



Macroeconomic Dynamics, Bank-specific Factors and Deposit Mobilization of the Nigerian Banking Sector

Azolibe, Chukwuebuka Bernard^{1*}

¹*Department of Banking and Finance, Nnamdi Azikiwe University, P.M.B. 5025, Awka, Anambra State, Nigeria.*

Author's contribution

The sole author designed, analysed, interpreted and prepared the manuscript.

Article Information

DOI: 10.9734/AJEBA/2019/v12i230146

Editor(s):

(1) Dr. Maria-Dolores Guillamon, Department of Financial Economics and Accounting, University of Murcia, Spain.

Reviewers:

(1) Sylvester Ohiomu, Edo University, Nigeria.

(2) Pasupuleti Venkata Siva Kumar, Vallurupalli Nageswara Rao Vignana Jyothi Institute of Engineering & Technology, India.

(3) R. Shenbagavalli, India.

(4) Batrancea Ioan, Babes-Bolyai University, Romania.

Complete Peer review History: <http://www.sdiarticle3.com/review-history/50584>

Original Research Article

Received 07 May 2019
Accepted 31 July 2019
Published 20 August 2019

ABSTRACT

This study critically examined the nexus between macroeconomic dynamics, bank-specific factors and deposit mobilization of the Nigerian banking sector. Macroeconomic dynamics was proxied by inflation rate, lending rate, exchange rate, government expenditure, unemployment rate and Gross domestic product (GDP) while bank-specific factors was proxied by deposit interest rate, branch network expansion and bank's liquidity. The study which is ex-post facto, relied mostly on secondary data which were collected through the Central Bank of Nigeria (CBN) and National Bureau of Statistics (NBS) statistical bulletin from 1985-2018. Multiple regression Ordinary Least Square (OLS) statistical tool was applied to establish the like fit to the observed data and the degree of relationship that exist between variables. The granger causality test was employed to establish the causal relationship between the variables. Findings revealed among others that inflation rate measured by the consumer price index and deposit interest rate have negative and significant relationship with deposit mobilization in Nigeria. Exchange rate, unemployment rate and loan-to deposit ratio have negative and insignificant relationship. Lending rate and Government expenditure have insignificant positive relationship while it was only Gross domestic product and number of bank branches that

*Corresponding author: E-mail: cb.azolibe@unizik.edu.ng;

have positive and significant relationship with deposit mobilization in Nigeria. It was recommended among others that deposit interest rate should be fixed based on the level of customer's deposit so as to act as compensation against the rising trend in inflation rate and also, banks should be more socially responsive by partnering with the Government and other private sectors in sponsoring various entrepreneurship and skill acquisition training programmes in the country that are employment driven. This will ensure that a good number of the unemployed persons are into paid employment and are earning. This will in turn boost their deposit base.

Keywords: Macroeconomic dynamics; bank-specific factors; deposit mobilization; Nigerian banking sector.

1. INTRODUCTION

The banking sector in any economy performs two major functions of mobilizing surplus funds from the various economic units such as Government, business and household units and then channeling it in the form of loans and advances to the deficit sectors of the economy for productive investment.

Deposit mobilization is an indispensable factor to increase the sources of the banks to serve effectively. Mobilization of deposit plays an important role in providing satisfactory service to different sectors of the economy. The Deposit Money Banks must tap deposits from urban and rural areas. Selvaraj and Kumar [1] state that, the success of the banking sector greatly lies on the deposit mobilization. Performances of the bank depend on deposits, as the deposits are normally considered as a cost effective source of working fund.

However, certain factors affect the deposit mobilization efforts of the Nigerian banking sector. These factors can be either internal or external to the bank. The internal factors are those that are peculiar to banks and thus can be managed effectively to achieve the desired objective of increased deposit mobilization. Hence, the volume of deposit mobilized by a bank in a year may be a function of its internal characteristics such as deposit interest rate, branch network expansion, bank's liquidity and other internal factors, all of which may be said to fall though relatively within the control of the bank.

The external factors which are the macroeconomic factors are those that are beyond the control of the bank. They include inflation rate, lending rate, exchange rate, government expenditure, unemployment rate, Gross domestic product (GDP) and all other external factors that can only be managed by the government and regulatory agencies. The

general performance of the economy is reflected by the macroeconomic aggregates including the gross domestic product (GDP), employment level, industrial capacity utilization, inflation, money supply and exchange rate [2]. Banks therefore adjust their deposit mobilization in response to the signals from these factors, such that positive signals make banks become more favourably disposed to attracting more deposit and vice versa.

It has been observed that the Nigerian economy has experienced series of macroeconomic fluctuations in recent times most especially in the area of inflation rate, exchange rate, interest rate and unemployment rate. Also, there has been failure of the macroeconomic policy makers to achieve a stable economic environment that will be conducive enough for banks to operate. Iwedi [3] opines that in spite of the ongoing economic recovery, the macro environment in Nigeria remains in a period of significant uncertainty as the country continue to experience series of instability and volatility in macroeconomic factors. For instance, the inflation rate rose sharply from 7.9% in 2013 to 16.5% in 2017. There has been currency depreciation since 2010 in terms of exchange rate between naira and dollar such that it rose from ₦150.30/\$1 in 2010 to ₦305.58/\$1 in 2018. Also, the lending rate increased from 16.02% in 2011 to 17.58% in 2017 and the number of persons that are unemployed increased rapidly from 7.8% in 2014 to 23.1% in 2018 [4]. All these changes in macroeconomic conditions pose a serious challenge to the Nigerian banking sector in terms of deposit mobilization. On the other hand, there has been failure on the part bank management to effectively manage its internal factors in terms of branch distribution. Most banks in Nigeria have concentrated in opening up branches in the urban areas at the expense of the rural areas. Hence, huge amount of cash are lying idle in the rural areas and thus, being left out of the banking stream.

There has been growing empirical literature on the macroeconomic and bank-specific determinant of bank lending in Nigeria and in other countries of the world. Its effect on deposit mobilization has been neglected over the years and thus demands investigation. There are few empirical literatures on the aspect of deposit mobilization bearing in mind that without deposit mobilization, there will be no bank lending. Thus, it is against this backdrop that the researcher is motivated to examine how changes in the macroeconomic and bank-specific factors affects deposit mobilization of the Nigerian banking sector so as to complement the dearth in knowledge on the few empirical literatures in the subject matter. The study will also improve on the variables employed by other scholars by introducing unemployment rate as part of the macroeconomic factors that affects deposit mobilization in Nigeria.

However, this study sets out to specifically examine, whether changes in the macroeconomic environment proxied by inflation rate, lending rate, exchange rate, government expenditure, unemployment rate and Gross domestic product (GDP) and also changes in bank-specific factors proxied by deposit interest rate, branch network expansion and bank's liquidity impacts positively or otherwise on the deposit mobilization of the Nigerian banking sector. In line with the objectives, the study developed a hypothesis stated in the null forms as:

H01. Macroeconomic Dynamics: Inflation rate, lending rate, exchange rate, government expenditure, unemployment rate and Gross domestic product (GDP) have no significant relationship with the deposit mobilization of the Nigerian banking sector.

H02. Bank-Specific Factors: Deposit interest rate, branch network expansion and bank's liquidity have no significant relationship with the deposit mobilization of the Nigerian banking sector.

1.1 Conceptual and Theoretical Literature Review

According to Section 61 of the bank and other financial institutions act no 25 of 1991 as amended, deposits are money lodged with any person whether or not for the purposes of any interest or dividend and whether or not such money is repayable upon demand, upon a given

period of notice or upon a fixed date. Deposit mobilization is related to the creation of credits in which the banks would have special campaigns where they would interact with a lot of people and invite them to make deposits with their bank. Deposit mobilization is defined by Elser [5] as the process of encouraging customers to deposit cash with the bank or attracting new clients to come and open accounts with the bank. Amer and Mohammed [6] see deposit as an agreement between the client and the bank Under which the customer to deposit a sum of money with the bank for the purpose of conservation or investment and the bank undertakes to refund the money to the client at a certain date upon request, according to terms agreed upon in advance. Deposit mobilization is one of the oldest businesses of bankers. It is the earliest source from which bankers got the funds they use for lending. Mobilization of deposits is one of the important functions of banking business. It is an important source of working fund for the bank. Deposit mobilization is an indispensable factor to increase the sources of the banks to serve effectively. Mobilization of deposit plays an important role in providing satisfactory service to different sectors of the economy. The success of the banking greatly lies on the deposit mobilization. Deposit mobilization is depending on the cost of deposits. Mobilization of deposits for a bank is as essential as oxygen for human being. To enhance profitability, banks take steps to minimize the expenditure and are forced to mobilize low cost deposits. [7]. According to Kutant [8], banks serve as intermediaries accepting commercial and individual deposits (saving) and transferring them in the form of loans for investments.

To a bank, either operating conventional banking or Islamic banking, deposits is its main source of finding for which it uses to produce income. Some literature has cited that deposits contribute 75 percent of a bank's total fund [9]. Shollapur [10] posits that bank uses customer's deposits mainly to give out loans to deficit economic units or borrowers. Besides loans, bank also mobilize deposits by purchasing trading securities, investments and maintain some as cash in hand to meet withdrawals on demand. He maintains that the larger the amount of deposits a bank receives from its customers, the better is its capacity to give out loans and the higher is the interest income. Banks receive deposits on three major types of accounts, namely: demand deposit account (current account), savings account and time (fixed) deposit account.

1.1.1 Relationship between macroeconomic dynamics and deposit mobilization

1.1.1.1 Inflation rate and deposit mobilization

According to Owolabi and Adegbite [11], inflation is described as a general and persistent increase in the prices of goods and services in an economy. Inflation affects bank deposits in two ways. First is that it reduces the purchasing power of money and hence leads to high cost of living implying that a household can purchase very little with their available income and thus may be left with little or nothing to deposit in the bank.

Secondly, in a situation when there is hyperinflation i.e rapid, excessive and out-of-control price increases in an economy, cash or savings deposited in the banks decreases in value or becomes worthless since the money has far less purchasing power. Thus, people may decide to convert their deposits and cash into hoarding of goods with the expectation that prices may increase further in future and hence might not deposit their money in the bank. Mohammad and Mahdi [12], stress that with respect to the effect of inflation on savings, all individuals who save a part of their incomes in banks are directly damaged by the inflation and their assets decreases in proportion with money value decrease.

1.1.1.2 Lending rate and deposit mobilization

The interest rate can be defined as the annual price charged by a lender to a borrower in order for the borrower to obtain a loan and is usually expressed as a percentage of the total amount loaned [13]. In manipulating the lending rate for increased deposit mobilization, banks tend to reduce the rate of interest charged on loans in order to lure people to open an account and then deposit money with them so as to borrow at a low interest rate. The borrowing could be in the form of loans, advances or overdraft.

1.1.1.3 Exchange rate and deposit mobilization

Exchange rate is the rate at which one currency is being converted into another currency. Exchange rate changes can affect deposit mobilization as when the currency of one country depreciates in value, most investors will withdraw their deposits in the bank in exchange for currencies with higher value. According to Nugel [14] currencies depreciated in one country

deposit will be reduced since investors tend to withdraw deposit and exchanged to keep it by appreciating currency (Hard currency) or invest in another form of investment rather than bank deposit.

1.1.1.4 Government expenditure and deposit mobilization

Government expenditures are those expenditures incurred by government in the course of maintaining herself, the society and improving the economy. When government spends more on recurrent expenditures such as wages and salaries, it puts more money into the hands of the public which will invariably increase savings and bank deposit. Also, government expenditure on various capital projects such as establishment of hospitals, ministries, schools, road constructions, power projects etc. are bound to create more jobs which will increase income and savings. Ketema [15] posits that expenditure that creates jobs ensures regular income and savings, hence, bank deposits increase.

1.1.1.5 Unemployment rate and deposit mobilization

Unemployment is a situation in which those who are able and willing to work at the prevailing wage rate do not find job. Unemployment is one of the greatest macroeconomic factors that affect the deposit mobilization efforts of banks as when people are unemployed, it means they are not earning and as such will have nothing to deposit in the bank. There has been a rising trend in the unemployment rate in Nigeria in recent times and this poses a serious challenge to the banking sector in term of deposit mobilization.

1.1.1.6 GDP and deposit mobilization

GDP is the market value of all goods and services produced in a country over a period of one year and are one of the primary indicators used to gauge the economic performance of a country. Evidently, there is a positive relationship between the GDP growth rate and deposit mobilization. During period of high economic growth, there is increase in the demand for goods and services and as such there is potential for higher profits and producers will deposit more of their surplus earnings in the bank and deposits are bound to increase while period of depression is associated with lower earnings on investments which will invariably reduce bank deposits.

1.1.2 Relationship between bank-specific factors and deposit mobilization

1.1.2.1 Deposit interest rate and deposit mobilization

Over the years, interest rates have remained a subject for critical assessment with diverse implications for deposit mobilization and investment promotion. Interest rate is defined as the rental payment for the use of credit by borrowers and return for parting with liquidity by lenders. Banks pay interest on deposits on one hand and on the other hand they charge interest on loans and advances lent to borrowers. Banks tend to adjust the interest rate paid on deposit upwards as a way of mobilizing more deposit from the public.

Mohammad and Mahdi [12] believe that one of the most effective factors for deciding to deposit in banking system is the interest rate. Herald and Heiko [16] also mention interest as one of the determining factor for Deposit Money Banks deposits. As to Erna and Ekki [17], Economists mainly conventional ones, believe that depositors are attracted to deposit their money in banks because of the opportunity cost of holding cash in hand is high when the interest rate is also high.

Savings or deposits, according to classical economists, are a function of the rate of interest. The higher the rate of interest, the more money will be saved, since at higher interest rates, people will be more willing to forego present consumption. Moreover, Mohammad and Mahdi [12] said that low deposit rates are discouraging saving mobilization.

1.1.2.2 Branch network expansion and deposit mobilization

Branch banking refers to a bank that is connected to one or more other banks in an area or outside of it with a head office overseeing the branches. Branch network expansion is one of the traditional and oldest methods used by banks for deposit mobilization. The branches are located nationwide in both the rural and urban area to allow for close proximity to both existing and prospective customers. The branch network would encompass the number of the bank branches and their geographical spread. Large branch network therefore is a distinctive advantage in successful mobilization of deposits. Thus, when a bank opens up a new branch, it

draws new customers to the newly opened branch and deposit is bound to increase.

Banks generally take so many factors into consideration in opening branches. Among the factors are profitability, ability to mobilize deposits, targeted market, government requirements, infrastructure, etc. Since banks uses customer deposits to generate income, deposit mobilization is the paramount factor considered in locating a branch. This is the reason why banks are located in urban areas where there are abundant business opportunities and infrastructures for the banks. As at fourth quarter 2018, the total number of deposit money banks branches in Nigeria increased from 3231 in 2006 to 5299 in 2016 representing an increase in 64% [4].

This increase in the number of branches has led to the increase in the amount of deposit mobilized by banks. The branches are increased so that the bank would move closer to their customers to avoid long traveling for safety purpose.

1.1.2.3 Bank's liquidity and deposit mobilization

Liquidity can be defined as a measure of the relative amount of asset in cash or which can be quickly converted into cash without any loss in value available to meet short term liabilities [15]. The loan to deposit ratio (LDR) is used to assess bank liquidity by comparing a bank's total loans to its total deposits for the same period. The LDR is expressed as a percentage. If the ratio is too high, it means that the bank may not have enough liquidity to meet customer's withdrawals and may discourage people from further depositing their money. Conversely, if the ratio is too low, the bank may not be earning as much as it could. Thus, a bank must strike a balance between liquidity and profitability so as to maintain public confidence and ensure regularity of customer deposits.

1.2 Empirical Review

Ketema [15] empirically examined the determinants of commercial banks deposit mobilization in Ethiopia for the periods 2000-2015. Different diagnostic tests (test for assumption of Homoscedasticity, Autocorrelation, Normality, average value of the error is zero and independent variables are non-stochastic) were conducted to check the appropriateness of the model. The results reveal

that credit risk, exchange rate, and Bank Profitability are positively and statistically significant on bank deposit growth; whereas, Loan to Deposit ratio (Bank's Liquidity) and Money Supply influence is negatively and statistically significant on bank deposit growth. Deposit Interest Rate had insignificant positive influence on bank deposit growth. Whereas Inflation and Government Expenditure had insignificant negative influence on bank deposit growth.

Hassan [18] evaluated the effect of interest rate on commercial bank deposits in Nigeria covering period of 2000 to 2013. Using the Ordinary Least Square (OLS) multiple regression techniques; the study revealed that there is a negative relationship between the interest rates and the commercial bank deposits suggesting that interest rates has not been responsible for customers deposits in commercial banks in Nigeria.

Haron and Wan Azmi [19] investigated the structural determinants of deposits level of commercial banks in Malaysia, using co-integration techniques. The results suggest that determinants such as rates of profit of Islamic bank, rates of interest on deposits, Base Lending Rate, Kuala Lumpur Composite Index, Consumer Price Index, Money Supply and Gross Domestic Product have significant impact on deposits.

Shemsu [20] aimed to identify and evaluate those factors affecting bank deposit in general by taking Commercial Bank of Ethiopia as evidence. Estimation was done using Ordinary Least Squares technique by E-views7 statistical package. The results from economic analysis showed that all the explanatory variables were positively correlated with the explained variable. Among these variables, branch opening is an important strategy for deposit mobilization, it is highly significant than others. Individual remittances from diasporas is also next to branch opening is significantly affects CBE's deposit. The others are affects positively and can increase CBE's deposit.

Dereje [21] investigated the determinants of deposit mobilization in private commercial banks of Ethiopia using panel data of six private commercial banks from year 2002 to 2012. The study used both quantitative and qualitative research approach. Secondary financial data were analyzed using multiple linear regressions models for the six bank's deposit. Fixed or

random effect regression model was applied to investigate the impact of bank branches, exchange rate, Real Gross domestic product, Capital Adequacy and Liquidity on private commercial banks deposits. The empirical results from regression analysis showed that bank branches, exchange rate, and real gross domestic product affects deposit of the bank positively whereas, capital adequacy and liquidity affects the deposit of the private banks negatively.

Telatela [22] examined factors influencing deposits mobilization in financial institutions in Tanzania, employed a quota sampling technique, where 120 customers and 40 bank staff were sampled, revealed that information communication technology, varieties of services offered and location of the bank are among the most important factors to facilitate deposit mobilization.

Akaninyene et al. [23] critically examined inflation rate in Nigeria with the view of ascertaining its effect on the deposit mobilization in Banks. The population for the study included selected numbers of banks i.e. deposit money bank in Nigeria from 1994 – 2014. Multiple regression Ordinary Least Square (OLS) statistical tool was applied to establish the like fit to the observed data and the degree of relationship that exist between variables. Findings reveals among others that there exist a significant and negative relationship amongst demand, savings and time deposit with inflation in Nigeria, and that interest rate impacted significantly and positively on saving and time deposit.

Elser [5] identified the factors that attract deposits in Palestinian Islamic banks. The researcher used the descriptive approach to reach the results and recommendations of the study. The findings revealed that there is a relation between the geographical location of the branches of Islamic banks, advertising campaigns and promotion, diversification, development of services, experience of bank staff, and attracting deposits in Islamic banks in Palestine.

Emmanuel and Willy [24] assessed the factors affecting deposit mobilization by bank agents in Kenya. The study employed a case study design. The target population was 80 respondents. The data collected was analyzed using descriptive and inferential statistics and a regression analysis was also conducted. The study revealed

that agent transaction influences deposit mobilization by bank agents in Kenya to a great extent, requirements for cash deposits were made in national bank of Kenya branch thus influencing deposit mobilization by bank agents in Kenya negatively.

From the above empirical review, this study has not been widely investigated in Nigeria. The study is an improvement to previous empirical studies as it will introduce unemployment rate as an important macroeconomic factor that affects the deposit mobilization effort of the Nigerian banking sector. Again, other estimation technique such as the granger causality test that was not used in previous studies will be employed in this study. This will however form the basis of the research gap.

2. METHODOLOGY OF THE STUDY

2.1 Research Design

The study adopts an *expost facto* research design. There are two variables: Independent and dependent. The dependent variable is customer deposits in Nigeria which is a proxy for deposit mobilization. The independent variables are the macroeconomic factors and bank-specific factors. Macroeconomic factors were proxied by inflation rate, lending rate, exchange rate, government expenditure, unemployment rate and Gross domestic product (GDP) while bank-specific factors were proxied by deposit interest rate, branch network expansion and bank's liquidity.

2.2 Sources of Data

Based on the nature of the study, data collection will be based on secondary data. The study will source data from Statistical Bulletin of the Central Bank of Nigeria (CBN) and National Bureau of Statistics (NBS). The source of data for the study will cover for the period between 1985 and 2018.

2.3 Model Specification

The model for this study is a modified version of [3] which is stated as follows

$$TCD = f(CPI, LR, EXGR, GOVEXP, UNER, GDP, DINTR, NBB, LDR) \quad (1)$$

Transforming equation 1 above to econometric method, we have:

$$TCD = \beta_0 + \beta_1CPI + \beta_2LR + \beta_3EXGR + \beta_4GOVEXP + \beta_5UNER + \beta_6GDP + \beta_7DINTR + \beta_8NBB + \beta_9LDR + \mu_t \quad (2)$$

Where:

TCD = Total Customer Deposits (A Proxy for Deposit Mobilization)
 CPI = Consumer Price Index (A measure of Inflation Rate)
 LR = Lending Rate
 EXGR = Exchange Rate
 GOVEXP = Government Expenditure
 UNER = Unemployment Rate
 GDP = Gross Domestic Product
 DINTR = Deposit Interest Rate
 NBB = Number of Bank Branches in Nigeria
 LDR = Loan-to-Deposit Ratio (A Proxy For Bank's Liquidity)
 μ = Error Term
 $\beta_1 - \beta_9$ = Coefficient of Independent Variables to the Dependent Variable
 β_0 = Regression Intercept.

2.4 A Priori Expectations

This refers to the supposed relationship between and or among the dependent or independent variables of the model. Table 1 shows the expected signs of the independent variables in the model.

2.5 Data Analysis and Interpretations

2.5.1 Stationarity test

The time series properties of our data were examined by conducting the unit root test of stationarity using the Augmented Dickey-Fuller (ADF) test. The results for the stationarity test using Augmented Dickey-Fuller (ADF) test are presented in Tables 2 and 3.

From the above ADF test result, only lending rate and loan-to-deposit ratio were stationary at level and were integrated of order zero. Those of consumer price index, exchange rate, unemployment rate and number of bank branches were stationary at first difference and were integrated of order one. While that of total customer deposits, Government expenditure, Gross domestic product and deposit interest rate were stationary at second difference. The maximum lag of the variables is 2 except that of Government expenditure which is 4 and was based on Akaike info criterion.

Table 1. Expected signs of the independent variables in the models

Symbol	Meaning	What it substitutes for	Economic theory	Expected sign
CPI	Consumer Price Index	Inflation Rate	Inflation rate reduces the purchasing power of money and results to high cost of living and thus reduces bank's deposit. This summarizes to a negative relationship between inflation rate and deposit mobilization.	Negative (-)
LR	Lending Rate	Macroeconomic Dynamics	When a bank reduces the rate of interest charged on loans, it encourages people to open an account and then deposit money with it so as to borrow at a low interest rate. Thus, it is expected that a negative relationship exist between lending rate and deposit mobilization.	Negative (-)
EXGR	Exchange Rate	Macroeconomic Dynamics	When the currency of one country depreciates in value, most investors will withdraw their deposits in the bank in exchange for currencies with higher value or invest in another form of investment rather than bank deposit. This summarizes to a positive relationship between exchange rate and deposit mobilization.	Positive (+)
GOVEXP	Government Expenditure	Macroeconomic Dynamics	An increase in government expenditures such as wages and salaries injects money into the hands of the public which will invariable increase savings and bank deposit. This summarizes to a positive relationship between government expenditure and deposit mobilization.	Positive (+)
UNER	Unemployment Rate	Macroeconomic Dynamics	When people are unemployed, it means they are not earning and as such will have nothing to deposit in the bank. Thus, it is expected that a negative relationship exist between unemployment rate and deposit mobilization.	Negative (-)
GDP	Gross Domestic Product	Economic Growth	During period of high economic growth, there is increase in the demand for goods and services and as such there is potential for higher profits and producers will deposit more of their surplus earnings in the bank and deposits are bound to increase while period of depression is associated with lower earnings on investments which will invariably reduce bank deposits. Hence, a positive relationship exists between GDP and deposit mobilization.	Positive (+)
DINTR	Deposit Interest Rate	Bank-Specific Factors	Higher interest rate on deposit attracts people to deposit more money in the bank. This summarizes to a positive relationship between deposit interest rate and deposit mobilization.	Positive (+)
NBB	Number of Bank Branches	Branch Network Expansion	When a bank open up a new branch, it draws customers to the newly opened branch and more deposit are mobilized. Thus, a positive relationship exists between branch network expansion and deposit mobilization.	Positive (+)

Symbol	Meaning	What it substitutes for	Economic theory	Expected sign
LDR	Loan-to-Deposit Ratio	Bank's Liquidity	If the loan-to-deposit ratio is too high, it means that the bank may not have enough liquidity to meet customer's withdrawals and may discourage people from further depositing their money. This summarizes to a negative relationship between bank's liquidity and deposit mobilization.	Negative (-)

Source: Researcher's Computations

Table 2. ADF test result at level

T-ADF	TCD	CPI	LR	EXGR	GOVEXP	UNER	GDP	DINTR	NBB	LDR
	1.4333	1.1138	-4.2184	1.3792	3.7278	-1.4005	2.8251	-0.9596	-0.6876	-6.5896
Lag length	1	0	3	0	5	0	1	0	0	11
5%	-2.9571	-2.9540	-2.9540	-2.9540	-2.9719	-2.9540	-2.9571	-2.9540	-2.9540	-2.9571
Prob	0.9987	0.9968	0.0023	0.9985	1.0000	0.5701	1.0000	0.7559	0.8363	0.0029
Order of Integration	1(0)	1(0)	1(0)	1(0)	1(0)	1(0)	1(0)	1(0)	1(0)	1(0)
Decision	Not Stationary	Not Stationary	Stationary	Not Stationary	Not Stationary	Not Stationary	Not Stationary	Not Stationary	Not Stationary	Stationary

Source: Computed by the Researcher using E-views 10 Econometric Software

Table 3. ADF differenced test result

T-ADF	TCD	CPI	LR	EXGR	GOVEXP	UNER	GDP	DINTR	NBB	LDR
	-5.3274	-4.6451	-4.2244	-4.0427	-3.9728	-5.8685	-4.4397	-9.6569	-3.9727	-4.1494
Lag length	2	2	2	2	4	2	2	2	2	2
5%	-2.9678	-2.9571	-2.9540	-2.9571	-2.9763	-2.9571	-2.9678	-2.9640	-2.9571	-2.9604
Prob	0.0002	0.0008	0.0023	0.0038	0.0052	0.0000	0.0015	0.0000	0.0045	0.0029
Order of Integration	1(2)	1(1)	1(0)	1(1)	1(2)	1(1)	1(2)	1(2)	1(1)	1(0)
Decision	Stationary	Stationary	Stationary	Stationary	Stationary	Stationary	Stationary	Stationary	Stationary	Stationary

Source: Computed by the Researcher using E-views 10 Econometric Software

Table 4. Multiple regression output

Dependent Variable: TCD				
Method: Least Squares				
Date: 07/14/19 Time: 08:41				
Sample: 1985 2018				
Included observations: 34				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	507.4021	735.6072	0.689773	0.4970
CPI	-25.02641	4.246055	-5.894038	0.0000
LR	10.56295	27.97127	0.377636	0.7090
EXGR	-3.515263	4.675601	-0.751831	0.4595
GOVEXP	0.042010	0.335853	0.125083	0.9015
UNER	-18.79961	22.83125	-0.823416	0.4184
GDP	0.206918	0.016655	12.42383	0.0000
DINTR	-91.48170	35.20341	-2.598660	0.0158
NBB	0.636208	0.170584	3.729594	0.0010
LDR	-4.726848	6.533612	-0.723466	0.4764
R-squared	0.997515	Mean dependent var		5496.064
Adjusted R-squared	0.996583	S.D. dependent var		7352.696
S.E. of regression	429.8034	Akaike info criterion		15.20446
Sum squared resid	4433544.	Schwarz criterion		15.65339
Log likelihood	-248.4758	Hannan-Quinn criter.		15.35756
F-statistic	1070.395	Durbin-Watson stat		1.807584
Prob(F-statistic)	0.000000			

Source: Computed by the Researcher using E-views 10 Econometric Software

3. DISCUSSION OF RESULTS

The multiple OLS results in Table 3 shows that consumer price index and deposit interest rate were negative and significantly impacted on deposit mobilization in Nigeria. This is confirmed by their beta coefficient of (-25.02641 and -91.48170) with a probability of (0.0000 and 0.0158) respectively. This implies that a 1% increase in these variables brings about 25.02641 and 91.48170 percent decrease in deposit mobilization in Nigeria. Consumer price index was in line with the a-priori expectation of the study and confirms the findings of [23] that there exist a significant and negative relationship amongst demand, savings and time deposit with inflation in Nigeria while that of deposit interest rate was contrary to the a-priori expectation of the study and hence did not support the works of [15] who found out that Deposit Interest Rate had positive influence on bank deposit growth.

Also, fluctuations of exchange rate, unemployment rate and loan-to deposit ratio have insignificant negative impact on deposit mobilization in Nigeria. This is confirmed by their coefficient and probability as follow: EXGR (- 3.515263 and 0.4595), UNER (-18.79961 and 0.4184), LDR (-4.726848 and 0.4764). This evidence suggests that 1% rise in these

variables (EXGR, UNER and LDR) reduces the deposit mobilization efforts of banks in Nigeria. Exchange rate was contrary to the a-priori expectation of the study and thus did not agree with the findings of [21] who found out that exchange rate has positive influence on bank deposit. Unemployment rate and loan-to-deposit ratio exacted a negative relationship with bank deposit and was in tandem to the a-priori expectation of the study. This negative relationship between LDR and TCD agrees with the findings of [21,15].

On the other hand, changes in lending rate and Government expenditure have insignificant positive impact on deposit mobilization in Nigeria. This is confirmed by their coefficient and probability as follow: LR (10.56295 and 0.7090), GOVEXP (0.042010 and 0.9015). This evidence suggests that a 1% increase in these variables (LR and GOVEXP) increases the deposit mobilization efforts of banks in Nigeria. Lending rate was not in line with the a-priori expectation of the study and thus, did not support the findings of [19] while that of Government expenditure was in conformity to the a-priori expectation of the study and hence did not support the works of [15] who found out that government expenditure had negative influence on bank deposit.

Finally, changes in Gross domestic product and number of bank branches have significant positive impact on deposit mobilization in Nigeria. This is confirmed by their coefficient and probability as follow: GDP (0.206918 and 0.0000), NBB (0.636208 and 0.0010). This evidence suggests that a 1% rise in these variables (GDP and NBB) increases the deposit mobilization efforts of banks in Nigeria. Both variables agree with the a-priori expectation of the study and hence, confirm the findings of [21]. However, a look at the global statistic result shows that the coefficient of determination is 0.996583. This means that 99.7% of variation in deposit mobilization is explained by the macroeconomic dynamics and bank-specific factors in Nigeria leaving only 0.3% to the error term. This relationship is significant at 5% level since the F-statistic of 1070.395 falls outside the critical region of + (-) 0.000000.

3.1 Stability Diagnostic Test

The Ramsey Reset Test determines the fitness of the model, whether it was properly specified or not. The null hypothesis of Ramsey Reset specification is that the model is well specified as there is no omitted variables. If the p-value of F-statistic is greater than conventional significance level of 0.05%, the null hypothesis of correct specification would not be rejected. On the other hand, if the p-value of F-statistic is significant at 0.05, the null hypothesis is rejected. From Table 4, the p-value of F-statistic is insignificant at 5% signifying that our model does not suffer from endogeneity causing biased coefficient estimates.

3.2 Co-integration Test

The results of the Johansen co-integration test presented below indicate at least seven and six co integration equations for trace and max-eigen statistics respectively. The result, therefore, confirms the existence of co-integration among the variables. Consequently, we can conclude that there exists a long run equilibrium

relationship between macroeconomic dynamics, bank-specific factors and deposit mobilization of the Nigerian banking sector.

3.3 Granger Causality Test

Having established the long run relationship between the variables, the study further determines the direction of relationship between macroeconomic dynamic, bank specific factors and deposit mobilization. The result of this estimate is presented in Table 5.

H0: No Granger Causality

H1: Null hypothesis is not true

Decision Criteria: Reject null hypothesis if the prob-value of the F-statistics is < 0.05 otherwise accept H0.

The result of the granger causality test shows that

1. Consumer price index granger causes total customer deposits (P-value: 0.0069 < 0.05)
2. Lending rate does not granger causes total customer deposits (P-value: 0.9427 > 0.05)
3. Exchange rate granger causes total customer deposits (P-value: 0.0377 < 0.05)
4. Government expenditure granger causes total customer deposits (P-value: 0.0008 < 0.05)
5. Unemployment rate granger causes total customer deposits (P-value: 0.0163 < 0.05)
6. Gross domestic product granger causes total customer deposits (P-value: 0.0012 < 0.05)
7. Deposit interest rate does not granger causes total customer deposits (P-value: 0.3479 > 0.05)
8. Number of bank branches does not granger causes total customer deposits (P-value: 0.2058 > 0.05)
9. Loan-to-deposit ratio does not granger causes total customer deposits (P-value: 0.1034 > 0.05)

Table 5. Ramsey reset specification results

Ramsey RESET Test			
Equation: UNTITLED			
Specification: TCD C CPI LR EXGR GOVEXP UNER GDP DINTR NBB LDR			
Omitted Variables: Squares of fitted values			
	Value	df	Probability
t-statistic	0.648627	23	0.5230
F-statistic	0.420717	(1, 23)	0.5230
Likelihood ratio	0.616309	1	0.4324

Source: Computed by the Researcher using E-views 10 Econometric Software

Table 6. Johansen co-integration test results

Date: 07/14/19 Time: 10:51
Sample (adjusted): 1987 2018
Included observations: 32 after adjustments
Trend assumption: Linear deterministic trend
Series: TCD CPI LR EXGR GOVEXP UNER GDP DINTR NBB LDR
Lags interval (in first differences): 1 to 1
Unrestricted Cointegration Rank Test (Trace)

Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.995842	672.0289	239.2354	0.0000
At most 1 *	0.989096	496.5846	197.3709	0.0001
At most 2 *	0.979088	351.9879	159.5297	0.0000
At most 3 *	0.951358	228.2300	125.6154	0.0000
At most 4 *	0.769712	131.4854	95.75366	0.0000
At most 5 *	0.662046	84.49589	69.81889	0.0022
At most 6 *	0.573760	49.78085	47.85613	0.0326
At most 7	0.396749	22.49278	29.79707	0.2719
At most 8	0.168178	6.319266	15.49471	0.6578
At most 9	0.013252	0.426906	3.841466	0.5135

Trace test indicates 7 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values
Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized		Max-Eigen	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.995842	175.4443	64.50472	0.0000
At most 1 *	0.989096	144.5967	58.43354	0.0000
At most 2 *	0.979088	123.7580	52.36261	0.0000
At most 3 *	0.951358	96.74454	46.23142	0.0000
At most 4 *	0.769712	46.98954	40.07757	0.0072
At most 5 *	0.662046	34.71504	33.87687	0.0397
At most 6	0.573760	27.28807	27.58434	0.0545
At most 7	0.396749	16.17351	21.13162	0.2149
At most 8	0.168178	5.892360	14.26460	0.6271
At most 9	0.013252	0.426906	3.841466	0.5135

Max-eigenvalue test indicates 6 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: Computed by the Researcher using E-views 10 Econometric Software

Thus, it can be deduced that bank-specific factors does not granger cause deposit mobilization while macroeconomic dynamics except lending rate granger causes deposit mobilization of the Nigerian banking sector within the period of the study.

4. SUMMARY OF FINDINGS

The result of the analysis has shown that inflation rate measured by the consumer price index and

deposit interest rate has negative and significant relationship with deposit mobilization in Nigeria. Exchange rate, unemployment rate and loan-to deposit ratio have negative and insignificant relationship with deposit mobilization in Nigeria. Lending rate and Government expenditure have insignificant positive relationship with deposit mobilization in Nigeria. However, it was only Gross domestic product and number of bank branches that have positive and significant relationship with deposit mobilization in Nigeria.

Table 7. Pairwise granger causality tests result

Pairwise Granger Causality Tests			
Date: 07/14/19 Time: 11:58			
Sample: 1985 2018			
Lags: 2			
Null Hypothesis:	Obs	F-Statistic	Prob.
CPI does not Granger Cause TCD	32	6.01234	0.0069
TCD does not Granger Cause CPI		7.17076	0.0032
LR does not Granger Cause TCD	32	0.05919	0.9427
TCD does not Granger Cause LR		1.96593	0.1596
EXGR does not Granger Cause TCD	32	3.71037	0.0377
TCD does not Granger Cause EXGR		2.40760	0.1091
GOVEXP does not Granger Cause TCD	32	9.34324	0.0008
TCD does not Granger Cause GOVEXP		1.90659	0.1681
UNER does not Granger Cause TCD	32	4.81200	0.0163
TCD does not Granger Cause UNER		1.31967	0.2839
GDP does not Granger Cause TCD	32	8.74458	0.0012
TCD does not Granger Cause GDP		1.21116	0.3135
DINTR does not Granger Cause TCD	32	1.09820	0.3479
TCD does not Granger Cause DINTR		0.01675	0.9834
NBB does not Granger Cause TCD	32	1.67717	0.2058
TCD does not Granger Cause NBB		3.18719	0.0572
LDR does not Granger Cause TCD	32	2.47074	0.1034
TCD does not Granger Cause LDR		0.42581	0.6576

Source: Computed by the Researcher using E-views 10 Econometric Software

5. CONCLUSION AND RECOMMENDATIONS

From the findings of this study, it has been observed that macroeconomic factors such as inflation rate and unemployment rate and bank-specific factor such as loan-to-deposit ratio negatively affects deposit mobilization of the Nigerian banking sector. This shows that the inflation rate and unemployment rate in Nigeria has been on the increase and as such poses serious threat to the banks in terms of mobilizing more deposits from the public. This calls on management of Deposit Money Banks in Nigeria to devise other strategies to manage these changes in the macroeconomic environment rather than relying on the regulatory bodies so as to remain in the business of banking. Thus, the study concludes the deposit mobilization efforts of the Nigerian banking sector are mostly affected by changes in the macroeconomic environment such as inflation rate and unemployment rate and bank-specific factor such as loan-to-deposit ratio. From the above conclusion, the study therefore recommends that;

1. Banks should fix the deposit interest rate base on the level of customer's deposit such that customer's who deposit more of

their surplus income should earn higher interest rate. This will encourage people to save more and will act as compensation against the rising trend in inflation rate.

2. Banks should be more socially responsive by partnering with the Government and other private sectors in sponsoring various entrepreneurship and skill acquisition training programmes in the country that are employment driven. This will ensure that a good number of the unemployed persons are into paid employment and are earning. This will in turn boost their deposit base.
3. Banks should strike a balance between liquidity and profitability by maintaining an optimum level of liquidity that will enhance public confidence which will invariably ensure regularity of customer deposits.

COMPETING INTERESTS

Author has declared that no competing interests exist.

REFERENCES

1. Selvaraj N, Kumar B. A study on the deposit mobilization pattern of the Dindigul Central Bank Co-operative Bank Limited. J Tourism Hospit. 2015;4:1-8.

2. Churchill RQ. Macroeconomic instability and banks lending behavior in Ghana. *European Scientific Journal*. 2014;16(10): 397-414.
3. Iwedi M. The impact of macroeconomic dynamic on bank lending behavior in Nigeria. *International Journal of Economics and Financial Research*. 2017;2(10):131-139.
4. Central Bank of Nigeria (CBN) Statistical bulletin; 2018.
5. Elser L. Strict dollarization and economic performance: An Empirical Investigation *Journal of Money, Credit and Banking*, Eschborn, Washington DC. 1999;123(5): 1327-1350.
6. Amer SJ, Mohammed SM. The factors that affect to attract deposits in Palestinian Islamic banks. *Asian Journal of Finance and Accounting*. 2017;9(1).
7. Sylvester O. Mobilizing deposits: the role of commercial banks. Ghana; 2010.
8. Kutant A. Evaluating the effects of deposit dollarization in bank profitability. Dealy Hall Bronx, New York. Fordham Publication; 2010.
9. Rose PS. Bank management and financial service. New york: MCGrawhill Company; 2007.
10. Shollapur MR. Fund management in banks: A cost benefit perspectives. *International Business and Economics Research Journal*. 2010;9(11):21-47.
11. Owolabi AU, Adegbite TA. Inflation and capital market performance: The Nigerian outlook. *Journal of Emerging Trends in Economics and Management Sciences*. 2013;5(1):93-99.
12. Mohammad N, Mahdi S. The role of inflation in financial regression (4th ed). Nigeria: Williams Nigeria Limited; 2010.
13. Fatoumata KM. Impact of interest rate on economic growth in Nigeria. *Pyrex Journal of Business and Finance Management Research*. 2017;3(3):98-111.
14. Nugel R. The banking firm and the management of financial institutions; 2012.
15. Ketema GB. Determinants of commercial banks deposit mobilization in Ethiopia. M.Sc thesis, St Merry University, Addis Ababa Ethiopia; 2017.
16. Herald F, Heiko H. Lebanon-determinants of commercial banks deposits in a regional financial center. *IMF Working Paper*. 2009; WP/09/195.
17. Erna R, Ekki S. Factors affecting Mudaraba deposits in Indonesia. *Mudaraba, Indonesia: Evidence from Iran World Applied Sciences Journal*. 2004; 11(1):653-661.
18. Hassan OM. Effect of interest rate on commercial bank deposits in Nigeria (2000-2013). *Proceeding of the First American Academic Research Conference on Global Business, Economics, Finance and Social Sciences (AAR16 New York Conference)*; 2016.
19. Haron S, Wan Azmi WN. Deposit determinants of commercial banks in Malaysia. *Creating Dynamic Leaders. Working Paper Series*. 2006;20(2).
20. Shemsu B. Determinants of commercial bank deposits in Ethiopia: A case of Commercial Bank of Ethiopia. Degree of Master's Thesis Addis Ababa University; 2015.
21. Dereje HA. Determinants of deposit in ethiopian private commercial banks. MSc. Addis Ababa University; 2017.
22. Telatela S. Assessment of factors that determine deposit mobilization in tanzanian financial institution: A case of tanzania postal bank. M Sc Thesis, Mzumbe University, Tanzania; 2013.
23. Akaninyene BO, Innocent OO, Aniekpeno E. Inflation and deposit mobilization in Deposit Money Banks. The Nigerian perspective. *International Journal of Public Administration and Management Research (IJPAMR)*. 2018;4(4):109-121.
24. Emmanuel MOP, Willy M. Factors affecting deposit mobilization by bank agents in Kenya: A case of national bank of Kenya, Kisii County. *International Journal of Economics, Commerce and Management*. 2015;3(6).

APPENDIX 1

Table: Showing the dependent variable and the independent variables for the study

Year	TCD (₦'billion)	CPI (%)	LR (%)	EXGR (₦/\$)	GOVEXP (₦'billion)	UNER (%)	GDP (₦'billion)	DINTR (%)	NBB	LDR (%)
1985	17.6	1.9	9.25	0.89	13.04	6.1	192.27	9.5	1290	66.9
1986	18.14	2.15	10.5	2.02	16.22	5.3	202.44	9.5	1360	83.2
1987	23.09	2.36	17.5	4.02	22.02	7	249.44	14	1476	72.9
1988	29.07	3.8	16.5	4.54	27.75	5.3	320.33	14.5	1659	66.9
1989	27.17	5.5	26.8	7.39	41.03	4.5	419.2	16.4	1849	80.4
1990	38.78	5.7	25.5	8.04	60.27	3.5	499.68	18.8	1934	66.5
1991	52.41	7	20.01	9.91	66.58	3.1	596.04	14.29	2018	59.8
1992	75.04	10.42	29.8	17.3	92.8	3.4	909.8	16.1	2269	55.2
1993	110.45	16.8	18.32	22.05	191.23	2.7	1,259.07	16.66	2352	42.9
1994	142.54	29.7	21	21.89	160.89	2	1,762.81	13.5	2397	60.9
1995	178.96	45.03	20.18	21.89	248.77	1.8	2,895.20	12.61	2362	73.3
1996	214.36	51.47	19.74	21.89	337.22	3.4	3,779.13	11.69	2402	72.9
1997	269.84	56.73	13.54	21.89	428.22	3.2	4,111.64	4.8	2402	76.6
1998	314.3	63.49	18.29	21.89	487.11	3.2	4,588.99	5.49	2180	74.4
1999	476.35	63.63	21.32	92.69	947.69	3	5,307.36	5.33	2180	54.6
2000	702.1	72.87	17.98	102.11	701.05	18.1	6,897.48	5.29	2188	51
2001	947.2	84.9	18.29	111.94	1,018.00	13.7	8,134.14	5.49	2188	65.63
2002	1,157.10	95.2	24.85	120.97	1,018.18	12.2	11,332.25	4.15	3005	62.78
2003	1,337.30	117.9	20.71	129.36	1,225.99	14.8	13,301.56	4.11	3242	61.85
2004	1,661.50	129.7	19.18	133.5	1,426.20	11.8	17,321.30	4.19	3487	68.63
2005	2,036.10	144.7	17.95	132.15	1,822.10	11.9	22,269.98	3.83	3487	70.8
2006	3,412.03	157.1	17.26	128.65	1,938.00	13.7	28,662.47	3.14	3231	63.6
2007	5,357.20	167.4	16.94	125.83	2,450.90	14.6	32,995.38	3.55	4193	70.78
2008	8,702.01	89.7	15.14	118.57	3,240.82	14.9	39,157.88	2.84	4944	80.93
2009	9,989.00	102.2	18.99	148.88	3,452.99	19.7	44,285.56	2.68	5434	85.66
2010	10,837.14	114.2	17.59	150.3	4,194.58	21.1	54,612.26	2.21	5807	74.2

Year	TCD (₦'billion)	CPI (%)	LR (%)	EXGR (₦/\$)	GOVEXP (₦'billion)	UNER (%)	GDP (₦'billion)	DINTR (%)	NBB	LDR (%)
2011	12,330.00	126	16.02	153.86	4,712.06	23.1	62,980.40	1.41	5452	44.77
2012	14,386.00	141.1	16.79	157.5	4,605.39	24.7	71,713.94	1.7	5562	42.31
2013	16,772.00	152.3	16.72	157.31	5,185.32	10	80,092.56	2.17	5638	37.97
2014	18,021.00	158.8	16.55	158.56	4,587.39	7.8	89,043.62	3.38	5525	64.24
2015	17,514.00	170.51	16.85	193.28	4,988.86	13.9	94,144.96	3.58	5468	69.58
2016	18,590.00	213.6	16.87	253.49	5,858.56	14.2	101,489.49	3.75	5568	79.95
2017	19,383.59	246.4	17.58	305.29	6,456.70	18.1	113,711.63	4.13	5712	72.84
2018	21742.79	274.6	16.91	305.58	7,813.74	23.1	127,762.55	4.07	5299	60.16

Source: Central Bank of Nigeria (CBN) and National Bureau of Statistics (NBS) Statistical Bulletins, 2018

© 2019 Bernard; This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Peer-review history:
The peer review history for this paper can be accessed here:
<http://www.sdiarticle3.com/review-history/50584>