined Commercial Bank Credit Availability to Small and medium Enterprises (SMEs) in Nigeria. However, as a missing gap, which this study intends to fill, due accentuation has not been paid to the influence of exchange rate fluctuations alongside inflation and interest rate on performance of small and medium enterprises in Nigeria. Adelowokan, Adesoye and Balogun (as cited in Jonathan, et al., 2016) pointed out that a good number of small and medium enterprises have been strangled out as a result of low dollar/naira exchange rate and so many other problems resulting from fluctuations in exchange rates can also be identified. Thus, the above analysis provides the basis for this study to examine the long run relationship between exchange rate and performance of inflation in Nigeria.

2.0 Literature Review

2.1 Theoretical Review

2.1.1 Traditional Flow theory

This model posits that exchange rate is simply determined by the market flow of demand and supply of foreign exchange. Thus, there is equilibrium when the supply equals the demand for foreign exchange. The model assumes that two basic variables interact to determine the exchange rate. The variables are: relative income and interest rate differential. This is justified since foreign demand for domestic goods is a function of foreign income and vice versa, and also asset demand depends on the difference between domestic and foreign interest rates.

2.1.2 Purchasing Power Parity (PPP) theory

The purchasing power parity approach to the exchange rate determination was, and continues to be, a very influential way of thinking about the exchange rate. The PPP posits that the exchange rate between two currencies would be equal to the relative national level prices. The PPP derives from the assumption that in the world there exists the "law of one price". This law states that identical goods should be sold at identical prices. (Note this assumption not law). The law of one price implies that exchange rates should adjust to compensate for price differentials across countries (Hoontrakul 1999). In other words, if we are in a bread-world (only bread exists), and a bread is sold in US at 1 Dollar, and the same bread is sold in Nigeria at 150 naira, then the exchange rate has to be 150 naira per Dollar.

2.1.3 Balance of Payments theory

This approach of exchange rate determination is that there exists internal and external equilibrium. The internal equilibrium assumes that there is full employment: in it there is natural rate of unemployment. Or in other words, the unemployment is such that there are no pressures to change real wages. The external equilibrium refers to equilibrium in the balance of payments. This approach explains permanent deviations of PPP. The main problem with this approach is that in general, it is extremely difficult to determine the exact natural rate of unemployment or the exchange rate that is consistent with equilibrium of the external accounts. However, the model will determine where the exchange rate has to converge to; however, it provides very little guidance to the short term fluctuations.

2.3 Methodological and empirical review

Okwuchukwu (2015) examined the effect of exchange rate trends and volatility on Nigeria's imports from 1971 to 2011. The study employed co-integration and Parsimonious ECM model using Schwarz criterion and Akaike information criterion as lag length selection criterion. The findings of the study revealed that exchange rate trends had positive and significant effect on imports only in the long run and that exchange rate volatility depressed imports. It further revealed that a unidirectional causality runs from exchange rate volatility to imports. According to the study, the trends in exchange rate if not checked will lead to wide exchange rate volatility and poor performance of the import sector. The study strongly recommends diversification of the economy by shifting emphasis to the private sector, especially the small and medium enterprises (SMEs), to produce domestic competitive substitute for the imported goods.

Iloh and Chioke (2015) examined the relationship between commercial bank credits indicators and availability of credit facility to small and medium enterprises in Nigeria. Data were collated from the Central Bank of Nigeria (CBN) Statistical Bulletin for a period 31 years (1980 to 2010). The Augmented Dickey-Fuller (ADF) unit-root test was used to test for stationary and the generalized least squares estimation technique was used to test the hypothesis stated. The study showed that commercial banks' credit to SMEs have significant effect on Nigeria economic growth by positively affecting gross domestic product. This also implies that SMEs financing is a great catalyst and a driving force for economic growth in Nigeria. Study recommended that soft and short term loans should be made available SMEs for business enhancement.

Jonathan, et al. (2016) examined an empirical analysis of the link between exchange rate fluctuations and private domestic investment in Nigeria. The study employed simple averages of descriptive statistics, and Error Correction Model (ECM) technique within the Ordinary Least Square estimation were employed to analyse the various trends in the data. The study shows the existence of wide variations in the variables as depicted by the standard deviation of the exchange rate variable that was unusually high in the descriptive analysis. This depicts a high degree of volatility in the exchange rate during the period under investigation. The findings of the study revealed that the depreciation of the currency and interest rate does not stimulate private domestic investment activities in Nigeria. On the other hand, infrastructures, government size and inflation rate had a positive effect on private domestic investment in Nigeria. The study recommended that monetary authorities should adopt appropriate policy in appreciating the value of the naira as devaluation has been a mistake since 1986, reduce borrowing and lending charges to boost the performance of private domestic investment through stable macroeconomic environment.

Eze and Okpala (2015) investigated quantitative impact of Small and medium enterprises (SMEs) on Nigeria's economic growth performance for the sample period 1993 to 2011. The study employed multiple regression method based on ordinary least squares technique. The study shows the ADF test conducted revealed that the variables are integrated of order two, 1(2). The findings of the study revealed output of SMEs (SMEO) does not make any significant contribution to Nigeria's economic growth performance. The study concludes that poor government policies, on tariffs and incentives, bribery and corruption, non-existent

entrepreneurial development centres and poor state of infrastructure act as impediments to the growth and development of SMEs in Nigeria. The recommendations according to the study are that governments at all levels should endeavour to establish Microfinance institutions for easy access to credit by SMEs, introduce financial literacy in schools, establish entrepreneurial development centres for capacity building, provide enough infrastructure, especially electricity and road network, and finally establish agencies for control of bribery and corruption.

Anga (2014) examined determinants of small and medium enterprises in Nigeria. The study theoretically and empirically examined the various factors that affect the performance of SMEs in Nigeria. The study reveals that small and medium industries usually tend to develop and grow into medium and large scale industries. According to study, the path to development of the economy has some challenges which are classified into internal and external factors. The study employed the logistic regression method to establish that corruption is the major external factor that affects growth of SMEs. The study recommended that in order to achieve the desired objective of functional SMEs, the fight against corruption must be tackled from the foundation and then to the leadership position.

3.0 Material and Methods

3.1 Source of Data

Secondary data (time series) on the contributions of wholesale and retail trade output to GDP as a proxy for performance of SMEs (Iloh & Chioke, 2015; Okey, 2016), interest rate, inflation rate and exchange rate were extracted from the online publications of the Central Bank of Nigeria (CBN) statistical bulletin and extracts of covering the period of 38 years between 1981 and 2018.

3.2 Method of Data Analysis

The study employed both descriptive and inferential statistical (using econometric approaches tools) in analysing the data. As regards the econometric analysis, Autoregressive Distribution Lag (ADRL) regression model was employed to examine the long-run relationship. An ARDL is a least squares regression containing lags of the dependent and explanatory variables. The ARDL that this method has three main advantages; firstly, compared to other multivariate co-integration methods, the bound test is a simple technique because it allows the co-integration relationship to be estimated by OLS once the lag order of the model is identified. Additionally, the unit root test is not a pre-condition of this model. Thirdly, the long-run and short-run parameters of the model can be simultaneously estimated. Co-integration exists and there is evidence of a long run relationship if the computed F-statistics exceeds the upper bound critical value. However, the hypothesis is of no co-integration if the F-statistic is below the lower bound, the result will be considered inconclusive for a value within bounds. The Akaike Information criterion (AIC) will be used to determine the optima lag length for the ADRL model. Post estimation diagnostic tests such as serial correlation, heteroscedascity, normality test and structural stability CUSUM test were conducted to examine the adequacy of specified model. Granger non-causality tests were also conducted.

3.3 Model Specification

The functional of the form of the model is specified as follows:

$$PSME = f(EXR, INF, INTR) \dots \dots \dots (1)$$

The modelling technique employed is ARDL and was estimated using OLS. ARDLs are usually denoted with the notation $ARDL(p, q_1, q_2, \dots, q_k)$, where p is the number of lags of the dependent variable, q_1 is the number of lags of the first explanatory variable, and q_k is the number of lags of the k -th explanatory variable. Thus, generally, an $ARDL(p, q_1, q_2, \dots, q_k)$ is specified as follows:

$$y_t = \phi + \sum_{i=1}^p \alpha_i y_{t-i} + \sum_{j=1}^k \sum_{i=0}^{q_j} \beta_{j,i} x_{j,t-i} + \varepsilon_t \dots \dots \dots (2)$$

where ε_t is the error term, ϕ is a constant term, and α_i and $\beta_{j,i}$ are respectively the coefficients of lags of the dependent variable, y_t , and lags of the k regressors $x_{j,t-i}$ for $j = 1, 2, 3, \dots, k$.

Hence, the specific ARDL model for this study is expressed as follows:

$$PSME_t = \phi + \sum_{i=1}^p \alpha_i PSME_{t-i} + \sum_{i=0}^{q_1} \beta_{1i} EXR_{t-i} + \sum_{i=0}^{q_2} \beta_{2i} INF_{t-i} + \sum_{i=0}^{q_3} \beta_{3i} INTR_{t-i} + \varepsilon_t \dots \dots \dots (3)$$

where p, q_1, q_2 and q_3 are the respective maximum lags of the dependent variable ($PSME$) and the lags of the three (3) explanatory variables ($EXR, INF, INTR$). Likewise, $\alpha_i, \beta_{1i}, \beta_{2i}$ and β_{3i} are respectively the coefficients associated with the lags of the dependent variable ($PSME$) and the lags of the three (3) explanatory variables ($EXR, INF, INTR$). Accidentally, some of the explanatory variables may have no lagged terms (*i.e.* where $q_j = 0$). Such variables are called static or fixed regressors. Explanatory variables with one or more lagged terms are called dynamic regressors.

Description of variables

Variables		Definitions
$PSME$ (contributions of proxy)	-	performance of small and medium enterprises wholesale and retail trades to GDP as a proxy)
EXR	-	exchange rate
$INTR$	-	interest rate
INF	-	inflation rate
ε_t	-	error term

The model selection criterion employed to determine the maximum lags was Akaike information criterion.

4.0 Data Analysis and Results

This section presents analysis and interpretation of the empirical results, descriptive analysis was carried out followed by the various econometrics tests. The econometric analyses were discussed in three sub-sections such as unit root test analysis, co-integration test analysis (using bound test), model estimation and post estimation test (such as autocorrelation test and stability test).

4.1 Descriptive Analysis

Table 4.1: Descriptive Statistics

	PSME	EXR	INF	INTR
Mean	4874.542	88.66250	18.69282	17.56974
Median	2654.385	97.39900	11.94700	17.54500
Maximum	11697.59	306.0840	76.75900	29.80000
Minimum	1662.300	0.610000	0.224000	7.750000
Std. Dev.	3651.173	87.19286	18.18467	4.630846
Skewness	0.878739	0.799120	1.816977	0.207871
Kurtosis	2.101782	2.964235	5.282953	3.661243
Jarque-Bera	6.167914	4.046442	29.16104	0.965964
Probability	0.045778	0.132229	0.000000	0.616941
Sum	185232.6	3369.175	710.3270	667.6500
Sum Sq. Dev.	4.93E+08	281296.0	12235.24	793.4551
Observations	38	38	38	38

Source: Authors' computation using E-views

The table 1 shows the descriptive statistics of each of the variables. *PSME* (performance of SMEs) is expressed in expressed in ₦billion while *EXR* (exchange rate) is given as ₦/\$1. In summary, the Jarque-Bera statistics show the series *EXR* and *INTR* follow a normal distribution having their p-values (0.1322 and 0.6169 respectively) greater than 5%. On the contrary, the series *PSME* and *INF* are not normally distributed since their p-values (0.0458 and 0.0000 respectively) are less than 0.05.

4.2 Unit Root Test

Table 4.2: Result of ADF Tests

Variable		Intercept			<i>I</i> (<i>d</i>)
		ADF Statistics	5% Critical Value	Prob.	
<i>PSME</i>	<i>Level</i>	-0.7027	-2.9484	0.8331	<i>I</i> (1)
	<i>1st Difference</i>	-3.0921	-2.9458	0.0361	
<i>EXR</i>	<i>Level</i>	-2.0173	-2.9434	0.2785	<i>I</i> (1)
	<i>1st Difference</i>	-5.1648	-2.9458	0.0001	
<i>INF</i>	<i>Level</i>	-4.4755	-2.9434	0.0010	<i>I</i> (0)
<i>INTR</i>	<i>Level</i>	-3.5467	-2.9434	0.0121	<i>I</i> (0)

Source: Authors' computation using E-views

Table 2 presents the result of the unit test using the Augmented Dickey Fuller (ADF) Test. The table shows that the series performance of small and medium enterprises (*PSME*) (contributions of wholesale and retail trades to GDP as a proxy) and exchange rate (*EXR*) are integrated at order one (first differences), *i.e.* they are *I*(1) series while only Inflation rate (*INF*) and interest rate (*INTR*) are integrated at order zero (level), *i.e.* they are *I*(0) series.

4.3 ARDL Bounds Co-integration Test

Since the unit root tests produce mixed orders of integration and by implication, this justifies the adoption of ARDL Bounds co-integration test to determine whether a long-run relationship exists among the variables. The result of the ARDL bounds test is presented in the table 3:

Table 4.3: ARDL Bounds Co-integration Test
Null Hypothesis: No long-run relationships exist

Test Statistic	Value	k
F-statistic	4.973558	3

Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	2.72	3.77
5%	3.23	4.35
2.5%	3.69	4.89
1%	4.29	5.61

Source: Authors' computation using E-views

The table 3 presents the results of the ARDL Bounds Co-integration Test. Thus, since the F-statistic (4.97396) exceeds upper bounds of the critical value bounds at 10%, 5% and 2.5%, a long run relationship exists among the variables, viz. performance of small and medium enterprises (*PSME*), exchange rate (*EXR*), Inflation rate (*INF*) and interest rate (*INTR*)

4.4 ARDL short run (Co-integrating) Equation

Table 4.4: Result of estimated ARDL short run (Co-integrating) Equation

Dependent Variable: LOG(*PSME*)

Selected Model: ARDL(1, 5, 6, 4)

Sample: 1981 2018

Included observations: 32

Cointegrating Form				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
DLOG(<i>EXR</i>)	-0.106176	0.024528	-4.328722	0.0010
DLOG(<i>EXR</i> (-1))	0.055934	0.026465	2.113507	0.0562
DLOG(<i>EXR</i> (-2))	-0.049584	0.036247	-1.367973	0.1964
DLOG(<i>EXR</i> (-3))	0.067892	0.039319	1.726687	0.1099
DLOG(<i>EXR</i> (-4))	-0.190304	0.025839	-7.364957	0.0000
D(<i>INF</i>)	-0.017649	0.006722	-2.625485	0.0222
DLOG(<i>INF</i> (-1))	0.037676	0.007385	5.101993	0.0003
DLOG(<i>INF</i> (-2))	0.022945	0.005950	3.856076	0.0023
DLOG(<i>INF</i> (-3))	0.033409	0.006945	4.810248	0.0004
DLOG(<i>INF</i> (-4))	0.038409	0.005002	7.678616	0.0000
DLOG(<i>INF</i> (-5))	0.011272	0.003636	3.099692	0.0092

DLOG(INTR)	-0.013255	0.050068	-0.264745	0.7957
DLOG(INTR(-1))	-0.031476	0.033345	-0.943943	0.3638
DLOG(INTR(-2))	0.042924	0.030982	1.385432	0.1911
DLOG(INTR(-3))	-0.114636	0.034724	-3.301327	0.0063
CointEq(-1)	-0.080079	0.015745	-5.085996	0.0003

Source: Authors' computation using E-views

Table 4.4 presents the result of the short run form of the ARDL. The coefficient (-0.0801) of the co-integrating equation (*i.e.*, error correction term or speed of adjustment) is negative and significant (since the p-value of 0.0218 is less than 5%) at 5% level of significant. This suggests that performance of small and medium enterprises [*PSME*] (contributions of wholesale and retail trades to GDP as a proxy) adjusts to exchange rate (*EXR*), Inflation rate (*INF*) and interest rate (*INTR*) with a lag in the long run. Thus, about 8.01% of the disequilibrium in the previous periods has fallen back to equilibrium in the current period. Therefore, the model has been restored to equilibrium leading to a long run impact.

4.5 Estimation of ARDL long run coefficients

Table 4.5 Result of estimated ARDL long run coefficients

Long Run Coefficients				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG(<i>EXR</i>)	-0.303672	0.185578	-1.636352	0.1277
LOG(<i>INF</i>)	-2.052374	0.580960	-3.532730	0.0041
LOG(<i>INTR</i>)	3.504787	1.262309	2.776489	0.0168
C	6.801302	1.685144	4.036037	0.0017

Source: Authors' computation using E-views

Table 4.5 presents the result of the estimated long run form of the ARDL. The estimated long-run equation shows that at 5% (0.05) level of significance, inflation rate (*INF*) and per capita income (*PCI*) respectively have negatively and positively significant effects on performance of small and medium enterprises (*PSME*) with p-values of 0.0014 and 0.0168 respectively. On the contrary, at 5% level of significance, exchange rate (*EXR*) has positive but insignificant effects on *PSME* with the p-value of 0.1277. Therefore, on the one hand a 1% decrease in *INF* leads to a rise in *PSME* by about 2.05%, but on the other a 1% increase in *INTR* raises *PSME* by about 3.50%. Therefore, changes in *INF* and *INTR* respectively have negatively and positively significant long run effects on performance of small and medium enterprises (*PSME*).

5.6 Serial Correlation Test

Table 4.6 Result of Serial Correlation Test
Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.185691	Prob. F(2,10)	0.8333
Obs*R-squared	1.145866	Prob. Chi-Square(2)	0.5639

Source: Authors' computation using E-views

Table 4.6 presents result for autocorrelation test. Since the p-values of both the F-statistic (0.8333) and observed R-squared (0.5639) are greater than 0.05, the null hypothesis (i.e. no serial correlation) is accepted. Thus, the model estimated does not suffer from serial correlation.

5.7 Test of Stability (CUSUM test)

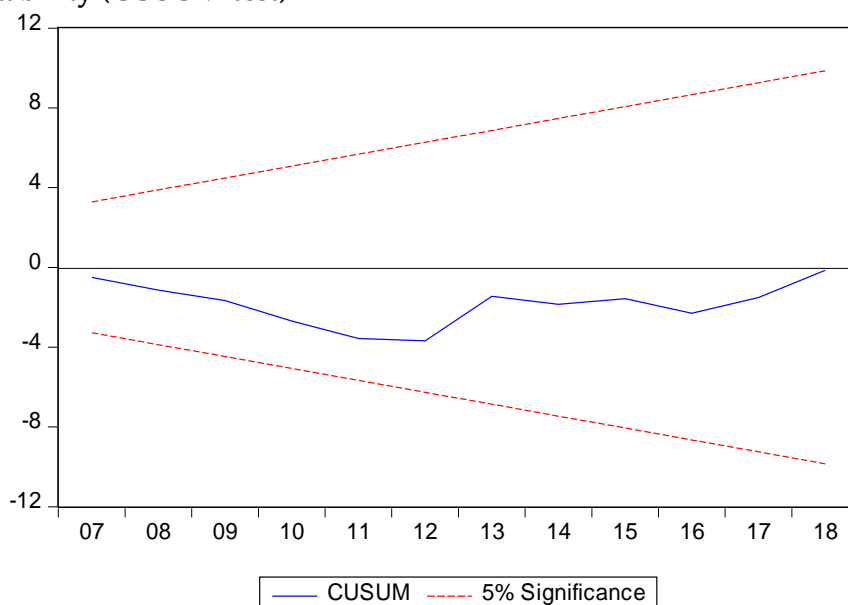


Figure 4.1: Plot of Cumulative Sum (CUSUM) of Recursive Residuals

Figure 4.3 presents the result of the test of stability using CUSUM criterion. Since the plot remains within the critical bounds at 5% level of significant, thus, the model is structurally stable. Therefore, the estimated parameters ARDL are stable.

5.1 Conclusion and Recommendations

This study examined the long run relationship between exchange rate and performance of SMEs in Nigeria using ARDL model. In the estimated short run form, the speed of adjustment implies that 8.01% of the disequilibrium in the previous periods has fallen back to equilibrium in the current period. This suggests that *PSME* adjusts to exchange rate (*EXR*), Inflation rate (*INF*) and interest rate (*INTR*) with a lag in the long run. The estimated long run form reveals that inflation rate (*INF*) and interest rate (*INTR*) respectively have negatively and positively significant long run effects on performance of small and medium enterprises (*PSME*) while exchange rate (*EXR*) has positive but insignificant long run effects on *PSME* (contributions of wholesale and retail trades to GDP as a proxy). Thus, the findings reveal that changes in exchange rate do not contribute significantly to the performance of SMEs in the long run. This

finding is corroborated by (Dada, 2014) The post estimation test such as CUSUM test indicates a stable long run relationship between *PSME*, *EXR*, *INF* and *INTR*.

Therefore, the model has been restored to equilibrium leading to a long run impact about 8.01%

Based on the findings, the study therefore concludes that the exchange rate has no long run significant effect on the performance of small and medium scale enterprises in Nigeria. Therefore, the study emphasizes the need for the federal government, Central Bank of Nigeria and other concerned regulatory authorities to come up with strong policies that would maintain a favourable and stable exchange rate. This is absolutely vital because a favourable and stable exchange rate will promote economic stability and hence enhances small scale business performance in Nigeria.

References

- Afolabi, M. O. (2013). Growth effect of small and medium enterprises (SMEs) financing in Nigeria. *Journal of African Macroeconomic* 2013, *Review* 3(1), 193 – 204.
- Dada, R. M. (2014). Commercial banks' credit and SMES development in Nigeria: An empirical review. *International Journal of Research (IJR)*, 1(8), 305 – 319.
- Eze, T. C. & Okpala, C. S. (2015). Quantitative analysis of the impact of small and medium scale enterprises on the growth of Nigerian economy: (1993-2011). *International Journal of Development and Emerging Economics*, 3(1), 26-38.
- Hoontrakul P. (1999). Exchange Rate Theory: A Review. Sasin-GIBA, Chulalongkorn University, Thailand.
- Iloh, J. & Chioke, N. (2015). Commercial Bank Credit Availability to Small and Medium Scale Enterprises (SMEs) in Nigeria. *Third International Conference on Business, Law and Corporate Social Responsibility (ICBLCSR'15)*. Bali (Indonesia).
- Jonathan, O. O., Emily, G. & Kenneth, U. N. (2016). The Impact of Exchange Rate Fluctuations on Private Domestic Investment Performance in Nigeria. *IOSR Journal of Economics and Finance (IOSR-JEF)*, 7(3), 07-15.
- Lawal, K.A.A and Taiwo, A O (2017) Effect of Credit on Agribusiness Household Welfare in Epe Division of Lagos State, *LASU Journal of Business Review(LJBR)*, Vol4 No.2. pp227-239. Department of Business Administration, Faculty of Management Sciences, Lagos State University.
- Obioma, N. E. (2000). *Elements of International Economics* Lagos: Impresses Publishers.
- Okwuchukwu, O. (2015). Effects of exchange rate trends and volatility on imports in Nigeria: implications for macroeconomic Policy. *International Journal of Economics, Commerce and Management United Kingdom*, 3(7). Retrieved from <http://ijecm.co.uk/>.
- Ozturk, I. (2006). Exchange rate volatility and trade: A literature survey. *International Journal of Applied Econometrics and Quantitative Studies*. 3.