

DETERMINANTS OF CAPITAL ADEQUACY OF LISTED DEPOSIT MONEY BANKS IN NIGERIA

Theresa Ekpe Oto¹, Patience Ote Ola²,
& Amity Ijuwo³

^{1, 2 & 3}Benue State University, Makurdi, Benue State, Nigeria
Email: toto@bsum.edu.ng

Abstract

The study evaluates the determinants of capital adequacy of Nigerian Banks for the period of 2007 to 2021. The study used capital adequacy ratio as the dependent variable, while bank-specific factors and macroeconomic variables were used as the independent variables and the study adopted the technique of regression analysis. We found a significant positive influence of ROA, assets quality (AQ), Loan to Assets ratio, and audit quality on capital adequacy ratio of Nigerian banks. The results imply that Nigerian banks tend to maintain a reasonable capital adequacy ratio to maintain stability and comply with the requirements of the Central Bank. Our result further revealed insignificant negative influence of ROE, Bank size and inflation on capital adequacy but significant negative influence of deposit to total deposit to assets ratio (DPS) on CA while liquidity ratio and two of the macro economic variables (GDP and Interest rate) showed an insignificant positive influence on capital adequacy. We found that NDBs focused on maintaining profitability, asset quality and loan to total assets ratio for achieving sustainable performance. The insignificant positive effect of liquidity ratio on CA shows that the non-performing loans of MDBs have no substantial impact on capital adequacy. These results imply that the high proportion of nonperforming loans in Nigeria has adversely affected the capital adequacy of DMBs in Nigeria. The study recommends that Nigerian bank should adhere strictly to regulatory authorities and employ a more logical risk management mechanism.

Keyword:

Introduction

The banking sector in any economy play a vital role in sustaining such economy since it acts as a payment platform and play the role of financial intermediation amongst other roles. As a life wire of the economy, the sector is highly regulated globally. Nigeria like other countries is not left out in terms of banking regulation. The central Bank of Nigeria (CBN) has over the years made different policies regulating the Deposit Money Banks (DMBs) in Nigeria. One of such is the recapitalisation or consolidation policy of 2005 mandating the deposit money banks (DMBs) in Nigeria to have a minimum capital base of twenty-five

billion naira, this policy resulted in reduction in the number of commercial banks from 89 to 24 strong banks as at 2023.

Capital adequacy is one of the key elements used in measuring the state of wellness or otherwise of the banking system worldwide. This is very important to the global community and various regulations has been put in place to regulate the banking sector such as the Basel I, Basel II and currently Basel III. Basel I and II fixed capital adequacy requirement for bank at 8% while Basel III increased it from 8% to at least 10.5% of a bank's risk-weighted assets (Abba et.al, 2018). The increase in capital base of banks by CBN through recapitalisation may

increase the Capital Adequacy Ratio in the short-run but may not have a lasting impact as banks may increase their risk portfolio at the expense of their capital base as a result of increased liquidity and overall performance. The attention of researchers has been drawn to the banking sector following several reforms from 2005 till date resulting to several studies which have been documented in Nigeria on capital adequacy ratio. Despite these efforts by CBN and other regulatory bodies coupled with global recession and several financial scandals faced by Nigerian banks, adoption of Basel II and Basel III, increase in banks' exposure in terms of risk portfolio and rise in non-performing loans from bad credits, studies on the determinants of capital adequacy in Nigeria are inadequate coupled with the fact most of the studies only focused on the bank specific variables as determinant, there is a need to examine empirically the determinants of capital adequacy ratio of DMBs in Nigeria using both bank specific and macroeconomic variables to fill the identified gaps.

Conceptual Clarification

This sections explains the major concepts used in the study.

Capital adequacy

Capital adequacy is the capital set by the regulatory authorities for bank to ascertain the financial health and wellness of banks. It also measures the solvency of the bank and its capacity and efficiency in measuring controlling risk to enhance performance. Capital provides liquidity to the bank since customers deposits are volatile and prone to risk. Banks with bigger capital base is said to enhance the chances of the banks to withstand financial distress. Capital adequacy ratio is considered as the internal strength of the bank

since it shows the financial and liquidity strength of banks (Zubair & Adah, 2022). In this study, CA is measured as a ratio of total equity to total assets.

Performance

Profit is one of the sources of capital in this study, ROA and ROE are used to measure performance. ROA which is the ratio of net profit after tax to total assets is expected to be positively related with CA while ROE represent the cost of raising additional equity. The higher the cost, the lower the CA ratio as such, a negative association between ROE and CA is expected.

Liquidity

The measure of Liquidity in this study is loan to deposit ratio. The higher the ratio, the lower the capital adequacy, the study therefore anticipate an inverse relationship between LQS and CA.

Macroeconomic variables

This study used Gross Domestic Product (GDP), interest rate and inflation as macroeconomic variables

Gross Domestic Product

GDP is a measure of economic growth and financial intermediaries like banks are expected to move in the same direction of economic growth as such the study expect a positive relationship between GDP and CA.

Inflation

Inflation is persistence increase in general price level and is expected to have a negative effect on CA. The implication is that CA is expected to be lower with increase in the rate of inflation.

Interest rate

Interest is the return or income generated from credits to bank customers. Interest rate is determined and regulated by CBN. A positive relationship is expected between interest rate and CA.

Theoretical Clarification

Jensen and Meckling (1976) was the first to introduce this economic theory in explaining the agency-principal relationship. Agency theory is mainly concerned with the principal-agent relationship. It is a contract under which one or more persons (the principal(s)) engage another person (the agent) to perform some service on their behalf which involves delegating some decision making authority to the agent. It is founded on the premise of maximisation of individual advantage, it therefore assumes that the principal and agent are opportunistic and systematically seek their own self-interest and preferences. For Example, conflict between shareholders and management occurs when shareholders prefer to invest in a risky investment with high returns to maximize shareholder's wealth, the managers on the other hand desire the company's stability to secure their jobs. These conflict of interest will affect the level of capital.

Empirical Review

This section deals with the review of empirical works related to the study. The review is arranged in reverse chronology according to the years of publication.

Gharaibeh (2023) examined the determinants of capital adequacy of Jordanian banking sector from 2003-2021 using autoregressive distributed lag (ARDL) for analysis. The study found that a positive relationship between capital adequacy ratio and credit-to-deposits ratio, banks' leverage ratio, banks' liquidity

ratio, and one-year-lagged return on equity. This study focused on the bank specific variables. The outcome might be different if the bank specific variables were combined with macroeconomic variables.

The study of Zubair and Adah (2022) explored the determinants of capital adequacy of deposit money banks using a sample of 9 Nigerian banks from 2014-2019 using correlation research design. They found a significant association between CAR and ROA, bank size, loan to deposit ratio.

Abiodu et.al. (2020) examined the determinants of capital adequacy of the Nigerian banking system using data extracted from ten leading banks in Nigeria from 2007- 2017. The result of the regression analysis showed that ROA and loan to total assets are significantly associated with CA. However, they found that non-performing loans and size are negatively associated with the capital adequacy. Their results however, did not support the association between macroeconomics variables and capital adequacy.

Annor et.al. (2020) evaluated the determinant of capital adequacy among 8 commercial banks in Ghana from 2009-2016 using pooled OLS, random and fixed effect models and the generalized least square models, the results showed that Non-performing loans has negative relationship with CAR and ROA positively impact CAR or asset quality. All the relationships are statistically significant.

Charitou (2019) examines the determinants of the capital adequacy ratios of the US financial institutions from 2012-2017 using a dataset of 2135 bank-year observations, the results show that financial institutions with high operating expenses as a percentage of revenues have lower capital adequacy ratios. This is an indication that bank inefficiencies are an

impediment to robust capital adequacy ratios since the results show that more profitable banks have higher Capital Adequacy Ratios (CAR). Evidence showed that additional two risk related variables affect positively CAR, namely, earnings coverage of net charge off and loss allowance to loans.

Linh et.al. (2019) examined the factors that impacted on Capital Adequacy Ratio of 26 Vietnamese commercial banks from 2008-2013. Through the Panel Tobit model, the study found out that the Net interest margin (NIM), Bank size, GDP Growth, Interest rate and Exchange rate have the inverse relationship with CAR while the Leverage and Deposits positively correlated to CAR.

Hewaidy and Alyousef (2018) investigated the impact of bank-specific and macroeconomic factors on bank's Capital Adequacy Ratio (CAR) of all Kuwaiti listed banks is used for the period from 2009 to 2016. Size, profitability (ROA & ROE), Asset Quality (AQ), Management Quality (MQ), Liquidity (LIQ), Net Interest Margin (NIM), and bank type are used as bank-specific factors. Gross domestic product (GDP) and inflation are used as macroeconomic factors. The findings indicated that in terms of bank characteristics, only bank size, AQ, MQ and bank LIQ have significant impact on CAR. The findings suggests that CAR tends to be more affected by how efficient bank resources are utilised than by any other bank characteristic or macroeconomic variables.

Ikue-John and Nkoro (2019) examined the dynamic responses of profitability indexes to capital adequacy ratios of the 9 authorised internationalised deposit money banks in Nigeria from 2005-2017. The data were sourced from the financial year books of the deposit money banks and analyzed with static

and dynamic panel estimators. The static estimator shows that the banks have differences in managerial style, size and profitability. Also, it was revealed that return on asset and return on equity responded positively to asset size, efficiency of the use of asset and current ratio in the static models and they were highly significant. However, they were insignificant in the dynamic specifications except asset size that was significant in the return on asset model showing a weak dynamic response of profitability to capital adequacy ratios.

Oyetayo et.al (2019) focused on the effect of capital adequacy on bank performance in Nigeria. Data were extracted from 10 selected banks for the study. Unit Root Test and Pooled Panel Least Squares Estimation as well as the Breuch Godfrey test were carried out in the study. The findings of the study, among others, revealed that capital adequacy had a positive and significant effect on the banks performance while liquidity has a negative and significant relationship with the performance of the selected banks implying that the result conforms to the trade-off principle that describes the liquidity and profitability relationship. Also, deposit has a negative and relationship with bank performance even though it is expected to be positive.

Alali (2019) investigated the influence of capital adequacy on financial stability indexes of 13 commercial banks in Jordan from 2013-2018 using descriptive analytic approach in the analysis and the result revealed a statistical significant influence of capital adequacy ratio on financial stability indexes (profit rate and return on invested capital ratio) in Jordanian Banks.

El-Ansary et.al (2019) conducted a study on comparative analysis of CAR between 38 Islamic and 75 conventional banks in 10 MENA countries from 2009-2013. They study used multiple regression analysis and the results showed that both Islamic banks and conventional banks have a significant association between CAR and (Bank size, operational efficiency and GDP growth rate) and CAR is affected retroactively in the long run. In Islamic banks, the results showed a significant association between CAR and deposits to assets ratio, conventional banks however, revealed a statistically significant association between CAR and (profitability, risk and portfolio risk).

Minh and Nga (2018) evaluated the impact of capital adequacy ratio of 10 commercial banks listed on the Vietnam Stock Market. This research used Panel regression techniques to analyze the factors affecting the capital adequacy ratio (CAR) of these listed banks from 2008 - 2016. Research results showed that DEP, ROA, ROE, and SIZE were statistically significant in relation to capital adequacy ratio (CAR) with significance level 5 percent. However, the study did not found significant evidence of the effect of liquidity (LIQ) and loans to asset ratio (LOA) on CAR of listed commercial banks of Vietnam Stock Market.

Udom and Onyekachi (2018) examined the effect of capital adequacy requirements on the performance of commercial banks in Nigeria from 1996-2016. The study used secondary time series data sourced from the NDIC and CBN Annual and Bank Supervision Reports. The data analysis technique employed include the Ordinary Least Squares (OLS) regression method. The overall capital adequacy variables of the study showed that ASF (Adjusted shareholders fund), CRWA (Capital to risk weighted assets), TQC (Total qualifying assets)

together have significant effect on the dependent variable, Return on Asset (ROA), which measures bank performance. The results further showed that capital adequacy impact positively on the financial performance of commercial banks in Nigeria. This implies that capital adequacy strongly and actively stimulate, improve and grow the financial performance of commercial banks and that sufficiency of capital and adequate management can translate to improved performance.

Thoa and Anh (2017) evaluated the determinants of Capital Adequacy Ratio (CAR) of 29 Vietnamese banks from 2011-2015 by selected factors, namely: asset of the bank (SIZE), loans in total assets (LOA), leverage (LEV), net interest margin (NIM), loans lost reserve (LLR), Cash and Precious Metals in total assets (LIQ). The results indicated that NIM and LIQ have significant effect on CAR. On the other hand, SIZE and LEV do not have significant effect on CAR. Variables NIM, LIQ have positive effect on CAR, while variables LLR and LOA are negatively related with CAR.

Masood and Ansari (2016) investigated the determinants of capital adequacy ratio of 14 commercial banks from Pakistan from 2008-2014 using multiple regression analysis, the results showed that the LAT (Loan to Asset ratio) and ownership concentration of more 50% had a significant but a negative impact on the CAR. The EAR (Equity Asset Ratio), DAR (Deposit Asset Ratio), LLR (Loan Loss Reserves) had a significant and positive impact the determination of CAR, whereas the Size of the Bank, ROA (Return on Assets), ROE (Return on Equity) and NPL (Non-Performing Loans) had no impact on CAR.

Olarewaju and Akande (2016) examined the determinants of capital adequacy of 15 listed Nigerian deposit money banks from 2005-2014. The study employed both descriptive and fixed effect panel regression. From the analysis of panel data using Cross-Sectional Specific fixed effect estimations, it is discovered that a direct relationship exists among ETA (equity to total assets), ROA and SIZE while an inverse linear relationship that exists among ROA, CR (Credit risk), DEP (Deposit structure) and LIQ (Liquidity structure) are statistically significant in determining the level of capital adequacy among the deposit money banks in Nigeria.

Umoru and Osemwegie (2016) explored the degree of significance of the capital adequacy ratio in influencing the financial deeds of Nigerian banks from 2007-2015 by applying the feasible GLS estimator technique on the pooled panel model for the study period. Empirical evidence supports the overriding impact of capital adequacy in enhancing the financial deeds of Nigerian banks. However, the impact of the estimated capital adequacy is below 30%. The policy stance of the empirics holds thus that depositor's money in the banking sector has not been absolutely assured.

Ayub and Javeed (2016) examined the implications of CAR on the financing behaviour of 5 Islamic banks in Pakistan from 2005-2014 using panel data technique and the result showed a negative impact of CAR on the financing behaviour of Islamic banks in Pakistan. It also revealed evidence that Islamic banks tend to reallocate their assets portfolio towards secured instrument like government securities (Sukuk).

Aspal and Nazneen (2014) investigated the analysis of capital adequacy in the Indian

private sector banks from 2008-2012 using multiple linear regression analysis, the results showed that CAR is negatively correlated with proxy variables of loans, asset quality and management efficiency but positively correlate with liquidity and sensitivity (Risk sensitive assets-risk sensitive liabilities).

Bateni et.al (2014) focused on seven financial factors on capital adequacy ratio of Iranian Banks from 2006-2012. Using multiple regression analysis, the results showed a negative relationship between bank size and capital adequacy ratio of banks and positive relationship between Loan Asset Ratio (LAR), Return on Equity (ROE), and Return on Asset (ROA), Equity Ratio (EQR), and capital adequacy ratio. RAR and DAR do not have any impact on capital adequacy ratio.

Williams (2011) investigated the determinant of capital adequacy in Nigeria from 1980 – 2008. Co-integration technique revealed that economic indicators such as rate of inflation, real exchange rate, demand deposits, money supply, political instability, return on investment are most robust predictors of the determinants of capital adequacy in Nigeria. However, the study also established that there is a negative relationship between inflation and capital base as inflation erode banks' capital in most developing economy.

Methodology

The study used data of selected twelve DMBs in Nigeria over the period of 2007-2021 making it 180 firm-year observations. The bank-specific variables were extracted from the annual audited reports of the banks while the macroeconomic variables were retrieved from the Central Bank of Nigeria statistical bulletin for the same period. The study employed a

panel regression analysis on the sample data for

empirical analysis using SPSS version 25.

Measurement of Variables

Table 1
Measurement of variables

Variables	Measurements	Source
Capital Adequacy (CA)	Total equity/Total assets	Abiodu et.al (2020); Ikue-John and Nkoro (2019)
Return on Assets (ROA)	Net profit after tax/Total assets	Abba et.al (2018)
Return on Equity (ROE)	Net profit after tax/Total equity	Bateni et.al (2014)
Assets Quality (AQ)	Non-performing loan/Total loans	Aspal and Nazneen (2014)
Deposit to Assets ratio (DPS)	Total deposits/Total assets	Abba et.al (2018); Bateni et.al (2014)
Liquidity ratio (LQS)	Total Liability/Total Deposit	Oyetayo et.al (2019)
Loan to Total Assets ratio (LOTA)	Total loan/Total assets	Allen, Nilapornku and Powell (2013)
Bank Size (BSIZE)	Log of total assets	Abiodu et.al (2020)
Audit Quality (AUD)	Dummy variable, 1 if bank is audited by big 4 or zero otherwise	
Economic Growth (GDP)	As given by the Government	Abiodu et.al (2020)
Inflation Rate (INF)	As given by the Government	Gharaibeh (2023))
Interest Rate (INT)	As given by the Government	Gharaibeh (2023)

Source: Researcher's compilation, 2023.

Model Specification

The following model was adopted for the study:

$$CA_{it} = \beta_0 + \beta_1 ROA_{it} + \beta_2 ROE_{it} + \beta_3 AQ_{it} + \beta_4 DPS_{it} + \beta_5 LQS_{it} + \beta_6 LOTA_{it} + \beta_7 BSIZE_{it} + \beta_8 AUD_{it} + \beta_9 GDP_{it} + \beta_{10} INF_{it} + \beta_{11} INT_{it} + \epsilon_{it}$$

Where CA=Capital adequacy of bank i at time t; ROA: return of assets of bank i at time t; ROE: Return of equity of bank i at time t; AQ: Asset quality of bank i at time t; DPS: Total deposit to assets ratio of bank i at time t; LQS: Liquidity ratio of bank i at time t; LOTA: Loan

to assets ratio of bank i at time t; BSIZE: Size of Bank i at time t; AUD: Audit quality of bank i at time t; GDP: Gross Domestic Product at time t; INF: Inflation rate at time t; INT: Interest rate at time t.

Results and Discussions

This section highlighted the results of the study. The descriptive statistics, correlation analysis and the panel regression results are presented and analysed below;

Table 2
Descriptive Statistics

Variables	Mean	Std. Deviation	N
CA	0.131	0.170	180
ROA	0.016	0.023	180
ROE	0.070	0.414	180
AQ	0.188	0.391	180
DPS	0.686	0.414	180
LQS	0.656	0.393	180
LOTA	0.402	0.161	180
BSIZE	27.268	1.245	180
AUD	0.917	0.277	180
GDP	1.364	1.018	180
INF	11.816	3.439	180
INT	6.127	6.149	180

Descriptive Statistics of the dependent and explanatory variables

The mean of capital adequacy ratio from the above table is 13.08% which is within the regulated CAR of 10-15% in Nigeria as at 2023. The standard deviation is 17.0%, the implication is that there is a high disparity in capital adequacy between the banks under investigation. The average value of ROA was 1.6% with deviation of 2.3%. The mean of the ROA shows that there is low level of profitability within the banks. ROE recorded average value of 7.0% with a high deviation of 41.4%. For the assets quality (AQ), its average value is 18.8 and a deviation of 39.1% is considered high as compared with the regulatory minimum of 10%-15% in the CBN

prudential guidelines. Debt to total assets ratio recorded an average value of 68.6% with deviation of 41.4%, this implies that depositors money are secured, that is, on an average, 68.6% of the depositor's money will be paid back by total assets in the event of bank liquidation. The mean of liquidity of 65.6% has a high deviation of 39.1%. The average of loan to assets ratio is 40.2% and deviation of 16.1%. Bank size has an average of 27.27 with deviation of 1.25. Average of economic growth (GDP) was 13.6% with deviation of 10.1%. The mean value of inflation is 11.82% and deviation of 1.02%. The average interest rate was 6.13% with deviation of 6.15%.

Table 3**Correlation Matrix**

	CA	ROA	ROE	AQ	DPS	LQS	LOTA	BSIZE	AUD	GDP	INF	INT
CA	1.000											
ROA	.359	1.000										
ROE	.100	.504	1.000									
AQ	-.047	-.216	-.144	1.000								
DPS	-.463	-.203	-.029	.395	1.000							
LQS	.263	.168	.062	-.327	-.296	1.000						
LOTA	.203	.096	.049	-.391	-.085	.606	1.000					
BSIZE	.072	.084	.074	-.159	-.155	.042	.161	1.000				
AUD	.342	.293	.178	-.175	-.121	.135	.109	.281	1.000			
GDP	.123	.051	-.034	.125	.059	-.077	-.106	-.409	.000	1.000		
INF	-.083	.039	.011	.009	-.027	.138	-.001	-.137	.000	-.367	1.000	
INT	-.029	-.206	-.157	.141	.164	-.016	.146	.470	.000	-.093	-.346	1.000

Table 4**Collinearity Statistics**

Variable	Tolerance	VIF
ROA	0.647	1.545
ROE	0.721	1.387
AQ	0.659	1.517
DPS	0.715	1.399
LQS	0.541	1.849
LOTA	0.529	1.889
BSIZE	0.500	2.001
AUD	0.814	1.228
GDP	0.614	1.629
INF	0.663	1.508
INT	0.561	1.782

The correlation matrix displayed in table 3 above shows that a good correlation exist between CA and the independent variables (-0.029 to 0.359). Similarly, the correlation among the explanatory variables are not so high and as a result, there is no autocorrelation problem.

The Variance Inflation Factor (VIF) and tolerance are used to measure the severity of multicollinearity. As seen in table 4 above, the tolerance level for the variables are above 0.1. Tolerance level of below 0.1 shows multicollinearity problem. The variance inflation factors for the variables are below 4 which is an indication of the absence of multicollinearity.

Table 5

Panel Regression Result

Table 5 presents the result obtained from the regression model.

Model	Standardised coefficients Beta	T	Sig
(Constant)		1.170	.244
ROA	.260	3.685	.000
ROE	-.043	-.644	.521
AQ	.321	4.599	.000
DPS	-.508	-7.577	.000
LQS	.017	.220	.826
LOTA	.238	3.060	.003
BSIZE	-.098	-1.222	.223
AUD	.268	4.266	.000
GDP	.056	.768	.444
INF	-.090	-1.298	.196
INT	.042	.550	.583

a Dependent Variable: CA

R²=0.460; R² (Adjusted)= 0.424; Std error of Estimate=0.12906; F Change=12.988; Durbin-watson=1.300

The panel regression results in table 5 above indicate that ROA has a statistical positive significant effect on capital adequacy ratio. This means that if ROA is increased by one, CA will increase by 3.6%. This findings agrees with the apriori expectation of positive relation between ROA and CA. The finding is consistent the works of Abiodun et.al (2020);

Bateni et.al (2014); Ikue-John and Nkoro (2019) and Annor et.al (2020) but contradicts the findings of Olarewaju and Akande (2016). The positive and significant effect validates the expectation that higher retained earnings due to an increase in profitability will increase the capital adequacy ratio. Retained earnings form a substantial component of banks equity or

capital so an increase in profitability would increase retained earnings and equity capital. However, a loss would lower retained earnings and shrink the equity capital of a bank, which will also reduce the capital adequacy ratio. It is not surprising therefore that the result above revealed a negative but insignificant impact of ROE on CA. this means an increase in ROE will result to insignificant decrease of CA of Nigerian banks by 0.64%.

The result of assets quality (AQ) measured by NPL to total liability revealed a positive significant impact on CA meaning an increase in AQ will lead to an increase in CA by 4.59%. The implication is that, the sampled banks have good asset quality evidenced by reduction in non-performings loans in relation to total loans and this will improve the profitability of the banks This result is however, is a sharp contrast from the findings of Abba et.al 2018 and Umoru and Osemwegie (2016) that revealed a negative relationship between CA and asset quality evidenced by increase in non-performing loans in relation to total loans Total deposit to total assets (DPS) ratio shows a negative impact on CA. The implication is that an increase in DPS will significantly reduce CA by 7.58%. The liquidity ratio also has a positive insignificant effect on capital adequacy. The finding is consistent with earlier

Conclusion and Recommendations

The study evaluated the determinants of capital adequacy of Nigerian Banks using bank-specific and macroeconomic determinants of capital adequacy in Nigeria for the period of 2007 to 2021. The study revealed a positive relationship between capital adequacy and ROA, AQ, LOTA, LQS, GDP and INT while ROE, BSIZE, and INF recorded a negative relationship with CA. On the overall the study concludes that ROA, AQ, DPS, LOTA are the

studies of Olarewaju and Akande (2016) and Thoa and Anh (2017) but in contrast with the findings of Abiodu et.al (2020) and Oyetayo et.al (2019). On the contrary, the loan to total assets ratio has a significant positive effect on the capital adequacy of Nigerian banks. The coefficient implies that a unit increase in LOTA will translate to an almost 3.06% increase in capital adequacy ratio. Thus, as LOTA increases, the capital adequacy ratio of banks also increases. This is in agreement with the findings of Abiodu et.al (2020); Bateni et.al (2014); but in contrast with Masood and Ansari (2016) and Thoa and Anh (2017). Bank size revealed an insignificant adverse effect on capital adequacy. It has been observed that larger banks make use of more leverage than equity as compared to smaller banks. The results are similar to those of Abiodun et.al (2020); Bateni et.al (2014) and Linh et.al. (2019) but inconsistent with Hewaidy and Alyousef (2018). These studies document that size exerts a significant negative effect on the capital adequacy ratio of banks. Thus, large banks are associated with a low capital ratio. For the macroeconomic variables, only inflation had an insignificant negative effect on the capital adequacy ratio. However, the impact of economic growth (GDP) and interest rate on CAR was positive but insignificant.

major determinants of capital adequacy, while ROA, AQ and LOTA are positively associated with capital adequacy, DPS is negatively related with CA. The study therefore recommends that bank regulators should encourage banks to improve their performance, improve their assets quality in term of reduction in non-performing loans and loans to total assets ratio to guarantee the depositors funds and also implement policies that will improve the capital adequacy of banks.

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