Economic Growth, Banking Sector Liabilities and Private Saving in Nigeria: Do Bank Deposits Matter?

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Abstract

This paper examines variables that influence bank deposits and how bank liabilities (mainly bank deposit), growth in commercial banks branches and developments in microfinance banking affect economic growth. It is a study in the viability and dynamism of the Nigerian banking industry. Its main objectives are to find out factors that shape commercial bank deposit growth in Nigeria during the period 1989 to 2019 *and from there to be able to find out how banking sector liabilities affect economic growth. The main econometric methodologies used for conducting the study are Autoregressive Distributed Lag (ARDL) Error correction method and Granger causality tests. A positive relationship between physical capital and bank deposits was found; this shows that boost in physical capital increases people ability to save and banks ability to attract deposits. The findings also show that consumption, dependency ratio and interest rate move in the same direction as bank deposits; likewise, an increase in bank assets boosts GDP. The paper recommends that an enabling environment for sustainable growth of banking deposit shall be provided. Other measures to be taken in line with this study include, increase in the level of awareness about the benefits of keeping money with banks, growth of microfinance banking and making bank account mandatory for certain functions.*

Keyword: Bank deposit, Saving, Bank liabilities, Banking, Economic growth, ARDL
JEL Classification: E21, G21, G51,

1. Introduction

The recent global COVID-19 pandemic and before it the global financial crisis of 2009 have made scholars, policy makers and regulatory agencies to rethink the role of banks in economic growth of nations in modern world. All banks irrespective of sector or niche suffered during these two crises due to panic from lack of information and loss of confidence. Many questions have come to prominence: were banks able to provide liquidity? What was the position of bank liabilities, especially deposits? According to Davig and Hakkio (2010), when financial stress is low, financial markets operates smoothly. It is observed that soon after depression or serious recession, banks sometimes found themselves insolvent, as the value of their assets fall below the value of their liabilities (Mora, 2010; Davig and Hakkio, 2010; Hasan, and Dridi, 2010) . According to Mankiw (2007), problems in the banking system have often coincided with downturns in economic activities. During the equity markets collapse of 2009 and recently during COVID-19 pandemic, some business thought it good to look back at banks for capital to develop their businesses. In theory, banks are well suited to provide liquidity during typical financial crises; to

provide liquidity during crisis, banks supply credit, especially short term credit (Mora, 2010). On the other hand, during financial crisis depositors feel secured to put their money in banks because of the security of deposit insurance provided by government (Mora, 2010).

The main link between bank deposit and economic growth is its links with saving (Johnson, 2011; Nwachukwu, and Odigie, 2011). Bank deposit channels serve as important tool for ensuring the growth of saving in an economy. The work of Gurley and Shaw (1956) on the impact of financial intermediaries on economic development shows the role of banks as catalyst for economic growth and development. Another important work in this regard is that of McKinnon (1973) who also logically argued on the role of financial development on economic growth. Schumpeter (1952) particularly observed that financial markets play an important role in the growth and development of the real economy through its channeling of funds from savers to borrowers in an efficient way in order to facilitate investment and spur innovation. One of the secrets of success of East Asian economies is that during their periods of rapid economic growth overall saving exceeded investment (World Bank, 1993).

According to the World Bank (1993) study, higher economic growth was responsible for higher saving rate in the East Asian economies. In recent years, across Africa, nations have witnessed decline in their domestic saving forcing them to borrow money from the outside to be able to make the most needed investments (Olagbaju and Akinlo, 2018; Shawa, 2016). This further shows the importance of encouraging private saving and with it the needed increases in banking facilities. Khan (2011) noted that empirical evidence shows distinct rise in income level in countries with high number of commercial bank branches and higher number of bank branches (NBB) per 100,000 adults and higher number of deposit accounts per 1000 adults was observed in high income countries, than countries in the low and middle income categories.

According to Oboh (2005), there was massive collapse of banks in Nigeria in 1959 to the extent that about 73% of them failed. Nigerian economy had witnessed tremendous growth in the 1970s and early 1980s as a result of the oil boom; but, with the collapse of the oil market in the 1980s, investments fell, resulting in a fall in economic growth (Nwachukwu and Odigie, 2011). In order to arrest the decline in economic growth, Nigerian military government adopted the structural adjustment programme (SAP) in 1986, hoping to provide a stable macroeconomic environment for sustainable economic growth. As a result, interest rates which had been fixed at an officially determined rate and being negative in real terms were liberalized with the introduction of an interest rate regime that was driven by market forces. This policy shift was thought to have stimulated savings mobilization by decontrolling interest rates.

But, the Nigerian banking industry has gone through a number of upheavals, from the period of SAP to date. SAP was responsible for the liberalization of the banking industry and the creation of too many weak banks that later saddled the monetary authorities with the responsibility of managing them and taking care of their depositors (Abubakar and Gani, 2013; Nwachukwu and Odigie, 2011; Tela, 2007). In 2003, CBN came up with banking sector consolidation agenda that required banks to scale up their capital base. Banks that could not meet up the minimum capital base requirement were forced to merge with others or got liquidated (Tela, 2007). The effects of the consolidation in boosting the banking industry, increasing the aggregate deposit and credit to the economy and reduction of risk is still debatable.

Modern Nigerian banking industry is still evolving, as it aims to achieve greater stability, increase in deposits and large increase in loans to the private sector. But, the ups and downs in the economy and the double recession experienced lately have made the task of boosting aggregate deposit very difficult to achieve. As a result of these, competition among banks has intensified. The federal government Treasury Single Account (TSA) policy has made banks overall deposit to shrink at the initial stage of the policy, all due to the movement of public sector funds to the government accounts with the Central Bank of Nigeria; it also makes banks more competitive (Onodi, Eyisi and Akujor, 2020; Eme, Chukwurah and Iheanacho, 2015). This has been described as the single reason for the shrinking of banks deposits and making of banks to scatter around looking for individuals and corporate deposits (Onodi, Eyisi and Akujor, 2020; Eme, Chukwurah and Iheanacho, 2015). Other government policies such as cashless policy and the introduction of E-Naira have various degrees of effects on the growth of deposits in the sector.

Thus, analyzing the factors that explain economic growth, saving and banking development in Nigeria in the past three decades, helps among other things to determine what needs to be done to increase savings and financial penetration as well as the role of bank deposits in boosting economic growth. This is important for Nigeria's sustainable economic growth and development. Hence, the paper's main objectives are to find out factors that shape bank deposit growth in Nigeria and from there to be able to find out how banking sector deposits affect economic growth. Thus, the paper finds out the variables that influence bank deposits and how bank liabilities affect economic growth and vice versa. This study is different from previous studies that focused on aggregate savings such as that of Chinyere, (2015), Onwumere, Okore, and Ibe, (2012), Anthony (2012) and Johnson, (2011); the primary concern of this work is bank deposit, itself a subset of gross domestic saving.

The motivation behind the work lies in finding out how effective bank deposit is in influencing economic growth in Nigeria. Nigerian banks have been faced with the difficult challenge of boosting their deposit base in a poor developing economy. Hence, the study looks at the time series trajectory of bank deposit in Nigeria in the past three decades with the aim of learning from its previous patterns. The study gives a glimpse of the importance of bank deposits, aggregate saving in the economy, bank liabilities, aggregate bank branches and microfinance banks to economic growth. The econometric methodologies used for the study are Autoregressive Distributed Lag (ARDL) cointegration method and Granger causality analysis. The paper is divided into introduction, literature review, theoretical framework, data and methodology, results and analysis, and conclusion.

2. Empirical literature

An empirical work by Hassan, *et al.* (2020) examined the relationship between growth finance and liquid liabilities in Nigeria. The study used data for the period 1980–2018. It finds that gross domestic savings significantly drive liquid liabilities in the long run compared to other growth finance indicators, such as stock market development and remittance inflows. A different study by Ogege and Shiro (2013) examines the role of deposit money banks in the growth of Nigerian economy. The study was based on time series data covering 1974 to 2010. Co-integration and error correction model and structural analysis were used for the study. The study discovered that there exist a long-run relationship between the dependent and the independent variables.

Similarly, Oyebowale (2020) examined the determinants of bank lending in Nigeria during the period 1961 to 2016; he found that commercial banks exhibit serious concern for their liquidity and capital adequacy positions. The paper uses ARDL and Granger causality test for the analysis.

In another study on the role of financial development on economic growth, Abubakar and Gani (2013) examined the long run relationship between financial development indicators and economic growth in Nigeria in the period 1970-2010. They used Johansen and Juselius (1990) approach to cointegration and Vector Error Correction Modelling (VECM) for data analysis. The findings revealed that in the long-run, liquid liabilities of banks exert significant positive influence on economic growth; while, interest rate spread exert significant negative influence. Chinyere (2015) examine the impact of interest rate on savings in the Nigerian economy. The study used VAR test to run the data analysis. The result showed that 1% increase in a period lag of interest rate on deposit, on the average will cause 0.1% increase in savings. In addition, 1% increase in a year period lag of the income will cause 0.04% increase in savings. It indicated that as income increase, the desire to save also increase. The result shows that interest rate did not significantly impact savings in Nigeria. Onwumere, Okore and Ibe (2012) look at the impact of interest rate liberalization on savings and investment in Nigeria during the period 1976 to 1999. The study used linear regression technique. The findings show that interest rate liberalization had insignificant impact on savings.

Ojeaga, Ojeaga and Deborah (2013) investigates the effect of interest rates on customer savings behavior in Nigerian banking sector. The study used quantile regression estimation method for the analysis. The finding shows that interest rates and income positively affect bank deposits. Nwachukwu and Odigie (2011) discusses trend in Nigerian saving behaviour. They examined the determinants of private saving in Nigeria in the period 1970-2007. The framework of analysis involves the estimation of a saving rate function derived from the life cycle hypothesis. The study used Error-Correction Modelling procedure for the econometric analysis. The findings show that the saving rate increased with both the growth rate of disposable income and the real interest rate on bank deposits. Anthony (2012) investigated the determinants of bank savings in Nigeria and the impact of bank savings on economic growth from 1970-2006. The study used Distributed Lag-Error Correction Model (DL-ECM) and Distributed Model. The results showed positive influence of GDP per capita, Financial Deepening, Interest Rate Spread and negative influence of Real Interest Rate and Inflation Rate on the size of private savings. There is also a positive relationship between the lagged values of total private savings, interest rate spread and economic growth.

Babajide, Adegboye and Omankhanlen (2015) investigates the impact of financial inclusion (FI) on economic growth in Nigeria. Ordinary least square regression model was used in analyzing data. The result shows that FI is significant in impacting economic growth in Nigeria. Shuaibu, *et al.* (2021) investigate the factors that influence economic growth in Nigeria. They used data from 1989 to 2019 and ARDL and GMM models for the analysis. They found that saving is among the factors that explain economic growth in Nigeria. Omankhanlen (2012) investigate the role of banks in capital formation and economic growth in Nigeria for the period 1980-2009. This study employed ordinary least square analysis in carrying out the research. The results show that

Commercial Bank Deposit Liabilities is elastic to Gross Fixed Capital Formation in Nigeria. Thus, the positive coefficient of Banks Deposit Liabilities confirmed the positive impact of Banks Deposit Liabilities on Gross Fixed Capital Formation.

Ribaj and Mexhuani (2021) examined correlation between savings and economic growth in Kosovo using cointegration and causality tests. The results show that deposits have significant impact on economic growth. Levine and Zervos (1998) studied how stock markets and banks promote long-run economic growth. The study shows that stock market liquidity and banking development both positively predict growth, capital accumulation, and productivity improvements when entered together in regressions. Umejiaku and Obumneke (2017) investigated effectiveness of financial sector reforms on the growth of Nigerian economy. The study used error correction approach, using data from 1986 to 2015. The long-run pre-estimation tests revealed that there is long-run relationship between financial sector reform and the economic growth. Ogbonna, Mobosi and Ugwuoke (2020) examined the effect of financial system development on Nigerian economy. The study used Zivot-Andrews unit root test and Autoregressive Distributed Lag (ARDL) model for the period 1981 to 2015. The result reveals the existence of mediating factors that alter the impact of finance on growth. Specifically, the findings indicate that the influence of financial system development on the growth of non-oil sector is positive and significant.

Conclusively, this section reviews the major empirical works related to the topic of this paper. This is to be able to find out the major developments in the field and research gaps that need to be independently investigated. Some of the gaps discovered in the reviewed literature include in the use of econometric method of analysis, in the lack of primary focus of these reviewed works on bank deposit, in the selection of both dependent and independent variables, in the time frame of the studies and motivations behind the works. Thus, the present study is an improvement from where some of these earlier studies stopped. It asks questions that were not previously covered by prior studies.

3. Theoretical Framework

A deposit is a debt which the bank owes to depositors. According to Lindholm and Driscoll (1967), a deposit is nothing but the right to draw cheque on a bank. A deposit in a bank is a form of money since it can be used (by means of cheque) to make payment and conduct transactions. Some portions of bank deposits are created by banks themselves when they lend to other people or business or government. Bank deposits are the most prominent type of bank liabilities. The main types of accounts in commercial banks are savings, current and fixed deposit accounts. A bank deposit can be created either through deposit made by bank clients or by the bank itself when it decides to make credit to its clients. Interest rate on deposit has been an important factor that influence deposit growth. But, other factors that influence deposit include income, inflation, financial development, Consumption, inequality and debt.

An important link between saving and economic growth is through its primary function as source of investment capital. According to studies, saving could be promoted through ensuring security of the banking system and improving money excess to be created by small savers in a nation

(World Bank, 1993). According to Nwachukwu and Odigie (2011), the intertemporal choices underlining savings depend on an army of market failures, externalities and policy-induced distortions that drive saving away from socially desirable levels. Works such as the World Bank (1993) report on East Asian miracle show that government saving did not fully crowd out private savings. Higher inflation is observed to affect saving negatively (Samantaraya and Patra, 2014). Saving which is a form of asset holding is arrived simply by:

$$S_t = Y_t - C_t \qquad (1)$$

An important theory that explains saving behaviour is the life-cycle hypothesis (LCH). LCH was first formulated by Modigliani (1970). The life-cycle hypothesis assumes that an individual seeks to maximize his present value of lifetime utility subject to the budget constraint. The life-cycle hypothesis predicts that higher rate of growth of income per capita leads to a higher aggregate saving rate. On interest-saving relationship, life-cycle model shows that higher interest rate lead to increase in current price of consumption when compared with future price; this is understood to lead to higher saving. But, on the other hand, when an individual is a net lender, higher interest rate increase lifetime income; this increase consumption and hence reduce saving. Saving has positive relationship with interest rate when the socalled substitution effect surpasses the income effect. But, the effect of inflation on saving under the life-cycle hypothesis is through the real interest rate. In the standard LCH, the only effect of inflation on saving is by means of its role in determining real returns to saving (i.e. the real interest rate).

The econometric model later used for the empirical analysis is derived from the LCH, but it is augmented by other relevant variables. Following Modigliani (1986), an individual begin with negative savings at young age, accumulate savings during working age and dissave during retirement. The saving function in equation 2 derived from the life-cycle model is adopted from Modigliani and Brumberg (2005):

$$S = Y - C = \frac{L-t}{L_t} y - \frac{(N-t)}{L_t} y^e - \frac{1}{L_t} a \qquad (2)$$

Where,
S – Individual saving
Y- Current income of the individual
C- Individual current consumption
L - lifespan of economic significance,
t - age of the individual,
L_t - remaining lifespan at age t,
N - individual earning span,
y^e - expected income of the individual,
a - initial assets

$$S_t = \left(Y_t - \frac{1}{T}\sum_{i=1}^{T} Y_i\right) - \frac{1}{T} A_t \qquad (3)$$

Equation 3 shows that savings is high when current income is high. The equation shows that saving is a function of current income relative to its average, wealth level and interest rate.

$$S_t = \left\{(Y_t/1+r) - \frac{1}{T}\sum_{i=1}^{T}(Y_t/1+r)\right\} - \frac{1}{T}A_t \qquad (4)$$

It is understood that life cycle hypothesis predicts that an increase in the rate of growth of income leads to an increase in saving rate.

4. Data and methodology

4.1 Sources of Data for the study

Data for the study was sourced from Central Bank of Nigeria and National Bureau of Statistics for the period 1989 to 2019. The period of the study was chosen because it is more recent; it is post SAP period (when Nigerian banking industry went through serious changes caused by adaptation of SAP) and encompasses the period when more recent changes took place in the industry. The major variables involve in the study include inflation; inflation affect savings through its impact on real wealth. Higher inflation depresses the value of real wealth, from there through wealth effect it affects consumption negatively; this consequently enhances savings. Fiscal policy through government debt is expected to influence saving behavior. According to Barro (1974), higher government expenditure financed by debt may cause higher saving due to anticipation of future tax increases. Debt is proxied by domestic debt. Demographic factors represented by dependency ratio are variable of significance in the study. Unemployment level is another variable that give support to the effects of demographic and income factors on saving.

Despite the significance of economic growth in ensuring increase in employment, recent study on data from Nigeria shows the presence of jobless growth (Mukhtar, *et al.* 2021). Inequality variable is proxied by Gini coefficient. Interest rate effects on saving are well known in the literature. Interest rate variable is proxied by banks' deposit rate. Exchange rate through its effects on income, term of trade and domestic expenditure is expected to affect saving. Some scholars have argued that higher consumption decrease saving, hence we measure the effects of household consumption on saving through the deposit growth. Effects of rural development and small scale businesses on saving and deposit growth are measured through the presence of microfinance banks. Per capita income variable also measures income. Aggregate equity level through stock market capitalization also affect saving. Financial development as a general variable indicating development in the banking industry is another variable of importance in the study. Level of physical infrastructural development is also expected to affect saving and bank deposit growth. Economic growth is represented by gross domestic product (GDP). Other variables in the study include saving (proxy by gross domestic saving), total bank assets, total bank liabilities and number of banks' branches.

4.2 Method of Data Analysis

The econometric methods of analysis employed for the work are ARDL cointegration and Granger causality. The Granger causality test is an econometric test for determining whether one variable is useful in forecasting another variable. The test was first proposed by Granger

(1969). Clive Granger has argued that economic causality could be tested by measuring the ability to predict the future values of a variable using prior values of another variable. A variable *X* is said to Granger-cause *Y* if it can be shown that those *X* values provide statistically significant results about future values of *Y*. A simple model of Granger causality is as follows:

$$\Delta Y_t = \sum_{i=1}^{n} \alpha_i \Delta Y_{t-i} + \sum_{j=i}^{n} \beta_j \Delta X_{t-j} + u_{1t} \qquad (5)$$

$$\Delta X_t = \sum_{i=1}^{n} \gamma_i \Delta X_{t-i} + \sum_{j=i}^{n} \delta_j \Delta Y_{t-j} + u_{2t} \qquad (6)$$

Eq. (5) shows current value of ΔY is related to past values of itself as well as past values of ΔY. Eq. (6) postulates that ΔX is related to past values of itself and ΔY.

ARDL model for time series data is defined as anticipating present and past period impacts of independent variable on dependent variables. The model includes lagged value of independent variable. ARDL model is suitable for the empirical analysis for the following reasons; one, the sets of variables used in the analyses are likely to be a mixture of (0) and (1). Two, the approach is suitable for the finite sample data period (Pesaran, Shin and Smith, 2001). Three, given the nature of interrelation between the variables, ARDL model is suitable for addressing likely endogeneity problem. Generally, the ARDL *(p,q1,q2.....qk)* model is of the form:

$$\emptyset(L)y_t = \varphi + \theta_1(L)x_{1t} + \theta_2(L)x_{2t} + \theta_k(L)x_{kt} + \mu_t \qquad (5)$$

Applying the lag operator L to each component of a vector, $L^k y = y_{t-k}$, hence it is better to describe the lag polynomial *Φ(L,p)* and the vector polynomial *β(L,q).* An EC_t is the error correction term of the form:

$$EC_t = \varepsilon_t = y_t - \sum_{i-1}^{k} \theta_t \, x_{it} - \omega' W_t \qquad (6)$$

In practice, the general ARDL format is:

$$\Delta X_t = \delta_{0i} + \sum_{i=1}^{k} \alpha_i \, \Delta X_{t-1} + \sum_{i=1}^{k} \alpha_2 \, \Delta Y_{t-i} + \cdots \sum_{i=1}^{k} \alpha_2 \, \Delta Z_{t-1} + \delta_1 X_{t-1} + \delta_2 Y_{t-1} + \cdots \delta_i Z_{t-1} + v_{1t}$$

$$\Delta Y_t = \delta_{0i} + \sum_{i=1}^{k} \alpha_i \, \Delta Y_{t-1} + \sum_{i=1}^{k} \alpha_2 \, \Delta X_{t-i} + \cdots \sum_{i=1}^{k} \alpha_2 \, \Delta Z_{t-1} + \delta_1 Y_{t-1} + \delta_2 X_{t-1} + \cdots \delta_i Z_{t-1} + v_{1t}$$

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$$\Delta Z_t = \delta_{0i} + \sum_{i=1}^{k} \alpha_i \, \Delta Z_{t-1} + \sum_{i=1}^{k} \alpha_2 \, \Delta X_{t-i} + \cdots \sum_{i=1}^{k} \alpha_2 \, \Delta W_{t-1} + \delta_1 Z_{t-1} + \delta_2 X_{t-1} + \cdots \delta_i W_{t-1} + v_{1t}$$

k is the ARDL maximum lag order. The joint hypotheses to be tested for the ARDL bound testing are as follows:

$$H_0: \delta_2 = \delta_3 = \delta_4 = \delta_i = 0$$

$$H_1: \delta_2 \neq 0, i = 4, 5, 7, \ldots$$

The F-Statistics test is used to test for cointegration by testing for significance of the lagged levels of the variables.

Stationary tests were conducted to find out the level of stationarity of the study variables, see table 1. The traditional Augmented Dickey –Fuller (ADF) test and Phillips-Perron test were employed to test for the presence of unit root in the series. Unit roots are main sources of non-stationarity in time series. The presence of a unit root implies that a time series is non-stationary while the absence of it means a time series is stationary.

4.3 Empirical Models

We have three empirical models: the first two measure the factors that determine banks deposit growth and the third explains how banks deposit and other relevant indicators help to determine economic growth in Nigeria.

Model I

Model 1 is based on LCH augmented to meet our requirements. It measures the effects of income, consumption, interest rate, inflation, dependency ratio, unemployment and inequality on bank deposit.

$$D = \partial_0 + \partial_1 Y + \partial_2 C + \partial_3 IR + \partial_4 I + \partial_5 DR + \partial_6 U + \partial_7 I + \partial_8 DB + \mu \qquad (8)$$

Where,
D – bank deposit
Y – Income
C – Consumption
IR – interest rate
I – inflation
DR – dependency ratio

U – Unemployment
I – inequality
DB – public debt
μ - Error term

Model II

This model measures the influence of other variables on bank deposit growth. These variables include gross domestic saving, financial development, physical infrastructures, total bank liabilities, total bank assets, total banks branches, number of microfinance banks, exchange rate, per capital income and equity.

$$D = \beta_0 + \beta_1 S + \beta_2 F + \beta_3 P + \beta_4 A + \beta_5 B + \beta_6 M + \beta_7 E + \beta_8 P + \beta_9 Q + \varphi \quad (9)$$

Where,
D – Bank deposit
S – Gross domestic saving
F – Financial development
P – Physical infrastructures
A – Bank assets
B – Banks branches
M – Microfinance banks
E – Exchange rate
P – Per capital income
Q – Equity
φ – Error term

Model III

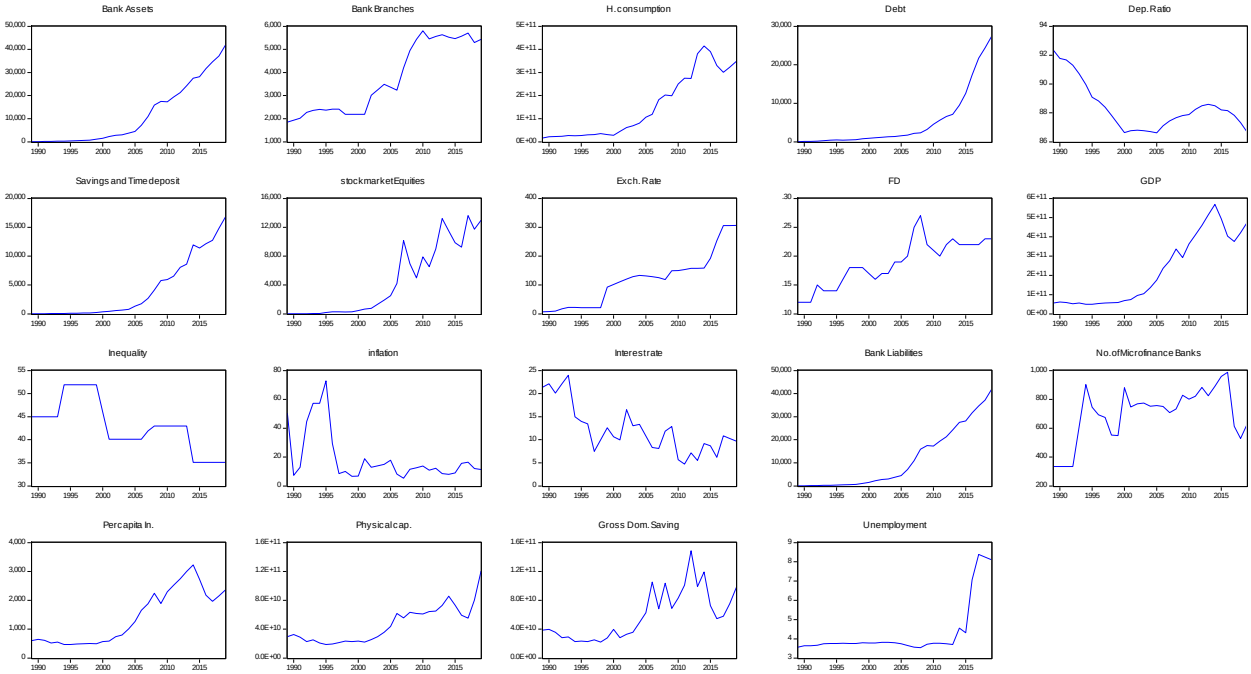
The model measures the influence of bank deposits and other banking sector indicators on economic growth in Nigeria. These banking sector variables include bank assets, branches, microfinance banks and financial development. These variables were chosen because of their importance in the wider banking industry.

$$EG = \delta_0 + \delta_1 BD + \delta_2 BA + \delta_3 BB + \delta_4 MB + \delta_5 FD + \gamma \quad (10)$$

Where,
EG – Economic growth
BD – Bank deposit
BA – Bank assets
BB – Bank branches
MB – Microfinance banks
FD – Financial development
γ – Error term

5. Stylize facts

Figure 1: Data graph



Source: Authors' Analysis using Eview

Analysis of the graphs shows that bank assets, liabilities, deposits (saving and time deposit) and branches have all risen during the period of study. Other variables that rose are financial development, per capita income, consumption, GDP, equities, physical capital, debt, unemployment and exchange rate. Variables that declined during the study period are inequality, inflation, interest rate and dependency ratio. The data shows enormous amount of activities in the banking variables especially after the banking sector consolidation of 2004-2005. These banking variables show that growth has taken place in the banking sector of the Nigerian economy. Table 1 provides the summary statistics of the data.

Table 1: Summary Statistics

	Assets	Branches	Liabilities	Debt	Dep.	Exch	FD	GDP	Saving	Consumption
Mean	11518.90	3716.387	11518.90	5079.010	88.36548	117.9877	0.187742	2.23E+11	5.87E+10	1.51E+11
Median	3753.278	3247.000	3753.278	1370.300	87.88000	125.8100	0.190000	1.36E+11	4.92E+10	8.11E+10
Maximum	41950.20	5809.000	41950.20	27401.00	92.33000	306.9200	0.270000	5.68E+11	1.49E+11	4.15E+11
Minimum	64.87400	1855.000	64.87400	47.00000	86.62000	7.360000	0.120000	4.95E+10	2.21E+10	1.68E+10
Std. Dev.	13288.14	1520.089	13288.14	7634.932	1.647173	89.71435	0.039892	1.79E+11	3.42E+10	1.38E+11
Skewness	0.854082	0.223176	0.854082	1.804586	1.079416	0.606559	-0.071110	0.486329	0.819853	0.590058
Kurtosis	2.355091	1.289911	2.355091	5.044026	3.141756	2.762328	2.168569	1.655339	2.746348	1.784005
Jarque-Bera	4.306070	4.034696	4.306070	22.22204	6.045837	1.973850	0.919026	3.557477	3.555926	3.708788
Probability	0.116131	0.133008	0.116131	0.000015	0.048659	0.372721	0.631591	0.168851	0.168982	0.156548

Sum	357085.8	115208.0	357085.8	157449.3	2739.330	3657.620	5.820000	6.90E+12	1.82E+12	4.67E+12
Sum Sq. Dev.	5.30E+09	69320105	5.30E+09	1.75E+09	81.39537	241459.9	0.047742	9.62E+23	3.50E+22	5.70E+23
Observations	31	31	31	31	31	31	31	31	31	31

Source: Authors' Analysis using Eviews

Table 1: Summary Statistics (continue)

	Inequal	**Inflation**	**Interest**	**Microfin**	**Percapita**	**Physcap_**	**Savings**	**Equities**	**Unemploy**
Mean	43.01613	19.30258	12.11607	700.0323	1408.747	4.61E+10	4144.217	4547.223	4.313226
Median	43.00000	12.56000	10.82000	747.0000	1007.870	3.55E+10	797.5172	1926.500	3.760000
Maximum	51.90000	72.84000	23.99000	987.0000	3222.690	1.21E+11	16794.15	13609.47	8.390000
Minimum	35.10000	5.390000	4.704871	334.0000	467.6900	1.88E+10	17.81330	8.000000	3.540000
Std. Dev.	5.568908	17.59917	5.231871	182.9611	927.6856	2.53E+10	5270.662	4943.064	1.447684
Skewness	0.224820	1.805065	0.822377	-0.736968	0.434030	0.889471	1.022593	0.584948	2.210175
Kurtosis	2.203453	4.990633	2.821002	2.800457	1.662721	3.394179	2.645211	1.750285	6.116259
Jarque-Bera	1.080689	21.95272	3.535622	2.857557	3.283216	4.288345	5.565357	3.785160	37.78198
Probability	0.582547	0.000017	0.170706	0.239601	0.193668	0.117165	0.061873	0.150683	0.000000
Sum	1333.500	598.3800	375.5981	21701.00	43671.17	1.43E+12	128470.7	140963.9	133.7100
Sum Sq. Dev.	930.3819	9291.921	821.1743	1004243.	25818015	1.92E+22	8.33E+08	7.33E+08	62.87368
Observations	31	31	31	31	31	31	31	31	31

Source: Authors' Analysis using Eviews

6. Results and Analysis

6.1 Results of stationarity tests:

The results of the ADF and Phillips-Perron tests conducted on the variables show that the null hypotheses of presence of unit roots in the variables at level cannot be rejected. But running the test after first difference shows that we must reject the null hypotheses. Hence, accepting the alternative hypotheses that say there are no unit roots in the variables at first difference. Thus, our variables are stationary as requested; this provides us with the necessary condition for proceeding with our cointegration analysis.

Table 1: ADF and Phillips-Perron Unit Root Tests

	ADF								**Phillips-Perron**							
	With Intercept				**With Trend and Intercept**				**With Intercept**				**With Trend and Intercept**			
Variable	**5% critical values**	**t-statistics**	**Probability**	**Order of integration**	**5% critical values**	**t-statistics**	**Probability**	**Order of integration**	**5% critical values**	**t-statistics**	**Probability**	**Order of integration**	**5% critical values**	**Adj. t-statistics**	**Probability**	**Order of integration**
Bank Deposit	-2.964	3.468687	1.0000	I(0)	-3.5742	-6.668	0.000	I(1)	-2.964	4.264454	1.0000	I(0)	-3.5742	-12.49	0.000	I(1)

Interest Rate	-2.964	-2.291093	0.1812	I(0)	-3.581	-5.814	0.000	I(1)	-2.964	-2.157413	0.2251	I(0)	-3.574	-7.039	0.000	I(1)
Liabilities	-2.964	4.907643	1.0000	I(0)	-3.5742	-3.795	0.032	I(1)	-2.964	4.907643	1.0000	I(0)	-3.574	-3.450	0.046	I(1)
Bank Branches	-2.964	-0.648445	0.8448	I(0)	-3.5742	-3.880	0.026	I(1)	-2.964	-0.648445	0.8448	I(0)	-3.5742	-3.877	0.026	I(1)
Consumption	-2.964	-0.056919	0.9455	I(0)	-3.5742	-3.894	0.025	I(1)	-2.964	-0.191791	0.9292	I(0)	-3.5742	-3.810	0.030	I(1)
Debt	-2.981	5.828229	1.0000	I(0)	-3.622	4,214	1.000	I(1)	-2.964	7.966538	1.0000	I(0)	-3.581	-7.361	0.567	I(1)
Dependency Ratio	-2.992	0.363703	0.9768	I(0)	-3.612	-1.940	0.603	I(1)	-2.964	-2.417041	0.1457	I(0)	-3.574	-1.445	0.825	I(1)
Equities	-2.964	-0.593997	0.8576	I(0)	-3.581	-6.018	0.000	I(1)	-2.964	-0.010782	0.9503	I(0)	-3.574	-14.20	0.000	I(1)
Exchange Rate	-2.964	0.742252	0.9911	I(0)	-3.574	-3.932	0.023	I(1)	-2.964	0.691953	0.9899	I(0)	-3.574	-3.686	0.040	I(1)
Financial Development	-2.964	-1.594233	0.4731	I(0)	-3.574	-4.755	0.004	I(1)	-2.964	-1.452314	0.5434	I(0)	-3.574	-8.753	0.000	I(1)
GDP	-2.968	-0.456643	0.8860	I(0)	-3.574	-3.436	0.066	I(1)	-2.964	-0.311678	0.9118	I(0)	-2.968	-3.170	0.032	I(1)
Inequality	-2.964	-0.812819	0.8010	I(0)	-3.574	-4.300	0.010	I(1)	-2.964	-1.044939	0.7238	I(0)	-3.574	-4.286	0.011	I(1)
Inflation	-2.968	-2.393266	0.1523	I(0)	-3.574	-5.622	0.000	I(1)	-2.964	-2.939877	0.0526	I(0)	-3.574	-5.572	0.005	I(1)
Microfinance Banks	-2.964	-2.681971	0.0889	I(0)	-3.574	-52.28	0.001	I(1)	-2.964	-2.559593	0.1123	I(0)	-3.574	-8.373	0.000	I(1)
Per capital Income	-2.964	-0.550168	0.8673	I(0)	-3.574	-3.556	0.052	I(1)	-2.964	-0.550168	0.8673	I(0)	-3.574	-3.483	0.060	I(1)
Physical Capital	-2.976	0.918213	0.9942	I(0)	-3.588	-3.952	0.023	I(1)	-2.964	1.719100	0.9994	I(0)	-3.574	-1.350	0.855	I(1)
Saving	-2.998	-2.356172	0.1643	I(0)	-3.574	-7.687	0.000	I(1)	-2.964	-1.594162	0.4731	I(0)	-3.574	-8.284	0.000	I(1)
Unemployment	-2.998	-2.656422	0.0968	I(0)	-3.622	1.959	1.000	I(1)	-2.964	0.581759	0.9868	I(0)	-3.574	-4.521	0.006	I(1)

Source; Authors' Analysis using Eview

6.2 Causality test

Granger causality test shows possible interdependence between the variables; how changes in one variable resulted in changes in another variable. In other words, it shows how first variable predict the second variable and vice versa. The results of the Granger causality tests conducted show that bank branches Granger cause bank assets to increase; public debt granger causes bank assets to increase and bank deposit granger causes bank assets to increase. It also shows that physical capital granger causes bank assets, consumption granger causes bank branches, GDP granger causes bank branches; while bank branches granger cause bank liabilities, deposit granger causes consumption, microfinance banks granger cause consumption and public debt granger causes bank liabilities. Others are; bank deposit granger causes equity, bank deposit granger causes GDP, physical capital granger causes bank liabilities and physical capital granger causes microfinance bank. In many other relationships between the variables in the study, the results show two ways causality. There are two ways causality between consumption and bank assets, two ways causality between GDP and bank assets, two ways causality between inflation and bank assets, two ways causality between interest rate and bank assets, two ways causality between number of microfinance banks and bank assets, two ways causality between per capita income and bank assets, two ways causality between gross national saving and bank assets and two ways causality between public debt and bank branches.

Other two ways causalities shown by the Granger causality tests are, two ways causality between bank deposit and bank branches, two ways causality between financial development and bank branches, two ways causality between financial development and consumption; they also include two ways causality between interest rate and consumption, two ways causality between bank liabilities and consumption, two ways causality between public debt and microfinance banks, two ways causality between bank deposits and dependency ratio, two ways causality between bank liabilities and dependency ratio, two ways causality between microfinance and dependency ratio, two ways causality between inequality and bank deposits, two ways causality between interest and bank deposits. They as well include two ways causality between gross domestic saving and bank deposits, two ways causality between bank liabilities and exchange rate, two ways causality between GDP and financial development, two ways causality between bank liabilities and GDP. There is also two ways causality: two ways causality between microfinance banks and GDP, two ways causality between bank liabilities and inflation, two ways causality between interest rate and bank liabilities, two ways causality between per capital income and bank liabilities, two ways causality between gross national saving and bank liabilities and two way causality between microfinance banks and per capital income,

6.3 ARDL cointegration results:

Model 1

The ARDL long run equilibrium results show that the value of consumption variable is positive and statistically significant; this means that increase in consumption led to increase in bank deposits. The result also shows that interest has positive and statistically significant effect on bank deposit. The value of dependency ratio is positive and statistically significant; this shows that increase in dependency ratio lead to increase in bank deposits. The error correction term shows the speed adjustment to restore equilibrium in the model. The ECM coefficient shows how quickly variables converge to equilibrium. The ECM coefficient should be statistically significant

with a negative sign. A highly significant error correction term further confirms the existence of a stable long-run relationship (Bannerjee *et al*., 1998). The result shows the expected negative sign of EC1 is highly significant. This confirms the existence of long run relationship between the variables. The results of the Error correction regression show that there is 140% adjustment to restore equilibrium for the model within a year. The results of ARDL bound testing show cointegration at 10%, 5%, 2.5% and 1% levels.

Table 2: ARDL ECM results for model 1

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(CONSUMPTION)	5.12E-09	1.85E-09	2.761204	0.0146
D(INTEREST)	90.30832	17.26808	5.229784	0.0001
D(INFLATION)	-0.568766	3.768863	-0.150912	0.8821
D(DEPENDENCY)	433.8594	143.7008	3.019186	0.0086
D(INEQUALITY)	6.427662	23.59221	0.272449	0.7890
CointEq(-1)*	-1.040471	0.068283	-15.23758	0.0000

Source: Authors' Analysis using Eviews

Table 3: Bound testing results for model 1

Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	14.51149	10%	1.85	2.85
K	8	5%	2.11	3.15
		2.5%	2.33	3.42
		1%	2.62	3.77

Source: Authors' Analysis using Eviews

Model 2

Results of the ARDL ECM show that gross domestic saving has negative and statistically significant relationship with bank deposits. This means that increase in gross domestic saving did not lead to increase in bank deposits. Physical capital has positive and statistically significant relationship with bank deposits; this shows that growth in physical capital leads to growth in bank deposits. Bank asset has slightly negative and statistically significant relationship with bank deposits; this also means increase in bank assets did not lead to rise in bank deposits. Bank branch has slightly negative and statistically significant relationship with bank deposits; this indicates that, on aggregate, increase in bank branches did not lead to rise in bank deposits. The results of the error correction regression show that there is 128% adjustment to restore equilibrium for the model. The results of ARDL bound testing show cointegration at 10%, 5%, 2.5% and 1% levels.

Table 4: ECM results for model 2

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(DEPOSITS(-1))	-0.365765	0.040751	-8.975631	0.0000
D(SAVING)	-4.92E-09	1.70E-09	-2.896430	0.0159
D(FD)	3595.416	1982.823	1.813281	0.0999
D(PHYSICALCAP)	6.02E-08	4.83E-09	12.47465	0.0000
D(ASSETS)	-0.181157	0.037634	-4.813719	0.0007
D(BRANCHES)	-0.572125	0.105071	-5.445140	0.0003
D(EXCHRATE)	0.101357	1.732236	0.058512	0.9545
D(PERCAPITA)	-0.253955	0.195033	-1.302113	0.2221
CointEq(-1)*	-1.287424	0.068586	-18.77094	0.0000

Source: Authors' Analysis using Eviews

Table 5: Bound testing results for model 2

F-Bounds Test Null Hypothesis: No levels relationship

Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	16.01582	10%	1.8	2.8
K	9	5%	2.04	2.08
		2.5%	2.24	3.35
		1%	2.5	3.68

Source: Authors' Analysis using Eviews

Model 3

The ARDL ECM analysis shows that bank asset has positive and statistically significant relationship with GDP; this implies that boost in bank assets lead to GDP growth. Bank branches have positive and statistically significant relationship with GDP; this also means growth in bank branches help boost GDP. Financial development has positive and statistically significant relationship with GDP; this indicates that financial development boosts GDP. The results of the Error correction regression show that there is 56% adjustment to restore equilibrium for the model. The results of ARDL bound testing show cointegration at 10% and 5% levels.

Table 6: ECM results for model 3

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(GDP(-1))	0.379642	0.119465	3.177858	0.0052
D(ASSETS)	3886715.	2459504.	0.000000	0.0000

D(BRANCHES)	21926024	16070338	0.000000	0.0000
D(FD)	6.76E+11	2.73E+11	0.000000	0.0000
CointEq(-1)*	-0.564116	0.096065	-5.872202	0.0000

Source: Authors' Analysis using Eviews

Table 7: Bound testing results for model 3

Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	3.694581	10%	2.08	3
K	5	5%	2.39	3.38
		2.5%	2.7	3.73
		1%	3.06	4.15

Source: Authors' Analysis using Eviews

7. Summary, Conclusion and Recommendations

The study has important implications on the Nigerian banking sector and the wider economy. The study show that consumption tends to move in the same direction as bank deposits. This is expected in a growing economy. Likewise, dependency ratio and interest rate move in the same direction as bank deposits; meaning increase in dependency ratio and interest rate increase money available for depositing in banks. These are also expected according to economic theories; hence, the needs for Nigerian authority to ensure monetary stability, fight poverty and inequality as well as boost the total number of workforce.

The positive relationship between physical capital and bank deposits, point to the important contributions of infrastructure to economic growth; in this particular case it shows that boost in physical capital increase people ability to save and banks ability to attract deposits. The study shows that increase in bank branches has positive and statistically significant relationship with economic growth. Other implications of the study include, boost in bank assets increase GDP; and that financial development helps GDP growth in Nigeria. Thus, Nigerian regulators, especially CBN, NDIC and ministry of finance, should continue to do everything possible to ensure the sustainable growth of the banking sector looking at its contribution to economic growth and development.

The role of savings in promoting economic growth and development has been the focus of a number of academic studies. The role of private saving (which is different from public saving) in this has also come up here and there in other academic works. This study has focused on bank deposit a subset of private saving. In Nigeria, where we have a large number of unbanked public, a lot of private savings are kept outside the banking sector. This poses a number of challenges to the monetary authorities. How to increase bank deposit? How to reduce the number of unbanked Nigerians? Bank deposit has continued to play an important role in the Nigerian economy over

the years, particularly its role in boosting the overall economic growth. In line with this, Nigerian government shall continue to ensure enabling environment for sustainable growth of bank deposit and with it the growth of the entire financial industry.

Some of the measures to be taken in line with this study include, CBN and NDIC shall increase awareness about the benefits of keeping money with banks, through measures that include microfinance banking and making bank account mandatory for certain functions. Government shall continue with fight against poverty and inequality that have become so perverse in our society. CBN and NDIC shall also ensure that banks used depositors' money effectively and for developmental purposes, not for speculative activities that have become so common in recent years. Government shall look into ways of boosting the current poverty alleviation and money injection programs of the federal government; because as a result of them a lot of unbanked Nigerians have now found reasons to open bank accounts. These recommendations if implemented properly will in aggregate add dynamisms and speed to the economic growth path Nigerian economy is currently on.

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