

# Effect of Prudential Regulation on the Financial Performance of Quoted Deposit Money Banks in Nigeria

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*Abstract:* - International and national financial authorities are constantly issuing new prudential policies, rules, and guidelines to ensure a safe and sound financial system. How well the deposit money banks (DMBs) have kept to these prudential thresholds is expected to reflect on their financial performance. However, there has been no consensus by previous studies on the effect of prudential regulation on financial performance of deposit money banks. As such, this study seeks to assess the effect of prudential regulation on the financial performance of deposit money banks in Nigeria from 2011 to 2020. The prudential regulation is proxied by - capital adequacy, liquidity, leverage, and asset quality as the independent variables while the financial performance is proxied by earnings per share (EPS) as dependent variable. The data was sourced from the annual reports of the thirteen (13) quoted deposit money banks and analysed using descriptive statistics and Panel Data Regression to determine the relationships between the variables. As a form of diagnostics test, Jarque-Bera test was engaged for checking for normality, Pearson Correlation was employed to evaluate the degree of relationship among variables and extent of linearity, Unit root test was used to test for stationarity and the Hausman test to determine whether to use fixed or random effect panel least square regression of which fixed effect model was favoured. Data were estimated with STATA 15. The significance level was set at 0.05. Findings from the study reflect that capital adequacy has a positive coefficient of 0.7166 and a non-significance level of 0.5250 on financial performance using the EPS. Liquidity has a positive coefficient of 0.1804 and non-significance level of 0.8720 on the EPS. Asset quality has a co-efficient of -0.2843 and non-significance level 0.8850 on the EPS. Leverage has a coefficient of -1.5006 and a non-statistical significance level of 0.3800 on the EPS. The study concludes that an increase in capital does not necessarily translate to higher EPS, higher liquidity lessens banks' liquidity risk, asset quality in form of non-performing loans reduces the bank's capacity to create further loans, hence less earnings for the bank and leverage negatively influences financial performance. It is also discovered that control variables - age and size of banks - are positive determining factors for financial performance of banks. The study recommends that the CBN as the Regulator needs to strengthen capital adequacy by moving it to thresholds that will be impactful enough on the financial performance, get the banks to improve on asset quality by bringing non-performing loans to the regulatory limit, be discretionary in the use of regulatory forbearance and interventions to bail out the banks to prevent reckless lending conduct. Lastly, banks are required to pay attention to the capital mix (leverage) to reap its benefits and manage the associated risk.

*Key-Words:* - Earnings Per Share, Regulatory Capital, Liquidity, Risk Asset Quality & Leverage

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## 1 Introduction

The global financial system was hit by an unprecedented crisis in the 1930s which led to a reduction by 40%, in the number of commercial banks in the United States of America within three (3) years [1]–[3]. This was after the Showa financial crisis of 1927 in Japan that resulted in poor financial performance and mass failure of banks across the Empire of Japan [4], [5]. History would not also forget the waves of similar systemic failures such as

the Norwegian, Swedish, Finnish, Peruvian, Venezuelan and Asian banking crises in the 1990s [2], [6]–[8].

The 2008/2009 global financial crisis caused by excessive risk-taking by the banks and the United States' housing bubble burst which caused a nosedive in the values of derivatives and other securities tied to the United States' real estate [9], [10] and pockets of related incidents across the globe have taken a place in banking history [11],

[12]. Nations around the world have experienced well over 151 systemic banking crises from 1970 to 2017 [11]–[14]. This has put the banks in the centre of intense scrutiny, as they were held responsible for creating or fueling the financial crisis [7], [15]. It also necessitated the search for causes of the systemic failure and more effective ways to ensure a sound and stable banking system that could avert future banking crises [16]. [17], [18] opined that one of the major causes of the global financial crisis in 2008/2009 was utmost disregard for prudential regulation and as such, called for the strengthening of prudential regulation across the globe. A school of thought advocated that the global financial system must adopt a systemic perspective to prevention and early identification of weaknesses in the financial system often heralded by negative financial performance – persistent decline in return on assets (ROA), earnings per share (EPS), and other performance measurements - by using a strengthened and comprehensive prudential regulation [19]. The Nigerian financial system that was already fragile due to poor risk management, the burden of non-performing loans, and poor corporate governance slid into crisis due to the global financial meltdown of 2008 [20]. The Nigerian banking system had witnessed the bailout extended to eight (8) deposit money banks (DMBs), sacking of the chief executives and boards of those banks and nationalisation of three (3) banks, into bridge banks by the Central Bank of Nigeria (CBN) and Nigerian Deposit Insurance Corporation (NDIC) in 2009 due to financial distress the banks suffered as a result of huge non-performing loans [20], [21]. It became pertinent to tighten its financial regulation for a safe and sound financial system and to protect depositors’ funds. However, this needs to be done without discouraging competition, openness, and innovation [19]. As a response to this, effective July 1, 2010, the CBN released prudential regulation through the Prudential Guidelines (PG) for Deposit Money Banks {Central Bank of Nigeria [22]. As of December 31, 2021, Nigeria had thirty-one (31) deposit money banks of which thirteen (13) were quoted on the Nigerian Exchange Group (NGX) [22]. Ten years’ post-implementation of the new prudential guidelines, some banks have been meeting the prudential thresholds while some are still falling short in meeting capital adequacy, non-performing loan (NPL), and other ratios which are all integral parts of the prudential regulation for Nigerian banks [23]. The result of these vagaries is often mirrored in the financial performance of the banks through the impact it has on profitability [1], [24].

## 2 Problem Formulation

The study is geared towards how the application of prudential regulatory rules can trigger a safe and sound banking system that will be reflective in the financial performance of the quoted deposit money banks.

The main objective of the study is to find out the effect of prudential regulations (guidelines) on financial performance of quoted deposit money banks in the Nigerian financial sector. Thus, the specific objective is to examine the influence of capital adequacy; liquidity; asset quality; risk asset quality; leverage; on earning per share in Nigerian quoted deposit money banks.

### 2.1 Literature Review

#### 2.1.1 Operational Conceptual Framework

The selected variables are conceptualised in figure 1 as shown below:

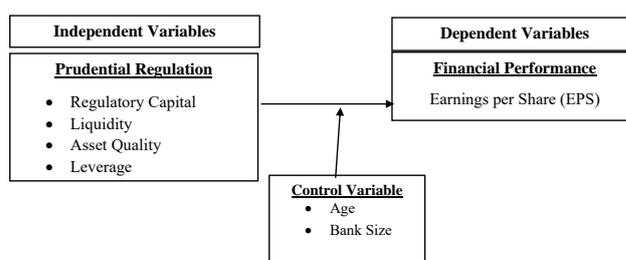


Fig. 1: Operational Conceptual Framework

Source: Researcher 2022 adaption [1], [3], [4], [24], [25]

#### 2.1.2 Empirical Review

The global financial crisis of 2008/2009 gave a renewed awakening to the importance of strict prudential regulations on banking practice across the globe. As a remedial and proactive measure, the Bank of International Settlements (BIS) released more robust, risk-based and forward-looking prudential guidelines for the global banking practice in 2009, which was adopted and domesticated by each country to control risks, hold adequate capital, protect depositors’ funds and ensure stability of the financial system [26]. However, there were still cases of negative financial performances that ultimately led to bank failure. For instance, in 2019, the USA witnessed failure of four (4) banks - the Enloe state bank, Louisa community bank, Resolute bank and City national bank of New Jersey, and in 2020, 4 (four) other banks - Ericson state bank, the First state bank, first city bank of Florida and Almena state bank went under [27]. In November 13, 2018, court order was issued for final liquidation of VBS mutual bank of South Africa; a bank that

failed due to severe liquidity problem [28]. In Nigeria, the annual reports of Unity bank plc showed that the bank made losses in 4 years (2013, 2016, 2017, 2018) out of 10 years post introduction of revised prudential regulation. Can this be an indication that prudential regulation aimed at strengthening the stability and soundness of the banking sector has not been effective?

There are several empirical studies conducted internationally on: the USA, China, Canada, Spain, Vietnam, Iran, Saudi, Nepal, Barbados, Jamaica, Trinidad and Tobago, Jordan, India, Indonesia, Pakistan, Oman, Ethiopia, Bangladesh, Rwanda, Kenya, Morocco, Kenya and South Africa and locally (Nigeria) in relation to prudential regulation and its effect on banks' financial performance. Some of the studies which examined the individual components of prudential regulation and financial performance are [1], [14]–[17], [29], [30], [30]–[42], [42] and found significant effect of the prudential regulations on the various banks' performance.

However, some other studies looked at combination of components and presented diverse results. Such as the work of [38] established a significant relationship between liquidity and banks' financial performance on the ground that availability of liquidity is a risk-taking incentive which if well managed, results to better bank performance and if poorly managed, poor bank performance. studies by [18] who found out that banks that hold higher fraction of liquid assets in cash and government securities tend to have a lower net interest margin than banks with less liquid assets in his works to examine the impact of the liquidity management on profitability in the Jordanian commercial banks. [32] who also found that there is an existence of causality and long-run relationship between liquidity management measures and bank performances in Nigeria was established. Similarly, [42] drew the same conclusion of positive relationship between liquidity and profitability in the study on banks in Pakistan. Still on banks operating in Pakistan, [41] extended the study testing liquidity impact on EPS, ROA, ROI, ROE and net profit margin averred that ROA and ROE have positive relationship with liquidity but EPS and ROI have adverse relationship with liquidity. Lastly, [18] investigated the relationship between bank's loan creation as a measure of liquidity and financial performance for two banks in Jordan and the result of the study indicated that there was a positive and non-significant impact of LDR on ROA.

In addition, a number of studies have been carried out on the effect of prudential regulations on performance of banks across the globe with respect to China (Jiang, 2014), South America (Williams, 2015), United States of America (Saunders and Cornett, 2011), European Union (Marin et al., 2019), Middle East and North Africa (MENA) countries [1], [3], [4], [6], [13], [14], [24], [25], [43]–[47]. However, the regulatory and financial performance indicators adopted as independent and dependent variables were grossly under-explored. Indicators such as capital adequacy, liquidity, asset quality and leverage have witnessed some coverage on stand-alone basis in previous studies but no much studies have been done to assess the combined effect of prudential indicators (capital adequacy, liquidity, risk asset quality and leverage) on the banks' performance using both accounting-based and market based measurements, factoring in control variables and having full coverage of 10 year period of introducing revised prudential regulations in Nigeria to aid investment decisions in the Nigerian banking sector.

Furthermore, most previous studies in the research area have produced limited evidences, mixed and inconclusive results. For instance, while [18], [44], [45], [48] agreed to some form of causal relationships between prudential regulation and bank's performance, Researchers like [49]–[51] disagreed. This necessitates further research into the direction of causality. Therefore, this study sought to reduce the above-mentioned gaps by investigating the individual and collective effects of a set of four (4) prudential indicators on the financial performance of quoted deposit money banks in Nigeria in the last 10 years that the new prudential regulation was introduced so as to eliminate the incidence of limited evidences, mixed and inconclusive result and ascertain a clear direction of causality.

### 2.1.3 Theoretical Framework

The public interest theory is found to be most suitable in anchoring this study. It offers the suitable foundation and framework that best support the assessment of prudential regulation on financial performance of DMBs in Nigeria. Public Interest theory assumes that the markets in an economy are very fragile and prone to inefficiency that will benefit individuals instead of the society at large and that governments can correct these market failures through regulation (Shleifer, 2005). Banking business is characterized by high risk by virtue of using depositors' funds for business, limitless yearning for profits, fierce competition, and insiders

abuses in some cases. All of these are around the depositors' funds [21]. The safety of depositors' funds should not be compromised. As such, there has to be a regulatory body that will set rules and moderate the activities of the banks in the public interest; in this case, to protect the depositors and ensure the financial system is safe and sound for economy to thrive.

### 2.1.4 Methodology

The study was a panel (longitudinal and time series) survey of quoted banks on the Nigerian Exchange Group (NGX Group) and the descriptive research methodology was employed. The variables examined consisted of Earnings Per Share (EPS) as proxies for bank's financial performance which is the dependent variable and Capital adequacy, Liquidity, Risk Asset Quality and Leverage which represent the independent variables. Emphasis was on prudential guidelines that have taken place in Nigeria.

The target population of the study comprised of all the thirteen (13) licensed deposit money banks that are listed on the Nigeria Exchange Group (NGX). All the quoted banks are up to 10 years on the Nigerian Exchange Group (NXG).

For this study, the panel cross-sectional and time-series secondary data collected were analyzed using the Static Panel Regression estimation procedure suggested by [29], [36], [39], [52]. The study's model specification is adopted from the study [39], who also investigated the effect of prudential regulations (guidelines) on financial performance. Therefore, the model specification for the test of the posited hypotheses is stated thus:

For this study, the model is specified as:

$$EPS_{it} = X_0 + X_1RCA_{it} + X_2LQD_{it} + X_3AQY_{it} + X_4LEV_{it} + X_5AGE_{it} + X_6BSZ_{it} + \mu_{it} \dots (3.1)$$

Where:

EPS<sub>it</sub> = Earnings per Share (as proxy for financial performance) for bank (i) and at time (t)

X<sub>0</sub> = Constant; X<sub>1</sub>, X<sub>2</sub>, X<sub>3</sub>, X<sub>4</sub>, X<sub>5</sub> and X<sub>6</sub> = Coefficients; RCA=Regulatory Capital; LQD = Liquidity; AQY = Risk Asset Quality & LEV = Leverage; μ = Error term.

## 3 Problem Solution

### 3.1 Descriptive Statistics

This sub-section presents the descriptive statistics of the bank specific prudential indicators that determine the financial performance of deposit money banks in Nigeria. It shows their respective

mean, median, maximum/minimum value, standard deviation and the Jarque-Bera normality test which is a goodness-of-fit test to ascertain if the sample data have the skewness and kurtosis that show normal distribution. This is a precondition for fitting the panel regression model. Table 4.1 below shows the descriptive statistics of all the variables in the study.

Table 1. Summary Statistics

	EPS	RCA	LIQ	AQY	LEV	AGE	BSZ
Mean	144.432	12.542	40.324	10.389	10.853	47.192	2089.785
Median	133.312	18.255	37.22	5.545	13.13	30	1311
Maximum	458.9	30	87.32	98	64.93	116	8680
Minimum	-425.231	-213.6	17.06	1.2	-200.7	5	135
Jarque-Bera	267.415	6596.92	91.638	2035.718	7631.615	20.833	70.439
Probability	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Observations	130	130	130	130	130	130	130

Source: Author's Computation, 2021

Table 4.1 examines the descriptive statistics of the profile of variables. It is noted that the financial performance of banks proxied with earnings per share (EPS) was at the mean of 144k and the maximum and minimum EPS stood at 458.9k and -425.2k. This is an indication that some of the considered banks made a profit while some made losses. For EPS, the standard deviation was at the value of 104.721 and the Jarque-Bera result was at the significant value of 267.415 (P-value of 0.000) which is less than 5% critical value. This shows that EPS is significant in predicting financial performance. As indicated in the Table, the average capital adequacy ratio of deposit money banks in Nigeria was 12.54%. The figure is above the 10% statutory requirement in the CBN Prudential Regulation Guideline for the DMBs of July 1, 2010 (CBN, 2010). However, currently, the minimum requirement of 10% is set for banks with National and Regional licence while 15% is set for banks with International banking licence and 16% for banks with an international banking licence who also qualify as systemically important banks (SIBs). The "mean" in the table is the average of 10 years period (2011 to 2020). This implies that the Nigerian DMBs hold more capital than required. It is worthwhile to mention that as much as adequate capital helps in having an appetite for more risk-taking and loss absorption, it does not automatically translate to high financial performance because some banks may prefer less risky investments, which result in a lower profit or conversely, have huge non-performing loans portfolio and can result to high loan loss provisions; hence, lower profit. Liquidity stood at an average of 40.32% as against

the CBN’s set minimum limit of 30%; a clear indication that the Nigerian DMBs are liquid on the average. The average non-performing loan which reflects the asset quality of the DMBs in the stated period stood at 10.39%. This is above the statutory maximum limit of 5% (CBN, 2010). It is a clear reflection of high exposure to credit risk and the relationship of the high non-performing loan portfolio is expected to be negative with profit. Leverage stood at 10.85%; an average that falls within the regulatory maximum allowable limit of 25%. This reflects a good capital mix among Nigerian DMBs. More importantly, regarding the test for normality, as observed in table 4.1, the test for all the variables returned a p-value less than 0.05 (5%) level of significance, thus, implying that the variables are normally distributed. As such, the variable natural logarithm transformation is used to correct for the non-normality seen in the series before modelling in sub-section 3.4.

### 3.2 Unit Root Test

This a test for stationarity in a time series data. Stationarity is present in a time series if a shift in time does not cause a change in the shape of the distribution and on the other hand, there is no stationarity if a shift in time causes a change in shape of the distribution. Unit root is a cause for non-stationarity. The test result and interpretation are contained in Unit-Root Table 2.

Table 2. Unit-Root

Ho: Panels contain unit roots		Number of panels		13	
Ha: Panels are stationary		Number of periods		10	
Xtunitroot	Statistic	Statistic	p-value	Decision	
EPS	Unadjusted t	-3.5718	0.946	Not Stationary	
	Adjusted t*	1.6058			
RCA	Unadjusted t	-11.1612	0.000	Stationary	
	Adjusted t*	-9.7083			
LIQ	Unadjusted t	-8.2131	0.000	Stationary	
	Adjusted t*	-3.6871			
AQY	Unadjusted t	-8.9427	0.000	Stationary	
	Adjusted t*	-3.7669			
LEV	Unadjusted t	-7.8342	0.000	Stationary	
	Adjusted t*	-6.1301			

\*Not Stationary, i.e (p-value < 0.05)

Variable Key:

EPS: Earnings per share	LQD: Liquidity
REC: Regulatory Capital	AQY: Risk Asset Quality
LQD: Liquidity	LEV: Leverage

Source: Stata 15 Output

As a precondition for the analysis of panel data variables, the need to ensure that the variables are stationary requires unit root tests of each of the variables in the model. The outcome of our unit root tests using the Levin-Lin-Chu unit-root test for

panel data shows that only EPS is not stationary; all other variables are stationary as seen in the unit root test table above. As a result of most variables having no effect of unit root (stationary), the variables not stationary are therefore transformed (differenced) by taking their natural logarithm before fitting the static panel regression panel for optimal result.

Table 3. Test of Multicollinearity Table

Model	Coefficients <sup>a</sup>	Collinearity Statistics	
		Tolerance	VIF
1	CAPITAL ADEQUACY (Equal to or greater than 10%)	.097	10.360
	LIQUIDITY (Equal to or greater than 30%)	.761	1.315
	ASSET QUALITY i.e Non Performing Loan Ratio (Equal to or less than 5%)	.184	5.445
	LEVERAGE	.217	4.618
	AGE	.866	1.155
	BANK SIZE i.e Total Assets	.769	1.301

a. Dependent Variable: EPS

From the test multicollinearity shown in table 4.3 above, it was noticed that only the variable “Capital Adequacy” returns a high VIF value but does not exceed the minimum condition (<13) for no collinearity stated by the Variance Inflation Factor (VIF). As such, it is seen that the variable “Capital Adequacy” greatly exhibits the collinearity tendency, hence we cannot apply Panel Data Regression (generalised least square GLS) model without a natural log transformation of the variable “Capital Adequacy” to correct for the effect of almost multicollinearity observed. Furthermore, fitting the GLS model (fixed and random effect model) will further minimize the effect of multicollinearity which is a classical model assumption violation.

### 3.3 Diagnostic Tests - Determination of Best Panel Regression Model

Before delving proper into the hypothesis analysis of the prudential regulation on financial performance of quoted banks in Nigeria, the researcher decide on the most appropriate panel regression model technique for the estimation. Hence, as earlier highlighted, this study used the Lagrange multiplier test (LM) to first determine whether Random Effect model is better than Common Effect (Pooled Least Square - PLS) model, if the Random effect model is selected, the Hausman test is used to select between the Fixed

Effect or Random Effect model for the study hypotheses testing and interpretation.

The results of the estimation of Lagrange multiplier test (LM) and Hausman test are reported in tables 4.5 and 4.6 respectively, as shown below:

**Table 4. Lagrange Multiplier Test (LM)**

Breusch and Pagan Lagrangian multiplier test for random effects

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EPS[BANK, t] = Xb + u[BANK] + e[BANK, t]
Estimated results:

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	Var	sd = sqrt(Var)
EPS	49830.02	223.2264
e	20742.49	144.0225
u	9382.903	96.86539

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Test: Var(u) = 0
      chibar2(01) = 15.71
      Prob > chibar2 = 0.0000

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Source: Researcher's computation

Since the LM test p-value of 0.000 which is less than the 0.05 (5%) level of significance, the model thus suggests the presence of random effect and such the pooled OLS model is not the best for the test hypothesis. However, the Hausman test will be required to select the best model between fixed and random effect model since the pooled OLS is removed by LM test.

**Table 5. Hausman test for the models**

. hausman fixed random

	Coefficients		(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
	(b) fixed	(B) random		
CAR	.7165684	-.7864881	1.503056	.1184137
LIQ	-.1804147	.925852	-.7454373	.
AQY	-.2843234	-1.574728	1.290404	.
LEV	-1.500608	-.0526713	-1.447937	.2917951
AGE	25.68991	-1.960868	27.65077	6.837596
BSZ	.0096802	.0603389	-.0506587	.0130884

b = consistent under Ho and Ha; obtained from xtreg  
B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

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chi2(6) = (b-B)'[(V_b-V_B)^(-1)](b-B)
        = -3587.84      chi2<0 ==> model fitted on these

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As observed from the Hausman test p-value (0.000) which is less than the 0.05 (5%) level of significance, which in turns implies that the fixed effect model is the most appropriate and thus better than both the Pooled OLS and the Random Effect model. Therefore, this study will base its test of hypotheses on the parameter estimates of the fixed effect model as in [53]and [40].

**Table 6. Panel Model Estimate**

EPS	Fixed Effect Model		
	Coef.	T	P> t
CAR	0.7166	0.6400	0.5250
LIQ	0.1804	0.1600	0.8720
AQY	-0.2843	-0.1500	0.8850
LEV	-1.5006	-0.8800	0.3800
AGE	25.6899	3.7200	0.0000
BSZ	0.0097	0.5500	0.5800
_cons	-1031.8720	-3.3100	0.0010

Number of groups	13.0000
Number of obs	130.0000
F(6, 123)	6.3500
Prob > F	0.0000
R-squared	0.4000
Adj R-squared	NA

### 3.4 Test of Hypotheses

Assessment of the plausibility of the hypotheses was carried out on the available data, using the panel model regression with the aim to ascertain the effect of prudential regulation on financial performance of quoted banks in Nigeria. The independent variables are capital adequacy, liquidity, asset quality and leverage which are the proxies for prudential regulation while the dependent variable is Earnings per share (EPS), a proxy for financial performance. Age and bank size are the control variables. The fixed effect model was favoured due to its consistencies in meeting the assumption of applicability using the earnings per share (EPS) as a measure of financial performance, to explain the effect of the four (4) prudential indicators - capital adequacy, liquidity asset quality and leverage in Nigeria deposit money banks. The level of significance adopted in the regression analysis is 5%. Below is the table showing summary of finding and detailed discussion:

Ho1: There is no significant effect of capital adequacy on earnings per share of Nigerian quoted deposit money banks: The variable “capital adequacy (CAR)” has a panel regression coefficient of 0.7166 against banks’ earnings per share (EPS). This implies that the capital adequacy (CAR) has a positive relationship with banks’ earnings per share (EPS) as a measure of financial performance; suggesting that, with a percentage increase in the capital adequacy requirement (CAR), the banks will see about 0.7166 percent increase in financial performance as explained by their earnings per share. Furthermore, the capital adequacy requirement (CAR) has a p-value of 0.5250 which is greater than 0.05 (5%) level of significance. This implies that the coefficient is not statistically significant. Hence, the null hypothesis cannot be rejected. We, therefore, conclude that the relationship observed between the capital adequacy requirement (CAR) and the earnings per share is not generalisable. This is in concurrence with the findings from the studies conducted by [44], [6], [15], [41] who established a positive relationship and the fact that prudential regulation

around capital adequacy plays a role in increasing the financial fortunes of deposit money banks.

This could be attributed to non-buffering of capital large enough to the point of generating significant profit or sub-optimal use of capital leading to sub-optimal financial performance. Another possible reason is that, in some instances, having a sizeable capital could lead banks to trading over-cautiously as to avoid sanctions from the CBN, as such, such banks advanced low quantum of loans when compared the capital size and this delivers profitability that is not significant. However, [29] are of contrary view and opinion. They claimed that the capital adequacy does not influence improved financial performance. Rather, banks do raise capital for other objectives such as, providing adequate cushions for risks, and not for profit motive [29].

Ho2: There is no significant effect of liquidity on earnings per share of Nigerian quoted deposit money banks: The variable liquidity (LIQ) has a panel regression coefficient of 0.1804 for EPS, which implies that the liquidity (LIQ) has a positive effect on the banks' earnings per share (EPS) as measure of performance. Thus, suggesting that with a percentage increase in the liquidity (LIQ), the banks will see about 1.8 percent increase in its performance as explained its earnings per share. However, the p-value of 0.8720 of the parameter is observed to be greater than 5% level of significance adopted for the study under EPS, therefore, the relationship is not statistically significant for EPS. Hence, the null hypothesis is not rejected. Thus, we conclude that liquidity has a positive but not significant effect on the banks' earnings per share. This result is consistent with the studies conducted by [40], [32] and [42], [44], [46] and [40] who agreed with the finding to the extent that there was a positive but a non-significant relationship between liquidity and profitability and advised the regulators to improve the management of liquidity risk in the banks.

The positive association can be attributed to adequate mobilisation of deposits, effective treasury management and the effective utilisation of liquidity via lending to SMEs, Retail, Mortgage and Consumer products. High liquidity means more available funds to meet depositors' expectations, more working capital to finance transactions that will generate more profit. In total disagreement to the results of the findings, [52] and [16] shared a contrary opinion and submitted that there was a negative relationship between liquidity management and financial performance.

Ho3: There is no significant effect of asset quality on earnings per share of Nigerian quoted deposit money banks: Also, from the estimator, the effect of asset quality (AQY) proxy by non-

performing loans on financial performance in Nigerian quoted deposit money banks. The variable AQY, has a panel regression coefficient of -0.2843 which implies that the asset quality (AQY), proxied with non-performing loan ratio has a negative effect on the banks' earnings per share (EPS) as a measure of financial performance, implying that the higher non-performing loan ratio, the lower the profitability. It is further observed that the p-value of 0.8850 is greater than the 5% level of significance. Hence, the null hypothesis is not rejected; meaning that the asset quality has no significant effect on the banks' return on assets. This finding is consistent with [54] and [53] whose findings were that regulatory variable "asset quality" proxied by non-performing loans had negative impact on bank's financial performance. An increase in non-performing loan ratio reduces the bank's capacity to create further loans, hence less earnings for the bank, leads to high loan loss provisions which will put further pressure on the earnings of the bank thereby, reducing shareholders' value. This position is a worrisome trend in the banking industry because increased non-performing loan portfolio above the regulatory threshold threatens banks stability. It is a pointer to the changing dynamics of lending practice where banks are forced to take up more risk or poor lending culture in Nigerian bank. On the contrary, [5] and [34] averred that the banks with huge portfolio of non-performing loans still do enjoy high profitability.

Ho4: There is no significant effect of leverage on earnings per share of Nigerian quoted deposit money banks: The variable leverage (LEV) has a panel regression coefficient -1.5006 which implies that the leverage (LEV) has a negative impact on the banks' earnings per share (EPS) as measure of performance. Thus, suggesting that with a unit increase in the leverage (LEV), the banks will see about 1.5006 decrease in EPS. The p-value of 0.3800 is greater than 0.05 level of significance and is not statistically significant at 5% level of significance. Hence, the null hypothesis is not rejected. This is in concurrence with the study outcomes by [46], [13], [34] who empirically examined the impacts of capital structure (leverage) on the financial performance and came up with the inverse relationship, thereby calling for a review of leverage as a critical strategy to maximise shareholders' returns but in sharp disagreement with [55], [29] and [32] who ascertained that there is positive relationship and statistical significance between leverage and financial performance.

Control Variables - Age and Bank Size: At coefficient of 25.6899 and p-value of 0.000, it shows that bank age has a positive and significant relationship with bank's financial performance proxied by EPS. This is in concurrence with the finding of [17]. Furthermore, the findings showed a negative and insignificant relationship between bank size and EPS with coefficient of 0.0097 and p-value of 0.5800. This indicates that the size of banks has nothing to do with the financial performance. The result is consistent with previous study in Ghana on bank profitability determinants and other similar studies in other jurisdictions [34].

#### 4 Conclusion

The study considered a panel data analysis to determine the effect the CBN's prudential regulations on financial performance of quoted DMBs in Nigeria using the fixed effect model of static panel regression model. It can be concluded that capital adequacy has a negative and non-significant linear relationship with bank's EPS. This implies that increase in capital does not necessarily translate to higher EPS. When the capital as the primary funding source is not optimally managed to generate profit or its large proportion is subject to absorbing losses due to poor credit management. This will negatively affect the returns to shareholders. The variable - liquidity (LIQ) has a positive effect on the bank's earnings per share (EPS) as a measure of performance. Thus, suggesting that higher liquidity lessens banks' liquidity risk and prevents financial crisis and the bank has sufficient liquidity to meet all the cash obligations within a short time and meet the required relevant regulatory requirements Risk Asset quality proxied by the non-performing loan negatively and but insignificantly impacts the financial performance of quoted DMBs. An increase in non-performing loan ratio reduces the bank's capacity to create further loans, hence less earnings for the bank, leads to high loan loss provisions which will put further pressure on the earnings of the bank thereby, reducing shareholders' value. It can also be concluded that effect of leverage on the financial performance of the quoted banks under consideration is negative. Impliedly, there is deficiency in the capital mix of deposit banks to the extent that it does not add value to profitability. Leverage is to ensure that financing risk is kept under control, as such, the banks need an optimal capital-mix to prevent the financing risk from being pushed beyond acceptable limit, so as to prevent a

drop in returns to shareholders. It is also discovered that control variable - age and size of banks - are positive determining factors though not significant, that boosts the financial performance of banks because, they can help them in positive customer perception and to achieve economies of scale.

Overall, following the results of various analyses and findings, the combined effect of the prudential regulation – capital adequacy, liquidity, asset quality, leverage - has strengthened some aspects of banking in Nigeria. However, it behooves on the Regulator to provide more holistic and integrated regulations that will enable capital adequacy achieve the intended objective, ensure sustainability of the positive influence of liquidity and leverage for sustained financial performance and reduce non-performing loan which is currently well above the industry average as a way of boosting risk asset quality.

The study therefore recommends the following:

- The inverse relationship between capital and financial performance (EPS) which is contrary to the apriori requires that the CBN must do a thorough check on the quality of capital held by the banks. Situations whereby owners of banks are able to finance their equity holdings by borrowing from their own bank is an indication of poor quality of capital. In such cases the capital requirement is met but it would neither reduce incentives for risk taking nor provide a buffer against losses, consequently, it will not have any positive impact on profitability.
- Assess the effect of liquidity on earning per share in Nigerian quoted deposit money banks.
- To sustain the positive relationship and statistically significant effect of liquidity on the financial performance (EPS), the banks should continue to drive deposit liability at low cost and ensure efficient liquidity management
- The banks need to work down the NPL that currently has the industry average that well above the statutory limit of 5% through aggressive loan recovery and sound credit management such as application of principles of prudence to problem loans, strict adherence to credit policies of the banks, enhanced due diligence on loan customers, knowledge of business being financed, and adequate collateralisation that meets legality and marketability requirement and sound loan monitoring.
- The use of leverage is encouraged in financing the banking business. However, to achieve the positive relationship and remain competitive with financial performance, the optimal debt- equity mix should be adopted by banks. Furthermore, the mix should be closely monitored because, leverage is two-edged

word, so the banks have to ensure that financing risk is not increased beyond the acceptable thresholds, which is capable of leading to lower returns to shareholders.

• Regulator needs to pay attention to the perfect balance (mix) between the benefits that leverage confers to industry and the potential systemic risk posed by high levels of leverage to ensure that existing market mechanisms adequately guides on the use of leverage to avoid it resulting to high levels of systemic risk.

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