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Impact of Bank- Specific Factors on the Capital Adequacy of Commercial Banks in Nigeria

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ABSTRACT: This study seeks to investigate the impact of bank-specific factors on the capital adequacy of commercial banks in Nigeria. This study employs panel data regression analysis of commercial banks in Nigeria from 2009 to 2020. Using the Ex-post facto research design, the study presented and analyzed the data using both descriptive statistics and inferential statistics. The specific findings reveals that nonperforming loans has negative and significant influence on capital adequacy. Also, credit risk has negative and insignificant effect on the capital adequacy of the banks. Furthermore, bank profitability has a positive and significant effect on capital adequacy of the banks. Finally, the study found that operational risk is statistically insignificant to capital adequacy of listed commercial banks in Nigeria. The study recommends that, the Central Bank of Nigeria (CBN) should enforce bank to invest more on less risky investments with fixed interest income such as government bonds, this will enable the bank to minimize the level of the bank risky assets and losses that may arise from risky asset and investment.

1. INTRODUCTION

Capital is the backbone of a bank's financial strength. It helps bank operations by acting as a buffer to absorb unplanned losses and, in the event of a problem, allowing the bank to continue functioning in a sound and sustainable manner while the difficulties are addressed or rectified. A bank's ability to maintain sufficient currency reserves will instill trust in the financial system. Previous studies of bank regulation like Crosse & Hamsel 1980 have emphasized the assumption that capital adequacy regulation is critical to banks' long-term funding and solvency, particularly in preventing bankruptcies and their harmful financial system externalities. Money, often known as net worth serves as a financial safety net against losses and failure.

However, the banking industry has fluctuated over the years under various financial conditions and reforms. The primary aim of government and its regulatory agencies is to keep capital adequacy above minimum requirement of 10% and 15% for national and international banks respectively. Capital-based measures from the Central Bank of Nigeria (CBN) suggest that the regulatory capital to risk-weighted assets ratio declined by 3.3 percentage points to 11.5 percent at the end of June 2017, compared to 14.8% at the end of December 2016 (CBN, 2018**).** Furthermore, according to CEIC global economic data indicator of 2018, after falling 3.9 percentage points to 12.4 percent at the end of June 2017 from 16.3 percent at the end of December 2016, the ratio of Tier 1 capital to risk-weighted assets as of December 2018 was 13.54. At the end of June 2017, the banking industry's average baseline capital adequacy ratios (CARs) for big, medium, and small banks were 11.51, 13.13, -6.71, and 13.54 percent, respectively (CBN, 2018).

Also, between the period of 2014 to 2017 capital adequacy ratio of the banks decreased by 3.3 percent and most recently, Diamond bank was sold off with one of the reason for its failure being attributed to huge Non-performing loans (Nelson, 2018). Central bank of Nigeria report further revealed that three banks were having CAR below 10 percent minimum requirement for national banks in 2016 and this calls for fresh study (CBN, 2017).

Bank-specific factors are those internal components that are capable of affecting operation and soundness of the banks (Samuel, 2014). To ascertain the capital adequacy of commercial banks in Nigeria over the period under examination, bank-specific factors such as banks size, profitability, operational risk, liquidity risk and nonperforming loans have been used in this study.

Non-performing loans usually affect asset quality which could result to increase in risk exposure of the banks. According to Onu (2019), the amount of non-performing loans in Nigerian banks has risen to $15 billion which is close to 80% of the nation's revenue in 2019 and 62% of the nations planned spending for the year. This therefore raises serious alarm in an economy facing stagnation and relying on external borrowings for financing. Therefore, this reflects a very high concentration of risk.

As a result, credit risk increased as the NPL ratio across the industry increased from 12.8% to15.02 percent at the end of June 2017, which showed an increase of 2.22 percentage points,

Also, liquidity is the ability of banks to convert asset into cash in a short space of time. The liquidity ratio of the banking industry decreased 3.01 percentages to 45.62 percent at the end of June 2017, from 48.63 percent at the end of December 2016 (CBN, 2017). Furthermore, banking industry liquidity rose to 46.11 percent as at October 2018 (CBN, 2019).This ratio was higher than the 15.62 percentage point prudential guideline limit.

Operational risk involves various kinds of hazard that banks as a financial institution may be exposed to during the course of carrying out banking operations. Among the operational risk events identified during the period were fraud, counterfeiting, forgeries, increased insecurity in some sections of the country, and a global increase in cyber-attacks. The CBN report issued in 2018 shows that reported cases of fraud and forgeries have increased by 14.46 percent rise to a record high of 20,768 cases reported running to a whopping N12 billion as against the reported case of 16,762 at the end of June 2017 and 9,929 at the end of December 2016. Similarly, from December 2016 to June 2017, the total amount involved increased from N4.12 billion to N5.52 billion (Kolawole, 2018).

Finally, the size of a bank (total assets) is a significant indicator of its capital. Larger banks always have a larger platform or foundation on which to function, and these bigger banks are typically highly diversified and have higher capital ratios to work with. In addition, banks attention was not being paid to internal factors that are engendered through confidence building resulting from sound capital adequacy. Thus, this study seeks to evaluate the impact of banks-specific factors on capital adequacy of listed commercial banks in Nigeria.

2. STATEMENT OF PROBLEM

In a country like Nigeria, the banking industry has enormous potential to boost economic growth and productivity, as it was the third leading industry to contribute to GDP in Nigeria, having contributed 9.3% of GDP in 2016 (CBN, 2016). In recognition of the fact that the banking industry is prone to market failure, this sector is heavily regulated throughout the world in line with Basel standards. As a result, the regulatory capital ratio may also play a major role in determining the success of a financial institution. Banks with a high capital adequacy ratio are presumed to be less vulnerable to liquidation and more stable in their operations. As a result, it can be assumed that a high level of bank performance may serve as a determinant of bank regulatory capital adequacy ratio.

Conversely, the Apex Bank Stress tests of December, 2016 showed that capital adequacy ratio of some commercial banks have fallen below the minimum capital requirement while their loan loss provisions increased greatly, the decline in capital adequacy factors (CA) may be attributable to the challenges in the internal banking environment combined with the domestic economy's slow recovery, which has led to an increase in capital deterioration (Collins 2016).

In the same vein, it was discovered that the average Capital Adequacy Ratio (CAR) in the sector fell to 15.1 percent in December from 15.5 percent in October, while the average Non-Performing Loans Ratio (NPL) increased to 6.0 percent from 5.7 percent in 2021. These two indicators show that the banking industry had some difficulties recovering loans and that they were unable to increase their capital buffers to meet the losses (Mondaq, 2021).

The Capital Adequacy Ratio assesses a bank's capacity to bear the risk of poor loans; however the ratio was found to be less than 10%, which is a warning indication to the industry (Nairametric, 2021). This was in accordance with the Central Bank of Nigeria's (CBN) 2018 Stress Test conducted, which revealed that only Nigeria's Tier 1 banks could endure advance impairment of their NPLs by up to 50% and relatively small banks are at serious danger if there is a further increase in the level of non-performing loans, and might significantly affect the solvency of most Nigerian banks that are still relatively resilient in terms of their capital adequacy, solvency and liquidity ratios (Abioye, 2018).

According to Basel Committee on Banking Supervision reviewed approach, it was established that they would need to adjust minimum capital requirements for banks risk especially liquidity and operational risk (BASEL, 2015). The plan to expand capital regulation to operational risk has gotten less attention, but it is more open to criticism.

Several studies have been conducted on bank specific factors and Capital Adequacy in both developed and developing countries. Studies such Ayanda, Mudashiru and Christopher (2013); Aminu (2013); Ifuero and Chijuka (2014); Kanwal (2013); Almumani (2013), Xuezhi and Pastory (2012), Ahmed, Muhammad, and Riaz (2012); Fan (2014); Manel (2015); Ishmael (2015); Lucky and

Nwosi (2015); Ahmed, Muhammad (2015), (Ani, Ugwuanyi, Ugwunta and Ezeudu (2012); Osborne, Milne and Fuertes (2012); Ejoh and Iwara (2014); Ikpefan (2013), Stephen, Kolapo and Aluko (2014); Kolapo, Ayeni and Oke (2012), Sanyaolo, Alao and Wasiu (2020), focused on bank specific (using Liquidity, asset quality, bank size, inflation, credit risk, management efficiency, labour efficiency, gross domestic product, interest rate) factors and Capital Adequacy. These studies did not capture operational risk and profitability, which are important determinant of capital adequacy. Additionally, the time period covered by some of these studies leave a gap. Moreover, these periods can be regarded as not too current as a lot of activities have taken place between 2016 and 2017, which include the implementation of Treasury Single Account (TSA) by the Federal Government that significantly affected the operation of some Banks and other financial institutions who are heavily relied on Federal Government Agencies as customers. To the best of the researcher's knowledge and from the review of empirical studies, none of these earlier works was specifically devoted on bank-specific factors combining all these variables such as non-performing loan, bank liquidity, bank size, profitability, and operational risk to determine their effect on capital adequacy of listed commercial banks in Nigeria. However, there has been a dearth of literature in the Nigerian economy regarding bank-specific factors and capital adequacy of listed commercial banks in Nigeria. Most of the previous literatures did not pay much attention on non-performing loan, profitability, and operational risk, as factors that could influence capital adequacy of listed commercial banks. Against this conjuncture, this study tends to fill this gap by examining the effect of bank-specific factors on capital adequacy of listed commercial banks in Nigeria.

3. RESEARCH QUESTIONS

Above stated problems have necessitated research questions as follow:

- To what extent does nonperforming loans impact on the capital adequacy of listed commercial banks in Nigeria?
- To what extent does banks liquidity impact on the capital adequacy of listed commercial banks in Nigeria?
- To what extent does operational risk impact on the capital adequacy of listed commercial banks in Nigeria?
- To what extent does bank Size impact on the capital adequacy of listed commercial banks in Nigeria?
- To what extent does bank profitability impact on the capital adequacy of listed commercial banks' in Nigeria?

4. OBJECTIVES OF THE STUDY

The broad objective of this study is to determine the impact of banks-specific factors on capital adequacy of commercial banks in Nigeria. Specifically, the study seeks to;

- To examine the impact of nonperforming loans on capital adequacy of listed commercial banks in Nigeria
- To ascertain the impact of banks liquidity on the capital adequacy of listed commercial banks in Nigeria
- To ascertain the impact of operational risk on the capital adequacy of listed commercial banks in Nigeria
- To examine the impact of banks size on the capital adequacy of listed commercial banks in Nigeria
- To ascertain the impact of banks profitability on the capital adequacy of listed commercial banks in Nigeria.

5. RESEARCH HYPOTHESES

In line with the research objectives and questions above, this study is determined to test the following hypothesis:

- Non-performing loans have no significant effect on the capital adequacy of commercial banks in Nigeria
- Banks liquidity has no significant impact on the capital adequacy of listed commercial banks in Nigeria
- Operational risk has no significant impact on the capital adequacy of listed commercial banks in Nigeria
- Bank Size has no significant impact on the capital adequacy of listed commercial banks in Nigeria.
- Bank Profitability has no significant influence on the capital adequacy of listed commercial banks in Nigeria.

6 LITERATURE REVIEW

6.1 Concept of Capital Adequacy

By definition, capital adequacy refers to the quantity of money a financial institution should have and aim to keep in order to run its operations properly (Kishore 2005; Pandey 2005). Adequate capital is considered the volume of capital capable of actually performing the main purpose of averting bankruptcy of banks by absorbing losses (Dang, 2011). It is understood as a means to provide maximum security against bankruptcy arising from the risks of the banking industry. It is the bare minimum necessary to encourage and sustain bank trust, to keep them open and operational so that losses can be absorbed over time and profits rather than being forced into expensive liquidations, and to allow the banking industry to capitalize on profitable expansion prospects (Akintoye & Somoye 2008). The company's value is likely to rise as a result of the prudent use of capital and borrowed capital.

Consequently, the increased capitalization of the insurance industry as required by regulators offers banks the opportunity to achieve the desired optimal structure to increase market value and shareholder wealth. Its activities are aimed at shielding depositors from bank and insurance industry vulnerability and bankruptcy (NDIC, 2006).It is essential to mention that the type of recapitalization proposed should boost bank performance by ensuring solvency and profitability while also improving financial intermediation capability.

6.2 Concept of Banks Nonperforming Loans

Assets are other bank-specific components that influence profitability. The bank's assets include current assets, credit portfolios, fixed assets, and other investments. According to Daly and Frikha (2017), a growing asset (size) is frequently linked to the bank's age. The key asset that generates the majority of a bank's revenue is frequently a bank loan. Commercial banks' principal source of profit is the loan. The efficiency of the bank's loan portfolio is used to determine its profitability. The quality of the bank's loan portfolio has a direct impact on its profitability. Losses resulting from delinquent loans are the greatest risk that a bank faces (Iheanyi and Sotonye, 2017). As a result, nonperforming loan ratios are the most precise asset quality indicators. Several scholars utilize various types of financial ratios to examine the performance of banks. All banks are concerned about reducing the number of nonperforming loans. This is because nonperforming loans have a negative impact on the bank's earnings. As a result, a low ratio of nonperforming loans to total loans indicates that a bank's portfolio is in good shape. The better the bank's performance, the lower the ratio (Desta, 2016). However, in this study nonperforming loans as a variable is proxied using ratio of nonperforming loans to gross loans.

6.3 Concept of Banks Liquidity

Liquidity refers to the sum of short-term obligations that can be offset by liquid assets. Bank liquidity is calculated in a number of ways by various academics. Liquidity can be measured in a variety of ways, but they all demonstrate how well a corporation or firm can offset its existing liabilities with its current assets. Liquidity is calculated in this research as the ratio of total loans to total customer deposits. One of the most common signs of bank failure is a high level of liquidity risk. Banks with a high liquidity risk have a tough time finding enough liquidity to meet the demands of their customers. Liquidity risk does indeed have a negative impact on bank performance quite frequently. Liquidity risk is often cited as a determining factor in bank capital adequacy, according to Poudel, (2018), who also reveals that some researchers discovered that liquidity risk has an insignificant impact on bank resources. This leads to a debate on whether liquidity has an effect on bank's capital adequacy. Thus, the study on liquidity risk and bank capital adequacy is necessary.

6.4 Concept of Banks Operational Risk

Risk is described as an occurrence that has the potential to have an effect on the achievement of outcomes, and can be both an opportunity and a hazard (Audit Office, 2000).

The possibility of failure resulting from a problem with personnel, systems, practices, or external events is referred to as operational risk. This is the general definition; more precise definitions confine the threat to incidents within an organization, or even more precisely, to those that are caused solely by human error (Ahmed, 2014). Operational risk, as the name suggests, is the risk of failure associated with functioning or working in the broadest sense. While examples abound, it is difficult to come up with a detailed and practical explanation (Akinmulegun, 2012).

6.5 Concept of Banks Size

The financial output of a company is influenced by its size in a variety of ways. Large businesses can take advantage of economies of scale, making them more competitive than small businesses. Furthermore, small businesses may have less power than large businesses, making it difficult for them to compete with them, especially in highly competitive markets. On the other hand, as businesses become larger, inefficiencies can emerge, resulting in poor financial performance. As Almajali, Alamro, & Al-Soub point out, the theory is unclear on the exact relationship between size and performance (Majumdar, 2012).Total assets and sales were used to determine the size of the company. In previous research, these methods have been commonly used to calculate this variable (Linsley & Shrives 2005).

The rationale behind this expectation is that firms with huge asset tend to perform very well than those firms with low asset. Gurbuz, Aybars & Kutlu in (2010) found that size of the firm is a significant factor affecting the firms' performance and that the size of a company and its dividend policy are related. Large companies pay higher dividends, while smaller companies pay lower dividends because it is more difficult for them to collect funds.

They are, however, riskier than small banks (Luc, Lev & Hui, 2014). The size of a bank enables it to have easy access to equity capital market, investing opportunities, portfolio diversification and reputation, leading to a lower capital ratio than smaller banks

(Rahman, Hamid & Khan 2015). If a bank size increases by one unit, it generates a percentage increase in return on assets (ROA), thereby giving rise to increase in bank profitability (Olorunfemi, 2016).

6.6 Concept of Banks Profitability

The capacity of a corporate company to sustain its profit year after year is referred to as profitability. According to Sanni (2006), Profitability is defined as a condition in which income earned during a particular period surpasses expenditure incurred purely for the purpose of earning money during that same time. Athanasoglou, Delis, and Brissimis (2005) described bank profitability as a bank's ability to produce income above cost in relation to its capital base.

In this study, profitability is regarded as ability to generate profits from invested assets. Due to its multi-dimensional interpretations, Zeitun and Tian (2007) regard the idea of profitability as a sensitive issue in most corporate financial organizations. Profitability plays a central role in many business and personal decisions since it is based on the notion of management efficiency. It is an operational concept providing guidelines for investments and serve as a measure of business efficiency. Usually, the selection of portfolios, the allocation of investment funds and the operations of the financial system depend upon profitability standards for decisions (Glautier & Portland 2011).

6.7 Review of Related Studies

Several studies have been conducted in the past regarding internal factors and capital adequacy of banks in Nigeria.

Abiodun, Abdul-Azeez, and Adewale (2020) analyzed the determinants of capital adequacy of Nigerian banks and used the data set of ten leading banks of Nigeria from 2007 to 2017. The study used some bank-specific factors and found that nonperforming loans and size are negatively associated with capital adequacy. However, the study is limited to selected conventional banks which can further limit the level of generalization.

Anno, Obeng, and Nti, (2020) studied the determinants of capital adequacy among the commercial banks in Ghana. Eight banks were sampled for the periods 2009-2016, using profitability, nonperforming loans, liquid funds to total deposits and return on equity as independent variables. Findings revealed that nonperforming loans negatively relate to capital adequacy ratio. However, the result of the study cannot be used for generalization due to the difference in economic and financial situation of the country in which the study was conducted and that of Nigeria; also, the sample size of the study is considered small as well as the period of the research.

Dao and Nguyen (2020), analyzed bank capital adequacy and bank performance in Vietnam: A simultaneous equations framework.128 observations of 16 Vietnamese commercial banks during the period. Two simultaneous dependent variables (CAR and ROE) were used and independent variables such as return on assets, loans to deposits, bank size, cost of income, liquidity risk, provision for loan loss ratio, nonperforming loans and inflation. The results reveal that capital adequacy ratio and banks' performance have statistically significant relationship and credit growth; equity-to-deposit ratio and cost-to-income ratio all have significant effects on the dependent variables.

Also, Pham and Nguyen (2017) examined the determinants of Capital Adequacy Ratio: The Case of the Vietnamese Banking System in the Period 2011-2015. The study made use of nonperforming loans, banks size and liquidity as independent variables. Sample size of 16 banks was used. Secondary source of data was employed and they also made use of multiple panel regression techniques. The study established that nonperforming loans has negative and insignificant relationship with capital adequacy. The study was only for a 5 year period.

Denada Bushi (2016) conducted a study on the impact of operational risk on capital adequacy rate for Albanian banking system for a period of 2010-2014 and the results indicated a negative and insignificant relationship between operational risks and capital adequacy.

Akande & Joseph (2016) investigated the drivers of capital adequacy in Nigerian listed deposit money banks using both descriptive and fixed panel regression. The results demonstrated that liquidity is statistically significant in determining the degree of capital adequacy among deposit money institutions, using liquidity, credit risk, return on assets, and deposits as variables.

Gabriel, Ene, Benedict, and Lillian (2015) investigated determinants of capital adequacy in Nigeria banking industry. The study used secondary sources of data. Correlational research design was used in the study. The study made use of seven selected commercial banks. Variables such as banks liquidity, profitability and size were used. However, the finding from this study revealed that banks profitability has positive but insignificant impact on the capital adequacy of banks. The study is only limited to seven selected banks and called for further studies to select all listed banks in Nigeria. Also, the study failed to consider operational risk of those examined banks.

Ikpefan (2015) examined the impact of bank capital adequacy ratios, management, and performance in Nigerian commercial banks using cross-sectional and time-series data and the OLS regression method. Return on Assets has a negative impact on commercial banks' capital adequacy in Nigeria, according to the report.

The determinants of banks' capital ratio in developing countries: empirical data from Tunisia's banking industry was explored by Romdhane (2012).The study used expo facto research design. Sample size of 12 banks was used. The study found that operational risk has negative and significant effect on the capital adequacy of the banks. However, the result of this study cannot be generalized due to differences in banking industries of Tunisia and Nigeria.

Chris (2010) examined the relationship between profitability and capital adequacy of all Kenyan registered commercial banks. The capital ratio was used to reflect capital adequacy, while ROE and ROA were utilized to calculate profitability. The regression model was used in the study. According to the research, ROA and capital adequacy have a strong negative relationship. The study's findings may not be applicable to an area like Nigeria since it was conducted prior to and at the time of global financial crisis, leaving the incidents that followed the crisis unexplored or uninvestigated.

7. THEORETICAL FRAMEWORK

In this study the theory underpinning this study are Credit default theory and Shift ability theory. These are explained as follow:

7.1 Credit Default Theory

According to Moody's concept of credit default, a credit default includes both delinquency and the expectation of a loss to the lender. The current Basel II delinquency concept of default with a prescribed time lag can be interpreted as a useful measure of potential loss for secured loans. The underlying rationale is that if a person or a company fails to fulfill a debt payment obligation by the due date, or if the implied cash flow issue is not resolved within a specified duration of 90 calendar days for Basel II, the organization is presumed to be insolvent, and the loan is formally in default.

As a supporting theory, the theory suggests that in order not to go below bank's capital adequacy requirement; bank should reduce NPLs since they are always a subject of worry for banks. The process of reducing NPLs begins with good underwriting and sound lending policies at the time of origination, as it is better to be safe than sorry. The bank can look to make loans to better quality borrowers by strengthening its loan underwriting processes. This will necessitate the development of more stringent qualitative and quantitative lending requirements (Wilson, 2007).

7.2 The Shift-Ability Theory

H.G. Moulton suggested the shift-ability principle of bank liquidity, which argued that if commercial banks hold a significant amount of reserves that can be transferred to other banks for cash without material loss in the event of a crisis, there is no need to rely on maturities. According to this viewpoint, to be entirely shiftable, an asset must be immediately transferrable without capital loss when the need for liquidity arises.The second major theory of bank liquidity is the "shiftability" theory (Prochnow, 1949); the complete bond portfolios of banks do not represent the extension of credit or the use of bank money in line with the traditional definition of liquidity, regardless of whether the bonds have available markets or not. The bonds are typically "liquidated" by the bank selling them or moving them to another holder, rather than through the sale of goods as in a traditional commercial transaction.

The "shiftability" theory holds that experience shows that paper is frequently unable to be liquidated at maturity; that even when paper can be liquidated at maturity, it may not be desirable to do so; and that when demand is placed on an individual bank's liabilities, the only source of liquidity in an emergency is the ability to shift assets to other banks and obtain funds from those banks. After a while, this halting of activity or lowering of the price level will allow for a reduction in bank loans, relieving the spent reserves (Mitchell, 1923).

8. METHODOLOGY

The aim of the research is to examine the impact of banks-specific factors on capital adequacy of commercial banks in Nigeria using annual data covering the period from 2009 to 2020. The study employed correlational research design. The choice of this research design is due to time series nature of the data collected from the period 2009-2020.

8.1 Empirical Model

The regression technique is an important tool in econometrics. In general, a regression is

concerned with examining the linkages between a given variable and one or more other variablesIt is an attempt to describe changes in a variable by reference to change in other variables. The regression model is stated as This regression model can be interpreted whether a set of internal factors such as non-performing loan, Bank size, Bank profitability, Bank Liquidity and operational risk factors has a linkage with capital adequacy ratio where R isthe Capital Adequacy Ratio proxied by CAR and X's represent the internal factors variables used in this study. X is the intercept of the regression that is , constant term, B1-Bx are the coefficient of variables and Ue is the error term.

The model was modified as follows:

$CAR=X_0 + X_1NPL+ X_2 BS+ X_3 BP +X_4 BL+ X_5OPR + \varepsilon_t$…….

These variables were so chosen because they are majorly the key sectors that could spur Capital adequacy ratio. As Such, their Positive contribution should lead to increase in Capital Adequacy Ratio.

Table 1. Operational definition of the Variables

Variable	Proxy	Type	Measurement	Source
Capital Adequacy	CAR	Dependent	Ratio of total equity to total asset	Olanrewaju and Akande (2016)
Operational Risk	OPR	Independent	Operating expenses divided by operating income	Simamora and Oswari (2019)
Non-performing loans	NPL	Independent	Ratio of classified loans to gross loans	Usman and Sanaullah (2016)
Banks Size	BS	Independent	Natural log of bank total asset	Ayaydin and Karakaya (2014)
Banks Profitability	BP	Independent	Profit after tax divided by total asset	Ayaydin and Karakaya (2014)
Bank Liquidity	BL	Independent	Current Asset divided by current liability	Ayaydin and Karakaya (2014)

Source: Researcher's Computation, 2020

9. PRESENTATION AND DISCUSSION OF RESULTS

Table 2. Summary of Statistics

	Mean	Std. Dev.	min	max	skewness	Kurtosis
CAR	.112	.199	-1.547	.292	-5.844	42.182
NPL	.097	.14	0	.953	3.548	17.431
BL	.509	.483	.02	2.83	4	19.458
OPR	5.295	56.41	.01	5.576188	12.368	153.981
BS	1.561e+12	1.321e+12	1.110e+11	6.311e+12	1.524	5.089
BP	.015	.029	-.105	.17	.112	13.298

Source: STATA 13 Outputs, 2021

As indicated from Table 2, the average of capital adequacy is 11.2%. The standard deviation of 20% indicates wide variation across the sampled banks. The minimum CAR of the banks is -1.54%, which indicates that some banks failed to comply with the prudential guideline by the Central Bank of Nigeria that stipulated a minimum of 8% capital as a buffer to curb any unforeseen risk and uncertainties that may stem from loan extension. The maximum on the other hand is 29.2%.

The average value for nonperforming loan as measured by ratio of classified loans to gross loans deposit of banks is 9.7% with a maximum of 95.0% and a minimum of 0.0%. It means that on average the rate of nonperforming loan is9.7%, which is within 10% the standard rate stipulated by the Central bank of Nigeria in 2010.The maximum rate of 95.3 % implies that there is large amount of uncollectable balance which tends to have default risk and the value of nonperforming loan deviate from its mean by 14%.

The average value of the liquidity measured by liquid ratio is 50.9%. The average value indicates that for each one naira current liability, there is N0.509 liquid asset to meet obligation. The maximum and minimum values were N0.02 and N2.83 respectively for the study period. It means that the most liquid listed bank has 2,83 naira to meet obligation which is more than the minimum standard rate of 30% stipulated by CBN in 2017. However, Nigeria listed banks that have less liquid have 2 kobo to meet obligation which is less than the standard rate and the value of liquidity deviates from its mean by N0.483

As indicated from Table 4.1, the mean of operational risk is 5.295, with the standard deviation of 5.57, which indicates wide dispersion in the extent of operating expenses to operating income across the sampled banks. The minimum and maximum values are 0.01 and 5.576 respectively.

Bank Size has the mean value of N1.561T indicating that on average, all the listed commercial banks in Nigeria have total assets of N1.56T, while the standard deviation of N1.32T shows a low deviation of the total assets of listed commercial banks in Nigeria. Bank size has minimum and maximum values of N1.110b and N6.311T respectively.

Table 1 provides a summary of the descriptive statistics of return rate measured by return on asset (ROA) reveals an average of 1.5%. The ROA measures the contribution of net income per naira (local currency) invested by the firms' stockholders; a measure of the efficiency of the owners' invested capital. The maximum and minimum values of ROA ware 0.17 and -0.105 respectively. That means the most profitable commercial bank earned N0.17 of net income from a single N1 of asset investment and the maximum losses incurred by the commercial bank is -N0.11 approximately on each N1 of asset investment. The standard deviation of ROA of N0.029 shows high variability across deposit money banks.

9.1 Ordinary Least Square Regression

Table 3. Cross-sectional time-series FGLS regression

Car	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
NPL	-.269	.122	-2.21	.027	-.507	-.031	**
BL	-.036	.035	-1.04	.297	-.104	.032	
OPR	-.01	.031	-0.31	.753	-.07	.051	
BS	.041	.02	2.05	.04	.002	.08	**
BP	.092	.037	2.49	.013	.02	.164	**
Constant	1.286	.226	5.69	0	.843	1.729	***

Mean dependent var	0.715	SD dependent var	0.238
Number of obs	156.000	Chi-square	23.918
Prob > chi2	0.000	Akaike crit. (AIC)	-15.775

*** p<.01, ** p<.05, * p<.1*

Source: summary of STATA OUTPUT

The results from Table 3 show that chi-square=23.916 and P-value = 0.000 which is less than 5% conventional level. This shows that the whole model is statistically significant. It further implies that the study explanatory variables are fit enough to predict the level of variation in the outcome variable in the Nigeria banking industry.

9.2 Multicollinearity Test

Table 4. Summary of Diagnostic Test

	VIF	1/VIF
NPL	1.632	.613
OPR	1.608	.622
BS	1.021	.98
BP	1.006	.994
BL	1.005	.995
Mean VIF	**1.254**	.

Source: STATA 13 Outputs, 2021

Based on the information shown in Table 4.3, it can be inferred that the independent variables are not multicollinear. This is because, according to Kothari & Garg (2014), all of the variables' VIF values are less than 5, and all of the variables' tolerance levels are more than 0.10. (rule of thumb).

10. CONCLUSION AND RECOMMENDATION

The study evaluated the effect of bank-specific factors on the capital adequacy of listed commercial Banks in Nigeria. Based on the findings of the study, the following conclusions are drawn.

The study reveals that non-performing loans have a significant and negative effect on the capital adequacy of listed commercial banks in Nigeria. Therefore, based on the above findings, the study concludes that non-performing loans as a proxy for the bank-specific factor is a significant determinant of the capital adequacy of commercial banks in Nigeria.

The study also found that proxy liquidity by Bank Liquidity has negative and statistically insignificant effect on the banks capital adequacy. This shows that banks liquidity play insignificant role on the capital adequacy of listed commercial banks in Nigeria. Thus, the study concludes that liquidity is not a significant determinant of the bank's capital risk exposure.

The study found that operational risk has an insignificant effect on the capital adequacy of the banks. Thus, it is concluded that the operating risk is not a significant determinant of capital adequacy of listed commercial banks in Nigeria.

Finally, the study found bank size and profitability to have a significant impact on the capital adequacy of listed commercial banks. Thus, it is concluded that the bank size and profitability are good determinants of capital adequacy of listed commercial banks in Nigeria

In order to improve capital adequacy, specifically loans performance, it is strongly recommended that bank management and loan officers should always give serious attention to the health of capital adequacy of banks specifically loan performance for prevention of loans loss that could arise as result of default in repayment of loan from the bank loan customers. Furthermore, loan officers should provide financial counseling to borrowers on how to use loans wisely and make timely decisions to suit their needs.

In addition, banks with high risk assets are holding high reserves in their capital components. The study confirmed that large banks keep low capital as there is a positive relationship with CAR as they can generate funds at low cost and less risk through external sources of finance, deposits, and in the time they preserve required CAR. Therefore, the study recommends that, the Central Bank of Nigeria should encourage bank managers to invest more on less risky investments with fixed interest income such as government bonds; this will enable the bank to minimize the level of the bank risky assets and losses that may arise from risky asset and investment. If this could be done, it will minimize risk exposure of the bank and improve bank capital.

Since the study reveals that profitability is one of the significant determinants of capital adequacy and profitability is also a major variable in the Basel Accord capital adequacy computation model, Nigerian banks should be recapitalized so that they can gain access to better sources of money, resulting in increased profits so as to enable them increase their reserve accounts in order to enhance their capital adequacy position and the overall safety and soundness of the entire banking system through better operational results and more prudent management of their available resources.

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