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CONTENTS

RESEARCH PAPERS

1. Kareem A. Arikewuyo, Richard O. Akingunola
   Impact of Interest Rate Deregulation on Fund Mobilisation
   of Deposit Money Banks in Nigeria ................................................................. 89

2. Jayeola Olabisi, Adegboyega Afolabi, Sunday Olugboyega Kajola,
   Oluwaseun Ariyibi
   Effect of Currency Depreciation on Financial Performance
   of Nigerian Deposit Money Banks ................................................................. 104

3. Michael Segun Ogunmuyiwa, Nurudeen Afolabi Sofoluwe
   Cooperative Financing of Micro Scale Enterprises in Nigeria .................... 117

4. Wasiu Abiodun Sanyaolu, Jimoh Odunayo, Amos Olufemi Craig
   Dividend Policy and Firms Value: Evidence from
   Quoted Food and Beverages Companies in Nigeria .................................... 133

5. Walid Gbadebo Adebosin, Anu Keshiro Toriola,
   Lateef Abiodun Salami, Dele Taiwo Saula,
   Ayanyemi Adeyemi Ayanwole
   The Effect of Infrastructural Investment
   on Sustainable Development in Nigeria (1980-2016) .................................. 148
IMPACT OF INTEREST RATE DEREGULATION ON FUND MOBILISATION OF DEPOSIT MONEY BANKS IN NIGERIA

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JEL G12, H5, O1, G2, O2

The intermediation role of banks in harnessing idle funds is crucial to the sustenance of any economy and this is largely dependent on interest rates. This study examined the relationship between interest rate deregulation and fund mobilisation of Deposit Money Banks (DMBs) in Nigeria between 1986 – 2016. Autoregressive Distributed Lag (ARDL) Bound Test technique was used to determine short and long run impacts of interest rate deregulation on fund mobilisation of DMBs. The result showed that interest rate had insignificant impact in the short run but significant impact in the long run. Also, money supply and inflation rate were the key drivers of fund mobilisation of DMBs in both short and long run situation. The non-significance of government expenditure affirmed that fund mobilisation of DMBs is of monetary and not fiscal policy phenomenon in Nigeria. It is, therefore, concluded that interest rate impacted on fund mobilisation in the long run and recommended that monetary authorities should concentrate towards reducing domestic inflation and increase money supply in order to improve fund mobilisation of DMBs in Nigeria.

Key words:
Interest Rate Deregulation, Government Expenditure, Funds Mobilisation, DMBs, Nigeria.

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1. Introduction

The introduction of banks was to provide a platform for smooth interaction between surplus – economic unit (SEU) and deficit – economic unit (DEU). This relationship was contingent upon the need to solve the problem of double – coincidence of wants experienced during the moneyless economy and reduces search cost between the duo. The Deposit money banks (DMBs) plays an intermediation role between the two economic units and this role of intermediation was built on the understanding that all parties in this intermediation process achieve its motive. The motive of SEU is from the supply – side which implies provision of capital or funds to the DEU in return for interest, which is the price for postponing its present consumption into foreseeable future while the DEU is from the demand – side which requires funds for its business transaction in return for profit.

The intermediation role provided by the DMBs between these two economic units is a lubricant to economic activities. The liquidity transformation role of DMBs is quite challenging such that they are expected to gather funds from small savers and lend in chunk to borrowers for fostering investment. This is referred to as funds mobilisation and this is expected to facilitate commerce. The fund mobilization responsibility of DMBs has great impact on economic growth of any nation. It is noted that greater investment can be attained, provided there is adequate funds mobilisation from SEU of the economy, by DMBs. One of the key determinants in funds mobilisation is interest rate (McKinnon, 1973 & Shaw, 1973) and that is why Obasan and Arikewuyo (2012) submitted that interest rates drives the supply and demand for loanable funds. Fund mobilisation of DMBs revolves around capital accumulation from small savers for investment purposes. It is a great task which must be pursued with vigour so as to meet capital – demanding economy to promote investment which can spur economic growth.

Funds mobilisation is identifying the sources of and gathering of idle funds from deficit – economic unit (DEU) for the use of business enterprises. The economic importance of such role becomes highly necessary for businesses to thrive and to enhance commerce which will snow-ball into economic growth. This role show-cased the importance of financial institutions as managers of funds in any economy and this promotes economic activities of any nation. That is why Onwe (2013) concluded that the nation’s financial system is determined by its economic size but the process of development of any economy lies in the efficient repackaging of funds from short – term savers to long – term borrowers.

It is worth mentioning that the level of funds mobilisation is dependent on the deposit interest rate. This is clear from various regulations emplaced by both the
government and monetary authorities at ensuring compliance by DMBs so as to reduce bank failures to repose confidence in the financial system. These regulations ranged from reserve requirements to capital adequacy as well as intervention in the operations of the financial system. However, studies have shown that government or monetary authority’s intervention had been claimed not to have achieved the intended objectives rather it was established to be disincentive to fund mobilization and misallocation of funds (McKinnon, 1973 & Shaw, 1973; Agarwala, 1985; Soyibo&Adekanye, 1992). This, therefore, culminated into the deregulation of financial system in which interest rate was deregulated. This implies that the market forces were allowed to determine the interest rate which has great implication on funds mobilisation of DMBs in world over, Nigeria inclusive.

Several studies have established relationship between interest rate and savings but most of the previous studies have failed to consider the government expenditure as a significant factor in mobilising funds. This study considered the influence of government expenditure as an additional factor for funds mobilisation. Studies have discovered that one important factor that improves economic activities as well as growth is government expenditure (Loizides & Vamvoukas, 2005; Cooray, 2009) and bank, through its intermediation role, is one the channel through which economic growth can be achieved. The contribution of this study is the inclusion of government expenditure into the empirical analysis on funds mobilisation as this may be significant. This variable has effect on volume of deposits in the system while interest rate on deposit impacts positively on the level of deposits mobilized in the system. It is imperative to examine whether deregulated interest rate had increased funds mobilisation of DMBs in Nigeria as frequent changes in interest rates influences funds mobilisation of DMBs in Nigeria. However, our study differs from other studies as we considered fund mobilization through deposit money banks (DMBs) while previous studies, to the best of our knowledge, were economy-wide in nature (see Simon-Oke & Jolaosho, 2013; Adesoye & Maku, 2015).

In view of the above submission, the following research questions required empirical answers:

(i) Does interest rate deregulation influence fund mobilisation of DMBs in Nigeria? and

(ii) How has government expenditure impact on fund mobilisation of DMBs in Nigeria?

These two questions, therefore, led to the hypotheses stated below:

\[ H_{01}: \text{Interest rate deregulation has no significant impact on fund mobilisation of DMBs in Nigeria; and} \]
H02: Government expenditure has no significant impact on fund mobilisation of DMBs in Nigeria

The rest of this paper is organised as the section two deals with literature review while section three points out materials and methods. Section four highlights the results and outcomes while section five concludes the study.

2. Literature Review

The deregulation of interest rate is the liberalization of interest rate which came to fore as a result of the submission of McKinnon (1973) and Shaw (1973) who explained the relationship between financial development and growth through a model based on ‘outside money’ and analyses the impact of real interest rate on savings deposit, investment and growth through ‘complementarity hypothesis’. Interest rate will be defined as the return or opportunity cost of deferring current consumption into the future. The ideal of real interest rate was developed by Irvin Fisher when he tried to establish the relationship between consumption and investment. They are crucial in financial intermediation which involves transferring of funds from surplus to deficit units in an economy.

The importance of interest rate on fund mobilisation of DMBs has been a point of focus among financial economists and this has spurred a lot of empirical investigation. Soyibo and Adekanye (1992) used regression analysis to examine the response of financial system to regulatory and deregulatory policies in Nigeria covering 1969 - 1989. The study adopted two models of McKinnon (1973) and Shaw (1973) for Nigerian case and adapted three modified models of Fry (1978) by Arrieta (1988), Yusuf and Peters (1984), Leite and Makonnen (1986) with modifications basically on inclusion of dummy variable, D87; to capture the effect of financial liberalisation in Nigeria as well as a variation of ex ante real interest rate and the adjusted ex ante real interest rate which previous studies failed to consider. It was found that the determinants of savings in Nigeria include lagged aggregate savings ratio, lagged aggregate savings, current GDP, foreign savings and ex post real interest rate. It was further established that the debt-intermediation hypothesis of Shaw is more relatively supported by Nigerian data than the complementarity hypothesis of McKinnon.

In Obamuyi (2009), the study investigated the relationship between interest rate and economic growth in the pre and post – deregulatory periods in Nigeria. The study which covered the period of 1970 – 2006 used Gross Domestic Product (GDP) as the dependent variable while real lending rate, real deposit rate, inflation, financial deepening, ratio of gross domestic savings to GDP and financial policy shift dummy
variable as independent variables. The study concluded that the aim of deregulated interest rate may be defeated if variables negatively affecting investment in Nigeria are not given adequate attention.

Christopher, Asor and Idoko (2012) carried out a study which assessed the impact of interest rate deregulation on economic growth in Nigeria covering 1964 – 2009. The study delineated the period into regulatory (1964 – 1986) and deregulatory (1987 – 2009) periods with four models employed Ordinary Least Squares (OLS) analytical method and the variables considered include total savings, investment, real GDP, population, money supply, government expenditure, real deposit rate and real lending rate. The study included government expenditure as moderating variable in the relationship between real lending rate and real GDP. It was found that real deposit rate has an insignificant negative impact on total savings; real lending rate has insignificant negative impact on investment; a significant positive relationship between investment and real GDP; real lending rate has insignificant negative impact on real GDP in Nigeria. The study, however, noted that government expenditure had significant positive impact on real GDP in Nigeria. The study concluded that interest rate deregulation has not had any significant impact on economic growth in Nigeria.

Simon-Oke and Jolaosho (2013) examined the impact of real interest rate on savings in Nigeria covering 1980 – 2008. Data were analysed using Vector Autoregression (VAR) technique and the variables included in the study were gross national savings, interest rate, exchange rate, inflation and GDP. The findings from VAR revealed that interest rate liberalisation vis-à-vis real interest rate has really contributed to the declining level of savings mobilization as well as low level of capital formation in Nigeria. This implies that real interest rate significantly impacts on savings mobilization in Nigeria.

Although, Siyanbola, Sobande and Adedeji (2012) examined the effect of interest rate deregulation on banks’ deposit mobilization in Nigeria covering 1985 – 2011 using annual data but their finding was bedeviled with model specification. The study employed OLS and the variables used include interest rate, savings and deposits, time deposit, money supply and total institutional savings with interest rate being the dependent variable. The findings showed that interest rate has a major influence on deposit mobilization in Nigeria. It was discovered that there was model specification problem as the model specified was not in line with the set objective.

In the study of Maharana, Choudhury and Panigrahi (2015), the study used descriptive statistics to evaluate the trend and growth in deposit mobilization of scheduled commercial banks in Bhubaneswar between 2008 and 2014. The result found a significant increase in current deposit and term deposit over the period of study.
Wujung and Aziseh (2016) assessed the effect of domestic resource mobilization on the economic growth of Cameroon. The study employed instrumental variable generalized method of moments for data analysis covering 1980 – 2013 and variables included were changes in GDP, domestic savings, domestic credit provided by the banking sector and taxes. The findings revealed that mobilization of taxes, domestic savings and domestic credits are key to sustaining economic growth in Cameroon.

The theories which this study is hinged on include financial intermediation theory, liquidity preference and loanable fund theories.

Financial intermediation theory is associated with David Ricardo, Marshall, Piggon, Cassels, Walras, Tansing and Knight. According to the classical theory, rate of interest is determined by the interaction of demand and supply of capital or to be more accurate, by the interaction of the investment demand schedule and the savings schedule.

It could also be stated that the interest rate is determined by the equality of savings and investment under the condition of perfect competition. The rate of interest is constructed as the balancing factor, which equates the volume of savings with the volume of investment. There is an inverse relationship between interest rate and the demand for capital. As rate of interest rises, the demand for capital declines. In the same manner, a fall in interest rate, the demand curves for capital rises, hence demand curve for capital slopes downward (from left to the right).

On the other hand, the supply of capital, at any particular time depends on a number of factors. However, prominent among these factors according to the classical economists is the rate of interest. The public saves more at a higher interest rate than at a lower rate. This is why the supply curves of capital slope upward.

The classical economists believed that the rate of interest must be high enough to induce the saver to forego consumption. If the public saves less, the total supply of capital will fall short of the total demand and ultimately the rate of interest will have to rise high enough to compensate the saver.

Also, the loanable funds theory of interest rate which is referred to as neoclassical was first propounded by the Swedish economist Wicksell and later developed and supported by several leading American and Swedish economists including professor Robertson, Ohlin, Lindhal, and Myrdal (cited in Seth, 1983). However, the theory in its present form is credited to Professor Robertson. According to the theory, the rate of interest is determined by the demand and supply of loanable funds, hence borrowing takes off at a rate of interest which brings about equilibrium between the demand and supply of loanable funds. The loanable funds are robustly defined beyond savings to include bank credit, dis-hoarding and asset dis-investment.
The classical theory of interest rate refers only to savings out of investment and current income; it excludes bank loans, wealth or disinvested assets. Literally, bank loans represent funds which are available (on payment of interest to the borrowers) while hoarded wealth can also become available for the purpose of investment. However, dis-invested wealth is another source of funds available to the borrowers. The comprehensiveness of the loanable fund theory earns its nomenclature of real as well as monetary theory of interest. The theory is one of two general approaches that impacted on the modern monetary theory of the rate of interest.

More so, Keynes’ liquidity preference theory of interest as opposed to classical theory, which might be termed as the real theory of interest. Keynes (1973) after criticizing the classical theory propounded the liquidity preference theory of interest otherwise called the monetary theory of interest. The theory introduced the control of interest rate through variations in the supply of money. According to Keynes, interest is purely a monetary phenomenon because the rate of interest is estimated in terms of money. It is also a monetary phenomenon in the sense that it is determined by the demand for and the supply of money. Keynes (1973) defined interest as the reward received for parting with liquidity for a specified time. It is further revealed that money is the most liquid asset and people generally like to keep their assets in cash. Therefore, they would only be ready to surrender this liquidity, if a reward in form of interest is possible. The greater the desire for liquidity, the higher shall be the rate of interest demanded for parting with liquidity.

3. Materials and Methods

The study covers the period of 1986 - 2016 and utilized data of all licensed commercial banks in Nigeria. This is to enable the researchers to measure quantitatively the performance in terms of fund mobilization of Deposit Money Banks (DBMs) within the period under review. The data required for this study are bank total deposit (savings), the Real Deposit Rate (RDR), government expenditure, exchange rate (EXR), inflation rate (INF), money supply (M2) and a dummy variable for economic policy. Clearly, all these constitute secondary data and ex-post facto research design in nature. These data were sourced from the Central Bank of Nigeria (CBN) publications, particularly the Central Bank of Nigeria Statistical Bulletin and National Bureau of Statistics. The analytical method of data is Autoregressive Distributed Lag (ARDL) due to statistical properties of data involved.

The objective of this research study is to establish empirically the effect of interest rate deregulation on fund mobilization efforts of Deposit Money Banks (DMBs) in Nigeria. This study calibrated the model of Simon – Oke and Jolaosho
(2013) which followed the work of Giovannini (1985) in Bwire, Mukungu, Luganda and Ilukor (2009). The calibration covered dependent and independent variables. More so, government expenditure was included to ascertain the influence of fiscal policy on fund mobilisation effort of DMBs in Nigeria. The general form of the model is:

\[ bfm_t = \phi_i K_t + \psi_i P_t + \eta_i R_t + \mu_t \]  

where

\[ K_t = (\text{int}_t, rdr_t) \]  
\[ P_t = (\text{gex}_t, \text{ddv}_t) \]  
\[ \eta_t = (\text{inf}_t, m_{2t}) \]

The functional form of Equation 3.1 is hereby presented below:

\[ bfm_t = f(\text{int}_t, rdr_t, \text{gex}_t, \text{ddv}_t, \text{inf}_t, m_{2t}) \]  

Thus, the linear relationship from the above is presented in equation 3.3:

\[ \log bfm_t = b_0 + b_1 \text{int}_t + b_2 rdr_t + b_3 \log \text{gex}_t + b_4 \text{ddv}_t + b_5 \text{inf}_t + b_6 m_{2t} + u_t \]  

where;

\( bfm \) = bank funds mobilisation, proxy with total bank deposit
\( \text{int} \) = real interest rate
\( rdr \) = real deposit interest rate
\( \text{gex} \) = government expenditure
\( \text{ddv} \) = dummy variable for deregulatory period
\( \text{inf} \) = inflation rate
\( m_2 \) = money supply

BFM = Total bank deposit, which is a combination of demand deposit, time deposit and savings deposit is a proxy for fund mobilization.

INT = Real interest rate. This also is the rate of interest an investor expects to receive after allowing for inflation. It is approximately the nominal interest rate adjusted for inflation.

RDR = Real deposit interest rate. This is expected to have a bi-directional
relationship with savings. That is, if the rate is low, it will be disincentive to savings and vice-versa. It is expected to have positive relationship with savings as established by theoretical postulation.

\( \text{INF} = \) Inflation rate. This has been referred to as the rise in the general level of prices of goods and services in an economy over a period of time. This basically reflects erosion in the purchasing power of money.

\( M_2 = \) the total broad money in circulation. Money supply, a priori is expected to have a positive effect on fund mobilization, since it is believed that increase in money supply would enhance the credit creation ability of commercial banks thus increasing the amount of loans and advance to non banking public.

\( \text{DDV} = \) represents dummy variable for deregulatory period in Nigeria

4. Results and Outcomes

Prior to the estimation of equation, the characteristics nature of the data were examined. The essence was to determine whether the data series was stationary and establish their order of integration. In this regard, the Augmented Dickey Fuller (ADF) test was used and the results were presented in Table 1. The results of the unit root tests indicated that BFM, INT, RDR, INF and \( M_2 \) were not stationary at level – I(1) while GEX and DDV were stationary at level – I(0). This condition requires ARDL bound test as this investigates the long run and short run relationships among the variables (Pesaran& Shin, 1995; Pesaran et al., 2001).

* Table 1

<table>
<thead>
<tr>
<th>Variable</th>
<th>ADF At Level</th>
<th>ADF At First-Difference</th>
<th>Order of Integration</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOG(BFM)</td>
<td>-1.4280</td>
<td>-4.1580*</td>
<td>I(1)</td>
</tr>
<tr>
<td>INT</td>
<td>-2.2207</td>
<td>-5.9473*</td>
<td>I(1)</td>
</tr>
<tr>
<td>RDR</td>
<td>-2.2868</td>
<td>-4.8455*</td>
<td>I(1)</td>
</tr>
<tr>
<td>LOG(GEX)</td>
<td>-3.2772*</td>
<td>-0.4722</td>
<td>I(0)</td>
</tr>
<tr>
<td>INF</td>
<td>-2.6358</td>
<td>-5.5428*</td>
<td>I(1)</td>
</tr>
<tr>
<td>LOG(M_2)</td>
<td>-1.1139</td>
<td>-3.2415*</td>
<td>I(1)</td>
</tr>
<tr>
<td>DDV</td>
<td>-4.2370*</td>
<td>-4.1181*</td>
<td>I(0)</td>
</tr>
</tbody>
</table>

* signifies that variables were significant @ 5%

Before conducting ARDL bound test, the optimal lag length was found to be 1.
The ARDL bound test was conducted, the F-statistic value of 11.45 is evidently above the upper bound critical value at 5% which concludes that we reject the null hypothesis to conclude that there is long run equilibrating relationship between DMBs fund mobilisation and explanatory variables. The diagnostic tests conducted include Breusch-Godfrey serial correlation LM test which confirmed absence of serial correlation in our model while ARCH test for heteroscedasticity, Jacque-Bera for normality test were carried out and it was discovered that our error term exhibited a normal distribution with regard to the results of diagnostic tests.

Table 2

<table>
<thead>
<tr>
<th>Estimated Equation: ( \log(\text{BFM}) = f(\text{INT, RDR, LOG(GEX), INF, LOG(M_2)} )</th>
</tr>
</thead>
<tbody>
<tr>
<td>F-statistic</td>
</tr>
<tr>
<td>Optimal lag length</td>
</tr>
<tr>
<td>Significance level</td>
</tr>
<tr>
<td>1%</td>
</tr>
<tr>
<td>5%</td>
</tr>
<tr>
<td>10%</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
</tr>
<tr>
<td>( R^2 )</td>
</tr>
<tr>
<td>Adjusted ( R^2 )</td>
</tr>
<tr>
<td>F-statistics</td>
</tr>
<tr>
<td>Breusch-Godfrey Serial Correlation LM Test</td>
</tr>
<tr>
<td>Breusch-Godfrey Serial Heteroscedasticity Test</td>
</tr>
<tr>
<td>Jacque-Bera (JB) Normality</td>
</tr>
<tr>
<td>Specification Error: Ramsey RESET test</td>
</tr>
</tbody>
</table>

From Table 2, the result of diagnostic statistics showed that the residuals are serially uncorrelated, homoscedatic, normally distributed based on Breusch-Godfrey serial correlation LM test, ARCH LM test and JB test respectively. The policy implication of this is that the model is of good fit for economic policy recommendation. Thus, the model is well specified based on Ramsey RESET test. More so, the CUSUM-SQ statistic stays within 5% level of significance which indicated that the estimated coefficients were stable and this is presented in Figure 1 below:
It is, however, noted that the model has been relatively stable aside from between 2008 and 2009 which culminated with the period of global financial crisis in Nigeria. It can be concluded that ARDL fund mobilisation function is stable and fund mobilisation effort of DMBs can be used as a target variable.

We estimated short run coefficients of the model and the results were presented in Table 3. The short run coefficient using Error Correction Model (ECM) was correctly signed (i.e. negative) and statistically significant at 5%. This implies that about 73% departure from long run equilibrium was corrected in each year. Thus, the magnitude of adjustment mechanism (ECT) shows that the speed of adjustment towards long run equilibrium is high as 73% disequilibrium from the previous year will converge back to the long run in the current year.

Table 3

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>D(INT)</td>
<td>-0.003479</td>
<td>-0.425551</td>
<td>0.6752</td>
</tr>
<tr>
<td>D(RDR)</td>
<td>0.009395</td>
<td>1.400442</td>
<td>0.1775</td>
</tr>
<tr>
<td>DLOG(GEX)</td>
<td>-0.012014</td>
<td>-0.604641</td>
<td>0.5526</td>
</tr>
<tr>
<td>D(INF)</td>
<td>-0.002119</td>
<td>-2.260521</td>
<td>0.0357*</td>
</tr>
<tr>
<td>DLOG(M2)</td>
<td>0.814712</td>
<td>6.360565</td>
<td>0.0000*</td>
</tr>
<tr>
<td>D(DDV)</td>
<td>0.063111</td>
<td>1.434558</td>
<td>0.1677</td>
</tr>
<tr>
<td>ECT(-1)</td>
<td>-0.731841</td>
<td>-6.317730</td>
<td>0.0000*</td>
</tr>
</tbody>
</table>
The long run coefficients of ARDL model was presented in Table 4 and it was revealed that real deposit rate and money supply have significant positive impact on fund mobilisation of DMBs in Nigeria while interest rate and inflation have negative significant impact except government expenditure with insignificant impact on fund mobilisation of DMBs in Nigeria.

| Table 4 |

<p>| Long Run Coefficients of ARDL (1, 1, 1, 0, 0, 0, 0) Model |</p>
<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>INT</td>
<td>-0.059383</td>
<td>-6.482538</td>
<td>0.0000*</td>
</tr>
<tr>
<td>RDR</td>
<td>0.051509</td>
<td>5.350958</td>
<td>0.0000*</td>
</tr>
<tr>
<td>LOG(GEX)</td>
<td>-0.016416</td>
<td>-0.613609</td>
<td>0.5468</td>
</tr>
<tr>
<td>INF</td>
<td>-0.002896</td>
<td>-2.161922</td>
<td>0.0436*</td>
</tr>
<tr>
<td>LOG(M2)</td>
<td>1.113235</td>
<td>42.335602</td>
<td>0.0000*</td>
</tr>
<tr>
<td>DDV</td>
<td>0.086236</td>
<td>1.375663</td>
<td>0.1849</td>
</tr>
<tr>
<td>C</td>
<td>-1.622159</td>
<td>-7.956711</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

From the empirical findings of this result, it was found that only inflation, though negative, and money supply were significant in the short run. In the long run, all variables were significant except government expenditure and dummy variable for deregulation which implies that these two variables were not significant in both short and long run. More so, it is intuitively deduced that the insignificance of the dummy variable for the deregulatory period (DDV) revealed that the policy had no effect on fund mobilisation effort of DMBs in Nigeria which informed the re-regulation policy by the Nigerian monetary authorities. Furthermore, it was found that an increase in government expenditure fuels inflation and this correspondingly affects interest rate, thereby low fund mobilisation of DMBs in Nigeria.

This study is in line with the submission of Simon – Oke and Jolaosho (2013) that an increase in interest rate (int) dampens fund mobilisation of DMBs in Nigeria. Our study disagreed with Christopher, Asor and Idoko (2012) that real deposit rate (RDR) had negative insignificant impact on total savings as contrary findings were established. It was established that RDR had positive significant impact, in the long run, on DMBs’ fund mobilisation in Nigeria. This disagreement may be due to period covered and that their data was total savings while this concentrated on only DMBs in Nigeria.

It is worth noting from the result that real interest rate, real deposit rate, inflation rate and money supply were significant during the period under study as this affirms
that these four (4) variables really influenced the fund mobilisation of banks in Nigeria. This study is in agreement with the previous studies (see World Bank, 1989; Agu, 1988; Simon-Oke&Jolaosho, 2013; Maharana, Choudhury &Panigrahi, 2015). Also, our study did not support that government expenditure (GEX) had positive significant impact on savings as established by Christopher, Asor and Idoko (2012) but insignificant negative impact on fund mobilisation of DMBs in Nigeria. The lesson from this is that fund mobilisation of DMBs is of monetary and not fiscal policy in Nigeria.

5. Conclusion and Recommendations

This study summarily concludes that the interest rate was significant, in the long run but not significant in short run, on fund mobilisation of DMBs and that the deregulation policy had not impacted on fund mobilisation of DMBs in both short - and long – run. It could also be inferred that inflation and money supply greatly influenced fund mobilisation of DMBs in Nigeria between 1986 and 2016. The effect of deregulated interest rate on fund mobilization efforts of banks in Nigeria can be further strengthened if attention is placed on money supply and inflation. It is therefore recommended that monetary authorities should concentrate towards reducing domestic inflation rate to arrest its negative impact on fund mobilization effort of DMBs as well as improve money supply. An improvement in the capital formation would necessarily lead to improved investment and reduction in unemployment rate in the country. This encourages savings and generates needed loanable funds for investment in Nigeria.

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EFFECT OF CURRENCY DEPRECIATION ON FINANCIAL PERFORMANCE OF NIGERIAN DEPOSIT MONEY BANKS

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Abstract

The study investigates the influence of currency depreciation on the financial performance of Nigerian deposit money banks. Ex-post facto research design was adopted and ten (10) banks were selected using convenience sampling technique. Secondary data were collected from the annual financial reports of the selected deposit money banks and the Central Bank of Nigeria (CBN) publications over a period of ten years (2008-2017). The analysis was done using a panel Estimated Generalized Least Square method (EGLS) in the form of multiple regressions. The indices of determination for currency depreciation are Inflation Rate (INFR); Interest Rate (INTR); and Exchange Rate (EXCHR). The Return on Asset (ROA) serves as a surrogate for performance. The results of the study show a negative and significant effect of INFR on ROA (p < 0.05); and a negative and significant effect of INTR on ROA (p < 0.05). However, there is a positive and insignificant effect of EXCHR on ROA (p > 0.05). It is recommended that effective fiscal and monetary policies are required by the Federal Government of Nigeria through the Central Bank of Nigeria and the Ministry of Finance to address the adverse effects of inflation and interest rates in Nigeria as these have potential of influencing the performance of deposit money banks.

Key words:
Currency depreciation, Inflation rate, Interest rate, Exchange rate, Return on Asset, Nigeria.

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1. Introduction

Currency devaluation is the reduction in value of the currency of a country to another country’s currency. A currency hardly depletes in value without a smack in factors such as interest rates, inflation rate, exchange rate, unemployment levels, money supply and government budget. The impacts of these factors on the bottom line of a business entity often override the currency's influence. A devalued currency often results in a weaker domestic economy, which hits home businesses. Some of the factors that cause currency depreciation such as economic policies that produce too much money into the economic system or political uncertainty that discourages foreign investment. Hence, the consequence of currency devaluation mounts force on economic activities (Victor, 2017). After political independence in 1960, the Nigerian government made significant effort to revamp the economy by embarking on the importation of items of equipment and other hi-tech expertise. This brought about an increase in visible and invisible accounts while exports suffer set-back, resulting in an unfavorable balance of payment. Aguiar (2005) argues that a country that experiences unfavorable balance of payment should implement short and long run palliative actions to mitigate the imbalance. One such action is devaluation of currency, since currency is the major determinant of a nation's economic well-being and the survival of every economic agent in an economy (Daniel, 2016).

Inflation relates to higher costs and income. Positive influence will be exerted on profitability if a bank's income increases faster than costs. Also, interest rate, being the price a debtor pays for the use of the hired fund is central to economic price because interest rate has final consequences on the economy either impacting on the cost of capital, inducing the accessibility of credit by increasing savings, to determine the level of investment within an economy. The exchange rate as one of the metrics of currency depreciation is the volume of domestic currency needed to buy a piece of foreign currency. According to Ross, Westerfield, Jaffe and Jordan (2008), the interaction of demand and supply determine the exchange rate of foreign investment. Exchange rate influences domestic prices through the importation of consumable goods and services that determine the domestic prices of imported goods, which affects domestic production cost of goods and services estimated in foreign currency (Gatobu, 2012). Adetayo (2013) opined that the currency fluctuation exchange rates produce substantial gains or losses and this gives a misleading impression of occurrence to the entity financial institution. Hence, banks with international authorization are more affected than any others in this regard (Gatobu, 2012).
Contingent on the above background, this study viewed currency depreciation from three perspectives, namely the inflation rate which represents the loss of value of a currency over a period of time, the interest rate that denotes the borrowing cost of fund, and the exchange rate epitomizing loss of value of one currency against another. Hence, the study has established the possible effect of currency depreciation on the performance of Nigerian deposit money banks. Specific objectives are to:

i. assess the effect of inflation rate on the performance of Nigerian deposit money banks;

ii. evaluate the effect of interest rate on the performance of Nigerian deposit money banks; and

iii. examine the effect of the exchange rate on the performance of Nigerian deposit money banks.

2. Theoretical framework

Currency devaluation arises when the forces of supply and demand force down the value of the currency and its effect depends on the types of transaction. The effects of currency depreciation are negative on goods manufactured locally that rely on intermediate foreign products while domestic exports are positively affected by cheaper prices (Victor, 2017). The volume of borrowing by investors is also affected while stock prices traded in an economy will fall due to domestic currency depreciation (Umoru & Osemwegie, 2016). Among the reasons is that investors who hold local stocks where the currency is depreciated would receive a lower return on investments.

Carter, Rogers and Simkins (2013) opined that firms' input cost increase devaluation in a characteristic semi-industrialized economy where manufacturing inputs are mostly imported and hardly manufactured locally. The most significant point to note is that currency depreciation escalates net exports and production costs whereas currency appreciation cuts down the net exports and production costs (Soludo, 2004). The common effects of demand and supply networks fix the net outcomes of exchange rate variations on price and real output (Umoru & Osemwegie, 2016).

Inflation contributes to the poor admiration attributed to the banks by the stock market. It is argued that inflation sometimes does banks well because disclosed assets in the financial statement rise quicker when there is inflation. During the period of inflation, credit (bank credit and bank deposits) will increase and when the rate of interest is high; the general belief is that bankers will make a lucrative profit from the occurrence of high-interest rates (Sanusi, 2012). Stakeholders often overlook the fact
that bankers are net creditors and the misgiving is that inflation is inimical to the performance of banks. Banks are creditors and creditors are believed to bear the burden of loss during inflation (Soludo 2004). The banks’ paper assets are bigger than liabilities; therefore capital investment is made in paper assets and paper assets devalue during inflation along with the bank’s capital.

The interest rate describes the amount of interest paid per unit of time expressed as a percentage of loans (Isaac 2015). Without mincing words, loan and advances form the major earnings on assets of deposit money banks and these are usually influenced by many factors which include interest rates. Hence, it is no longer news that interest income remains a major source of income for banks, and therefore serves as a true parameter of measuring bank performance. Interest rates differ mainly in term/maturity and advancing loans to customers may be on a short, medium or long-term basis. This is one of the services that deposit money banks perform to customers. In the same vein, deposit money banks do give loans and advances to individuals, business organizations and government so that all these economic agents can embark on investment and development activities (Felicia, 2011).

The Central Bank of Nigeria (CBN) regulates the activities of deposit money banks with a view to attaining sets of monetary policy targets (Mark, 2017). One of the ways CBN achieve this is by setting a Monetary Policy Rate (MPR) which is the minimum rate in which deposit money banks lend to customers. This is also the rate at which deposit money banks borrow from the CBN.

The exchange rate is the rate at which a country is able to determine the quantity of her currency that will be needed to pay for imported goods and services from other countries (Sanusi 2012). In Nigeria, it is the proportion of the value of Naira to other currencies such as the United States Dollar, Japanese Yen and British Pounds. Chamberlain, Howe and Popper (1997) showed that exchange rates affect banks with foreign currency businesses and foreign activities and exchange rates can indirectly affect banks through influence on foreign competition even without foreign activities, the demand for loans and other aspects of banking conditions. A lesser exchange rate encourages firms’ competitiveness because the price of goods manufactured locally declines and demand for foreign goods will rise (Luehrman, 1991). Hence, loans, advances, and deposits with banks tend to improve banks’ profits. A higher exchange rate reduces domestic purchasing power, as imported goods are more expensive and results in non-performing loans that negatively affect the bank’s profitability.

The exchange rate in Nigeria has experienced regulated to deregulated regime over time (Cooper 2007). The formulation and implementation of foreign exchange policies in Nigeria, over time, has been a major concern to different regulatory
agencies of the government in Nigeria (Ani, Ugwunta&Okanya, 2013). The inability of these policies to stabilize the foreign exchange rate and solve the resultant macroeconomic disequilibrium has been a major source of worry to the government. Different currency exchange rate strategies have been adopted by various countries when engaging in a transaction which makes it essential to have a degree of the exchange rate that governs the relative value of translation for the goods and services as expressed in diverse currencies of respective countries where transactions in foreign currency are made. Domestic price of foreign currency is the values of foreign exchange conversion (Cassel, 1918).

Return on assets ratio shows the effectiveness of an organization to generate returns on business assets. Return on asset shows the efficiency of a business to transform resources used to acquire assets into net income. Since all assets can either be funded by equity or debt, many investors disregard the costs of procuring the assets in arriving at return by including interest outlay. Investors are more favorably disposed to a higher return on asset because it implies that organization managers are very efficient in coordinating the business assets that generate net income. A positive ROA ratio indicates an improved profit and ROA is the most useful tool for comparing the performance of firms within the same industry (Bosch-Badia, 2010).

The Modern Portfolio theory introduced by Markowitz in 1952 supports this study. It is a finance theory that tries to exploit portfolio risk or minimize for a given level of anticipated return, by carefully selecting the volumes of assets with special consideration to the four elementary steps involved in portfolio analysis like valuation of security, allocation of the asset, optimization of the portfolio and performance assessment. Technically, the model of modern portfolio theory is a return on assets’ randomly distributed variables, which describes risk as the standard deviation of return and models a portfolio as a weighted mixture of assets, so that the return on a portfolio is the weighted mixture of the assets' returns (Cooper, 2007). By combining various assets whose returns are imperfectly and not positively associated, the theory strives to ease the total variance of the portfolio return. It proposes that investors are both sensible and risk-averse and as such have a number of investment decisions to make from the portfolio.

The other theory that supports this study, according to Obidike, Ejeh and Ugwuegbe (2005), is Purchasing Power Parity theory, propounded by Professor Gustav Cassel of Sweden. It explains that the value of homogenous goods is similar in different countries based on the currency of each country. This theory is based on the assumptions that there are no transactional costs, no barriers to trade and the commodities traded are homogeneous. If the trading currency is exchanged at the spot ex-
change rate, the price of a homogenous commodity should be identical across borders (Isaac, 2015). The theory suggested the use of price indexes to determine the exact price of a homogenous commodity between countries. The purchasing power parity is extensively used among economists to measure the equilibrium values of currencies and it is used to determine if a currency is over or undervalued.

Oleka, Eyisi and Onyeze (2014) assessed the association between the inflation rate and banks’ performance and the influence of the lending decision on the performance of selected banks. The result revealed a positive and insignificant association between inflation and banks’ performance. Ajekigbe (2016) investigated the relationship that exists between inflation rate and banks performance in Nigeria. The result established a positive relationship between inflation rate and the performance of deposit money banks in Nigeria.

Ogunbiyi and Ihejirika (2014) examined the effect of interest rates on the profitability of deposit money banks in Nigeria. The study covered a period of 1999 to 2012. The study adopted a multivariate regression analysis within the econometric framework. The results showed that maximum lending rate, real interest rate and savings deposit rate have negative and significant effects on the profitability of Nigerian deposit money banks as measured by return on assets at the 5% level of significance.

Owoeye and Ogunmakin (2013) examined the impact of volatility of exchange rate on bank performance in Nigeria using loan losses to total advances ratio and capital deposit ratio as proxies for bank performance. The models showed that the impact of exchange rate on bank performance is sensitive to the proxy used for bank performance. Loan loss to total advance ratio revealed that the fluctuating exchange rate affects the ability of lenders to manage loans bringing about a high level of non-performing loan while the capital deposit ratio has an insignificant relationship with the exchange rate.

3. Methodology and data

3.1. Research design and data source

This study adopted ex-post facto research design approach. The population for the study comprised twenty-one (21) deposit money banks in Nigeria out of which a sample of ten (10) was selected through convenience sampling techniques. Secondary data for analysis were extracted from the Central Bank of Nigeria (CBN), Nigerian Stock Exchange and published annual reports and accounts of selected deposit money banks. This study covered a period of ten years (2008 to 2017). The reliability and
validity tests were optimistically guaranteed because the data were extracted from audited financial statements that have undergone serious scrutiny by the Central Bank of Nigeria (CBN), Financial Reporting Council of Nigeria (FRCN) and Securities and Exchange Commission (SEC).

3.2. Data analysis instrument

An Estimated Generalized Least Square (EGLS) in the form of multiple regression analysis was used to analyze the data with the aid of E-view software. Regression was chosen as a tool for hypotheses tests, due to the fact that it is one of the strongest and most used estimators for unknown parameters.

3.3. Development of hypotheses

Following the discussion in the literature review, the hypotheses of the study in null form are:

- \( H_01 \): there is no significant effect of inflationary rate on the performance of deposit money banks in Nigeria.
- \( H_02 \): there is no significant effect of interest rate on the performance of deposit money banks in Nigeria.
- \( H_03 \): there is no significant effect of the exchange rate on the performance of deposit money banks in Nigeria.

3.4. Model specification

The general form of the panel data analysis for the multiple regression models used in explaining the effect of currency depreciation on the performance of deposit money banks is specified in equation 3.1:

\[
ROA = f(INFR, INTR, EXCHR) \quad (3.1)
\]

Where:
- ROA = Return on assets
- INFR = Inflation Rate
- INTR = Interest Rate
- EXCHR = Exchange Rate
- \( \beta_0 \) = Intercept (Constant)
- \( \beta_1, \beta_2, \beta_3 \) = Coefficients of explanatory variables
- \( \varepsilon \) = Error term

Hence, the specific model for the study is as presented in equation 3.2:

\[
ROA_{it} = \beta_0 + \beta_1 INFR_{it} + \beta_2 INTR_{it} + \beta_3 EXCHR_{it} + \varepsilon_{it} \quad (3.2)
\]
3.5. *A priori expectation*

Theoretically, the coefficients (β₁) and (β₂) of independent variables are expected to be negatively related to the measure of performance (ROA), that is, β₁ and β₂<0; while (β₃) is expected to be positively related to the measure of performance (β₃>0).

3.6. *Variable measurement*

The measurement of variables used in the study is presented in Table 1.

### Table 1

<table>
<thead>
<tr>
<th>Variable</th>
<th>Abbreviation</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Return on assets</td>
<td>ROA</td>
<td>Profit before tax, Total assets.</td>
</tr>
<tr>
<td>Inflation rate</td>
<td>INFR</td>
<td>Annual Average Consumer Price Inflation</td>
</tr>
<tr>
<td>Interest rate</td>
<td>INTR</td>
<td>CBN Monetary Policy Rate</td>
</tr>
<tr>
<td>Exchange rate</td>
<td>EXCHR</td>
<td>CBN Annual Average US Dollar to Nigerian Naira</td>
</tr>
</tbody>
</table>


4. Results and discussion

The summary of the descriptive statistics of the data collected is presented in Table 2.

### Table 2

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>INFR</td>
<td>11.770</td>
<td>8.100</td>
<td>16.500</td>
<td>2.745</td>
</tr>
<tr>
<td>INTR</td>
<td>10.790</td>
<td>6.080</td>
<td>14.000</td>
<td>2.474</td>
</tr>
<tr>
<td>EXCHR</td>
<td>181.342</td>
<td>119.000</td>
<td>305.800</td>
<td>53.760</td>
</tr>
<tr>
<td>ROA</td>
<td>0.019</td>
<td>-0.062</td>
<td>0.169</td>
<td>0.028</td>
</tr>
</tbody>
</table>

*Source:* Authors’ computation (2019).

Inflation rate as measured by the Consumer Price Index (CPI) has a mean value of 11.77% with minimum and maximum values of 8.1% and 16.5% respectively. This is relatively high because it exceeded the annual inflation level of 5-7% considered appropriate for developing countries and 6-9% target inflation range set by the
Central Bank of Nigeria during the period under review (CBN, 2015). A very high inflation rate is not too good for the economy. Unless the interest rate is higher than the inflation rate, the value of money will always be reduced. The interest rate has a mean value of 10.79%, a minimum value of 6.08% and a maximum value of 14%. There is no best or standard interest rate because it is a monetary policy tool to address inflation; therefore, inflation determines the interest rate. The exchange rate as measured by CBN annual average rate of USDollar to Naira has a mean value of ἀ181.34, a minimum value of ἀ119.00 and a maximum value of ἀ305.80. This implies that an average amount of ἀ181 is paid in exchange for a dollar, indicating a high rate of depreciation in Naira values.

The model summary of the regression using Estimated Generalized Least Square method (EGLS) is depicted in Table 3.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coeff</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>0.02977</td>
<td>0.009541</td>
<td>3.120416</td>
<td>0.0025</td>
</tr>
<tr>
<td>INFR</td>
<td>-0.00231</td>
<td>0.000787</td>
<td>-2.932481</td>
<td>0.0043</td>
</tr>
<tr>
<td>INTR</td>
<td>-0.00011</td>
<td>0.000875</td>
<td>-0.128301</td>
<td>0.0032</td>
</tr>
<tr>
<td>EXCHR</td>
<td>9.67E-05</td>
<td>5.25E-05</td>
<td>1.841579</td>
<td>0.0689</td>
</tr>
</tbody>
</table>

Source: Authors’ computation (2019).

The result as shown in Table 3 revealed a negative and significant relationship between inflation rate and return on asset. The p-value of 0.004 is less than 5% level of significance prescribed by statistical decision theory. The coefficient value of inflation rate was -0.002 which implied that a unit increase in the rate of inflation, holding all other independent variables constant, exerts a negative effect of 0.2% on the return on asset, thereby reducing the performance of deposit money banks.

There exists a significant negative relationship between the interest rate and return on assets of deposit money banks in Nigeria. The p-value of 0.0032 is also less than 5% level of significance prescribed by statistical decision theory at which the hypothesis was tested. Furthermore, the coefficient value of interest rate was -0.0001 which implied that a unit increase in interest rate adversely affects the performance of deposit money banks to the tune of 0.01%.
However, a positive and insignificant relationship was established between the exchange rate and return on asset. Its p-value of 0.07 is greater than 5% level of significance prescribed by statistical decision theory. In contrast, the coefficient value of exchange rate was 0.0001 which indicated that a unit increase in the exchange rate will exert a positive effect of 0.01% on the return on asset of deposit money banks, thereby increasing the performance level.

Furthermore, the probability of F-statistics, which measures the overall fitness of the model, is 0.000. This indicated that all the explanatory variables jointly, were capable of exerting a significant influence on return on asset of deposit money banks in Nigeria. Additionally, the model reveals that about 47% of total variation of ROA was explained by the independent variables as indicated by the R-squared while the remaining 53% was explained by other variables not captured in this study.

The results of the study are in line with the submission of Ogunbiyi and Ihejirika (2014) on the effect of exchange rate fluctuation on banks performance in Nigeria for a period between 2005 and 2014 while Isaac (2017) had a similar conclusion on the investigation carried out which assessed the impact of exchange rate risk on banks performance in Nigeria for a period 1997 to 2013 among others. Although, Obidike, et al. (2015) established a positive relationship between inflation rate and the performance of deposit money banks in Nigeria while, Owoeye and Ogunmakin (2013) found an inverse nexus between the exchange rate and the performance of deposit money banks, both of which are in contrast with the findings of this study. It is apposite to situatethat the impact of the exchange rate, interest rate and inflation rate on banks’ performance is contingent upon factors such as economic structure and system, and the resultant effect varies, depending on whether a fixed or flexible exchange rate regime is adopted. Oleka, et al. (2014) observed that a fixed exchange rate reduces the probability of a banking crisis in developing countries, hence profit is maximized. On the other hand, Bosch-Badia, (2010) established that those countries with fixed and flexible exchange rates are equally susceptible to the banking crisis, which suggests low levels of profitability.

It is pertinent to note that the overall finding of this study may be seen to have contradicted expected view that currency depreciation leads to improvement of the economy as a whole. This may not be true for all the sectors of the economy. While some sectors will show improvement, other sectors may show otherwise because the variables of currency depreciation are likely to affect every sector differently. Following the outcome of the study, the null hypotheses 1 and 2 are rejected; while null hypothesis 3 is hereby fail to be rejected. The study thus established that a unit increase in inflation rate and interest rate reduces the performance of Nigerian

113
deposit money banks, while a unit increase in exchange rate has no significant effect on performance of the banks.

5. Conclusion and recommendations

The study examined the effect of currency depreciation on performance of 10 deposit money banks in Nigeria for the financial years, 2008-2017.

The study revealed that currency depreciation has a negative effect on the performance of deposit money banks since the adverse effect exerted by the inflation rate and interest rate outweighed the insignificant effect of the increased exchange rate of United States Dollar (USD) to Nigerian currency (Naira).

Since the results of the study established a poor return on assets among the deposit money banks in Nigeria, it is hereby recommended that banking regulators such as Central Bank of Nigeria should periodically review the interest rates in particular and other monetary policies in general in order to suppress the inflationary effect on the country’s currency. Furthermore, the Ministry of Finance and the tax authorities should put in place robust fiscal policy that will enhance economic growth which will subsequently affect the value of the Nigerian currency positively.

More importantly, during period of currency depreciation, directors, managers and management of deposit money banks in Nigeria should strive at enhancing profitability through judicious and effective use of banks’ assets to increase the returns on banks’ assets. Interest on loans and advances should be at a rate higher than the prevailing inflationary rate. Granting of credit facility should only be made to reputable individuals and corporate institutions with high credit rating in order to reduce non-performing loans and doubtful debts to the barest minimum.

For future line of research, efforts should be made at replicating this study in other developing countries and results derived compared with that of developed economies. Consideration should also be given to the study of currency depreciation and performance of other sectors not covered by this study.

References


COOPERATIVE FINANCING OF MICRO SCALE ENTERPRISES IN NIGERIA

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Abstract

This paper investigates how cooperative financing of micro scale firms relates to the development of desirable outcomes of micro scale enterprises. A multi-stage sampling approach was used to select 225 micro entrepreneurs. Primary data were collected from cooperative based micro firms using a structured questionnaire. Descriptive statistics and correlation analysis were used. Data collected covered information on micro firms and entrepreneurs’ characteristics, volume of finance and employment band. The results of data analysis show no significant relationship between cooperative credit provided to micro scale firms and their employment band. Increasing effort in the area of business cooperative management for effective delivery of funds is suggested.

Key words: cooperatives, financing, micro scale enterprises, business, employment.

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1. Introduction

The increasing interest to study and understand the business dynamics of micro scale enterprises is on the rise. This is largely due to the perceived social and economic relevance they have on the various sectors of the economy in both developed and developing nations, and impose on the economy and diverse sectors of emerging nations. Characteristically, micro enterprises are defined with employment capacity of not more than 10 persons (Lortie, Nadeau & Vezeau, 2016); with known asset
value that is less than 13,000 US dollars exclusive of land and buildings (CBN, 2014). They are also managed, in general, as sole proprietorship business. Despite the seemingly limited scope in terms of job creation, the micro enterprise is more distributed among the poverty ridden individuals, regions and populace in developing nations. Its impact in terms of economic, social and political relevance is disproportionately higher than the size of its enterprise (Young, 1995). For instance, about 36,994,578 micro enterprises are distributed across geographical states in Nigeria and generating 57,836,391 jobs for 35,245,162 males and 22,591,229 females in different economic sectors (NBS & SMEDAN, 2013). In spite of these, the micro scale end of the wide spectrum of existing businesses has received restricted attention from academic researchers. The economic features of this business sector have remained a blind spot in the literature. Owing to their collaborative role in the development of large scale businesses, employment generation, social development and capital accumulation, they merit increased scrutiny and continuous attention.

The micro scale enterprises are designated as a level of business establishments with ‘extremely small amounts of capital investments and labour employed’ (Young, 1995). They are expected to serve local market using simple business management structure. Owing to their supportive contribution to the development of larger scale enterprises, employment and industrial development, continuous growth and performance of micro scale enterprises deserves increased attention. But, potential for increased growth and performance of the micro scale enterprise is limited by stringent financing options (Osotimehin et al., 2012) and the relevance of any firm to any economic support interventions depends largely on the flow of funds. Thus, the finance function of any form of business is needed to support the needs and successful performance of such businesses.

Most micro scale businesses in developing nations exist with low rates of business survival. This is due to poor financing of micro enterprises in those countries. Financing micro enterprises to boost their development is therefore considered part of the necessary pathways to poverty reduction and the overall economic development in evolving countries. In the presence of dwindling financing opportunities from options like formal bank loans, grants and family sources, the prospects of cooperative financing to develop micro scale businesses is therefore very germane. However, existing studies, research and policy outlook have paid limited attention to the possible contribution of cooperative financing to micro scale enterprises. Focus has largely been shifted to micro finance institutions of banks with stringent financial conditions, and debt financing that could be inimical to the growth of micro business enterprises. As stressed by Kirimi, Simiyu and Dennis (2017) the
existing financial windows are largely opened to larger business enterprises through a formal system and with credit conditions that are too rigid for the immediate growth of small business firms. This makes the micro business enterprises largely dominated by individuals with high level of economic exclusion. The notable burden of other sources of finance positioned cooperative financing which thrives largely on equity financing (Keri, 2015) as a viable option.

Cooperative financing is notable for the role played by patrons in the acquisition and use of capital in the micro scale enterprises. It spans the credit amount obtainable for businesses (Boland and Barton, 2013). With non-existence of strict access to finance by members, availability of funds through cooperative financing is crucial for both short and long run purpose of micro scale businesses (Onaolapo and Oladejo, 2011). This suggests the relevance of cooperative financing as a viable option to improving the performance of micro scale enterprises.

Evidence from the Nigerian statistical office (NBS and SMEDAN, 2013) showed that the share of cooperative financing in the distribution of microenterprises and based on their source of capital is up to 7.34%. However, the share of cooperative groups in the establishment of micro enterprises stood at an average of 34,956 micro enterprises in the country. Notwithstanding the existence of several financing options (personal savings, bank loans, family source, and grants) available for micro enterprises, the latter cannot access loans greater than N500,000.00 (1,369.86 US dollars). Also, the maximum repayment period available for micro enterprises is one year as against five (5) years options for small and medium enterprises. This constricts business diversification options for micro entrepreneurs. Owing to the challenges inherent in financing micro scale enterprises and the need to survive harsh economic conditions, a number of micro entrepreneurs in Nigeria formed business cooperatives to harness financial opportunities needed to fund their micro business. Despite the existence of relatively large numbers of empirical studies on micro businesses and existing financing strategies, little is known about the possible role of cooperative financing in driving the sector. The existence of effective financial strategy is needed for sustainability of any form of business. More important is the selection of an appropriate financial model for cooperative business, largely due to its peculiarity.

This study therefore aims at determining how cooperative financing of micro scale firms relates to the development of desirable outcomes of micro scale enterprises in Lagos State, Nigeria. It seeks to validate the characteristics of micro scale firms in the midst of existing economic challenges in Nigeria; the employment band of the enterprise as one of the expected roles of the micro scale enterprises, the
The volume of finance provided by cooperatives to support micro firms and the existing relationship between the finance made available by cooperatives and the employment band of the firms. The rest of the paper is divided into four sections. Section two focuses on the review of literature and past studies. Section three centers on methodology, section four focuses on results and discussion and the last section focuses on conclusions.

2. Literature Review

A cooperative based business is unique owing to its emphasis on the peculiar role of patrons (members) and the associated relationship with ownership, membership and customer attributes. Research in cooperatives finance is linked to the principle of ‘competitive yardstick’ which noted the possibility of cooperatives making available financial benchmark needed to offset existing market power that characterized investor oriented business firms (Boland and Barton, 2013; Nourse, 1922). The principle is generally dubbed a competitive ‘cooperatives pricing products and services’. Its primary feature as low cost providers of goods and services for enterprises for the overall benefit of members highlight the competitive yardstick principle.

Cooperative financing has been hinged on a number of comparative factors that are linked to core business financing. Some of these as indicated by Barton (2004) include capital access, stock appreciation and liquidity. Other forms of cooperative financing identified in the study of Dahlgren (2008) include usage of what is termed ‘board approved income distribution policy’. The policy involved fund retention since the concept involved non-distribution of a larger portion of income sourced by patrons as retained and cash patronage. Although the non-distribution of funds is contentious from the perspective of the general framework of cooperative financing model, it points to some of the ongoing deviations from the traditional cooperative financing system. Feinberg (2002), through the analysis of differences between bank and credit cooperative on interest rate of unsecured credit, found that the credit cooperative as a competitor would bring down the level of interest rates of banks.

In cooperative financing, certain practices are considered necessary for the attainment of financial objectives. These factors as enunciated by Barton (2011) include (i) cost efficiency, price and service competitiveness, profit orientation with strong balance sheets, (ii) creativity in income distribution, (iii) investment in productive resources, (iv) utilization of balance sheet management to benefit patrons, (v) calculation of “strict redemption budget for revolving equity class” and (vi) fitting a finance strategy to custom that is consistent with cooperative finance principles and circumstances.
Like other business models, cooperative theory starts with the concept of profit maximization. It however differs in its specific objective of maximizing both the members combined profits from the firm business and the share of profit from the cooperative entity. A very early study of the theory of cooperative highlighted by Emelianoff (1942) relates cooperative business to market conditions which is analogous to maximization of cooperative profit. Of importance however, is that firms under a cooperative umbrella do not affect the market price for commodities or inputs. This leads to the argument of Boland and Barton (2013) that firms under cooperative are no different from investors’ based firms with respect to the goal of profit maximization. The cooperative is notable for aligning its business with the requirements of the customers who double as owners and patrons.

The fundamentals of cooperative financing have evolved over the years with changes in the global financial structure. As a form of business, the cooperative financing model operates primarily to benefit members-patrons via marketing transactions especially input-output buying and selling, as well as distribution of patronage earnings from resulting transactions (Barton et al. 2011). Based on the principle of cooperative financing, it is important for business firms to sustain sufficient risk capital as equity alongside short time liabilities and long term debt. This is expected to ensure existence of adequate finance assets and stability (Kirimivi et al, 2017; Boland and Barton, 2013).

Although literature on the supportive role of cooperative financing in the development of micro scale enterprises is limited, the existing few including Allen, Qian and Xie (2018) categorized the cooperative source of funds as a form of informal financing of businesses. The existence of this source of finance is largely hinged on bank and market failures for small businesses. The expectation is that businesses that have linkage with social groups and networks can ensure successful business relations relative to others. In China, Allen, Qian and Qian (2005) found cooperative financing, defined as informal financing options, to be a key driver of support for private businesses. Due to the very small economic nature of micro scale enterprises, their inability to obtain funds for businesses from formal financial institutions may be a problem. Subsequently, as supported by Brandt and Li (2003), the possibility of resorting to an informal source like a cooperative may be higher. More importantly, a contractual obligation in cooperative financing is not usually enforced with a formal legal system in a country (Ayaggari, Demirguc-Kunt & Maksimovic, 2008).

While investigating and analyzing cooperative finance in rural China, Ismail and Xianhua (2013) found non-existence of cooperative financial institutions to be
inimical to growth and development of local businesses in the communities. Rural credit cooperation was found to account for variation in growth of different communities in rural China. Cooperative financing threshold and channel were identified as possible limitation to successful rural business activities.

The financial regulatory body in Nigeria, Central Bank of Nigeria (CBN) (2014), categorized microenterprises to include “agricultural value chain activities, cottage industries, artisans, services to hotels, schools, restaurants, laundry, renewable energy, trade and general commerce and any other income generating enterprises as may be prescribed by CBN”.

Empirical research efforts focusing on cooperative financing and micro scale enterprises are limited and mixed. On the one hand, a number of authors have mixed up micro scale enterprise with small and medium enterprises, whereas the gap between the groups is wide. On the other, the term micro credit financing is considered to be same as financing micro scale enterprise by a number of studies including Oladejo (2013). Whereas microcredit is a generalized financial term to describe provision of loan to all forms of businesses especially those considered small and micro in nature and operation. Micro scale enterprise is a special case of very small business with peculiar characteristics such as a very limited number of employees, loan capacity and extremely low capability to meet formal financing requirements. Also, Oladejo and Oyedele (2014) focus another piece of research work on the effect of cooperative societies and microfinance banks. The existing relationship between the two was investigated with respect to credit delivery efficiency. While a positive effect of cooperative financing and microfinance banks interventions in relation to credit service delivery was established, the study did not relate their measurement to any categories of enterprises.

In an earlier study, Aribaba (2012) examined the effects of cooperative fund provision to small scale businesses. Using a descriptive research approach, a positive effect of the cooperative fund was found on the development of small businesses. The question of whether the same result could be achieved with micro businesses however remains unclear. The relevance of cooperative finance to stimulate economic growth is supported by Wangjun (2003). He found significant support for rural based businesses thriving under rural credit cooperatives in China. Also, the possibility of cooperatives financing in credit terms and credit accessibility affecting the performance of cooperatives is suggested in the findings of Byaruhanga (2013) in Rwanda. Positive relationship was established with credit accessibility being the most significant. Similarly, the financial structure of businesses and the performance outcome of firms under finance provided by cooperative was found to be better in Nigeria (Akerele and Adekumbi, 2018).
Despite all this, the potentials of cooperatives raising the business outcome of firms, important factors such as the structural and financial elements are considered essential to attainment of benefit from cooperative financing (Kassali, Adejobi, Okparaoha, 2013). Young (1995) in his analysis of the links between financing and usage of capital by micro scale enterprises found significant variation in the pattern of financing micro scale businesses due to the actions of larger bourgeoisie in the cooperative society. The extant literature alludes to a wide gap in the specific assessment of cooperative financing of micro scale enterprises. A possible mixing up exists in the classification of what could be defined as micro and small businesses, as numbers of literature sources group together the two enterprises and later focus on the small business sectors.

3. Methodology

3.1. Research Design and Sampling Frame

A descriptive research survey design was employed for the study. The study uses information from a 2013 baseline survey of SMEDAN and the National Bureau of Statistics collaborative survey. The survey was the last conducted by the Apex statistical office on micro businesses and others. The survey positioned Lagos State as the business base to the highest number of micro enterprises in Nigeria with a total number of 3,224,324 micro scale enterprises. Thus, we purposively selected the state for the sample. We chose cluster sampling where micro scale entrepreneurs belonging to same business clusters are considered. Micro business sectors considered included agriculture, transport, food services, tailoring and hair dressing services. In all, five clusters were included in the survey.

3.2. Sampling Technique and Sample Size

Due to the absence of aggregated data on cooperative groups with number of micro entrepreneurs, we considered snowball sampling (chain-referral sampling) where an identified micro scale entrepreneur in a business cluster leads us to another respondent. In all, we identified an average of three different cooperative groups per selected cluster with the same financing purpose but different social identity. We got a total of 15 cooperative financing groups for micro scale enterprises. Also, each identified group has an average number of 15. In all, a total of 225 micro scale entrepreneurs were identified for sampling. In line with the goal of the study, only the micro enterprises with record of benefit from cooperative financing were selected. We collected the data in the months of July to October, 2018. A structured questionnaire was designed on a scale of ‘1’ to ‘5’ defined as ‘strongly disagree’ to ‘strongly agree’.
The sampled micro scale enterprises are distributed into agriculture (8%), transport (3.2%), food services (11.2%), tailoring (44.7%) and hair dressing services (39.9%). Out of the total of 225 questionnaires distributed, 86.22% (194) of the questionnaires were retrieved. Data collected was fitted to a descriptive and inferential statistical model. Data collected covered information on micro firms and entrepreneurs’ characteristics, volume of finance and employment band.

3. 3.3. Empirical Results and Findings

3.3.1. Descriptive Data Presentation

Characteristics of micro scale enterprises are presented in Table 1. Most (61.85%) micro firms ranged between 2 and 9 years of business age; 25.8% of the micro firms are less than 3 years of business age while 12.4% are 10 years and above. The results suggest that the sampled micro scale firms have been in existence for a number of years as business enterprises. This indicates the sustainability of the enterprises and buttresses the need to ensuring its survival for lasting economic contributions to the larger business society. The level of involvement of these enterprises in cooperative activities however varies; 51.6% have successfully formed part of relevant business cooperatives for a period between 1 and 5 years. This is the most among the sampled enterprises. Furthermore, 15.5% of the micro firms have between 6 and 10 years of cooperative participation while 22.7% have been involved in cooperation for the period between 11 and 15 years. Surprisingly, a percentage was found for micro firms with cooperative experience above 15 years (10.31%). With these results, an indication of longer participation in cooperation as a means of business survival is indicated, while the quest for necessity of cooperatives membership for micro business firms is further opened for discussion.

Table 1

<table>
<thead>
<tr>
<th>Variables</th>
<th>Description</th>
<th>Frequency</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Firm Characteristics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age of the firm (years)</td>
<td>&lt; 3</td>
<td>50</td>
<td>25.77</td>
</tr>
<tr>
<td></td>
<td>2-5</td>
<td>63</td>
<td>32.47</td>
</tr>
<tr>
<td></td>
<td>6-9</td>
<td>57</td>
<td>29.38</td>
</tr>
<tr>
<td></td>
<td>10 and above</td>
<td>24</td>
<td>12.37</td>
</tr>
<tr>
<td>Cooperative years of experience</td>
<td>1-5</td>
<td>100</td>
<td>51.55</td>
</tr>
</tbody>
</table>
Cooperative Financing of Micro Scale Enterprises in Nigeria

<table>
<thead>
<tr>
<th>Size of micro firm (’000) (₦ value)*</th>
<th>&lt; 200 ($0.548)</th>
<th>201-400 ($0.548-$1.096)</th>
<th>401-600 ($1.096-$1.644)</th>
<th>601-800 ($1.644-$2.192)</th>
<th>801-1,000 ($2.192-$2.739)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6-10</td>
<td>30</td>
<td>15.46</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11-15</td>
<td>44</td>
<td>22.68</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; 15</td>
<td>20</td>
<td>10.31</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The asset value of the sampled micro firms measured in Naira currency (1$ = ₦365.00) is also indicated in Table 1 above. Micro scale enterprises with the largest size have a value that ranges between $1.096 and $1.644 ('000) and this represents 42.3% of the sample. The closest has the value size between $1.644 and $2.192 ('000) and at a percentage rate of 23.2%. Micro firms with larger size value have a currency worth between $2.192 and $2.739 ('000) representing 22.2% of the sampled micro scale enterprises. Firms with very low percent of 11.9% and 0.5% are respectively in the value range of $0.548 and $1.096 ('000), and less than $0.548 ('000). The value size of the sampled micro scale firms describes them as very small business enterprises in need of huge financing to boost their resources and widen opportunities for increased business expansion and sustainability.

Furthermore, the employment band of the sample micro firms is indicated to reflect the performance outcome of the enterprises. Larger percentage (62.9%) of the firms has number of employees between 1 and 3; 11.9% have employment band between 4 and 6; 23.2% have between 7 and 9 while approximately 2% have

*1 $= ₦365.00

**Source:** Field Survey, 2018.
employees greater than 9. The result affirms the characterization of micro enterprises as those with less than 10 employees. But, the numbers recorded in this study skewed to the lower rather than the upper range of the expected numbers of employees. Expectedly, this is probably going to have an implication on employment generation and overall growth of a developing economy like Nigeria if there is no improvement.

3.3.2. Characteristics of the Micro Scale Entrepreneurs

Table 2

Micro Entrepreneur characteristics

<table>
<thead>
<tr>
<th>Variables</th>
<th>Description</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>Male</td>
<td>100</td>
<td>51.5</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>94</td>
<td>48.5</td>
</tr>
<tr>
<td>Age (years)</td>
<td>&lt; 25</td>
<td>60</td>
<td>30.9</td>
</tr>
<tr>
<td></td>
<td>25-34</td>
<td>75</td>
<td>38.7</td>
</tr>
<tr>
<td></td>
<td>35-44</td>
<td>47</td>
<td>24.2</td>
</tr>
<tr>
<td></td>
<td>45 and above</td>
<td>12</td>
<td>6.2</td>
</tr>
<tr>
<td>Years of Formal Education</td>
<td>&lt; 6</td>
<td>15</td>
<td>8.0</td>
</tr>
<tr>
<td></td>
<td>6-9</td>
<td>24</td>
<td>12.8</td>
</tr>
<tr>
<td></td>
<td>Up to 12 years</td>
<td>142</td>
<td>75.5</td>
</tr>
<tr>
<td></td>
<td>&gt; 12 years</td>
<td>7</td>
<td>3.7</td>
</tr>
</tbody>
</table>


Table 2 above shows the description of the sampled entrepreneurs in the micro scale firms. Respondents are largely male (51.5%) with 48.5% of the female carrying out the micro business activities. Most are in the active age bracket with varying age categories. About 31% are less than 25 years of age; 38.7% are between 25 and 34 years of age; 24.2% are between 35 and 44 years of age while low percent (6.2%) are above 45 years. Years of formal education training also varies with 8% having less than six (6) years of formal education, 12.8% have between 6 and 9 years of education which translates into post primary education. However, the majority with approximate 76% have up to 12 years of formal education, suggesting completion of secondary or post primary formal education. Very low percentage (3.7%) has post-secondary education. To a larger extent, it could be said that most micro scale entrepreneurs could read and write and process financial information to the level expected of the business size.
3.3.3. Volume of Credit Financing by Cooperatives

Table 3

<table>
<thead>
<tr>
<th>Amount*</th>
<th>Frequency</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;= 200,000 ($)547.945)</td>
<td>4</td>
<td>2.1</td>
</tr>
<tr>
<td>200,001 - 400,000 ($547.945 - $1095.890)</td>
<td>100</td>
<td>51.5</td>
</tr>
<tr>
<td>400,001 - 600,000 ($1095.890 - $1643.836)</td>
<td>53</td>
<td>27.3</td>
</tr>
<tr>
<td>600,001 - 800,000 ($1643.836 - $2191.781)</td>
<td>32</td>
<td>16.5</td>
</tr>
<tr>
<td>800,001+ (&gt; $2191.781)</td>
<td>5</td>
<td>2.6</td>
</tr>
</tbody>
</table>

Mean = N446,935.57 ($1224.481)
S.D. = N175,217.16 ($480.047)
Minimum = N105,000.00 ($287.671)
Maximum = N900,000.00 ($2465.753)

* $1 = N 368.5

Evidence of cooperative financing of micro scale enterprises is indicated in Table 3. Expectedly, understanding of financial supply to micro scale business should be viewed in two levels; credit demands and capital demands. Generally, the former is related to raw materials and the ready-made stocks needed by micro firms while the latter is linked to plant and the tools needed. But, the interview response from the micro entrepreneurs indicated that cash demands is predominant in the financing benefit from cooperative groups. Hence, the value in Naira currency (1$ = N 365) of the credit provided is indicated in Table 3. Low percentage (2.1%) of the micro firms receives cooperative credit that is equivalent to ($547.945). Above average point (51.5%), the micro firms receive between $547.945 and $1095.890. Cooperative provision of credit value between $1095.890 and $1643.836 was benefited by 27.3% of the micro firms. It appears the higher the value of the credit, the lower the percentage of micro firms benefiting; 16.5% have received credit value between $1643.836 and $2191.781 while only 2.6% have received cooperative credit finance above $2191.781.
3.3.4. Relationship between Cooperative Financing and Micro Scale Outcomes

Table 4

Correlation between Cooperative Credit and Micro Scale Enterprises

<table>
<thead>
<tr>
<th></th>
<th>Amount</th>
<th>Employment band</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amount</td>
<td>Pearson Correlation</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>194</td>
</tr>
<tr>
<td>Employment band</td>
<td>Pearson Correlation</td>
<td>.003</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.962</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>194</td>
</tr>
</tbody>
</table>

We explored the relationship between the volume of finance made available to micro scale firms and employment band in the sampled enterprises using Pearson correlation (Table 4). There seems to be no relationship between cooperative credit provided to micro scale firms and their employment band. The correlation value obtained using SPSS software version 25 is very low (r = 0.03) and expectedly not significant. The results suggest possibility of inherent problems with business management strategies of micro scale firms. Although the volume of credit finance is low and far below the expected range of five million Naira (13,000 US dollars) for the micro businesses (CBN, 2014). However, a progressive rate of expansion, relative to the available funds is duly expected.

3.4. Discussion of Findings

The findings of the study suggest that the characterization of micro scale enterprises is a bit exaggerated. Most importantly, the average 5 million Naira bracket used to describe the value of micro firms. Our results clearly suggest that micro businesses are generally below the 1 million Naira benchmark. Also, our findings lead to the assertion that the employment band of micro firms is also below the bracket of 10 generally being used for classification. The average is 2 while the maximum is 5. More importantly, there is more to cooperative financing than absolute attribution to growth of micro businesses. Although the financial value of cooperative contribution is lower than usually expected for micro firms, there seems to be no significant relationship between cooperative credit and micro scale enterprises.
4. Conclusions

The rate of increase in the failing of economies suggests a broad increase in business expansionary strategies through adequate support for all forms of businesses including the smallest micro ones and micro scale enterprises. Although the marginal contribution, based on the associated statistics of micro scale enterprises is narrow, the sustained level of performance of micro enterprises is expected to stabilize the growth and development drive of any economy. This is possible through stable contribution to job creation, expansion of larger businesses and more importantly, poverty reduction among the most vulnerable. Because micro scale enterprises exert relatively lower demand for finance, the availability of such is not expected to constitute any serious challenge. The findings affirm the characterization of micro enterprises as those with less than 10 employees. But the numbers recorded in this study skewed to the lower rather than the upper range of the expected numbers of employees. Expectedly, this is probably going to have an implication on employment generation and overall growth of a developing economy like Nigeria if there is no improvement.

Although further rigorous empirical studies are required to properly define micro enterprises in relation to cooperative financing, our findings lead to the conclusion that while indeed micro entrepreneurs benefit from cooperative financing, the magnitude of its contribution for the adequate positioning of micro firms for greater economic goods deserve further assessment. Future research might need to address the impact of the refund of cooperative loan on small scale enterprises. Also, issues surrounding normative regulations of micro enterprises need to be revisited. Regulation of co-operative funding for micro enterprise could be vital to restructuring future economic policy from the micro business perspective.

Expectedly, understanding financial supply to micro scale business should be viewed in two levels; credit demands and capital demands. Generally, the former is related to raw materials and the ready-made stocks needed by micro firms while the latter is linked to plant and the tools needed. But, the interview response from the micro entrepreneurs indicated that cash demands is predominant in the financing benefit from cooperative groups. Hence, the value in Naira currency (1$ = N 365) of the credit provided is indicated in Table 3. Low percentage (2.1%) of the micro firms receives cooperative credit that is equivalent to ($547.945). Above average point (51.5%), the micro firms receive between $547.945 and $1095.890. Cooperative provision of credit value between $1095.890 and $1643.836 was benefited by 27.3% of the micro firms. It appears the higher the value of the credit, the lower the
percentage of micro firms benefiting; 16.5% have received credit value between $1643.836 and $2191.781 while only 2.6% have received cooperative credit finance above $2191.781.

References


DIVIDEND POLICY AND FIRMS VALUE: EVIDENCE FROM QUOTED FOOD AND BEVERAGES COMPANIES IN NIGERIA

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Abstract

The paper investigated the effect of dividend policy on firms’ value of eight Nigerian food and beverages companies between 2008 and 2016. Fixed effect was employed as data analytical tools. Result indicates that dividend yield, dividend payout ratio and leverage have no significant negative effect on firms’ value. On the other hand, dividend per share, earnings per share and firm size were found to exert significant positive effect on firms’ value. This implies that dividend announcement and amount involved will increase firms’ value. It is therefore recommended that firms should adopt dividend policy that will translate to higher firms’ value.

Key words:
Dividend policy, firms’ value, Nigeria, Performance, Leverage and Firms’ value.

1. Introduction

Business primarily exists to create and maximize wealth of its shareholders who contribute a substantial part of capital needed in running its business affairs by subscribing to its shares. Share capital is one of the veritable means of raising companies’ capital and most public companies rely on it for financing their operations following the emergence of joint stock companies. Shareholders’ wealth maximization is reflected in the per unit value of ordinary share capital and dividend paid to shareholders with respect to each unit of share owned by them.
Market price per share is the monetary worth of each unit of share of an entity for a given period of time. Determining the price of stocks has been of significant concern to capital market mostly in the developing countries like Nigeria where share prices hardly reflect investors’ expectations about price changes and market price reaction to market fundamentals like earnings per share, dividend per share and net asset per share is unpredictable (Jeroh and Edesiri, 2017). Firms’ value plays a significant role in the determination of a firm financial performance and position and such value is also very important and relevant for decision involving business acquisition or merger when estimating the amount of purchase consideration to be paid (Rajhans and Kaur, 2013).

The emergence of Joint Stock Company has made dividend policy an important issue and one of the most discussed in finance literature as shareholders are particular about what they stand for to benefit for investing their financial resources in a company. Dividend is part of residual earnings of a company that is distributed to shareholders as a reward for investing their financial resources in a company. Dividend policy is one of the main measures of shareholders’ wealth maximization as it is significantly anchored on three fundamental decisions which are: investment decision, financing decision and dividend decision. Dividend policy is a policy that determines the proportion of earnings to be distributed as dividend and the percentage to be retained to expand the business; therefore companies ration residual earnings between dividend distribution and retention. Ever since the work of Miller and Modigliani (1961) on dividend irrelevance hypothesis, discussions on dividend policy and how it affects market price per share have received novel and sophisticated attentions from scholars in the field of finance, management and economics, thereby suggesting lots of theoretical and empirical postulations and studies.

Theoretically, dividend payment is expected to have significant inverse relationship with market price per share as it is expected that shareholders will prefer growth in the market price of shares as against payment of dividend, thereby preferring companies that retain substantial part of earnings for future investment opportunities (Miller and Modigliani, 1961). However, in reality, this proposition by Miller and Modigliani (1961) is opened to criticism that investors have heterogeneous expectations; some prefer companies that pay regular dividend while others prefer capital gain and as such, prefer companies that retain substantial part of their earnings for future growth in earnings and market value. Firms’ dividend policies according to Duke, Nneji and Nkamare (2015) aim at determining the dividend payout ratio that will increase the market price per share of investors as there is substitution effect between dividend payout ratio and retention ratio.
Studied conducted in Nigeria on dividend policy by scholars like Nwaobia, Alu and Olurin, 2017, Egbeonu, Edori and Edori, 2016, Simon-Oke and Ologunwa (2016), Alayemi, 2013, Ilaboya and Aggrehe, 2013 and Ehikioya, 2015 have produced mixed and conflicting empirical outcomes. This inconsistency might have been due to different proxies used to capture dividend policy. Apart from this, most of the literature has not used unique combination of dividend policy proxies considered by this study. To this extent, this study focuses on dividend policy and firms’ value of eight selected quoted food and beverages companies in Nigeria for a ten year’s period: 2008-2017.

2. Theoretical Review

The bird in hand theory is the product of theoretical advancement by Litner in 1962 and Myron Gordon in 1963). The theory is premised on the risk-averse attitude of the investors and this attitude reflects in their preference for immediate dividend as against capital gain arising from appreciations in the value of their shares. Thus, with the proposition that a bird in hand is better than two in the bush, shareholders therefore prefer to settle for immediate risk free dividend as against the higher returns inform of capital gains that is surrounded with risk and uncertainty. The dividend irrelevance theory was developed by Miller and Modigliani (1961). The theory is premised on the fact that the share price of a firm is not dependent on its company dividend policy and that the dividend decision is a passive residual. They argued in favour of firm’s value being determined by its investment and financing decision within an optimal capital structure (optimal mixture of debt and equity). This implies that all firms can universally adopt the same dividend policy since dividend is irrelevant in valuing a company. Firms do not have to be competitive in dividend distribution in an attempt to increase their value. Under this theory, the dividend is regarded as a residual concept as retention ratio for project of positive net present value is given priority, and dividend is only paid when adequate provision has been made to finance these projects. Thus firms may decide to retain all earnings for investment purposes or distribute everything. Shareholders are indifferent as to whether they receive the expected return on their investment in the form of dividends or in the form of an appreciation of share value. This theory also has its deficiency as investors have heterogeneous expectations; some shareholders prefer regular dividend payment while some prefer capital gains arising from share appreciation. Firms not giving preference to dividend may therefore make shareholders prefer regular dividend payment to withdrawing their investment if their expectations are not met.

The pecking order theory of capital structure is based on finance hierarchy which centres on the convenience with which each source of capital can be raised.
Myers and Majluf (1984) asserts that firms should first use internal finance (retained earnings) in financing their operations, but when retained earnings are not sufficient to finance all the projects with positive NPV, they should issue debt and consider equity as a finance source of last resort when the debt cannot be issued to finance the finance deficit in internal finance or when it is not advisable to do that. This theory, therefore, has implication on the dividend policy of firms which subsequently affect firms’ value. It implies that firms for retained earnings in financing their operations make the retention ratio to be high which in turn reduces dividend payout ratio. The implication of this theory is that retention ratio has potential to increase firms’ value.

The signaling theory was postulated by arising from the dissatisfaction expressed by some scholars with the dividend irrelevance theory of Millar and Modigliani (1961). The theory proffers a pragmatic view on how share price reacts to increase or decrease in dividend by stating that increase in dividend translates to increase in the share price and vice versa. The theory then opines that dividend payment is capable of increasing market price per shares which will translate to improvement in the shareholders’ wealth. The increase in payment of dividend therefore signals the future earnings prospect of the company as companies that pays higher dividend are perceived by the shareholders to be capable of earning higher returns in the future; this positive earnings prospect in effect translates to increase in the share price. In contrast, reduction in dividend payment is perceived as a negative signal about future earnings potential which then lowers market value per share.

In determining the effect of dividend policy on firms’ value in developed and developing countries, several empirical investigations have been conducted. Parts of those studies conducted are reviewed below.

Nwamaka and Ezebasili (2017) conducted an empirical investigation on the effect of dividend policy on firms’ value of Nigerian quoted companies. In achieving this, the study explored the data of selected listed companies by gathering data for twenty years that span from 1995-2015. The study adopted an ex post facto research design. The study found that dividend policy is of significant relevance in the determination of firms’ value in the Nigerian quoted companies. In the same direction, a study by Ozuomba (2017) which focused on financial and non-financial sectors of the Nigerian listed companies using secondary and primary sources of data on the sampled companies, found that dividend policy is relevant in the determination of firms’ value in Nigeria.

The investigation of the dividend policy and shareholders’ wealth maximization was the prime objective of the study by Omodero and Amah (2017). It adopted the cross-survey research design by gathering data from the annual reports and accounts
of Guinness plc and Nigerian brewery plc. The result from the regression reveals that dividend policy is positively insignificant while the reverse was the case for Nigerian brewery. The implication of the findings is that dividend does not matter in the valuation of companies in Guinness Nigeria plc while it matters for companies in the Nigerian brewery. Duke et al. (2015) attempted to carry out a study on the effect of dividend policy on share price valuation in the Nigerian banking sector. The study extracted quarterly data from the annual reports and accounts of the sampled two banks. A unit root test was conducted so as to test the level of stationery. The result of the ADF revealed that the variables are stationery at first difference. The result of the ordinary least square revealed that dividend yield has significant positive effect on market price per share while the significant positive impact of retention ratio was found to be negative in the two sampled banks.

In India, the study of earnings per share and price earnings ratio was conducted by Kumar (2017). The sample comprised of eight auto companies, data were obtained from annual reports and accounts of the sampled companies from 2012-2016. The result of the regression analysis conducted revealed that earnings per share and price earnings ratio individually exert significant positive effect on market price per share and also found to exert strong significant positive effect on market price per share. The result of the study by Enow and Brijlal (2016) which sampled fourteen listed companies for set of data that spanned from 2009-2013 revealed that earnings per share and price earnings ratio exert significant influence on market price per share while dividend per share was found not to significantly influence market price per share.

The determination of factors that influence dividend policy was the direction of an empirical investigation by Nadeem, Bashir and Usman (2018). The study obtained secondary data from the annual reports and accounts of the sampled banks in Pakistan from 2005 to 2015. The result of the panel regression reveals the existence of a significant positive effect of dividend policy determinants like profitability, investment opportunities and last year dividend, while growth and loan deposit ratio were found to exert significant negative effect on dividend policy.

The empirical investigation by Nirmala, Sanju and Ramachandran (2011) on determinants of share price in India revealed that dividend, profitability, price-earnings ratio and leverage are the significant factors that drive share price. This finding implies that increase in dividend, profitability; price-earnings ratio and leverage have contagious positive and significant effect on market price per share. Market price per share can therefore be improved by the mix of these variables. The investigation of the effect of macroeconomic variables like foreign exchange, foreign direct invest-
ment and interest rate was done by Aurangzeb (2012) in Asian countries with specific focus on Pakistan, India and Sri Lanka. The study obtained data on these variables from 1997 to 2010. The findings from the regression analysis revealed that exchange rate and foreign direct investment exerts significant positive effect on share price while interest rate has a significant negative relationship with share prices.

3. Methodology and Data

3.1. Research design and source of data

Ex post facto research design was used by the study. The justification for this is premised on the source of data which is secondary. Necessary historical data for the study were obtained from the annual reports and financial statements of the sampled companies under food and beverages sub-sector. The data were obtained from the websites of the sampled companies as well as the Nigerian Stock Exchange Fact Book.

3.2. Population, sample and sampling technique

The population of the study consists of all the listed 15 food and beverages companies out of which 9 were purposefully selected. These companies represent – almost 53% of the entire population.

3.3. Data Analysis Instrument

The study used panel data analysis and multiple regression analysis in line with some prior studies like Nadeem et al., (2018), Omodero and Amah (2017) and Enow and Brijlal (2016).

3.4. Variable Description and Development of Hypotheses

Dependent Variable

Market price per share is one of the accounting based measures of companies’ performance and its worth. It is the per unit price of each outstanding shares of a company for a given time period. The value is determined by the Nigerian Stock Exchange based on some market fundamentals like the level of demand for the company, management of the company, size, and performance and so on. It is an important variable of interest to investors, it gives them insight on the probable returns on their investment as company that is high valued may generate better returns on investment. Some researchers like Enow and Brijlal, 2016, Duke, et al., 2015, Aurangzeb, 2012 have adopted it in their studies as proxies for firms’ value.
Independent Variables

Dividend Yield

Dividend yield is used in determining the value of dividend stock. The ratio allows investors to compare different dividend paying companies as to which to invest in. Companies with high dividend yield ratio are expected to attract more investors which will in turn make the shares of the firm to be favourably valued. This was empirically demonstrated in the study conducted by Duke et al., 2015. The following null hypothesis is developed:

$H_{01}$: Dividend yield has no significant effect on market price per share.

Dividend Payout ratio

Companies’ dividend policy determines the proportion of their earnings that will be distributed as dividend. The dividend payout ratio is a proportion of the company’s earnings that is paid out as dividend to shareholders. Thus, increase in dividend payout ratio is expected to affect market price per share. High dividend payout ratio according to Simon (2009) is considered to be capable of influencing firms’ value positively as higher dividend payout ratio makes the shares of the company attractive to the shareholders. The null hypothesis is developed below:

$H_{02}$: Dividend Payout ratio has no significant effect on market price per share

Dividend per share

Every investor desires fair returns on their investment. This expectation is reflected in their interest for regular dividend payment or capital gain arising from share valuation. The ability of an entity to maximize the wealth of the shareholders therefore goes a long way in determining the level of demand for the entity’s shares which in turn affect share price. Ordinary, investors will prefer to buy shares in a company that meet up with their expectation of either regular dividend payment or capital gain arising from share appreciation Nwaobia et al., 2017Alayemi, 2013.

$H_{03}$: Dividend per share has no significant effect on market price per share

Control Variables

In order to prevent spurious result, two control variables that are likely to influence market price per share have been introduced. The control variables are leverage, earnings per share and firm size.

The study focused on the effect of dividend policy on shareholders’ wealth maximisation of Nigerian listed food and beverages companies. The study used an ex post
facto research design to gather secondary data from the annual reports and financial statements of the sampled listed food and beverages; while purposeful and stratified random sampling technique were used to select companies based on their size and ensuring that each of the sub-sector is represented so as to avoid sample bias. The study conducted descriptive statistics and regression analysis to analyse the data for the study.

3.5. Model specification

Panel data analysis was used for the study arising from the characteristics of the data for the study. The model is specified in equation 1 below in econometric form by integrating the dependent and independent variables:

\[
MPS_{it} = \beta_0 + \beta_1 DYD_{it} + \beta_2 DPR_{it} + \beta_3 DPS_{it} + \beta_4 EPS_{it} + \beta_5 LVG_{it} + \beta + \varepsilon_{it}
\]  

(1)

Where, all the variables are defined in Table 1.

3.6. Measurement

The model for the study is measured below in table 1:

<table>
<thead>
<tr>
<th>Measurement of Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable</td>
</tr>
<tr>
<td>----------------------------</td>
</tr>
<tr>
<td><strong>Dependent variables</strong></td>
</tr>
<tr>
<td>Firms’ Value</td>
</tr>
<tr>
<td><strong>Independent variables</strong></td>
</tr>
<tr>
<td>Dividend Yield</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Dividend Payout Ratio</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Dividend per Share</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Earnings per Share</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Leverage</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Firm Size</td>
</tr>
</tbody>
</table>
4. Results and discussions

4.1. Descriptive statistics

Table 2 shows the descriptive statistics for the study’s variables. It shows detailed information on maximum, minimum, mean, median and the standard deviation for the dependent and independent variables. The results demonstrated the trend of variables; MPS, DYD, DPR, EPS, LVG and LSZ over the period 2008–2017. The results revealed that, MPS, DYD, DPR, EPS, LVG and LSZ each ranged between minimum values of 1.200 to 1555.9, 0.000 to 0.833, -3.125 to 8.650, 0.000 to 34.000, and 16.820 to 42.550, 0.000 to 3.858 and 16.972 to 19.784 respectively. The mean values were 152.287, 0.057, 0.167, 4.252, 5.389, 0.221 and 18.225 with standard deviation of 274.313, 0.108, 1.150, 6.521, 8.374, 0.464 and 0.150 for MPS, DYD, DPR, EPS, LVG and LSZ respectively.

Table 2

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Standard Deviation</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>MPS</td>
<td>152.287</td>
<td>1.200</td>
<td>1555.9</td>
<td>274.313</td>
<td>3.271</td>
<td>13.997</td>
</tr>
<tr>
<td>DYD</td>
<td>0.057</td>
<td>0.000</td>
<td>0.833</td>
<td>0.108</td>
<td>5.472</td>
<td>36.914</td>
</tr>
<tr>
<td>DPR</td>
<td>0.617</td>
<td>-3.125</td>
<td>8.650</td>
<td>1.150</td>
<td>3.718</td>
<td>32.603</td>
</tr>
<tr>
<td>DPS</td>
<td>4.252</td>
<td>0.0000</td>
<td>34.000</td>
<td>6.521</td>
<td>2.576</td>
<td>9.933</td>
</tr>
<tr>
<td>EPS</td>
<td>5.389</td>
<td>-16.820</td>
<td>42.550</td>
<td>8.374</td>
<td>1.997</td>
<td>8.809</td>
</tr>
<tr>
<td>LVG</td>
<td>0.221</td>
<td>0.0000</td>
<td>3.858</td>
<td>0.464</td>
<td>6.276</td>
<td>48.782</td>
</tr>
<tr>
<td>LSZ</td>
<td>18.225</td>
<td>16.972</td>
<td>19.763</td>
<td>0.784</td>
<td>0.150</td>
<td>2.066</td>
</tr>
</tbody>
</table>

Source: Authors’ computation, 2019.

4.2. Correlation

Table 3 below depicts the association between the variables of the study. Apart from dividend yield that is negatively signed, all other variables(dividend pay-out ratio, dividend per share, earnings per share, leverage and size) conform to a priori expectation as there coefficients are positive. Also, there is absence of existence of serious problem of multicollinearity, as the Pairwise correlation coefficient for any of the variables does not to exceed 0.80 (Gujarati, 2003).
Correlation Matrix

<table>
<thead>
<tr>
<th>Variables</th>
<th>MPS</th>
<th>DYD</th>
<th>DPR</th>
<th>DPS</th>
<th>EPS</th>
<th>LVG</th>
<th>LSZ</th>
</tr>
</thead>
<tbody>
<tr>
<td>MPS</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DYD</td>
<td>-0.123</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DPR</td>
<td>0.082</td>
<td>0.356</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DPS</td>
<td>0.793</td>
<td>-0.018</td>
<td>0.267</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EPS</td>
<td>0.784</td>
<td>-0.094</td>
<td>0.096</td>
<td>0.801</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LVG</td>
<td>0.026</td>
<td>-0.085</td>
<td>-0.049</td>
<td>0.023</td>
<td>0.044</td>
<td>1.000</td>
<td></td>
</tr>
<tr>
<td>LSZ</td>
<td>0.208</td>
<td>0.003</td>
<td>-0.037</td>
<td>0.163</td>
<td>0.145</td>
<td>-0.139</td>
<td>1.000</td>
</tr>
</tbody>
</table>

*Source: Authors’ computation, 2019.*

Regression Results

<table>
<thead>
<tr>
<th>Variable</th>
<th>Fixed</th>
<th>Random</th>
<th>Effects</th>
<th>Random</th>
<th>Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>t-stat</td>
<td>Prob</td>
<td>t-stat</td>
<td>Prob</td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>-1.268</td>
<td>0.209</td>
<td>-1.269</td>
<td>0.209</td>
<td></td>
</tr>
<tr>
<td>DYD</td>
<td>-1.001</td>
<td>0.387</td>
<td>-1.002</td>
<td>0.320</td>
<td></td>
</tr>
<tr>
<td>DPR</td>
<td>-2.003</td>
<td>0.078</td>
<td>-2.003</td>
<td>0.0489</td>
<td></td>
</tr>
<tr>
<td>DPS</td>
<td>7.097</td>
<td>0.000</td>
<td>7.097</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td>EPS</td>
<td>4.792</td>
<td>0.000</td>
<td>4.792</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td>LVG</td>
<td>-0.120</td>
<td>0.668</td>
<td>-0.120</td>
<td>0.905</td>
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</tr>
<tr>
<td>LSZ</td>
<td>3.212</td>
<td>0.208</td>
<td>1.271</td>
<td>0.208</td>
<td></td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.891</td>
<td>0.869</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjusted $R^2$</td>
<td>0.869</td>
<td>0.858</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F-stat</td>
<td>41.293</td>
<td>80.68</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prob (F-stat)</td>
<td>0.000</td>
<td>0.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Durbin-Watson stat</td>
<td>1.373</td>
<td>1.220</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hausman Chi-Square</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prob (Hausman Chi-Square)</td>
<td>0.0441</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observations</td>
<td>80</td>
<td>80</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Source: Authors’ computation, 2019.*

5. Discussion

From the results, fixed effect is chosen to test the hypotheses of the study since the probability of Hausman test is significant at 5% level of significance. The fixed effect model in table 5, F-statistic values for the model is significant at 1% level (prob value = 0.000). It implies that the model as a whole is fit. The Durbin-Watson values
of 1.373 is within the acceptable threshold of 1 to 3 (Gujarati, 2003, Asaeed, 2005 and Gujarati and Porter, 2009) and it means that the model has no serial problem of autocorrelation.

The effect of dividend yield on firms’ value is negative and insignificant at 5% level. This shows that the proportion of dividend to firms’ value is so low to significantly influence firms’ share price. This result contradicts empirical outcome by Duke, et al., (2015). The null hypothesis 1 is therefore accepted. Thus, dividend yield is not an important determinant of firms’ value in Nigerian food and beverages companies.

Dividend payout ratio was found to have indirect effect on firms’ value but is insignificant. The implication of this finding is that as companies pay more proportion of their earnings as dividend to shareholders, firms’ value tends to be low. The logical conclusion that one can make from this is that high dividend payout ratio takes a toll on retention ratio which reduces internal funds required to finance investment opportunities available. This in effect increases cost of capital as companies may settle for external source of finance like debt and issue of new shares. This in turn reduces profitability and firms’ value. This result aligns with the studies conducted by (Nwaobia et al., 2017). The null hypothesis 2 is also accepted. Thus dividend payout ratio has no significant negative effect on firms’ value of quoted food and beverages companies in Nigeria.

Findings relating to dividend per share on firms’ value show that dividend directly and significantly influence firms’ value. This shows that dividend announcement and the amount of announced dividend is a fundamental determinant of firms’ value. The logical conclusion that can be made from this is that, as companies announce much dividend, it signals to the investors and different players in the market that the company is doing fine as dividend is paid out of earnings. This in effect increases patronage for the entity’s shares and it also makes the shares to be highly valued by stock exchange. Studies by Nadeem et al., (2018), Nwamaka and Ezebasili (2017), Ozuomba (2017), Nirmala et al., (2011) are in line with the result of this study. The null hypothesis 3 is therefore rejected. Thus, dividend per share has significant positive effect on firms’ value of quoted food and beverages companies in Nigeria.

Earnings per share positively and significantly affect firms’ value. This means that more earnings signal good performance of an entity to different stakeholders which make them place high value on the shares. The outcome is in line with prior studies by Enow and Brijlal (2016).

Leverage is another control variable used in this study. Leverage ratio shows the proportion of debt that a company utilize in the entirety of its capital structure to
finance its operations. Findings from this shows that leverage negatively influence firms value but was found no to be significant. This is in contrast with empirical investigation by (Adenugba, Ige and Kesinro, 2016).

Lastly, firm size exerts significant positive effect on firms’ value. This implies that larger firms attract higher valuation on the stock exchange. This is in conformity with a priori expectation of the study. Study by Yuliza, 2018, Isik, Unal and Unal (2017) is in line with this finding.

6. Conclusion and Recommendations

The empirical findings show that even though all the independent variables were found to affect market price per share differently, jointly they exert significant positive effect on market price per share when pooled together. This suggests that food and beverages companies need to adopt robust dividend policy in an attempt to increase market price per share. The results of the study are constituent with Nadeem, et al., (2018), Nwamaka and Ezeabasili (2017), Ozuomba (2017), Nirmala et al., (2011) who found significant positive effect of dividend policy on shareholder’s wealth maximisation. Arising from the findings, it was recommended that food and beverages companies should always focus significant attention on timely declaration of sufficient dividend to shareholders as it has the potential to positively influence firms’ value.

Table 5

<table>
<thead>
<tr>
<th>Breusch-Pagan LM</th>
<th>Pesaran scaled LM</th>
<th>Pesaran CD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stat =34.38598</td>
<td>Stat=-0.2157</td>
<td>Stat = 0.048</td>
</tr>
<tr>
<td>Prob&lt; chi2 = 0.1885</td>
<td>Pr=0.829</td>
<td>Prob =0.962</td>
</tr>
</tbody>
</table>

Source: Authors’ computation, 2019.
References


Appendix One:

Table 1

List of sampled food and beverages companies

<table>
<thead>
<tr>
<th>S/N</th>
<th>Name of Company</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Unilever Nigeria Plc.</td>
</tr>
<tr>
<td>2</td>
<td>Nestle Nigeria Plc.</td>
</tr>
<tr>
<td>3</td>
<td>Dangote Sugar Plc.</td>
</tr>
<tr>
<td>4</td>
<td>Cadbury Nigeria Plc.</td>
</tr>
<tr>
<td>5</td>
<td>Flour Mills Nigeria Plc.</td>
</tr>
<tr>
<td>6</td>
<td>Seven-up Bottling Company</td>
</tr>
<tr>
<td>7</td>
<td>Nigerian Breweries</td>
</tr>
<tr>
<td>8</td>
<td>Guinness Nigeria Plc</td>
</tr>
</tbody>
</table>

Source: Authors’ compilation (2019).
THE EFFECT OF INFRASTRUCTURAL INVESTMENT ON SUSTAINABLE DEVELOPMENT IN NIGERIA (1980-2016)

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JEL H55

Abstract

Sustainable development requires not only satisfying the need of the present generation but also to preserve the environment and meet the need of generations to come. We examined the effect of infrastructural investment on sustainable development by investigating the causality relationship between infrastructural investment and sustainable development and analyze the relative effect of social and economic infrastructure on sustainable development in Nigeria. Based on ex post factor research design and following Romer (1986) growth model framework sustainable development was a function of gross fixed capital formation, social infrastructure and economic infrastructure. The study utilized annual time series data covering 1980 to 2016 from Central Bank of Nigeria Statistical Bulletin while the Granger causality and Fully Modified Ordinary Least Squares (FM-LS) technique was used in the estimation. It was found that gross fixed capital formation and economic infrastructure exert a significant positive effect on sustainable development while social infrastructure exerts a significant negative effect on sustainable development in Nigeria. Also, a uni-direction causality relationship between sustainable development and infrastructural investment was found which runs from fixed capital formation, social infrastructure and economic infrastructure to sustainable development growth. We conclude that, though infrastructure has effect on sustainable development in Nigeria, the effect of each of its two components on sustainable development differs. As a policy measure, government needs to raise investment in infrastructure and broaden the sources of finance for infrastructure and ensure efficient allocation of public resources. Also, there is the need to revitalize public-private partnership on social infrastructure to engender sustainable economic growth in Nigeria.

Key words: Infrastructure, Development, Sustainable Development, Capital formation, Growth.

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1. Introduction

Economic development has been recognized as the core macroeconomic goal of every reasonable government given the limitations of economic growth in capturing the living standard of the citizens of a country. It is said to be achieved when there is both quantitative and qualitative improvement in the productive system and structure of a country and improvement in the living standards. Development as a condition of life is not an absolute but a relative condition comparative to every change. It fluctuates with needs. As such in recent time its scope has been broadened to include element of sustainability of the growth process. According to Amos and Uniamikogbo (2016) sustainable development is “a pattern of resource use that aims at addressing human needs while preserving the environment so that these needs can be met not only in the present but also for generation to come”. Thus, human beings are at the centre of concern for sustainable development (Uzoh, 2013). The wider implication of the inclusive course of development can only be sustained with total involvement and participation of the target populations (Okafor, Jegbefumwen & Ike, 2016).

In this era of cut-throat competition, every country is trying hard to get as much growth in output as possible to be ahead in the race of development. Many factors are essential in driving the growth of any economy. Significantly, one of them is a well-developed infrastructure (Soneta, Bhutto, Butt, Mahar & Sheikh, 2012). Hence, to achieve sustainable development, nations must be developed in terms of their infrastructure (Banabo & Ndiomu, 2011). Thus, quality infrastructure is a key ingredient for sustainable development. All countries need efficient transport, sanitation, energy and communication systems if they are to prosper and provide a decent standard of living for their population (Uzoh, 2013). The availability of infrastructure facilities and services as well as the efficiency of such services to a large extent determine the success or otherwise of all other production endeavours (OECD 2006). Infrastructure interacts with the economy through multiple and complex processes. It represents an intermediate input to production as such changes in infrastructure quality and quantity affect the profitability of production and invariably the levels of income, output and employment (Adenikinju, 2005). It is defined as the “unpaid factor of production” which tends to raise productivity of other factors while serving as intermediate inputs to production (Akinyosoye, 2010).

Infrastructure development in democratic governance involves various activities including the process of deciding on the right project, the location of the project, the design of the project, carrying out of feasibility and viability studies, and carrying out of the physical development of the project (Oyedele, 2012). The provision of
infrastructure in most developing countries is the responsibility of the government. This is because of the characteristics of infrastructure investment. First, infrastructure supply is characterized by high set-up cost. Its lumpiness and indivisibility precludes the private sector from investment. Second, its indirect way of pay-off, coupled with its long gestation period, makes it generally unattractive to private investors. Moreover, provision also generates externalities that the producer may not be fully able to internalize in the pricing structure (Adenikinju, 2005). Thus, in the face of other numerous competing, less risky and more familiar investment opportunities offering the promise of higher and quicker returns, few private investors are willing to embark on infrastructure investment (Ajayi, 1995). The nearly exclusive concentration of infrastructure provision in the hands of the public sector, especially in developing countries, has led to failures in the supply of these services (Adenikinju, 2005). When basic needs are unavailable, sustainable development cannot be guaranteed. In addition, the presence of critical infrastructure is an assurance of basic needs. The regular minimum requirement of food, housing and clothing for the individual and his family, and also vital public services, especially drinking water, sanitary installations, public transport, health and educational facilities are the basic needs (Uzoh, 2013).

Most of the public infrastructure across Nigeria is decayed and malfunctioning and as a result of the massive resources required for infrastructural development, there are many abandoned and uncompleted projects across the country (Nwogwugwu, Ajayi&Iyanda, 2015). The deficiencies in infrastructure and inefficient delivery of social services in Nigeria led to soaring transaction costs which have affected trade thereby reducing the competitiveness of the country’s products in the world market (Edame, Udude&Ugwu, 2014). For instance, traffic congestion, power blackouts in major cities, bad quality of roads, access to capital and market, inadequate telecommunication services, shortage of drinking, irrigation and industrial water, all bear witness to the inadequate existing infrastructure facilities. Even schools are not equipped with basic infrastructure (Fidelis et al., 2014). In attempt to address the issue of infrastructural decay in Nigeria, successive governments have continued to raise expenditure on infrastructural facilities over the years. Unfortunately, rising government expenditure has not resulted into meaningful growth and development of the infrastructural sector in Nigeria. Many areas have continued to suffer from the dearth of necessary infrastructure (physical, social and economic) (Fasoranti, 2012). Several studies on infrastructure and output growth nexus have focused majorly on the impact of aggregate infrastructure on output growth. To the best of the authors’ knowledge, existing studies have not disaggregated infrastructure into a social and an
economic component to determine the relative impact of the two components on sustainable development in Nigeria. The innovation in this study is that it decomposed the aggregate infrastructure into two parts which economic and social infrastructure and examines the effect of each component of infrastructure on sustainable development in Nigeria.

The broad objective of this study is to examine the effect of infrastructural investment on sustainable development in Nigeria. The specific objectives of the study are to:

i. Analyze the trend of infrastructural investment and sustainable development in Nigeria

ii. Investigate the causality relationship between infrastructural investment and sustainable development in Nigeria.

iii. Examine the relative effect of social and economic infrastructure on sustainable development in Nigeria.

This study focuses attention on the effect of infrastructural investment and sustainable development in Nigeria using annual time series data for the period 1980 to 2016. The scope of the study covers the period various industrialization policies, incentives and schemes to promote industrialization with the aim of positioning the economy on the path of progress. The policy outcomes of this study will provide useful guide and direction to policy makers on how to raise the dearth level of infrastructure in the country. It will also provide necessary insight to the private sector on the potentials in investing in infrastructural projects in this era of guided deregulation policy in Nigeria. This study will also contribute to the literature on infrastructural development and sustainable development.

2. Literature Review

Conceptually it is very hard to find a generally agreed definition of infrastructure. This is why it was mentioned in World Bank report (2004b) that infrastructure is an umbrella term for many activities. Baldwin and Dixon (2008) agreed that infrastructure is very long lasting, space specific, has long gestation periods with few substitutes in short run periods, its services are capital intensive and it is usually associated with market failures. According to Sedar, (2007) infrastructure is the basic services or social capital of a country or a part of it which make economics and social activities possible. Prud’homme (2004) defines infrastructure as consisting of capital goods which are not consumed directly; they provide services only in combination with labour and other inputs. On the other end, the concept of development tends to be moving away from economic indicators such as GDP, GNP,
PCI and others to non-economic analysis such as the democratic imperatives of political governance and social indicators (Jhingan, 2006). Development now takes into consideration the issue of sustainability. Sustainable development refers to the continuous and sustained qualitative improvement in the overall standard of living of people in a society or nation and the structural transformation in the productive and distributive input and output systems of the economy (Ojobo, 2005). A nation could be said to have attained or be on the path of sustainable development when members of that society could boast of improved condition of living on a continuous basis over a reasonable period of time.

This study is anchored on balanced and unbalanced theory of infrastructural development amidst all other theories on infrastructure reviewed. The theories of sustainable development were also articulated in the study. The theory of unbalanced growth is associated with Hirschman (1958). Nurske (1961) also favoured the unbalanced growth theory in contrast to the doctrine of balanced growth. According to Hirschman, a deliberate unbalancing of the economy according to a pre-designed strategy is the best way to achieve economic growth in an underdeveloped country. He noted that investments in strategically selected industries or sectors of the economy will lead to new investment opportunities and so pave the way to further economic development. The theory of Coordination Failure on sustainable development by Rosenstein-Rodan in 1943 laid emphasis on the need for government intervention to solve the problem of coordination failure. This theory posits that market may fail to achieve coordination among contemporary activities.

There seems to be a unanimous opinion in literature on the effect of infrastructure on growth in developed countries. The majority of the studies provide evidence for the positive effect of infrastructure on development. For instance Zegeye (2000) examines the impact of public infrastructure capital on the productivity of the manufacturing sector for a sample of over 1500 counties and the 50 U. S. states using a translog production function approach. The study finds a positive correlation between infrastructure and output at both the state and local levels. Canning and Pedroni (2004) applied panel cointegration techniques to test whether GDP per capita and paved roads per capita form a long-run relation and, if yes, in which direction causality runs. They find support for cointegration and that causation runs in both directions. Isaksson (2007) using OLS and the fixed-effects estimators examined the impact of transport infrastructure on Total Factor Productivity (TFP) levels across 112 countries for the time period of 1970 to 2000. They suspect the impact differs across stages of development and it to be greater at relatively low levels of income and, possibly, for the fast-growers.
In developing countries, divergent opinion is evident on the link between the two variables. For instance Pradhan et al., (2013) using autoregressive distributed lag (ARDL) and vector error correction model (VECM) in India. They found out that transport infrastructure cointegrated with foreign direct investment (FDI) and economic growth indicating the presence of long-run equilibrium relationship among variables. In a study on South Africa, Fedderke and Bogetic (2009) investigated several different measures of transport infrastructure, kilometres of open railway lines, kilometres of total roads and kilometres of paved roads. Without instrumentation, nearly all estimates are negatively signed. Generally, the instrumented elasticity of labour productivity with respect to transport infrastructure is higher than in the non-instrumented case, i.e., instrumentation tends to inflate the estimates, while the expectation might have been the opposite. The elasticity of railways, total roads and paved roads are, respectively, 0.81, 2.95 and 1.08, which seems excessive.

In Nigeria, there seems to be a unanimous opinion in literature on the effect of infrastructure on economic growth. Most studies established a positive effect of infrastructure on economic growth. However, different components of infrastructure were also identified in literature as constituent of infrastructure with a distinct effect on economic growth. For instance Onakoya, Salisu and Oseni (2012) investigated the impact of infrastructure on economic growth in Nigeria. The finding shows that infrastructural investment has a significant impact on output of the economy directly through its industrial output and indirectly through the output of other sectors such as manufacturing, oil and other services. Soneta, Bhutto, Butt, Mahar and Sheikh, (2012) find out the impact of public infrastructure (i.e. transportation and communication, electricity and gas distribution and per capita income) on the growth of manufacturing sector of Pakistan. The results have revealed that in Pakistan investment in public infrastructure has insignificant effect on manufacturing sector. Siyan, Eremionkhale and Makwe (2015) examined the impact of road transportation on economic growth in Nigeria. Both primary and secondary data were used as sources of data. The result shows that the transport sector positive impact on the economic growth in Nigeria. Based on the findings, it was suggested that the government should come up with sustainable and implementable road development and maintenance policies that will ensure good access and flow in Nigeria. Also, economic growth in Nigeria depended on the level of good and accessible road transportation and facilitates business activities. Bernard and Adenuga (2016) investigate the contribution of energy consumption on output of industrial sector in Nigeria. Time series data from the period of 1980 to 2013 on energy consumption and industrial output was employed.
The study provides some evidence in support of long-run relationship between energy consumption and industrial output in Nigeria. The study reveals that the entire variable contributed positively to industrial output in Nigeria.

3. Methodology

This study used ex post factor research design because the design is a quasi-experimental study used to examine how an independent variable present prior to the study in the participants affects a dependent variable. The model for the study follows Romer (1986) model established due to the weakness of the Solow growth model. The production function under the Solow growthmodel implies that \( Y = f(K, L) \) where technology is exogenously determined. The Romer model is different as technology which is seen as energy, is an endogenous variable. Romer takes investment in research technology as endogenous factor in terms of the acquisition of new knowledge by rational profit maximization firms. His aggregate production function of the endogenous theory is as follows:

\[
Y = f(A, K, L) \tag{1}
\]

Where: \( Y \) = aggregate real output; \( K \) = stock of capital; \( L \) = stock of labour; and \( A \) = Technology (or technology advancement). Adopting this model, \( Y \) or the aggregate real output is used as a proxy for sustainable development is expressed as a function of social infrastructure and economic infrastructure as captured by the introduction of knowledge acquisition parameter in the Solow growth model, capital proxy by gross capital formation and labour proxy by population growth rate.

In line with Romer model we adapted the model from the study conducted by Owolabi-Merus (2015) on infrastructural development and economic growth nexus in Nigeria where economic growth proxy by Gross Domestic Product (GDP) was the dependent variable while infrastructural development proxy by Gross fixed capital formation (GFCF) was the independent variable. The model was modified by making the sustainable development (SD) proxy by GDP per capita as the dependent variable while Gross fixed capital formation (GFCF), social infrastructure (SIFR) and economic infrastructure (EIFR) the explanatory variables. The functional relationship among the variables is specified as follows:

\[
SD = f(GFCF, SIFR, EIFR) \tag{2}
\]

For the purpose of estimation, equation (1) can be expressed as:

\[
SD = \beta_0 + \beta_1 GFCF + \beta_2 SIFR + \beta_3 EIFR + u_i \tag{3}
\]
The Effect of Infrastructural Investment on Sustainable Development in Nigeria (1980-2016)

Where:

\[ SD \] = Sustainable development (Measure by GDP per capita), \[ GFCF \] = Gross fixed capital formation, \[ SIFR \] = Social infrastructure, \[ EIFR \] = Economic infrastructure, and \[ Ut \] = Stochastic error term at time \( t \).

In the model, gross domestic product per capita was used as proxy for sustainable because this measure account for the living standard of the people in its measure of economic progress (Jhingan, 2007). Both social infrastructure and economic infrastructure were used as measure of infrastructural investment. The data on investment on the two infrastructural components are obtainable in the World Bank Development Indicator (WDI).

In line with economic theory, Gross fixed capital formation (GFCF) is expected to have a positive impact on sustainable development, i.e. \( \partial SD / \partial GFCF > 0 \); social infrastructure (SIFR) in line with economic theory is expected to have a positive impact on sustainable development, i.e. \( \partial SD / \partial IFR > 0 \); economic infrastructure (EIFR) in line with economic theory is expected to have a positive impact on sustainable development SD, i.e. \( \partial SD / \partial EIFR > 0 \). This study used annual time-series data from 1980 to 2016 collected from the Central Bank of Nigeria Statistical Bulletin and World Bank Development Index. In the analysis of data, the Jarque-Bera Normality test and the test for multicorrelation to detect whether the variables are multicorrelated were utilized. Fully Modified Ordinary Least Squares (FMOLS) and Granger causality test were employed in the estimation of data. The choice of FMOLS technique was because of its ability to account for cointegrating relationship among the variables when such exist.

4. Results

4.1. Preliminary Tests

The result of the Jarque-Bera test of normality is presented in table 1.

Table 1

Descriptive Statistics

<table>
<thead>
<tr>
<th></th>
<th>SD</th>
<th>GFCF</th>
<th>SIFR</th>
<th>EIFR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>4169077</td>
<td>361228.8</td>
<td>1803922</td>
<td>29.17328</td>
</tr>
<tr>
<td>Median</td>
<td>1162439</td>
<td>242234.7</td>
<td>341687.4</td>
<td>31.07724</td>
</tr>
<tr>
<td>Maximum</td>
<td>18402191</td>
<td>805455.7</td>
<td>7708114</td>
<td>49.26698</td>
</tr>
<tr>
<td>Minimum</td>
<td>20174.65</td>
<td>170279.8</td>
<td>202383.0</td>
<td>5.865399</td>
</tr>
<tr>
<td>Std. Dev.</td>
<td>5863600</td>
<td>217380.9</td>
<td>2443112</td>
<td>11.50897</td>
</tr>
<tr>
<td>Skewness</td>
<td>1.389068</td>
<td>0.885778</td>
<td>1.351773</td>
<td>-0.490035</td>
</tr>
</tbody>
</table>
The values of the Jarque-Bera statistics shows that except for economic infrastructure all other variables sustainable development, gross fixed capital formation, social infrastructure are normally distributed since their p-values are statistically significant at 5% level of significance.

The result of the multicollinearity tests using correlation matrix to detect whether the variables are multicorrelated is presented as follows:

### Correlation Analysis Matrix

<table>
<thead>
<tr>
<th></th>
<th>SD</th>
<th>GFCF</th>
<th>SIFR</th>
<th>EIFR</th>
</tr>
</thead>
<tbody>
<tr>
<td>SD</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GFCF</td>
<td>0.858454</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SIFR</td>
<td>0.884752</td>
<td>0.964399</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>EIFR</td>
<td>-0.745574</td>
<td>-0.755499</td>
<td>-0.777028</td>
<td>1</td>
</tr>
</tbody>
</table>

Source: Author, 2018.

The correlation analysis of the set of variables in the model as presented in Table 2 indicates the absence of multicorrelation problem among the variables since the association among the variables is not very strong. The result also shows that the association between gross fixed capital formation, social infrastructure and sustainable development is positive while the association between economic infrastructure and sustainable development was negative.

The trend of sustainable development and infrastructural development in Nigeria is presented using the line graph as follows:
Figure 1. Trend of Sustainable Development in Nigeria 1980-2016

The trend of sustainable development as shown in Figure 1 indicates that despite the poor state of infrastructure in the country, the pace of sustainable development increased between 1980 and 2008 before it began to drop from 2009 up till 2016.

Figure 2. Trend of Infrastructural Development in Nigeria 1980-2016

Source: Author, 2018.
Figure 2 shows that gross fixed capital formation which increase sluggishly between 1980 and 2012 started declining thereafter up till 2016. However, investment in social infrastructure which increase very slowly from 1980 to 2013 also started declining from 2014 up till 2016. It was also evident that from 1980 to 1984 economic infrastructure witness ups and down movement but from 1985 to 2005 the movement in economic infrastructure was very stable and very low. It falls between 2006 and 2008 and rise and fall between 2009 and 2012 before it began to rise from 2013 to 2016

4.2. Empirical Result

To determine the effect of infrastructural investment on sustainable development in Nigeria, the result of Fully Modified Ordinary least squares (FMOLS) regression is presented in table 3:

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>GFCF</td>
<td>4.173896</td>
<td>0.413736</td>
<td>10.08831</td>
<td>0.0000</td>
</tr>
<tr>
<td>SIFR</td>
<td>-0.994618</td>
<td>0.272168</td>
<td>-3.654420</td>
<td>0.0009</td>
</tr>
<tr>
<td>EIFR</td>
<td>0.043961</td>
<td>0.019699</td>
<td>2.231633</td>
<td>0.0330</td>
</tr>
<tr>
<td>C</td>
<td>-40.29126</td>
<td>5.672173</td>
<td>-7.103321</td>
<td>0.0000</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.841256</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjusted R-squared</td>
<td>0.825893</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Long-run variance</td>
<td>0.04116</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Source:** Author, 2018.

The resulted as presented in Table 3 on the basis of student t-test of significance of the parameter estimates showed that gross fixed capital formation ($\beta=4.173896$, $t=10.08831$, $p<0.05$) and economic infrastructure ($\beta=0.043961$, $t=2.231633$, $p<0.05$) exert a significant positive effect on sustainable development while social infrastructure ($\beta=-0.994618$, $t=2.231633$, $p<0.10$) exert a significant negative effect on sustainable development in Nigeria.

Against a priori expectation the effect of social infrastructure on sustainable development is negative, that is a unit increase in social infrastructure on the average brings about 15% decrease in sustainable development in Nigeria. In line with a priori expectation the effect of gross fixed capital formation on sustainable development was positive, that is a unit increase in gross fixed capital formation on the average
brings about 417% increase in sustainable development in Nigeria. The effect of economic infrastructure on sustainable development was positive, that is a unit increase in economic infrastructure on the average brings about 4% increase in sustainable development in Nigeria. The effect of social infrastructure on sustainable development was positive, that is a unit increase in social infrastructure on the average brings about 4% decrease in sustainable development in Nigeria. The adjusted coefficient of multiple determination which was 0.841256 (84%) indicates that 84% of the variations in sustainable developmentin Nigeria is explained by the explanatory variables even as the sample size expanded indefinitely.

4.2.3. Causality Analysis: Infrastructural investment and Sustainable Development

The Granger causality test result as shown in panel A of Table 4 showed that gross fixed capital formation, social infrastructure and economic infrastructure granger cause sustainable development in Nigeria at 5% level of significance. In panel B, gross fixed capital formation and economic infrastructure do not granger cause sustainable development while social infrastructure granger cause sustainable development in Nigeria at the 5% level of significance.

5. Discussion, Conclusion and Recommendations

In an attempt to achieve the broad objective, the study formulated econometric model to capture the relationship between infrastructural investment and sustainable development in Nigeria. In the model, sustainable development was the dependent variable.
variable while Gross fixed capital formation, social infrastructure and economic infrastructure were the explanatory variables. Time series data over the period of 1980 to 2016 sourced from Central Bank of Nigeria (CBN) Statistical Bulletin was utilized. Diagnostic tests which include, Jarque-Bera normality test and test for multicorrelation were conducted check the time series properties. The study used the Fully Modified Ordinary Least Squares FMOLS estimation technique in the analysis of data.

The result of showed that Gross fixed capital formation and economic infrastructure exert a significant positive effect on sustainable development in Nigeria while social infrastructure exert a significant negative effect on sustainable development in Nigeria. The Granger causality test established a uni-direction causality relationship between sustainable development and infrastructural investment. The causality runs from fixed capital formation, social infrastructure and economic infrastructure to sustainable development and from sustainable development to social infrastructure in Nigeria.

By and large the result of this study established that infrastructural investment has a significant effect on sustainable development in Nigeria since the estimate of the two components of infrastructure tested in this study were to be significant. While economic infrastructure was shown to have positive effect on sustainable development in Nigeria, the effect of social infrastructure was negative. The positive effect of economic infrastructure on sustainable development was surprising given the poor condition of infrastructural facilities in Nigeria and the inadequacy in the level of available infrastructure in the country. The novelty of this result is that it has be able to show clearly that in the case of Nigeria, social and economic infrastructure have differing effect on sustainable development. While investments in economic infrastructure propel sustainable development, the study provides evidence that investment in social infrastructure retard sustainable development in the country over the scope of the study. The result is in line with the findings of Onakoya, Salisu and Oseni (2012) on the impact of infrastructure on economic growth in Nigeria. The finding shows that infrastructural investment has a significant impact on output of the economy directly through its industrial output and indirectly through the output of other sectors such as manufacturing, oil and other services. The agricultural sector is however not affected by infrastructure. This result corroborated the findings in the study conducted by Ogunjobi (2015) on the relationship between electricity consumption and industrial growth in Nigeria. The study established that in the long-run, there is a significant positive relationship between industrial growth and electricity consumption, electricity generation, labour employment and foreign exchange rate.
Following the empirical findings, the following recommendations are made for effective policy formulations. The government should raise investment in infrastructure and ensure that the financing options for closing Nigeria’s infrastructure gaps focus on broadening the sources of finance and efficient allocation of public resources. Also, there is the need to revitalize public-private partnership on social infrastructure to engender sustainable economic growth in Nigeria.

References


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