Nexus Between Banking Industry Indicators and Economic Growth: Evidence from Nigeria

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Abstract

This study was carried out to investigate the nexus between banking industry indicators and economic growth in Nigeria. The investigation based on time series data from CBN statistical bulletin (1980-2019) incorporated banking indicators such as: volume of capitalization (TBC); customer deposits (VCD); credits to private sector (CPS); interest rate (INR); non-performing loans (NPL); and volume of bank frauds (VBF) as explanatory variables against GDP which proxy economic growth. The findings of the study revealed that: within the period under study: Volume of Customer Deposit (VCD) and credit to private sector (CPS) has positive and significant impact on economic growth in Nigeria while interest rate (INR); non-performing loans (NPL); and volume of bank frauds (VBF) has negative and significant impact on economic growth in Nigeria. The major recommendation is that operations of banking industry should be strengthened through appropriate policy measures towards enhancing its contribution to economic growth and development in the country. And that there should be more monitoring of banking industry indicators especially interest rate (INR); non-performing loans (NPL); and volume of bank frauds (VBF) so as to contribute positively to the growth of Nigerian economy.

Key words

Banking indicators, Economic growth, Nigeria.

Introduction

Bank industry is very strategic to the pace of industrialization in any economy and, by extension, the growth and development of economies around the world. This implies that the operations of banking institutions in relation to their core function of financial intermediation holds strategic pride of place in both developed and less developed economies. In essence, the banking institutions particularly the deposit money banks constitute a major fulcrum around which financial intermediation revolves in the economy (Paun, Musetescu, Topan & Danuletiu, 2019).

In the process of financial intermediation, banks encourage savings while at the same time encouraging investors to access such funds for investment. Some writers (Claessens & Laeven,

2003; Wachtel, 2003; Paun et al, 2019) observe that banks operate in such a way that surplus funds saved are channeled to the deficit entities in need of funds for investment. This implies that banking institutions create schemes with which to streamline and redesign funds saved by surplus entities and make such funds available for financing of investment projects in the economies. Basically, the financial intermediation and other related functions being performed by the banks invariably enhance the growth and development of all economies. Hence a seemly relationship exists between bank operations and economic growth in any modern economy (Paun et al, 2019).

Economic growth per se arises from an expanded quantum in the pecuniary worth of the total output of goods and services produced by a nation in a given time period, for instance, one year. The economic growth and by extension, economic development in any economy depends partly on financial intermediation by banks. Such nexus between bank operation and economic growth is manifested in various outcomes such as: deposits or savings mobilized by banks in the process of intermediation; credits granted to the industrial sector; interest rate charged on loans and advances to investors and industrialists; volume of capitalization of banks; magnitude of frauds incurred in the course of their operations; non-performing loans (toxic assets) resulting from adverse selection of loan beneficiaries; and branch network that generate employment opportunities in the economy (Haller, 2012; Dao, 2014).

The bank indicators as marshaled out above can be classified into two groups; healthy variables and unhealthy variables in relation to their nature of impact in the economy. The first group encompasses variables that portend positive impact on the economy such as deposits or savings mobilized by banks, credits granted to the industrial sector, volume of capitalization, and branch network that generate employment opportunities. On the other hand, the second group comprises variables that may portend negative impact on the economy such as interest rate charged on loans and advances to investors and industrialists by banks; magnitude of frauds incurred in the course of their operations; and non-performing loans (toxic assets) resulting from adverse selection of loan beneficiaries (Powell & Vo, 2020).

Fundamentally, therefore, in the process of performing the ubiquitous function of intermediation between the surplus unit and deficit unit of the economy, banks generally create functional financial indicators that affect, in one or the other, a nation's quest for growth and development. Some of these factors either propel or distract the process of industrial and economic growth of various nations around the world.

In previous studies, the variables used include mainly: bank capitalization; customer deposits; volume of credits (or loans) to industrial sector; interest rate; and branch network. Hence a gap clearly exists because fundamental indicators such as magnitude of frauds and non-performing loans (toxic assets) are excluded in such studies. This is the gap that this study was designed to address by broadening the scope of banking indicators to include capitalization, customer deposits, loans to industrial sector, interest rate, bank frauds and toxic assets for investigation.

The major objective of this study is to investigate the relationship between Banking Industry Indicators and Economic Growth in Nigeria.

Concept of Economic Growth

In broad based terms, economic growth involves the progression of the sizes of national economies relating to the gross domestic product (GDP) per capita, in a dominant direction, with overriding effects on the national wealth and production output in the society (Haller, 2012). Relatedly, economic growth is regarded as an increase in monetary value of a country's output, usually measured in terms of gross domestic product (GDP) in a given time period. This implies that economic growth arises from an expanded quantum in the pecuniary worth of the total output of goods and services produced by a nation in a given time period, for instance, one year (Dao, 2014).

Furthermore, as Haller (2012) succinctly observed, economic growth involves an increase in the national income per capita with a focus on the functional relations between the endogenous variables, which implies increase of the gross domestic product (GDP) and gross national product (GNP) besides expansion in national income (NI), and by extension, the national wealth, including production capacity (in both absolute and relative size) and per capita, as well as incorporating also some fundamental changes of the economy.

Relatedly, Odo, Eze & Ogbonna (2015) posit that economic growth implies an upsurge in capacity to produce goods and services for the needs and wants of the economy in a specified time period usually a year. More often than not, economic growth is represented by real GDP, which is given as the totality of the market value of the entire and ultimate goods and services created in the economy in a year. Furthermore, economic growth can also be considered as a percentage change in GDP in the economy.

Concept of Banking Industry Indicators

In modern economy, banking institutions operate to provide financial services and most importantly financial intermediation to lubricate the economic activities. This implies that finance as the lifeblood of the economy permeates all the economic operations in a given country. Financial indicators, according to IMF (2018), afford insight into the health of a country's financial institutions, banking indicators inclusive. Such information supports economic and financial stability analysis, and by extension, contributes towards development of macroeconomic policy in the economy (Navajas & Thegeya 2013; Powell & Vo, 2020).

Basically, in the process of financial intermediation, the banks *collect money* from members of the public as deposits provide *credits* to the investors, industries, the government and other units, charges *interest* on credits, and above all, thrives on *branch network* in order to reach out to a wide coverage. It is also understood that banks, as corporate entities, must operate with capital, which implies that they are capitalized based on statutory requirements. Hence bank indicators from this simple analysis include: volume of deposits; total credits (or loans) to the economy; interest rates on lending; branch network; volume of capital funds; value of non-performing loans (toxic assets); and value of operational frauds, among others (Powell & Vo, 2020).

The *volume of capital funds* of banks is the most important consideration due to its effect on scope of operations, extent of their branch networks, magnitude of loans that they can extend to investors and industries, operational stability, survival and expansion. Capital represents the

banks' safety net that can be employed to absorb unfavourable risk movements. Such dynamics constitute a broad stability indicator that serves as leverage towards creditworthiness coverage ratio as rationalized by prevailing external (particularly market) conditions. Basically, capital adequacy issue for banks is very germane because capital is regarded, first and foremost, as the safety of banks against risks, bank distress, and financial crisis (Powell & Vo, 2020). By and large, capital represents the safety net of banks since it contributes towards reducing banks' systemic vulnerability and their risk exposure and potentially enhances the resilience of banks (Hossain, Khan & Sadique, 2017; Andries, Melnic & Nistor, 2018)

The *customer deposits* constitute deposit liability of the banks involving the total funds deposited with the banks by the customers. The banking system entices and mobilizes savings and deposits from various economic units while allocating such funds to investors and corporate entities towards financing their projects in the economy. Therefore, the banking system, with its capacity through financial intermediation, generates tremendous or reasonable level of economic growth. The banking also supports business entities that depend on external finance while curtailing their funding constraints, which ultimately contributes to economic growth (Beck, Maimbo, Faye & Triki, 2011; Nwani & Bassey, 2016; Iheanacho, 2016).

The industrial sector of the economy relies on the banking institutions for credit facilities (*volume of credit*) for boosting their capital funds, undertaking new projects, and facilitating their working capitals. In general terms, granting of credit facilities in the economy complements mobilization of funds from various units. This implies that funds mobilized by banks from surplus units (savers) are normally transferred to the productive sector (for investments) in the economy in the process of financial intermediation. The recent growth literature provides that investments in R&D (resulting in innovation and knowledge) and in physical and human capital constitute major determinants of process of economic growth, which are made possible by external funding from financial system, mainly the banking institutions (Carby, Craigwell, Wright & Wood, 2012).

The *interest rate* in relation to the charges on credits to investors serves as compensation for the funds being given out by the banks for industrial investments. The interest rates charged by the banks on loanable funds to the investors are normally influenced by the policy rate charged by the apex bank (Okoro, Manasseh, Abada, Nzidee, Okeke & Onwumere, 2018). Basically, interest funds on loans are regarded in various terms such as: costs of using the loanable funds; price of inherent risks in loans; funds that would have accrued from using the loanable funds differently by the banks; and share in the profits of the borrowers (Shaikh, 2012).

In the scheme of financial intermediation, there are some inherent implications arising from the operations of the banking system in the economy. The first one is the issue of *bank frauds* arising from fraudulent practices by the bank employees and the second one is the issue of *non-performing loans*, which have been regarded as toxic assets because of their far-reaching negative effect on the health of the banks in particular and the economy as a whole.

The issue of *non-performing loans* arises from twin problems of information asymmetry and adverse selection. In respect of information asymmetry, the banks are not in good stead to understand the character and integrity of the customers besides their credit worthiness based on performance of the bank accounts and previous loan repayments, when considering credits for the

customers. The customers understand themselves more than the banks. Adverse selection sprigs from information asymmetry since the banks cannot ascertain the credibility of customers to whom credits are granted. And therefore, customers with questionable character and background are considered for loans leading to repayment hiccups from the customers. Furthermore, Akujuobi & Nwezeaku (2015) succinctly observe that unmitigated issue of insider abuses lends basis to the problem of frauds and fraudulent practices in the banking industry. The employees of the banks habitually perpetuate frauds and fraudulent practices leading to the loss of billions of naira in revenue on yearly basis.

Theoretical Basis

Stage of Development Theory

Patrick (1966) advanced a stage-of-development theory that involves both "*supply-leading*" and "*demand-following*" suppositions in respect of relationship between financial sector and economic growth. The "supply - leading" hypothesis postulates that the development of the financial system will lead to economic growth while the "demand – following hypothesis" posits that as real economic growth takes place in the economy, it will spark the demand for financial services.

Based on this development hypothesis, researchers assert that a feedback relationship may exist between financial development and economic growth. For "demand – following" hypothesis, which is known as "*growth – led finance*" hypothesis states that the growth of the economy generates additional and new demand for financial services, bringing about a supply response in the growth of the financial system (Patrick, 1966). This hypothesis suggests a demand – following relationship between financial system and economic development (Ugwuanyi, Odo & Ogbonna, 2015).

The theory is related to the study because financial services are undertaken in the economy by three main segments such as the: banking institutions, non-banking institutions (e.g., insurance companies, pension funds, etc.) and financial markets (capital and money markets). The banking industry, comprising banking institutions, stands as the pivot around which the operations of other segments revolve in the financial sector; its predominant position facilitates funds availability and the monetary settlements for the other subsectors.

Empirical Review

Some past related studies, which have been employed to assess relationship between bank indicators and economic growth, are reviewed herein.

Ayadi, Arbak, Ben-Naceur & De Groen (2013) based their study on relationship between financial sector development and economic growth in some northern and southern Mediterranean countries (1985-2009). Results, among others, indicated that credit to the private sector and bank deposits are negatively associated with growth in selected countries.

The study of *Rashti, Araghi & Shayeste (2014)* was on ratio of banking system credits to GDP, ratio of services provided by the banking system to the private sector to GDP and the stock exchange to GDP, ratio of investment to GDP, openness of the economy and dummy variable of 2008 financial crisis. Result indicated, among others, that banking sector credits to GDP, ratio of services provided by the banking system to private sector to GDP have negative effect on all supposed countries.

A study by Akujuobi & Nwezeaku (2015) assessed effect of bank lending activities on economic development in Nigeria (1980-2013) based on stationarity with the ordinary least square test, and cointegration procedures. Results revealed a significant relationship between bank lending activities and economic development in Nigeria; only credit to the services sector carried wrong sign and at the same time was statistically insignificant.

Iwedi, Igbanibo & Onuegbu (2015) examined impact of bank domestic credits on the economic growth of Nigeria (1980-2013) using variables like credit to private sector, credit to government sector and contingent liability as proxy for bank domestic credit while gross domestic product represents economic growth. And results indicated that credit to the private sector (CPS) and Credit to the government sector (CGS) positively and significantly correlate with GDP in the short run but poor long run relationship between bank domestic credit indicators and gross domestic product in Nigeria.

Osisanwo (2017) examined the impact of financial development on economic growth in Nigeria (1980-2014) based on indicators like financial deepening, bank deposit liability, private sector credit ratio, stock market capitalization and interest rate, while economic growth is measured by real gross domestic product. It showed that indicators of financial development except private sector credit ratio have positive impact on the economic growth in Nigeria; implying that banking sector and stock market development played critical role in the output growth of the real sector. But negative impact of private sector credit indicated that provision of credit to investors do not enhance output due to high interest on loan.

Abusharbeh (2017) assessed impact of bank credit facilities, depositors fund, branch network, and interest rate on GDP of Palestine (2000 to 2015) with result that banking credits are positively related to economic growth and banking industry development tends to improve productive capacity of Palestinian economy as case of supply leading. However, interest rate, customers' deposits and branch network have not significantly impact on economic growth. Relatedly, the study of *Paavo (2017)* assessed impact of commercial banks development on economic growth in Namibia (2005-2016) using some indicators and results indicated that there is existence of a positive short-run relationship between net interest income and funding liabilities of banks and GDP growth, among others.

Puatwoe & Piabuo (2017) investigated impact of financial development on economic growth in Cameroon using broad money, deposit/GDP and domestic credit to private sector. Based on Using the Auto Regressive Distributive Lag (ARDL) technique of estimation, result indicated existence of a short run negative relationship between bank deposits, private investment and economic growth. However, in the long run, all indicators of financial development show a positive and significant impact on economic growth.

A study of *Miba'Am (2018)* was on relationship between financial intermediation and economic growth in Nigeria post consolidation of banking sector reform in Nigeria. Result showed a bidirectional relationship between money supply and GDP while credit to private sector does not granger GDP and GDP does not granger cause credit to private sector, a unidirectional relationship however exist between credit to private sector and money supply. The Ordinary least square (OLS) method of analysis on data for thirteen years showed that the variables for financial intermediation significantly affect economic growth in Nigeria and CPS has a positive impact on economic growth.

Morina & Turan (2019) examined whether the banking sector plays a growth-supporting role in Albania (2002Q4-2016Q4) given that financial markets, instruments, and institutions are the main components of the financial system, and in Albania due to the absence of the stock market, the financial system is bank-based, and the development of the banking sector becomes quite acute because of its important role as financial intermediation on the economy. Banking sector variables include bank credit to the private sector, interest margin and ratio of quasi-money and results showed that interest rate margin is significant and positively related to economic growth and credit to private sector negatively related to economic growth. In a related study by

Akpunonu, Egungwu, Dim & Emeka-Nwokeji (2019), the extent to which bank capitalization and interest rate have affected economic growth in Nigeria (1986-2013) was evaluated. Revealed indicated that bank capitalization has significantly affected economic growth in Nigeria and interest rate has also affected economic growth significantly at long run.

Methodology

The study, covering a period of 1980 – 2019, relied on *ipso facto* method based on data sourced from the CBN Statistical Bulletin in respect of the various variables incorporated in the investigation. In respect of the variables used for study, GDP (represents *economic growth*) as the *dependent variable* and *explanatory variables* of total volume of bank capitalization (TBC), volume of customer deposits (VCD), volume of credits to the private sector (CPS), interest rate (INR), non-performing loans (NPL), and volume of bank frauds (VBF) are the *independent variables*. The regression equation (1) and equation (2).

$$GDP = f\,(a_1 TBC + a_2 VCD + a_3 CPS + a_4 INR + a_5 NPL + a_6 VBF)\ldots \text{Equation 1}$$

$$GDP = a_0 + a_1 TBC + a_2 VCD + a_3 CPS + a_4 INR + a_5 NPL + a_6 VBF + Ct \ldots \text{Equation 2}$$

Where,
a_0 = intercept
TBC = Total Volume of Bank Capitalization
VCD = Volume of Customer Deposits
CPS = Volume of Credits to the Private Sector
INR = Interest Rate
NPL = Non-Performing Loans

VBF = Volume of Bank Frauds
Ct = error term

EMPIRICAL FINDINGS AND DISCUSSION

Descriptive Statistics

Descriptive statistics are used in this study to describe the basic features of the data in the series. They provide simple summaries about the sample and measures used and form the basis of quantitative analysis of the data.

Table 1. Descriptive Statistics using Economic Growth (GDP) as the Dependent Variable

	GDP	TBC	VCD	CPS	INR	NPL	VBF
Mean	303.35	8.29	36.26	95.86	70.33	65.63	17.62
Median	92.80	0.80	3.30	0.00	10.00	12.90	17.60
Maximum	1932.30	75.00	616.00	631.30	395.00	539.20	29.80
Minimum	-202.00	-11.90	-200.20	-89.00	-18.00	-103.30	7.80
Std. Dev.	458.70	18.39	120.66	178.34	117.72	131.18	4.82
Skewness	1.73	2.73	3.23	1.65	1.66	1.81	0.18
Kurtosis	5.87	10.12	16.84	4.51	4.41	6.67	3.38
Jarque-Bera	29.43	117.36	340.36	19.24	18.90	38.78	0.39
Probability	0.00	0.00	0.00	0.00	0.00	0.00	0.82
Sum	10617.50	290.20	1269.10	3355.10	2461.50	2297.20	616.80
Sum Sq. Dev.	7154057.	11495.57	494968.3	1081364.	471178.4	585062.7	790.02
Observatios	39	39	39	39	39	39	39

Sources: Author's computation, 2020

Table 1 above presents the descriptive statistics of the study, namely, the mean, median, maximum and minimum values, standard deviation, skewness, kurtosis, Jarque-Bera (JB) as well as the associated probability values of the series.

The mean indicates the average value of the series and is derived by summing up the series and dividing the sum by the number of observations. The mean values of the dependent variable, GDP, used as proxies for economic growth performance, which is 303.36, is very high compared to the mean values of the explanatory variables. Results indicate that amongst the explanatory and control variables, CPS has the highest mean value of 95.86 followed by INR (70.33), NPL (65.63), VCD (36.26), VBF (17.62) and TBC (8.29).

The median indicates the middle value (or average of the two middle values) of the series when the values are arranged in their ascending order from the smallest to the largest values. Results show that the median values of GDP is 92.80. These values are higher than the values of

the explanatory variables. Amongst these variables, VBF has the highest median value of 17.60 followed by NPL (12.90), INR (10.00), VCD (3.30), TBC (0.80), and CPS (0.00).

Table 1 also shows the maximum and minimum values of the series in the sample. The standard deviation measures the dispersion or spread in the series. The GDP has a standard deviation of 458.71. The skewness measures the asymmetry of the distribution of the series around its mean. A normal symmetric distribution has a skewness equal to zero. A positive skewness indicates a distribution with a long right tail while a negative skewness indicates a distribution with a long left tail. Both the dependent and explanatory variables of the study are positively skewed indicating distributions with long right tails.

Kurtosis measures how peaked or flat the distribution of the series is. A normal distribution has a kurtosis equal to 3. A distribution is peaked relative to the normal if the Kurtosis is above 3 while it is flat relative to the normal if the Kurtosis is below 3. Lastly, the Jarque-Bera (JB) measures the normality of the distribution of the series. It tests for the normality of the error terms and gives the probability of obtaining the stated statistic. Gujarati (2013) indicates that "the higher the probability of obtaining the observed JB statistic, the greater is the evidence in favour of the null hypothesis that the error terms are normally distributed". Results show that apart from VBF with JB statistic value of 0.39 and high p-value of 0.82 (which is 82.3%), the remaining variables presented JB statistics with low p-values indicating that the error terms may not be normally distributed in the series. However, since the JB test is best suited for samples that are larger than the samples of this study, it may not be quite appropriate to conclude that these series are not normally distributed.

Co-integration Test

For any meaningful long-run relationship to exist between non-stationary series, it is important that some linear combination of the series must be co-integrated. The most popular and widely used methods in recent past were Johansen (1988) and Engle and Granger (1987) co-integration test. However, as noted by Aziakpono and Babatope (2003), a crucial condition for the application of these methods is that the variables must be of the same order of integration. They further argued that the Engle-Granger co-integrating test is inappropriate for testing the co-integration among variable of this nature; because the Engle-Granger approach is based on the assumption that there exist only one co-integrating vector that connect the variables. Since our models are multivariate, there is possibility of having more than one co-integration vector. Thus, in such case where there is more than one co-integrating vector and the variables are not of the same order, the Engle-Granger methodology and Johansen co-integration test are no longer efficient and produce inconsistent estimates.

The table 2 below shows the Johansen co integration test results for Equation 3.

$$GDP = a_0 + a_1TBC + a_2VCD + a_3CPS + a_4INR + a_5NPL + a_6VBF + \mu_t \ldots \text{ Equation 3}$$

Table 2: Co-integration Test
Sample (adjusted): 1980 2019

Included observations: 39 after adjustments
Trend assumption: Linear deterministic trend
Series: GDP VCD CPS INR NPL VBF
Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.82	219.89	159.53	0.00
At most 1 *	0.77	157.91	125.62	0.00
At most 2 *	0.65	105.71	95.75	0.00
At most 3	0.53	67.75	69.82	0.07
At most 4	0.39	40.21	47.86	0.21
At most 5	0.31	22.12	29.80	0.29

Trace test indicates 3 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values
Source: Author's computation 2020.

Table 2 shows the result of the co-integration test which tests the long run equilibrium relationship between the variables in the model. From table 2, we observe the presence of three (3) co-integrating equations from the trace statistics while we observe the presence of two co-integrating equations from the Maximum-Eigen statistics. This leads us to the rejection of the null hypothesis at 5% level of significance. We therefore conclude the presence of a long run relationship between GDP, VCD, CPS, INR, NPL and VBF. The variables can therefore be said to have reliable long-run relationship among them with dependent variable coefficient of normalized cointegration of 1.00. This therefore, makes the variables suitable for the OLS regression analysis as a result of stationary and co-integration test.

Ordinary Least Square Result

Ordinary Least Squares regression (OLS) is more commonly named linear regression (simple or multiple depending on the number of explanatory variables). Table 3 below presents the OLS result.

Table 3: OLS Regression Result for the first model
Dependent Variable: GDP
Method: Least Squares
Sample: 1980 2019
Included observations: 39

Variable	Coefficient	Std. Error	t-Statistic	Prob.
VCD	0.40	1.81	-2.87	0.02
CPS	0.78	0.00	4.03	0.00
INR	-0.50	0.00	2.06	0.00
NPL	-0.38	0.09	-4.19	0.00
VBF	-0.01	0.01	-2.81	0.00
C	0.43	2.87	8.45	0.00
R-squared	0.60	Mean dependent var		23.38
Adjusted R-squared	0.51	S.D. dependent var		5.07
S.E. of regression	3.55	Akaike info criterion		5.56
Sum squared resid	378.39	Schwarz criterion		5.90
Log likelihood	-97.59	Hannan-Quinn criter.		5.68
F-statistic	6.48	Durbin-Watson stat		2.81
Prob(F-statistic)	0.00			

The constant value has the expected positive sign with the coefficient of 0.43, this implies that banking industry indicators added 43.08 percent per year in controlling economic growth in Nigeria for equilibrium to be restored in the long run. This result is supported by the constant p value of 0.0000 indicating that it is statistically significant.

The R- square is 0.60 showing that 60.18 percent variation in the dependent variable was explained by the independent variables while the remaining 39.82 percent is explained by other variables not captured by the model which is represented by error term (et).

The F – statistics of 6.48 with p value of 0.00 which is less than 0.05 shows that the influence of explanatory variables on the dependent variables is statistically significant. This entails that all the independent variables jointly impact on economic growth in Nigeria as explained by 0.60 coefficient of multiple determination. The DW has the value of 2.82 which is above 2. This indicates the absence of auto correlation among the residuals.

From the table 3 above, the t-statistics for Volume of Customer Deposit (VCD) is -2.87 while its P-value is [0.02] and the beta coefficient is 0.40. Since the level of significance [0.05] is greater than the P-value [0.00], the alternative hypothesis is accepted and it is concluded that volume of customers deposit relates positively and significantly on the level of economic growth in Nigeria. This means that high volume of customer deposit is meant to increase the level of economic growth in Nigeria.

From the result presented in table 3 above, there is presence of positive and significant impact of credits to private sector (CPS) as a banking industry indicator on economic growth in Nigeria. Based on the size and sign of the coefficient and p-value which is 0.78 and 0.00 respectively. This means that banking industry indicator as proxied by credit to private sector increases the level of economic growth in Nigeria.

In another view, interest rate (INR); non-performing loans (NPL); and volume of bank frauds (VBF) as indicators of banking industry, their parameter estimate shows that interest rate

(INR); non-performing loans (NPL); and volume of bank frauds (VBF) relate negatively but significant with economic growth in Nigeria. This means that high interest rate (INR); non-performing loans (NPL); and volume of bank frauds (VBF) reduces the level of economic growth in Nigeria and as well has a dampening multiplier effects on growth.

Conclusion and Recommendations

This study investigated the nexus between banking industry indicators and economic growth in Nigeria. The study contributes to the literature in respect of the relationship between banking industry indicators and economic growth in Nigeria by using the time series data on the vibrant or functioning types of banking industry indicators to examine their relationship with economic growth in Nigeria.

This study used Volume of Customer Deposit (VCD), credit to private sector (CPS), interest rate (INR); non-performing loans (NPL); and volume of bank frauds (VBF) as banking industry indicators while economic growth was proxied by gross domestic product (GDP). From the research findings, the study revealed, with empirical evidence, that within the period under study: Volume of Customer Deposit (VCD) and credit to private sector (CPS) has positive and significant impact on economic growth in Nigeria while interest rate (INR); non-performing loans (NPL); and volume of bank frauds (VBF) has negative and significant impact on economic growth in Nigeria.

From the analysis done in this study, it can be concluded that banking industry indicators in Nigeria has long-run relationship with economic growth e using the result of co-integration test. This study has focused on highlighting the exogenous factors which if controlled, are most likely to have the largest effects in increasing economic growth in Nigeria by reducing or controlling the level of interest rate, non-performing loan and volume of bank fraud. The study recommends among other things that there should be more monitoring of banking industry indicators especially interest rate (INR); non-performing loans (NPL); and volume of bank frauds (VBF) so as to contribute positively to the growth of Nigerian economy

References

Abusharbeh, M. T. (2017). The impact of banking sector development on economic growth: Empirical analysis from Palestinian economy. *Journal of Emerging Issues in Economics, Finance and Banking*, 6(2): 2306-2316.

Akujuobi, A.B.C. & Nwezeaku, N.C. (2015). Bank lending activities and economic development in Nigeria; An empirical investigation**. *International Proceedings of Economics Development and Research,* 85 (2015): 57-64.

Akpunonu, U., Egungwu, I., Dim, E. O. & Emeka-Nwokeji, N. (2019). Effect of financial sector reforms on economic growth in Nigeria (March 11, 2019). Retrieved from https://ssrn.com/abstract=3402435.

Ayadi, R., Arbak, E., Ben-Naceur, S. & De Groen, W. P. (2013). Financial development, bank efficiency and economic growth across the Mediterranean, *MEDPRO Technical Report No. 30/March 2013*, 1-17.

Beck, T., Maimbo, S. M., Faye, I., & Triki, T. (2011). Financing Africa: Through the crisis and beyond; The World Bank: Washington, DC, USA, 2011.

Bist, J. P. (2018). Financial development and economic growth: Evidence from a panel of 16 African and non-African low-income countries. *Cogent Economics & Finance, 2332-2039, Taylor & Francis, Abingdon*, 6(1): 1-17.

Carby, Y., Craigwell, R., Wright, A. & Wood, A. (2012). Finance and growth causality: a test of the Patrick's stage-of-development hypothesis. *International Journal of Business and Social Science,* 3(21): 129-139.

Claessens, S. & Laeven, L. (2003). Financial Development, Property Rights and Growth. *Journal of Finance*, 58: 2401–2436.

Dao, M. Q. (2014). Drivers of economic growth in developing countries. *Journal for Studies in Economics and Econometrics*, 38(1):75-85.

Iheanacho, E. (2016). The impact of financial development on economic growth in Nigeria: An ARDL analysis. *Economies 2016*, 4(26): 1-12.

International Monetary Fund (2018). Financial soundness indicators and the IMF. Washington: International Monetary Fund.

Haller, A. (2012). Concepts of economic growth and development: Challenges of crisis and of knowledge. *Economy Transdisciplinarity Cognition,* 15(1): 66-71.

Iwedi, M., Igbanibo, D. S. & Onuegbu, O. (2015). Bank domestic credits and economic growth nexus in Nigeria (1980-2013). International Journal of Finance and Accounting 2015, 4(5): 236-244.

Miba'am, B. (2018). Financial intermediation in post bank consolidation era and economic growth in Nigeria. Conference Proceeding, *43rd International Academic Conference, Lisbon, 25 September 2018*, 138-151.

Morina, F. & Turan, G. (2019). Does banking sector development promote economic growth? An empirical analysis for a small transition economy of Albania. *International Journal of Applied Statistics and Econometrics,* 2, 27-36.

Navajas, M. C. & Thegeya, A. (2013). Financial soundness indicators and banking crises. *IMF Working Paper* No. 13/263. Washington, DC, USA: International Monetary Fund.

Nwani, C. & Bassey, O, J. (2016). Economic growth in oil-exporting countries: Do stock market and banking sector development matter? Evidence from Nigeria'. *Cogent Economic Finance*, 2016(4): 1153872.

Odo, S. I., Eze, O. R. & Ogbonna, S. O. (2015). Implications financial development on economic growth in Nigeria: Vector error correction model. *International Research Journal of Finance and Economics*, 140 (2015): 94-111.

Okoro, O. E. U., Manasseh, C. O., Abada, F. C., Nzidee, W. A., Okeke, A. C. & Onwumere, J. U. J. (2018). Financial Intermediation and Monetary Policy Effectiveness in Nigeria. *International Review of Management and Marketing*, 8(6), 53-61.

Oluwole, F. O. (2014). Financial development and economic growth nexus in Nigeria. *Global Journal of Commercial and Management Perspective*, 3(5): 231-241.

Osisanwo, B. G. (2017). Financial development and economic growth nexus in Nigeria: Further financial development and economic growth nexus in Nigeria: Further Evidence from Long-run Estimates. Acta Universitatis Danubius Œconomica), 13(3): 5-17.

Paavo, E. (2017). The impact of commercial banks development on economic growth in Namibia. Graduate. Thesis submitted to Development Finance Centre, Graduate School of Business, University of Cape Town, South Africa.

Patrick, H. T. (1966). Financial development and economic growth in underdeveloped countries. *Economic Development and Cultural Change*, 14, 174 – 189.

Paun, C. V., Musetescu, R. C., Topan, V. M. & Danuletiu, D. C. (2019). The impact of financial sector development and sophistication on sustainable economic growth. *Sustainability*, 2019, 11, 1713: 1-21.

Powell, R. J. & Vo, D. H. (2020). A comprehensive stability indicator for banks. *Risks 2020*, 8(13): 1-15.

Puatwoe, J. T. & Piabuo, S. M. (2017). Financial sector development and economic growth: evidence from Cameroon. *Financial Innovation* (2017), 3(25):1-18

Rashti, N. A., Araghi, E. S. & Shayeste, M. (2014). Relationship between financial development and economic growth: Evidence from financial crisis. *Asian Economic and Financial Review*, 2014, 4(7): 930-940.

Shaikh, S. A. (2012). Interest based financial intermediation: Analysis and solutions. Munich Personal RePEc Archive (MPRA) Paper No. 42500. Retrieved from https://mpra.ub.uni-muenchen.de/42500

Ugwuanyi, C. U., Odo, S. I. & Ogbonna, B. C. (2015). Impact of financial development indicators on economic growth in Nigeria: 1980 – 2013. *Journal of Economics and Sustainable Development*, 6(24): 79-83.

Wachtel, P. (2003). How much do we really know about finance and growth, economy, and revenue? *Federal Reserve Board, Atlanta*, 88: 33–47.