



ILORIN JOURNAL OF FINANCE

**Maiden Edition
Volume I, December 2017**

UNIVERSITY

Banking Sector Development and Economic Growth: Evidence from Nigeria

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Abstract

Economic growth of a country whose financial sector is bank-based like Nigeria revolves round the development of banking sector. Studies have however claimed that Nigerian banking sector is still underdeveloped and the sector has performed below expectation in its role of promoting economic growth of the country. This study therefore assessed the effect of banking sector development on the Nigeria's economic growth. Annual time series data from 1981 to 2015 were collected from Central Bank of Nigeria (CBN) statistical bulletin and World Bank website. Augmented Dickey Fuller (ADF) test was conducted to ascertain the order of integration of the series. Johansen co-integration test was performed which confirmed the existence of long run relationship between variables. Error Correction Model (ECM) approach was finally used to estimate the speed of adjustment from the short-run disequilibrium. The result of ECM shows that all the variables except private credit and bank deposits have positive and significant effect on growth rate of GDP at 0.05 level of significance. The Error Correction Term (ECT) indicates that the disequilibrium in previous period was corrected at the rate of 40%. The study concludes that banking sector development have both long run and short run effect on the Nigerian economic growth. It is therefore recommended that banks in Nigeria should improve their administration of credit to private sector to ensure that the funds are properly channelled to productive ventures. CBN should tailor its monetary policies towards improving the level of financial deepening, controlling inflation and enhancing the deposit base of the banks; as all these will promote economic growth via the banking sector.

Keywords: Bank, Banking, Development, Growth, Co-integration, Nigeria

JEL Classification: G21, O16, O41

1. Introduction

Banking sector is central to the growth of economies, particularly those with bank-based financial system like Nigeria. The centrality of this sector is attached to the intermediation roles of banks, through which funds are mobilised for productive investment. The effectiveness and efficiency in playing these roles depend largely on the level of development of the financial system (Nkoro & Uko, 2013). Development of banking sector has to do with putting in place those policies and institutions that ensure effective financial intermediation as well as access to financial services. The sector can be developed in different ways which include improving efficiency of the financial sector, increasing the range of financial services, improving regulation of the financial sector and increasing access of more of the population to the financial services (financial inclusion) (Khan, Khan, Ahmad & Siraj, 2011). In a country where banks dominate the financial sector, it becomes more imperative to develop the banking subsector for the entire financial sector to develop.

The Nigerian financial system is dominated by the banking sector but remains to a large extent underdeveloped due to the adoption of some financially repressive policies, poor macroeconomic management and some banking maladministration that gave rise to insolvency and inefficient allocation of resources (Aigbovo & Uwubamwen, 2014). The consequence of this underdevelopment is that the banking sector would struggle to make its contributions towards economic growth of the country. This necessitates the need to develop the sector through policy reforms in a bid to enhance its growth contribution

potentials. Mixed reports have been given on effect of banking development and economic growth in Nigeria. Studies like Adegboyega and Odusanya (2014), and Ayunku and Etale (2014) reported positive effect. Others (like Kolawole, 2012, Ekpenyong & Acha, 2011) reported insignificant impact of banking development on growth. Therefore the claim that banks in Nigeria facilitate economic growth remains requires further empirical investigation. This is because most of these studies examined the entire financial sector by combining banking and non-banking variables which makes it decomposition of banking effect difficult. More so, only traditional measures of banking development were used by many of these studies. This study therefore includes some modern (new) measures identified by the World Bank, in assessing the effect of banking sector development on the Nigeria's economic growth.

2. Literature Review

2.1 Conceptual Issues: Financial and Banking Sector Development

Financial development according to the financial development report (2012) includes those factors, policies, and institutions that lead to effective financial intermediation and markets, as well as deep and broad access to capital and financial services. Khan and Senhadji (2000) define financial development as the measure of financial depth of a country's financial markets. Demirguc-Kunt and Levine (2008) state that financial development occurs when financial instruments, markets, and intermediaries ameliorate (not necessarily eliminate) the effects of information, enforcement, and transaction costs and therefore do a correspondingly better job

at providing financial functions. They further argued that financial development involves improvements in the production of ex-ante information about possible investments, monitoring of investments and implementation of corporate governance, trading, diversification, and management of risk, mobilization and pooling of savings, and exchange of goods and services. Emphasizing the concept of financial development, Dima and Opris (2013) observe that financial sector development has three main aspects- the input, process and output. They explain further that factors, policies and institutions are the inputs that allow the development of financial intermediaries, markets, financial instruments and services.

There are a number of ways by which financial sector; particularly the banking subsector of any bank-based financial system can be developed. Khan, *et al.* (2011) identify four ways by which financial sector can be developed to include improving efficiency of the financial sector, increasing the range of financial services, improving regulation of the financial sector and increasing access of more of the population to the financial services (financial inclusion). Department for International Development (2004) also state that financial sector can said to be developed when the efficiency and competitiveness of the sector is improved; the range of financial services that are available is increased; the diversity of institutions which operate in the financial sector is increased; the amount of money that is intermediated through the financial sector is increased; the extent to which capital is allocated by private sector financial institutions, to private sector enterprises, responding to market signals (rather than

government directed lending by state owned banks), is increased; the regulation and stability of the financial sector are improved upon; and more of the population gain access to financial services.

2.1.1 Banking Sector Development and Economic growth

According to Mahmood (2013), a country can stimulate its economic growth by adopting both short run and long run policies to enable banking sector development. Dima and Opris (2013) point out two reasons to develop banking sector for economic growth of the country; firstly, the development of financial markets may enhance the efficiency of capital accumulation and secondly, financial intermediation may contribute to raise the saving rate and thus the investment rate. Similar opinion was expressed by Demirguc-Kunt and Levine (2008) that countries with a well-developed banking system tend to grow faster and that both financial intermediaries (particularly banks) and markets matter for growth. This is based on argument linking the size of banking system and the liquidity of markets to economic growth.

In Nigeria, the banking sector is not yet developed to a stage that sustains effective process of intermediation especially in the area of credit allocation (Nzotta & Okereke, 2009; Aigbovo & Uwubamwen, 2014). According to Kehinde and Adejuwon (2011), efforts are still on through reform measures to further the depth of Nigerian banking sector in particular, and the entire financial sector in general, as the sector remains the driving force for high savings and investments.

2.1.2 Measuring Banking Sector Development

Several indicators have been identified for measuring the development of banking sector. According to the World Bank (2006), financial sector development indicators for banking are classified as traditional and modern or new. The traditional indicators include deposit money bank asset to GDP ratio, Central bank assets to GDP, broad money to GDP and Deposits to GDP. All of these are measured of size of banking development. Other traditional measures are private credits to GDP, private credit to total credit as well as private credit to deposits. Among the modern or new indicators are measures like average loan and deposit size, loan and deposit accounts per capital, percentage of people with bank account, lending spread and concentration ratio.

2.2 Theoretical Framework

The relationship between banking sector development and economic growth has theoretically been established with the work of Schumpeter (1911); where the growth was linked to availability of financial services of products of intermediaries like banks. According to the literature, the growth of the real economic sector is facilitated by a well functioning financial sector. That is, economic growth depends on the level of development of the financial sector particularly the bank. This theoretical explanation on how finance affects growth is known as the supply-leading hypothesis or the finance-led growth hypothesis (Adeyeye, Fapetu, Aluko & Migiyo, 2015). This implies that it is the supply of financial services that promote economic growth of a country. However a contradictory opinion was expressed by

Robinson (1952) that the direction of the relationship is rather from growth to finance. According to the view, financial development depends on economic growth and causality flows from economic growth to finance. The second view is known as demand-following hypothesis. Resolving these conflicting views, Patrick (1966) opined that the causality between the finance and growth depends on the stage of development of a country. The stage of development hypothesis posits that finance causes growth when the economy is still developing. But as soon as the economy develops, economic growth accelerates financial development. Summarily, the stage of development theory states that supply-leading hypothesis gives way for the demand following as the country's economy develops.

Studies like Christopoulos and Tsions (2004), Chang and Caudil (2005) have confirmed the supply-leading hypothesis. Also the demand following hypothesis has been validated by many studies including that of Odhiambo (2008), Simwaka, Munthali, Chiumia and Kabango (2012). Some studies in fact found bi-directional relationship and thus confirmed the two theories (Calderon & Liu 2002). Odediran and Udejaja (2010) validated the stage of development theory; while Craigwell, Wright and Carby (2012) found no evidence to accept the hypothesis.

This study is built on the supply-leading hypothesis because Nigeria is a developing economy and development of banking sector is necessary for economic growth of the country. Following the position of the theory, Nigeria as a developing economy will be in need of a well developed banking system to enhance its economic growth.

2.3 Empirical Review of Literature

Studies have empirically analysed the relationship between financial sector development and economic growth across the globe. However many of these studies documented mixed reports due to the variations in variables used and the different methods employed in the analysis. Estrada, Park and Ramayandi (2010) studied financial development and economic growth in Asia. Data were collected from sampled countries in Asia on private credit, total liquid liabilities as well as the gross domestic product. The result confirmed that financial development has had positive and significant effect on growth, especially in developing countries. Mahmood (2013) evaluated the impact of banking development on economic growth of Pakistan between 1979 and 2008. Using Auto Regressive Distributed Lag (ARDL), the study found positive but insignificant impact of banking sector development variable on the growth of Pakistani economy. The causal relationship between financial development and economic growth was assessed by Yildirim, Ozdemir, and Dogan (2013) in ten emerging Europe countries for a period from 1990-2012. It was found in the study that the financial sector promotes economic growth especially when credit to private sector to GDP ratio is used as a measure of financial development.

In Africa, Sunde (2012) assessed the nexus between financial development and economic growth of South Africa. The Granger causality test was applied on the growth and financial sector indicators. The data used for the analysis was sourced for period between 1975 and 2010, from the World Bank financial statistics and the Reserve Bank of South

Africa. The study found that the causality is bidirectional. That is financial sector must grow for the growth of economy and that economic growth is also essential for financial sector development in South Africa. The Supply-leading hypothesis was validated in Kenya with the work of Bakang (2015) who examined financial deepening and its impact on economic growth of the Kenyan banking sector. Quarterly time series data were collected on liquid liabilities of banks, private sector credit, commercial banks assets, central bank's asset and nominal GDP. Result of the regression analysis confirmed that banking sector in Kenya accelerates the country's economic growth. For Zimbabwe, Sibindi and Bimha (2014) investigated the causal relationship between banking sector development and economic growth by testing for granger causality based on vector error correction model. Real broad money (M2) and real domestic credit to real GDP ratios were used to proxy banking sector development while growth rate of real GDP was used for economic growth. The result was in support of demand following hypotheses as it concluded that economic growth spur banking sector development in Zimbabwe.

Concerning the Nigerian banking sector, Abdulsalam and Ibrahim (2013) assessed the impact of banking sector development on economic growth in Nigeria, using annual time series data covering the period from 1970 to 2010. The data were obtained from CBN annual report. The analysis was conducted using Cointegration and Vector Error Correction Modelling (VECM). The results of the study show that liquid liability of banks to nominal GDP has a statistically significant and positive

influence on growth. But the ratio of private credit to GDP exerts a significantly negative impact on economic growth. The study concluded that high interest rate spread makes private credit inefficient and detrimental to growth. The finding implies that higher economic growth would induce financial development. Kolawole (2012) analysed time series data with the use of ADF and granger causality test to assess the relationship between open markets, financial sector development and economic growth in Nigeria. The study found that the pair-wise causation between the variables was weak and insignificant. Adegboyega and Odusanya (2014) evaluated the nexus between financial sector development and economic growth in Nigeria from 1981 to 2011 Autoregressive Distribution Lags (ARDL) cointegration techniques were used to analyse data collected on liquid liabilities, interest rate spread, stock market capitalisation and GDP. The study found long run relationship between independent variables and growth and thus concluded that financial development matters for economic growth of Nigeria. Similarly, Chinaemerem and Chigbu (2012) investigated the impact of financial development variables on economic growth in Nigeria for periods from 1960 to 2008. Error Correction Method (ECM) was employed on time series data collected for money supply and credit to private sector. Result of the study revealed that money supply and private credit are positively associated with GDP. In another research work, Ayunku and Etale (2014) examined the relationship between banking sector development and economic growth for the period 1977 to 2010. Johansen co-integration and error correction model

were used to analyse the data collected. The study revealed the existence of positive relationship between deposit liability, interest rate and real GDP, and concluded that the relationship is of both and long run. However, Ekpenyong and Acha (2011) studied Nigerian banks and their contribution to economic growth using saving and credit to real sector as proxy for banks contribution and GDP growth rate for economic growth. Results of regression analysis show an insignificant effect of banks variables on economic growth. On the opposite, Chukwu and Agu (2009) had earlier found a unidirectional causality between financial depth and economic growth, running from economic growth to financial depth.

3. Methodology

Annual time-series data covering the period from 1981 to 2015 were collected from the CBN statistical bulletin. The relationship between banking sector development and economic growth is modelled as follows:

$$Growth_t = \beta_0 + \beta_1 BAGDP_{t1} + \beta_2 CBAGDP_{t2} + \beta_3 CPSGDP_{t3} + \beta_4 DPGDP_{t4} + \beta_5 M2GDP_{t5} + \beta_6 DEPS_{t6} + \beta_7 BLS_{t7} + \beta_8 LSPR_{t8} + e_t$$

Where,

Growth = growth rate of GDP which is used to proxy economic growth;

BAGDP= deposit money banks assets as a percentage of GDP;

CBAGDP= CBN asset as a percentage of GDP

CPSGDP = credit to private sector as a percentage of GDP

DPGDP= total deposit with deposit money banks as a percentage of GDP

M2GDP= Broad money to GDP measuring financial deepening

DEPS= changes in deposit size

BLS= changes in bank total loan

LSPR= Lending spread

e= error term

β = parameter of estimation

t= time series data period 1 to n

The *a priori* expectation is that $\beta_0, \beta_1, \dots, \beta_7 > 0$ while $\beta_8 < 0$

Error correction model (ECM) was specified to correct the disequilibrium in the original model.

The ECM model is stated as follows

$$\Delta \text{Growth}_t = \beta_0 + \beta_1 \Delta \text{Growth}_{t-1} + \beta_2 \Delta \text{BAGDP}_{1t} + \beta_3 \Delta \text{BAGDP}_{1t-1} + \beta_4 \Delta \text{CBAGDP}_{2t} + \beta_5 \Delta \text{CBAGDP}_{2t-1} + \beta_6 \Delta \text{CPSGDP}_{3t} + \beta_7 \Delta \text{CPSGDP}_{3t-1} + \beta_8 \Delta \text{DPGDP}_{4t} + \beta_9 \Delta \text{DPGDP}_{4t-1} + \beta_{10} \Delta \text{M2GDP}_{5t} + \beta_{11} \Delta \text{M2GDP}_{5t-1} + \beta_{12} \Delta \text{DEPS}_{6t} + \beta_{13} \Delta \text{DEPS}_{6t-1} + \beta_{14} \Delta \text{BLS}_{7t} + \beta_{15} \Delta \text{BLS}_{7t-1} + \beta_{16} \Delta \text{LSPR}_{8t} + \beta_{17} \Delta \text{LSPR}_{8t-1} + \text{ECT}_{t-1} + U_t \dots \dots \dots 2$$

4. Results and Discussions

Table 1: Result of Unit Root Test using Augmented Dickey Fuller (ADF)

Variable	Level		First Difference		Order of Integration
	t-Stat.	p-value	t-Stat.	p-value	
GROWTH	-3.599941	0.0452	-7.681375	0.0000	I(1)
BAGDP	-1.218754	0.8894	-4.336217	0.0086	I(1)
CBAGDP	-2.894590	0.1767	-4.791806	0.0029	I(1)
CPSGDP	-0.589243	0.9733	-6.101530	0.0001	I(1)
DPGDP	-1.599396	0.7722	-4.748705	0.0030	I(1)
M2GDP	-2.100052	0.5274	-5.337204	0.0007	I(1)
DEPS	-0.678132	0.7511	-5.120910	0.0012	I(1)
LSPR	-1.772401	0.3243	-3.522102	0.0023	I(1)

Source: Author's computation (2017)

Augmented dickey fuller (ADF) test was conducted to determine the order of integration of the series. That is the ADF was used to assess the stationarity of the data as time-series data are mostly non-stationary (they have unit root). Since regressing a non-stationary series on another non-stationary series gives spurious result which cannot be relied upon, the study tested for stationarity of the data. ADF shows that the series are I(1) meaning that they become stationary after the first difference and as a result, possibility of long run relationship was examined using Johansen co-integration.

After several iterations to equation 2, a parsimonious model was reached and this is specified as follows:

$$\Delta \text{Growth}_t = \beta_0 + \beta_1 \Delta \text{BAGDP}_{1t} + \beta_2 \Delta \text{CBAGDP}_{2t} + \beta_3 \Delta \text{CBAGDP}_{2t-1} + \beta_4 \Delta \text{CPSGDP}_{3t} + \beta_5 \Delta \text{M2GDP}_{4t} + \beta_6 \Delta \text{M2GDP}_{4t-1} + \beta_7 \Delta \text{DEPS}_{5t} + \beta_8 \Delta \text{BLS}_{6t} + \beta_9 \Delta \text{LSPR}_{7t} + \beta_{10} \Delta \text{LSPR}_{7t-1} + \text{ECT}_{t-1} + U_t \dots \dots \dots 3$$

Result of all the analysis is presented in the following section.

Table 1 shows that the variables are not stationary at level which means that they have unit root. The implication is that OLS regression could not be used on the non-stationary data as the result will be spurious. However the order of integration was confirmed to be I(1) when the series became stationary after the first difference. This implies that no short run relationship could be established between banking sector development variables and economic growth in Nigeria. As a result, co-integration test was conducted to assess the possible long run relationship in the model.

Table 2: Result of Johansen co-integration test

Unrestricted Cointegration Rank Test (Trace)			
Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	p-value
None *	0.897541	263.10060	0.0000
At most 1	0.663520	19.52621	0.2021
At most 2	0.526432	17.65288	0.3127
At most 3	0.846293	34.36924	0.1902
At most 4	0.436174	22.16014	0.2217
At most 5	0.192397	9.610553	0.5215
At most 6	0.149454	0.300542	0.6525
At most 7	0.178723	5.923511	0.4201
At most 8	0.455011	0.315190	0.5012

Source: Author's computation (2017)

Table 2 shows the result of unrestricted Rank Trace test of Johansen co-integration. The first hypothesis (None) says that none of the variables are co-integrated. The decision rule is to reject the hypothesis if p-value is less than 0.05. From the table, the p-value for the first hypothesis is 0.000 which is less than 0.05. The null hypothesis is therefore rejected and it is concluded that the variables are co-integrated. All other hypotheses also testify to the co-

integrating relationship among the variables as can be viewed from the table.

Table 3: Effect of Banking sector Development of Economic Growth

Growth	Coefficient	Std. Error	t-Statistics	Prob.
C	-0.168204	0.536210	-0.313690	0.5535
DBAGDP	0.680253	0.280238	2.427412	0.0263
DCBAGDP	0.525020	0.175850	2.985613	0.0034
DCBAGDP(-1)	0.473984	0.134375	3.527323	0.0210
DCPSG	0.552480	0.725574	0.761435	0.6120
DDEPS	-0.263531	0.077906	-3.382679	0.0021
DBLS	0.066462	0.023948	2.775263	0.0139
DM2G	0.351005	0.096297	3.645025	0.0310
DLSPR	-0.142376	0.047598	-2.991218	0.0131
DLSPR(-1)	-0.211344	0.069699	-3.032239	0.0316
ECT	-0.397288	0.113343	-3.505183	0.0126
R-Squared(R ²)	0.625020			
Adjusted R ²	0.517032			
F-statistic	5.65599			
Prob(F-statistic)	0.000103			
DW stat	1.803531			

Source: Author's Computation (2017)

Result of parsimonious model was presented in Table 3. From the table, deposit money banks asset to GDP, Central bank asset to GDP, broad money (M2) to GDP and private sector credit to GDP were all found to have positive relationship with growth. For example, 1% increase in deposit money banks' assets will bring about 0.68% increase in GDP; 1% increase in Central Bank asset results in about 0.53% increase in GDP; the growth in GDP will be about 0.55% with a 1% increase in Credit to private sector. Also 1% increase in Broad money to GDP will bring about 0.35% increase in GDP. Bank loan size is positively related to GDP growth. 1% increase in the size of bank loan tends to bring about 0.06% increase in GDP. Apart from the private sector credit, all other variables are found to be statistically significant as depicted in table 3.

On the contrary, size of bank deposit was found to be negatively related with growth rate of GDP. Lending spread was also found to be negatively related to GDP growth. The error correction term (ECT) is negative and significant. This shows the validity of long run relationship between banking sector development and economic growth in Nigeria. Also, the disequilibrium in the system is being corrected at the rate of 40% annually. In other words, the speed of adjustment to equilibrium is 40%. R^2 of 0.63 indicates that about 63% of the variation in the growth of GDP is explained in the model by the independent variables. Durbin Watson statistics testifies to the absence of autocorrelation in the model. In terms of overall significance of the model, probability of F-statistic is 0.000103 (less than 0.05), which implies that the model is significant.

5. Conclusion and Recommendations

The study investigated the effect of banking sector development on the growth of Nigerian economy. Long run relationship is established between banking sector development variables and the growth rate of GDP as proxy for economic growth. The study concludes that apart from banks deposits, all the variables have positive effect on the Nigerian economy. From this conclusion, the study recommends that banks in Nigeria should improve their administration of credit to private sector to ensure that more funds are channelled to productive ventures. CBN should tailor its monetary policies towards improving the level of financial deepening, lending spread and enhancing the deposit base of the banks; as all these will promote economic growth via the banking sector.

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