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# Impact of Risk Management on Loan and Profitability of Deposit Money Banks in Nigeria

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***Abstract***

*The study looked at how risk management affects the Loan and profitability of Nigerian deposit money institutions. The study used an expose factor research design, with the population consisting of all twenty-one banks listed on the Nigerian stock market floor. As the sample size for analysis, seven banks were selected from the study's population. STATA 14 was used to produce data for the research period from these banks' annual reports and accounts. The study used fixed effect, random effect, and pooled OLS panel data techniques for analysis, with the Breusch-Pagan LM test and the F-tesl used to test for random and fixed effects, respectively. Profitability was found to have a statistically significant beneficial influence on default rate loan loss provision when evaluated by return on assets (ROA) (LLP). The capital adequacy ratio (CAR) has a statistically significant beneficial influence on profitability. It was also suggested that deposit money banks in Nigeria improve their credit analysis and loan administration capabilities to avoid making excessive provisions on non-performing loans, while regulatory authorities should pay close attention to the bank's compliance with the prudential guidelines and IFRS on loan loss provision. The CBN and other authorities should endeavor to ensure that Nigerian banks follow all banking legislation and provide prudential guidance. Banks should have enough capital on hand to serve as a buffer against loan losses, since this will boost depositor trust, attract a broad client base, and allow them to compete internationally with other banks.*

***Keywords:*** *Risk Management, Loan And Profitability, Deposit Money Banks*

## Background to the Study

Risk management is a system structured within the corporation whose goal is to increase the efficiency and effectiveness of activities. The system assures the conformity of activities within the laws and regulations and improves the reliability of financial reporting. Risk management is critical for institutions to achieve their ultimate goals. Risk management allows banks to foresee potential problems that may cause financial losses and thereby prevent or minimize any future losses.

Risk management can be described as the whole system of control, financial and otherwise, established by management to carry on the business of the enterprise in an orderly and efficient manner. It involves the control environment and control procedures, all the policies and procedures adopted by the directors and management of an entity to assist in achieving their objectives, including adherence to internal policies, the safe guarding of assets, the prevention and detection of fraud and error, as well as the completeness and accuracy of records, with timely preparation of reliable financial information (Yuvaraaj, & Perumal, 2013).

Consequently, effective risk management depends on what and who made the decisions. The choices of a firm's CEO (its most powerful actor) are based on his or her personal interpretation, which is a function of his or her experiences, values, and personality (Venanzi, & Venanzi, 2012). Hambrick further opined that CEOs' ideals frame their managers' leadership practices, and the key decision maker's beliefs and value systems help to shape the way firms attend to various stakeholder demands. Accordingly, it is worthy of note that the decision to extend credit facilities to customers cannot be unilaterally made except by those who have been authorized to do so. The responsibility, as far as the owners of the business are concerned, lies with the chief executive

officer. It is the duty of the CEO to delegate the responsibility. The personal traits and characteristics of the CEO therefore exert substantial influence over the risk management practice of their firms.

A significant relationship has been established between the audit committee and risk management by Armeanu. Vinlil, Gherghina, However, despite the presence of audit committees in various firms, incessant corporate scandals have continued to manifest. The 2008 financial crisis in corporate Nigeria is an issue to consider in this direction. Several inspectors from the Central Bank of Nigeria (CBN) have criticized audit committees over their inability to manage the credit risk and to identify and report incongruities in the financial results of disturbed banks whose executives were sacked by the CBN for mismanagement of shareholders and depositors' funds.

These banks include Afribank Nigeria Pic, Intercontinental Bank Pic, Finbank Pic, Oceanic Bank International Pic, Spring Bank Pic, Wema Bank Pic, and Unity Bank Pic, amongst others, and more recently, Skye Bank Nig. Pic. Most of these banks are presently defunct. These and many other failures have raised concerns over the effectiveness of audit committees.

As a result, many public companies decided to tighten their audit and financial reporting standards, which brought about the creation of the audit committee, which is incorporated in the Companies and Allied Matters Act (CAMA) 1990. Section 359(3) of the Act provides for the establishment of audit committees. Section 359(4) of the CAMA states that audit committees shall be made up of directors and shareholders of the same public company, subject to a maximum of 6 members, and that the committee shall examine auditors' reports and make recommendations to the annual general meeting (AGM). Section 359(6) of the same act lists out the functions of audit committees, which include overseeing all accounting policies and principles of the company; and ensuring regulatory compliance with financial reporting standards and ethics.

Based on the aforementioned, for banks to be able to function effectively and contribute meaningfully to the development of a country, the industry must be stable, safe, and sound. And for these conditions to be obtained, there must be a sound accounting system, which is occasioned by risk management. This study examined the impact of risk management on the profitability of deposit money banks (DMBs) in Nigeria.

Nigerian banks have seen an increase in crime-wave practices and banking malpractice, despite the existence of inter-control and devices adopted to detect fraud. This situation has culminated in the lack of confidence by the staff, shareholders and customers over the growth and profitability of the banks. The new guidelines seek to enhance accountability and restore investor's confidence in the Nigerian banking sector.

Failure to sufficiently manage these risks exposes DMBs not only to losses, but may also threaten their survival as business entities, thereby jeopardizing the stability of the financial system. (Vural, Sokmen, & Cetcnak, 2012, Van Gcstel & Baesens , 2009)

Previous studies have focused on the financial performance and corporate governance factors in analyzing risk of the bank, but not many have examined the impact of risk management on the profitability of DMBs in Nigeria. This study examines, debt to equity ratio and capital adequacy ratio as well as how these factors affect a bank's profitability.

**Objectives of the Study**

The study's main goal is to look at the influence of risk management on the profitability of Nigerian deposit money institutions. However, the study's particular goals are as follows:

i. Evaluate the impact of loan loss provisions on deposit money bank profitability in Nigeria.

ii. Investigate the influence of capital adequacy ratio on deposit money bank profitability in Nigeria.

Based on the research question and objective of the study, the following hypotheses are formulated

**H**01: Capital adequacy ratio has 110 significant impacts on profitability of Deposit Money banks in Nigeria

**Ho2**: Loan loss provision has no significant impact on profitability of Deposit Money banks in Nigeria.

**Significance of the Study**

Various rules and regulations have been promulgated to see to the success and survival of banks globally. Consequently, this study will be of significance by contributing to the body of empirical study literature on the effect of risk management on profitability in the banking industry especially in an emerging market such as Nigeria.

The study will enable stakeholders, shareholders, regulatory and supervisory authority to know if the activities

of the business affect risk management in Nigerian DMBs. Lastly, findings from this study will be of use to other researchers in the academic environment in conducting further research.

## LITERATURE REVIEW

### Concept of Risk and Risk Management

Risk is the possibility/likelihood or chance that something unpleasant or unwelcomed will happen that is capable of damaging an asset, or all of the original investment or the possibility of financial loss. More precisely, risk is the possibility of damage or any other negative occurrence that is caused by external or internal vulnerabilities, which may be avoided through preemptive action. Risk is commonly associated with uncertainty, as the event may or may not happen. It is an essential part of business, because enterprises cannot function without taking risks as business grows through risk taking. Hence, risk is related with opportunities and threat, which may harmfully affect an action or expected outcome.

Risk management does not eliminate risks, but manage risks associated with firms' operations, thereby exploiting opportunities and reducing threats. It also means introducing techniques to reduce the possibility of these negative events occurring, without incurring excessive costs or hampering the initiative and entrepreneurial Hair of an enterprise. Hence, loss exposure is what risk management is all about, not only the ones that can be underwritten. In that regard, insurance is a method to finance some loss exposures and, thus, a part of the larger concept of managing risk Uzoamaka. Tfeoma, & Amakor,2013).

### Loan Portfolio

Loan portfolio constitutes loans that have been made or bought and are being held for repayment. Loan portfolios are the major asset of Banks and the lending institution. The value of the loan portfolio depends not only on the interest rates earned on loans but also on the likelihood that interest and principal will be paid (Jasson, 2002). Lending is the principal business activity for most commercial banks, the loan portfolio is typically the largest asset and the predominate source of revenue. As such, it is one of the greatest sources of risk to a financial institution’s safety and soundness. Whether due to lax credit standards, poor portfolio risk management, or weakness in the economy, loan portfolio problems have historically been the major cause of losses and failures. Effective management of the loan portfolio and the credit function is fundamental to a Sacco’s safety and soundness. Loan portfolio management (LPM) is the process by which risks that are inherent in the credit process are managed and controlled. Because review of the LPM process is so important, it is a primary supervisory activity (Koch 2000).

Assessing LPM involves evaluating the steps the management takes to identify and control risk throughout the credit process. The assessment focuses on what management does fore they become problems. The identification and management of risk among groups of loans may be at least as important as the risk inherent in individual loans. For decades, good loan portfolio managers have concentrated most of their effort on prudently approving loans and carefully monitoring loan performance. Although these activities continue to be mainstays of loan portfolio management, analysis of past credit problems, such as those associated with oil and gas lending, agricultural lending, and commercial real estate lending in the 1980s. Has made it clear that portfolio managers should do more. Traditional practices rely too much on trailing indicators of credit quality such as delinquency, nonaccrual, and risk rating trends. (Richardson 2002).

Effective loan portfolio management begins with oversight of the risk in individual loans. Prudent risk selection is vital to maintaining favorable loan quality. Therefore, the historical emphasis on controlling the quality of individual loan approvals and managing the performance of loans continues to be essential. But better technology and information systems have opened the door to better management methods. A portfolio manager can now obtain early indications of increasing risk by taking a more comprehensive view of the loan portfolio (Koch 2000).

To manage their portfolios, bankers must understand not only the risk posed by each credit but also how the risks of individual loans and portfolios are interrelated. These interrelationships can multiply risk many times beyond what it would be if the risks were not related. Until recently, few banks used modern portfolio management concepts to control credit risk. Now, many banks view the loan portfolio in its segments and as a whole and consider the relationships among portfolio segments as well as among loans. These practices provide management with a more complete picture of the bank’s credit risk profile and with more tools to analyze and control the risk. (Sinkcy, 1992).

### Credit Risk Management

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When a Sacco grants credit to its customers, it incurs the risk of nonpayment. Credit risk management refers to the systems, procedures and controls which a Sacco puts in place to ensure the efficient collection of customer payments and minimize the risk of non-payment (Naceour & Goaied 2003) Credit risk management forms a key part of a company's overall risk management strategy. Weak credit risk management is a primary cause of many business failures. Many small businesses have neither the resources nor the expertise to operate a sound credit management system (Richardson. 2002).

**Risk Identification**

Risk identification is vital for effective risk management, for Banks to manage risks facing them effectively they need to know how to identify the credit risks. The first step in risk identification identifying and prioritizing key risks which are reviewed and approved by the management committee. There is also need to determine the degree of risk the Sacco should tolerate and to conduct assessments for each risk of the potential negative impact if it is not controlled.

**Risk Analysis and Assessment**

Atypical risk analysis process consists of two components; financial analysis (quantitative analysis) and qualitative analysis (Fatemi, 2000). Financial analysis consists of analysis of financial; data available for the credit applicant, the analysis of annual financial statements has a central position in this context. Mostly financial analysis is carried out by credit analysts, there should be a general guideline stipulating that the analysis is confirmed by the person in charge of the organizational unit supplying the module for credit analysis when this module is handed over to the credit officer managing the exposure. (Eldelshain 2005)

**Credit Approval**

Clear established processes of approving new creditors and extending the existing credits has been observed to be very important while managing credit risks in Banks. Credit unions must have in place written guidelines on credit approval processes and approval authorities. The board of directors should always monitor loans, approval authorities will cover new credit approvals, renewal of existing credit changes in terms and conditions of previously approved credits particularly credit restructuring which should be fully documented and recorded. Prudent credit practice requires that persons empowered with the credit approval authority should have customer relationship responsibility. Approval authorities of individuals should be commensurate to their positions within the management ranks as well as their expertise (Mwisho, 2001).

**Credit Risk Control and Monitoring**

The importance of monitoring risks is to make sure that they can be managed after identification. The Banks play an increasingly important role in local financial economies where competition for customers and resources with Micro Finance Institutions and other commercial banks is high therefore, they require effective and efficient risk control and monitoring systems.

The risk management feedback loop will involve the management and senior staff in the risk identification and must assess, process, as well as to create sound operational policies, procedures and systems. Implementation and designing of policies, procedures and systems will integrate line staff into the internal control processes, thus providing feedback on the Sacco's ability to "manage risk without causing operational difficulties. The committee and the manager should receive and evaluate the results on an ongoing basis. Most risk management guidelines in Banks will be contained in the policy manuals eg the credit manual. (CBK, 2010)

**Regulatory Supervision on Risk Management in Nigeria**

The banking industry being a being a very vital sector of any economy is highly regulated. Activities of participants in the industry is supervised and regulated by different statutory institutions set up by the government to oversee its affairs.

**Regulatory Role of CBN**

The Central bank of Nigeria (CBN) under Section 2.0 of the Prudential Guidelines for Deposit Money banks in Nigeria of July I, 2010. Explicitly stated that Licensed banks should review their credit portfolio continuously (at least once in a quarter) with a view to recognising any deterioration in credit quality. Such reviews should systematically and realistically classify banks' credit exposures based on the perceived risks of default. In order to facilitate comparability of banks' classification of their credit portfolios, the assessment of risk of default should be based on criteria which should include, but are not limited to, repayment performance, borrower's repayment capacity on the basis of current financial condition and net realisable value of collateral

Credit facilities (which include loans, advances, overdrafts, commercial papers, bankers' acceptances, bills

discounted, leases, guarantees, and other loss contingencies connected with a bank's credit risks) should be classified as either "performing" or "non-performing".

**Supervisory Role**

Before 2006, the regulatory authorities relied heavily on the rules and compliance supervisory framework, as the main strand for managing financial market risks in line with the provision of the Basel 1 Accord. Usually, the rules were communicated through the issuance of supervisory circulars and guidelines, with the expectations of full compliance by financial market operators. Prominent in this regard, is the Monetary and Credit Policy Circulars and the periodic issuance of the Prudential Guidelines to operators. The rule and compliance approach place reliance on transaction testing, such as evaluating the adequacy of credit administration process, assessing the quality of loans and ensuring the adequacy of provisioning for loan losses. Thus, risk management in bank focused primarily on qualifying the problems, correcting the systems and minimizing the risks in individual institution. The emergence of distress in the financial service industry in the 1990s exposed the inadequacy of the rule and compliance-based supervision, due to the obvious fact that the risks being taken by market operators were ineffectively evaluated. It was realized that the adoption of one- size-fits-all technique in respect of all institutions without regards for variation in size, business mix as well as the individual penchant for risk was inadequate and inefficient (Mbizi 2012)

The CBN also followed up these reforms with the establishment of the Asset Management Corporation of Nigeria (AMCON). following the promulgation of its enabling Act by the National Assembly in 2010. AMCON is a broad resolution strategy aimed at addressing the problem of non-performing loans, including the capital adequacy and liquidity of the banks. In line with its mandate, AMCON has acquired the non-performing risk assets of some bank's worth more than NI.4 trillion, to boost liquidity as well as enhance the safety and soundness of the banks. With the intervention of AMCON, banks' ratio of non-performing loans to total credit has dropped significantly to less than 5.0 per cent at the end of August, 2014, from 34.4 Furthermore, in order to address increasing non-performing loans in DMBs, it became imperative for the financial system to create a central database that consolidates credit information on borrowers. The CBN Credit Risk Management System (CRMS) or Credit Bureau was, therefore, established to enhance the credit risk management system and was given legal backing by the CBN Act No. 24 of 1991. The enabling legislation empowered the CBN to obtain credit information from banks for compilation and disseminate status reports to any interested party (i.e., operators or regulators). The database provided a means of identifying predatory debtors, whose tactics included foregoing debt obligations in one bank and contracting new debts in another. The CBN also embarked on the transformation of its internal structure and processes in order to deliver on its core mandate. For instance, the bank reorganized and streamlined its structure by creating new departments, namely, Banking and Payments System (B&PS), Reserve Management (REM) and Financial Market Risk Management (RM) Departments. To achieve the highest standard of risk management, the Bank also ensures the establishment of an internal risk management specific function to develop the Nigerian Capital Adequacy and Enterprises Risk Assessment Guidelines. All these reforms are intended to ensure and enhance the capacity to supervise and monitor the financial service industry efficiently for enhanced delivery ( Sunday (201 1).

**Concept and Measures of Profitability**

Profitability can be viewed as a relative term that can be measured in terms of profit and its relationship with other elements that can have a direct impact on profit. Profitability is the relationship of income to some balance sheet measure that indicates the relative ability to earn income on assets. Irrespective of the fact that profitability is an important aspect of business, it may be faced with some weaknesses such as window dressing of the financial transactions and the use of different accounting principles (Owolabi & Obida, 2012).

A company should earn a profit to survive and grow over a long period of time. Profits are essential, but all management decisions should not be profit-centered at the expense of customer, employee, supplier, or social consequences. Profit is the difference between revenues and expenses over a period of time (usually one year). Profit is the ultimate "output" of a company, and it will have no future if it fails to make sufficient profits. The profitability ratios are calculated to measure the operating efficiency of the company (Owolabi and Obida, 2012). Some of the profitability ratios include the following:

In terms of measurement, firm financial performance has been measured differently by several scholars. Hamza and Suntan (2018) in their study measured firm financial performance using Returns on Assets (ROA). In their

study, Ahmed and Abdel-Hadi (2017), they measured firm performance using return on equity (ROE), return on assets (ROA), and Tobin-Q. Fitza and Tihanyi (2017) measure firm financial performance using returns on assets (ROA). However, Manna, Sahu, and Gupta (2016) used four performance measure variables to measure firms' financial performance. They used two market-based measures, Tobin's Q (TQ) and market value added (MVA). and two accounting-based measures, cash earnings per share (CEPS) and return on capital employed (ROCE).

Furthermore, Al-zaidyeen and Al-rawash (2015) used return on assets ratio (ROA), return on equity ratio (ROE) and return to book value ratio (MBVR) as measurements of performance evaluation, while George and Nyamboga (2014) and Gugong, Arugu, and Dandago (2014) measured firms' financial performance using Returns on Equity (ROE) and Returns on Assets (ROA). Similarly, Alipour and Amjadi (201 1) used Tobin's Q, ROE, ROA, and return to book value ratio (MBVR) to measure firms' financial performance.

**Return on Equity (ROE):**

Common or ordinary shareholders are entitled to the residue profits. The rate of dividend is not fixed; the earnings may be distributed to shareholders or retained in the business. Nevertheless, the net profit after tax represents their return. A return on shareholder's equity is calculated to see the profitability of owners' investment. The shareholders' equity or net worth will include paid up share capital, share premium and reserves and surplus less accumulated losses. Net worth can also be found by subtracting total liabilities from the total assets. The ROI is net profit after taxes divided by shareholders' equity which is given by net worth.
ROE = Profit after Tax Net Worth (Equity)

**Return on Assets (ROA):**

Return on Assets expresses the net income earned by a company as a percentage of the total assets available for use by that company. ROA suggests that companies with higher amounts of assets should be able to earn higher levels of income. ROA measures management's ability term a return on the firm's resources (assets). The income amount used in this computation is income before the deduction of interest expense, since interest is the return to creditors for the resources that they provide t the firm. The resulting adjusted income amount is thereby the income before any distribution to those who provided funds to the company. ROA is computed by dividing net income plus interest expense by the company's average investment in asset during the year.
ROA Net Income after Tax + Interest Expense -s- Average Total Assets **DURING** the **YEAR**

**Empirical Review**

In any research the literature serves as a guide to understand the topic of discuss. Earlier studies found in the literature have suggested a link between Risk management and profitability. However, the results forwarded in the literature by prior researches are very conflicting.

Olobo, Karyeija, Sande, and Khoch (2021), investigate how credit risk management practices affect the performance of South Sudanese banks. Credit Risk Identification (CRI), Credit Risk Assessment (CRA), and Credit Risk Control were examined as credit risk management strategies (CRC). The study used a cross-sectional survey methodology with 124 respondents from 7 banks in Juba who were involved in the credit procedure. Structured questionnaires and interview guides were used to collect data utilizing cluster, purposive, and sample random procedures. Risk management methods were shown to have a substantial positive association with bank performance (r = 0.959; p-value = 0.000, which is less than 0.01). Significant findings were found for Credit Risk Assessment (CRA), Credit Risk Identification, and Credit Risk Control, with r = 0.932 at p-value = 0.000 and r = 0.977 at p-value = 0.000, respectively. The study also found that increasing CRI, CRA, and CRC by one unit improved bank performance by 35.8%, 25.3 percent, and 37.1 percent, respectively. While CRI (= 0.358 and p = 0.000) and CRA (= 0.253 and p = 0.000) appeared to drive asset book growth, CRC (= 0.371 and p = 0.000) appeared to affect asset quality.

Rehman, Muhammad, Sarwar, *and Co., 2019*. To lessen or eliminate credit risk, examine credit risk management solutions used by commercial banks in Balochistan, Pakistan. The study's findings are noteworthy because they will help commercial banks understand the effectiveness of various risk management measures and how they might be used to reduce credit risk. This exploratory study examines the perspectives of workers from a number of commercial banks on which tactics are most effective in reducing credit risk. Quantitative data was obtained from 250 commercial bank workers in order to conduct multiple regression analyses, which were employed in the study. According to the findings, corporate governance has the largest influence on credit risk management (CRM), followed by diversification, which has a substantial role, hedging, and lastly, the

bank's capital adequacy ratio. This study emphasizes the importance of these four risk management techniques for commercial banks in resolving credit risk. The study was conducted in a foreign country, but we can reproduce it to see what happens.

Gizaw, Kebede & Selvara (2015) examined the impact of credit risk on the profitability of banks in Ethiopia for the period 2001-2012 using panel data regression technique. It was found that ratio of non-performing loan has a negative and significant effect on both ROA and ROE, capital adequacy ratio has a negative and significant effect on ROE and loan loss provision have a significant positive effect on both ROA and ROE. No significant effect was established between ratio of loan and advances to total deposit with both measures of profitability.

Muritala & Taiwo (2013) evaluate the impact of credit risk management on profitability of 5 commercial banks in Nigeria for the period 2006-20 12 with. Descriptive statistics and multiple regression model of panel least square (PLS) were employed for data analysis and the problem of stationery was solved using Levin. Lin and Chun root test. The result form the analysis shows that total loan to total asset ratio has a significant and negative impact on profitability measured using return on assets while non-performing loan to total loan was found not to be significantly impacting profitability despite having a negative relationship.

In another study carried out in Nigeria. Charles & Kenneth (2013) examine the impact of credit risk management and capital adequacy on the financial performance of 6 money deposit banks for the study period 2005-2009. Panel data regression analysis of pooled OLS and fixed effect model were employed for data analysis. Loan and advances was found to significantly impact profitability measured using return on asset negatively while capital adequacy ratio positively and significantly impact profitability. Non- performing loan, loan loss provisioning and liquidity were found not to impact profitability.
In the same vein.
Oluwafemi, Adebisi, Simoeon & Olawale (2013) examine the effect of risk management on the financial performance of hanks in Nigeria for the period 2006- 2009 using correlation and panel data of time series and cross sectional. Three measures of profitability were employed which are return on assets (ROA), return on equity (ROE) and return on capital employed (ROCE). Cost of bad loan was found to have a significant negative effect on ROA and ROCE while not significant with ROE. A positive and significant effect was found between debt-to-equity ratio with the three measures of profitability. While non-performing loan, equity to loan ratio, equity to total asset ratio and liquidity have no significant effect on all measures of profitability employed.

However, in Ghana, Boahene. Dasah and Agyei (2012) assess the impact of credit risk on the profitability of 6 commercial banks for the period 2005-2009 using descriptive statistics, correlation and the multiple regression technique of fixed effect model and random effect model in which the fixed effect model was found to be more robust.
All the credit risk measures used in the studies were found to be positively and significantly impacting profitability measured using return on equity. The credit risk measures are net charge off to loan and advances ratio, non-performing loan to loan and advances and the ratio of prerevision profit to loan and advances.

Given the importance of banks and credit risk management in an economy, the number of empirical research on the effect of credit risk management in Nigeria is quite little, according to the empirical review. The global banking industry's financial crises revealed the necessity for more attention to be paid to the dynamic influence of credit risk management on banks' financial performance in Nigeria. As a result, the high level of non-performing loans, poor loan quality, and the raising of fictitious capital by Nigerian banks, all of which point to a lack of credit risk management practice, compel scholars, practitioners, regulators, and academicians to critically examine the credit risk management framework in order to propose solutions on the impact of credit risk management on Nigerian bank profitability.
Given the limited number of studies undertaken in Nigeria, the vast assets owned by banks, and the financial importance of banks, the evaluation also highlighted the necessity for return on asset and return on equity to be utilized to assess financial performance of banks. As a result, it is necessary to examine the impact of credit risk management from the perspective of returns on assets used and the amount of capital spent by banks in Nigeria.

**Theoretical Framework**
The theoretical framework in this study is pinned down to theories and strategies/mechanisms that explain the credit risk management to be adopted by a bank.
**1 Portfolio Theory**

Among the theories that explain credit risk management is the portfolio theory. The modem portfolio theory was proposed in the work of Harry Markowitz in 1952 which states that a bank only profits from the interest gained on a successful loan repayment form successful diversification of loan portfolios. It relies on the ability of the counter party to maximize profits so as to guarantee credit security for the borrowing bank.
As a result, a bank will always give credit to the organization or person with the lowest chance of default. Credit risk, according to David and Dionne (2005), is defined as a deterioration in a counterparty's credit standard. The reduction in a counterparty's or individual's credit standard does not guarantee that they will default, but it does raise the likelihood of default, signaling the bank to pay more attention to managing their loan portfolio.
As a result, banks are obliged to keep a close eye on their balance sheets and ensure that the amount of money lent to any single client or group of customers is kept to a minimum. Since a result, loan portfolio diversification is required to minimize loan concentration, as banks acknowledge the negative impact of credit concentration on financial performance.

David & Dionne (2005) in their work categories bank loans into different segments of diversification of loan portfolios into; geographical diversification, industry diversification, customer diversification and company size diversification.
The Asset-by-asset Approach involves periodically evaluating the credit quality of loans and other credit exposures, applying a credit risk rating, and aggregating the results of this analysis to identify a portfolio's expected losses. Based on the outcomes and results of this investigation, loan identification, loan review, and credit risk rating system management can make necessary modifications to portfolio strategies or increase the supervision of credits in a timely manner

**2 Prospect Theory**

The second theory adopted by this study is the prospect theory developed by Daniel Hahneman and Amos Tversky in 1979. It describes how individuals make decisions around risk. I he theory predicts increased risk-taking behavior in the presence of below-target outcomes. In particular, prospect theory shows that people are highly risk averse when it comes to potentially increasing their wealth, but risk seeking when dealing with potential economic loss (Kanchu & Manoj, 2013).
Prospect theory stipulates that risk attitude is determined by the outcome's relation to a reference point and not the outcome's level. Therefore, Godlewski (2007) noted that when performance is below a given target level, decision makers should be risk seeking, and when performance is above the target level, they should be risk-averse. Thus, Johnson (1994) pointed out that prospect theory suggests a combination of lower expected return and lower variance may be selected when all outcomes are above the target level, i.e., risk aversion will be exhibited. However, when operating below target, a combination of lower expected return and higher variance may be preferable, i.e.. there may be less risk aversion.

**3 Deposit Insurance Theory**

The deposit insurance theory also provides an insight into the behaviour of commercial banks (Flannery, 1989; Cham. Greenbaum and Thakor, 1992). In the context of this theory, banks are viewed as portfolio of risky claims. As insured banks increase their risk of failure without limit, there is an expected value transfer of wealth from government deposit Insurance Corporation to bank owners. Regulators are concerned about bank's soundness, particular with respect to solvency or the probability of bank failure. Therefore, regulation of bank risks exposure is necessary to reduce the expected losses incurred by the deposit insurance corporation. Deposits solicited from customers are not as dependable and reliable as the bank capital requirement. It cannot be used for long term planning. However, more deposits means banks can grant more loans and will not obviate the need for excessive capital. Where bank loans and advances are given out to customers without due process it might affect capital and liquidity position of a bank in the long run. The study adopts the Deposit Insurance Theory to guide the study.

## RESEARCH METHODOLOGY

### Research Design

This study is conducted based on historical data of the study population. Therefore, the study employs the ex-post factor research design in which the data used were extracted from the annual reports and accounts of the sampled banks for the period 2009 - 2018. Panel data methodology will be employed to examine the effect of each dependent variable on the explanatory variables. The research design is justified base on the type of data to be collected and the analysis done.

The population for this study is the entire listed Deposit Money Banks (DMBs) on the Nigerian Stock Exchange as at December 31st, 2020. This study evaluates the impact of risk management on the profitability of deposit money banks in Nigeria for the period 2010–2019. Under this sector, there are a total of sixteen (14) listed deposit money banks on the floor of the Nigerian stock exchange. This can be seen in Table 3.1.

**Table 1: List of Nigerian deposit money banks**

| S/No | Name of banks | Date listed |
|---|---|---|
| 1 | Access Banks Pic. | 1998 |
| 2 | Ecobank Nigeria Pic. | 2006 |
| -> | Fidelity Bank Pic. | 2005 |
| 4 | First Bank ofNigeria pic. | 1971 |
| 5 | First City Monument Bank pic. | 2004 |
| 6 | Guaranty Trust Bank Pic. | 1996 |
| 7 | Stanbic 1BTC Pic. | 2005 |
| 8 | Sterling Bank Pic. | 1993 |
| 9 | United Bank for Africa Pic. | 1970 |
| 10 | Union Bank Pic, | 1971 |
| 1 1 | Unity Bank Pic. | 2005 |
| 12 | Wema Bank Pic. | 1990 |
| 13 | Zenith Bank Pic. | 2004 |
| 14 | Jaiz Bank | 2017 |

*Source:* Generated by the researcher from the NSE 2020 .

Table 1 presents the study population which shows the year of listing. The Table shows the list of sixteen (14)'deposit money banks in Nigerian stock Exchange as at 31 Dec 2020.

**4 Sampling Technique and Sample Size**

A filter system will be used to select the sample for the study. The study will use a three-point filter. Firstly, for any bank in table 3.1 to qualify as a member of the working population, it must first have been listed on the NSE on or before 31 December 2007; secondly, it must have been quoted without being delisted between 2008 and 2017; and thirdly, the bank must have been licensed to operate as a national bank on or before 31 December 2007. These criteria are established with a view to ensuring that the banks have their published financial statements for the period covered by this study. As a result of this filter, the number of banks in the population was reduced to 12. Some years after, Wema bank and Jazz bank got approval to operate as national banks.

**Table 2 Sample Size**

| S/No | Name of banks | Date listed |
|---|---|---|
| 1 | Access Banks Pic. | 1998 |
| 2 | Ecobank Nigeria Pic. | 2006 |
| 3 | Fidelity Bank Pic. | 2005 |
| 4 | First Bank of Nigeria pic. | 1971 |
| 5 | First City Monument Bank pic. | 2004 |
| 6 | Guaranty Trust Bank Pic. | 1996 |
| 7 | Stanbic IBTC Pic. | 2005 |
| 8 | Sterling Bank Pic. | 1993 |
| 9 | United Bank for Africa Pic. | 1970 |
| 10 | Union Bank Pic. | 1971 |
| 1 1 | Unity Bank Pic. | 2005 |
| 12 | Zenith Bank Pic. | 2004 |

Sourced. Generated by the researcher from table 1.

**6 Variables and Variable Measurement**

For the purpose of this study, the dependent variables adopted is Profitability proxied by Returns on assets

(ROA) as used by Amos. Sharon, & Anita. (2016), Davydov (2014) and Adusei, Akomea & Nyaddu-Ado (2014). The choice of these variables was influenced by the empirical studies reviewed. The independent variables used in this study are; non-performing loan, liquidity, debt to equity ratio and capital adequacy ratio while the control variable will be bank size proxied by the natural logarithm of total asset. Table 3.3 presents the summary of variables and their measurement.

**Table 3: Variables and their Measurement**

| VARIABLES | PROXY | Abbr. | MEASUREMENT |
|---|---|---|---|
| Dependent Variable | | | |
| Profitability | Returns on Assets | ROA | Profit after tax/total assets |
| Independent Variable | | | |
| | | | |
| Loan Loss Provisioning | | LLP | Loan loss provision/total loan |
| Capital Adequacy ratio | | CAR | Share of own capital /total asset |
| Control Variable | | | |
| Bank Size | Net Assets | 13 S | Natural logarithm total asset |
| Bank age | | BA | No of years listed on the stock exchange |
| Lnloan | Total loan | lnloan | Natural log of total assets |

**7 Technique of Data Analysis anti Model Specification**

Given the objective of the study and following the works of Mbatuegwu, Lawal, and Egberi (2022) Armeanu et al **(2017),** Sophia, and Anita, (2016), Huysentruyt, (2015), and Chcikh. (2014) the panel data methodology will be employed. A multiple linear regression model will be used to determine the relative effect or importance (sensitivity) of each explanatory variable as it affects risk management of the sampled banks. Therefore, pooled Ordinary Least Square (OLS), will be employed for estimating the regression equation using STATA version 15 statistical package. Descriptive and Pearson correlation will also be employed to compliment the analysis.

The Ordinary Least Square (OLS) is anchored on the assumption that there is no group or individual effects among the banks. For making sure that the linear regression assumption is not violated, multicollinearity and hetcroscedasticity will be carried out. To check for multicollinearity, the most widely-used diagnostic for variance inflation factor (VIF) will be used. The VIF estimates how much the variance of a coefficient is inflated because of linear dependence with other predictors. Therefore, the VIF, will be calculated for each predictor by doing a linear regression of that predictor on all the other predictors. A maximum VIF value in excess of 10 is often taken as an indication that multi-collinearity.

Therefore, the general model for this research work is as follows:

$n = c + pjX_n + e_{jt}$ Where:

Y = Dependent variables for i-th bank and time t

X = Independent variables for i-th bank and time t (3 = Coefficients of independent variables

Therefore, for the purpose of this study, (he model of Amos et al., (2016) will be adopted with modification thus; β

$ROA_{lt} = c + \beta_l LLPjt + \beta_2 CAR_{lt} + \beta_3 BA_{lt} + \beta_l LnLoan_{lt} + e_{lt}$

Where:

ROA = Returns on assets

LLP = Loan loss provision

CAR= Capital Adequacy ratio

BA = Bank Age

Lnloan = Natural log of total loan

**RESULTS AND DISCUSSION**

**Robustness Test**

The robustness tests carried out by this study arc: heteroskedasticity test, Multicollinerarity test, hausman specification, Breush-Pagan Lagrangian multiplier test for random effect and F-test. These tests were carried out in order for the study to reach a valid statistical inference.

i. The heteroskedasticity test was used to confirm that the regression model fits all of the independent variable values, which is only achievable if the residuals do not fluctuate with the independent variable and are therefore random. The existence of heteroskedasticity is indicated by a p-value less than 5%, whereas the presence of homoskedasticity is shown by a p-value more than 5%. The test from appendix A revealed the presence of heteroskedasticity in the first model, with a p-value of 0.0359. As a result, the

OLS robust test was used to fix this. However, because the p-value is more than 5%, the second model from appendix B indicated no heteroskedasticity (0.1115).

ii. A multicollinearity test is used to see whether there is a connection between the independent variables that might cause the study's results to be skewed. The predictive value of individual predictors in a model is affected by multicollinearity. As previously indicated, this test was conducted using the Variance Inflation Factor (VIF), and a VIF of greater than 10 denotes the presence of multicollinearity. The variance inflation factor (VIF) of all the models is less than 10, ranging from 1.15 to 5.48, indicating that there is no substantial multicollinearity, according to the results of the two regression models in appendix (A and B).

iii. To choose between the Fixed and Random effects, the hausman test was used. This was done to determine if the data should be represented by a fixed effect or a random effect in order for the study to reach a legitimate conclusion. The Fixed Effect Model (FEM) allows the intercept to change for each business while assuming that the slope coefficients are constant across companies, whereas the Random Effect Model (REM) assumes that the individual or group effects are uncorrelated with other explanatory factors. As a result, a p-value of less than 5% indicates that a fixed effect is suitable, whereas a p-value of more than 5% indicates that a random effect is appropriate.

iv. iv. Normality Dependent Variables Test: The study employs a normal probability plot and a histogram of residuals to determine data normality or the distribution pattern of the research data. The data was transformed by taking the Log of the dependent variables' values in order to ensure that the normalcy assumption was met and that the data was not skewed. The dependent variables' normal p-plot suggests a satisfactory fit and no outliers in the regression residuals. Similarly, the histogram's bell-shaped form confirms the study data's normalcy. The tests' results indicate that the research's data did not deviate substantially from a normal distribution.

**Descriptive Statistics**

Table shows the summary of the statistics for the dependent, independent and the control variables of the study. The summary statistics in showed the mean, standard deviation, minimum and the maximum values of the variables of the study. Similarly, Table 4.2 shows basic insight into the nature of data that upon which analysis was conducted.

| Variable | Obs | Mean | Std. Dev. | Min | Max |
|---|---|---|---|---|---|
| ROA | 120 | -1.67 | 0.41 | -2.82 | 0.35 |
| LLP | 120 | 0.95 | 0.44 | 0.02 | 3.21 |
| CAR | 120 | 16.65 | 29.85 | -0.32 | 187.36 |
| BA | 120 | 24.21 | 12.53 | 7 | 46 |
| LnLoan | 120 | 18.63 | 1.43 | 15.27 | 21.18 |

***Source: Generated by the Author from the Annual Report and account Data of DMBs.***

The mean ROA is - 1.67, with a standard deviation of 0.41, as shown in Table 4.2. This means that the entire assets used by banks contributed -167 percent to their overall earnings on average in the sector. This demonstrates that the sector is not doing well, in line with the Nigerian banking industry's financial crisis. The standard deviation demonstrates that ROA is responsible for a 41% fluctuation in profit. As shown in Table 4.2, the smallest value of ROA is 2.82 (-282 percent), while the greatest value is 0.35. (3 5 percent ). This demonstrates that certain banks fared poorly, reflecting the severity of their financial issues and the fake profits claimed by several banks before to the global crisis.

The ratio of loan loss provisions The provisions made for nonperforming loans, according to LLP, have a mean value of 95%. This revealed that banks in the sector give as much as 95% of non-performing loan provisions. The standard deviation of 44 percent suggests significant LLP dispersion due to the industry's degree of non-performing loans. This backs up the theory that some executives employ loan loss provisions to smooth out their income. The table shows that the smallest value of LLP is 0.02 percent and the largest value is 3.21 % (32 %). This means that some banks perform extremely well because they make less provisions, while others perform very poorly since their provisions are as high as 32 0%. I.e. some banks exhibit very poor credit risk management policies. This has been shown by the extend default rate in which some of the banks exhibit.

The capital adequacy ratio (CAR) gives the amount of capital held by a bank as a buffer against loss and or liquidation. From the table, the mean value of CAR is 16%. This shows that on the average, the banks maintain an adequate capital as against the minimum required capital to be held by each bank as contained in the CBN prudential guideline. The standard deviation depicted is 29% which indicate variability in the amount of capital held by the banks in the industry. Therefore, banks hold enough capital commensurate to the risk they take. This

is attributed to the recapitalization policy adopted by the CBN and the policy that every bank should maintain capital commensurate to the risk it takes

The minimum value and maximum value of CAR from the table is -0.62% and 187.36% respectively. This indicates that some banks are far below the minimum capital stipulated by CBN to be held, which called for an action plan in these banks by both the managers and regulatory authorities. Therefore, these banks should be encouraged to hold an excess buffer to reduce the probability of falling below the legal capital requirement of 15%. Some banks have exhibit a good credit risk management techniques and policies because of the high level of capital the hold compared to the amount of risk the take at 187.36%.

The control variables used in the study showed the mean of Bank size is 19.65 and a standard deviation of 1.34 indicate a considerable level of dispersion in size in the industry during study period. The minimum value indicated as 16.24 and the maximum value of 21.34 indicates that the banks do not differ significantly in size. The age of bank measured as age of listing has a mean "value of 24.21 and a standard deviation of 12.53. The minimum value and maximum value of bank age are 7 and 46. This means that some banks have been listed on the floor of Nigerian stock exchange as far back as the last 46 years.

### 4.3.2 Correlation Result

Correlation shows the relationship between one variable and the other. And the sign of the correlation indicates the direction of the relationship while the coefficient of the correlation gives the magnitude of the relationship, table 4.3 shows the summary of correlation between ROA and other explanatory variables and the correlation between the explanatory variables.

**Table 4.2 Correlation Between ROA and Explanatory Variables**

| Variable | ROA | LLP | CAR | **BA** | LnLoan |
|---|---|---|---|---|---|
| ROA | 1.0000 | | | | |
| LLP | 0.0183 | 1.0000 | | | |
| CAR | 0.0183 | 0.0625 | 1.0000 | | |
| BA | -0.1425 | -0.1952 | -0.1057 | 1.0000 | |
| LnLoan | -0.1667 | 0.2903 | 0.2903 | 0.51 16 | 1.0000 |

**Source: Generated by the Author from the Annual Report and accounts of DMBs**

Table 4.2 shows the correlation between the dependent variable ROA and the independent variables (default rate, loan loss provisioning ratio, capital adequacy ratio, bank size, bank age and natural logarithm of total loan). The correlation coefficients on the main diagonal are 1.0000 indicating each variable has a perfect positive linear relationship with itself. Similarly, the relationship between ROA and loan loss provision is positive with a weak correlation coefficient of 1692. This result implies that as the loan loss provision increases, ROA is going to increase and as loan loss provisioning decreases, ROA reduces.

Moreso, the correlation between capital adequacy (CAR) and ROA show's a positive very weak correlation. It therefore means that as the amount of capital held by a bank to guard against losses increases, ROA of the banks increases. This result supports the impression that highly capitalized banks are more profitable than those that are poorly capitalized. However, the correlation between ROA and the all the control variables showed a negative and weak relationship with bank size (BS), bank age (BA) and natural logarithm of total loan (LnLoan) at correlation coefficients of-0.2583, -0.1425 and - 0.1667 respectively.

The result shows an indirect relationship which indicates that as BS increases ROA is going to decrease which signifies that as the banks are not properly using the assets at their disposal to generate profit. This has been supported by the average value of ROA from the descriptive statistics. The indirect relationship between BA and ROA signifies that being listed for a long period of time does not guarantee good performance. This has been the case of the new generation banks that scale through the recapitalization policy in which most of them perform better than the old generation banks. Lastly, the relationship between LnLoan and ROA as quantum of loan given out increases, the interest accruing on the loan will be high and thereby increasing the profits of the banks.

**Regression Result on ROA and the Independent Variable**

The regression result of the Ordinary Least Square (OLS), Fixed Effect (FE) and Random Effect (RE) estimation techniques are presented in Table 4.3. The table contains the summary result of ROA as the dependent variable and, loan loss provisioning (LLP), capital adequacy ratio (CAR), bank size (BA), bank age (BA) and natural logarithm of total loan (LnLoan) as the independent variables. The estimation is done for the first model as given in the methodology section.

| Variable | OLS robust | Random effect | Fixed effect |
|---|---|---|---|
| LLP | 0.338629<br>(0.000) | 0.338629<br>(0.000) | 0.3226326<br>(0.002) |
| CAR | 0.0021297<br>(0.015) | 0.0021297<br>(0.149) | 0.0013418<br>(0.370) |
| BA | -0.001802<br>(0.708) | -0.001802<br>(0.661) | 0.000959<br>(0.968) |
| LnLoan | 0.1337532<br>(0.255) | 0.1337532<br>(0.030) | 0.1547075<br>(0.051) |
| R Squared<br>F-Value<br>Prob. F | 0.2982<br>4.87<br>0.003 | | |
| R Squared: | | 0.3044 | 0.3206 |
| Within<br>Between<br>Overall<br>Rho<br>F-value<br>P-value | | 0.3670<br>0.2982<br>0.0000 | 0.2152<br>0.2152<br>0.2790<br>0.15944544<br>1.61<br>0.0000 |

**Source: Generated by the Author from the Annual Report and accounts of DMBs**

Note: The table contains the coefficient of the variables and significance level which are given in parenthesis
Table 4.3 gives the summary regression result from the OLS robust, fixed effect and the random effect models as shown in appendix A. The OLS robust was conducted in order to correct for the presence of heteroskedasticity as indicated in the test. In order to take cognizance of endogeneity of the pooled OLS, the Hausinan test was conducted for the model supports the use of Fixed Effect method. However, the F-test fails to support the use of Fixed Effect. Therefore, the test supports the use of pooled OLS due to lack of presence of cross sectional differences in the data of the study. Consequently, analysis will be conducted using the robust pooled OLS result from Table 4.3.
The OLS result in the table reveals that the R‘ is 0,2982 which is the coefficient of determination that gives the proportion or percentage of the total variation in the dependent variable explained by the explanatory variables jointly. It shows that 29% of total variation in return on asset (ROA) in the Nigerian banking industry is caused by combine effect of loan loss provision ratio (LLP), capital adequacy ratio (CAR), bank age (BA) and natural logarithm of total loan (LnLoan). This was supported by the F- value of 4.87 that is significant at 5% (0.003).
The result showed that default rate (DR) has a statistical positive and significant effect on financial performance measured using return on asset (ROA) at 5% significant level. This implies a 1% increase in default rate, is going to increase financial return on asset by 10%. Therefore, Nigerian banks should pay more attention to managing their loan portfolios by diversification of the loans to avoid over concentration of loans to specific individuals or specific sectors of the economy. These findings in consistence to the findings of Boahene, Dasah & Agyei (2012), Kurawa & Garba (2014). Abiola & Olausi (2014) and Narula & Singla (2014). The result is quite surprising because normally one would expect that as more customers fail to pay for facilities granted, the financial performance of the bank will be reduced. Moreover, a positive relationship can be established base on the argument that not notwithstanding, even though there is high loan default, default rate is increasing proportionately to financial performance. This implies that, Nigerian banks do not have effective institutional measures to deal with credit risk management. The banks shift the cost on loan default in form of higher interest rate on loans to other customers. Eventually, banks that exhibit this behaviour are more likely to increase their financial performance, even though credit risk may be high.
However, the findings of the study contradict the findings of Hosna, Manzuri & JuanJuan (2009). Paudel (2012). Yuanjuan & Shishun (2012), Kolapo, Ayeni **&** Oke (2012), Mwangi, Musyoki & Kadubo (2012), Rufai (2013), Madishctti & Rwechungura (2013), Kaaya & Pastory (2013), Erina & Lace (2013) aiid Azeem & Amara (2014) who found a significant negative effect of default rate on financial performance of banks. This findings is consistence with the true economic situation due to the fact that as the default rate increases, it means loan given out are not performing and thus the interest on the loan have not been promptly paid, therefore, the lower the profit. Charles & Kenneth (2013) noted that most loans and advances were concentrated in the Nigerian stock market to create what is known as margin loans (the art of granting loans to stock brokers to purchase share using the share as security for the loan), unfortunately, most of these loans were lost as a result of the global financial crisis when foreign portfolio investors had to divest their funds and as a result profits of

the banks declined.

The findings also contradict the findings of Kithinji (2010), Nawaz & Munir (2012), Muritala & Taiwo (2013) and Charles & Kenneth (2013), who recorded a negative but not significant effect of profitability on default rate. The inverse relationship is true in the Nigerian banking system especially during the period under study.

The impact of LLP on financial performance measured using ROA from the robust OLS regression showed that there exists significant positive impact of LLP on ROA at 5%level of significance. This implies that as provisions increases, ROA also increased by 33%. However, an inverse relationship is expected, since a higher ratio of LLP could indicate a poor quality of loans or poor loan portfolio management and thus, a higher risk of a bank's loan portfolio and since bad loans are expected to curtail the financial performance of a bank, LLP is expected to negatively affect bank financial performance. This finding is

inconsistence with the findings of Rao & Lakew (2012) and Charles & Kenneth (2013) who documented a significant negative effect. Moreover, the positive relationship can signifies the importance of rising provision by bank. This is due to the fact that in the event of loss, the provision can be used to reduce the extent of the effect of the losses on financial performance. However, care must be taken to avoid problems associated with loan defaults so as to discourage over provisioning. More so, severe banking problems basically emanates from the failure of financial institutions to recognize impaired assets and create reserves for writing off these assets.

From the OLS regression result in appendix A. capital adequacy ratio (CAR) shows an insignificant effect. However, when the robust OLS was regressed, the effect of CAR on ROA became significant at 5% level of significance. That is an increase in CAR will bring about very little increase in ROA at 2%. The positive and significant effect between CAR and ROA in the Nigerian banking industry is as expected, this is inherent in the enhancement of capital base of Nigerian banks to 25 billion naira that significantly improved the bank financial performance. This protected Nigerian banks against financial losses from default loans, and also gives Nigerian banks the right opportunity to compete internationally especially with other banks. The result is consistent with the findings of Syafri (2012), Rao & Lakew (2012) and Charles & Kenneth (2013) but contradict thefindings of Paudel (2012), Mwangi (2012), Soyemi, Akinpelu & Ogunleye (2013) and Frederick (2014) who reported a negative and significant effect of capital adequacy on performance. The result is also inconsistent with the findings Flosna, Manzuri & JuanJuan (2009), Roman & Danuletiu, Oluwafemi. Adcbisi. Simeon & Olawale (2013), Olalekan & Adeyinka (2013), Kurawa & Oarba (2014) and Abiola **&** Olausi (2014) who recorded insignificance effect of capital adequacy on the financial performance of banks.

All the control variables used in the first model recorded a negative and insignificant effect on ROA. Bank size (BS), bank age (BA) and natural logarithm of total loan (LnLoan) are insignificant at 5% level of significance with coefficient of-0.2035, - 0.0018 and 0.13375 respectively. The negative relationship between BS and ROA implies that Nigerian banks should avoid holding too much and unnecessary assets as this will affect their financial performance by increasing their operating cost. The negative relationship between BA and ROA indicate that a bank listed for a long period of time does not guarantee good financial performance. This has been the case of the old generation banks that did not scale through the recapitalization policy ol the CBN in which most of the new generation banks perform better than the old generation banks. Therefore, older banks should not assume that they have in place efficient credit risk management policies. But rather, they should make sure that the implement new credit risk management policies and techniques and adhere strictly to the provision of the Basel capital accord and CBN prudential guidelines.

## SUMMARY, CONCLUSION AND RECOMMENDATIONS

### Summary

The study comprises of five chapters. Chapter one begins with the background to the study in which the general overview of credit risk management in the banking industry was given, followed by the state of credit risk management in the Nigerian banking industry. The banking industry has been seen as a catalyzed for economic growth and development by transferring funds from the surplus unit to the deficit: unit of the economy to stimulate economic growth. Therefore, credit creation is the main income generating activity of the banking industry and interest from such credit serve as the main income generating activity of banks. However, in trying to achieve this, banks are exposed to credit risk of default or delinquency of part or the whole credit and the interest under the specified period. Consequently, there has to be a system of identifying, evaluating and management of this credit risk that follow a standard risk management framework.

The Nigerian banking industry witnessed dramatic growth post consolidation of 2005 and the developments posed a lot of challenges for the industry and regulation. The industry was bedevil with high non-performing loans as a result of weak credit standards, poor portfolio risk management, gaps in prudential guidelines, uneven supervision and lack of adequate disclosure about the financial position of Nigeria banks. This resulted to the failure of many banks in the country. Therefore, lots of concerns were raised by regulators, supervisors,

professionals and academicians on the issue and extend of the effect of credit risk management on financial performance of banks in Nigeria that boils down to empirical question.

There has been an increase in the number of studies conducted on credit risk management and financial performance of banks in Nigeria recently. However, most of the studies were conducted for a period of not more than five years which did not capture the recent years which sees the banking industry around the globe into financial crisis in 2008. More so, Nigerian studies did not include loan loss provision among their study variables given its importance in the prudential guideline. Lastly, the use of Bruesch-Pagan LM test and F-test to improve the quality of the inferences drawn from this study will reveal the right method of analysis to be employed rather than just to assume the presence of cross-sectional dependence. Therefore, these factors motivated for this study which is aim at examining the effect of credit risk management on the financial performance of banks in Nigeria.

In line with the above, the study formulated two research hypotheses in null form in order to be tested at the end of the study. Finally, this study has its scope to include to all deposit money banks that are listed on the floor of the Nigerian stock exchange on or before the period 2010 and the bank most not have been taken over, acquired and or merged with other bank in other to maintain its identity in own name.

The concepts of risk, performing and nonperforming loan, risk weighted asset, concept of credit risk management, concept of profitability and theories and strategies of credit risk management. From the review, it was found that credit risk management involves putting in place a well-articulated framework that can minimize or eliminate credit risk exposures faced by banks from the loans given out and if the exposure is un-avoided, the framework should be able to point directly to the potential consequences of such exposures. Thus, credit risk management process should involve establishment of a clear structure and framework of identification, evaluation and managing also looks at the methodology of the study in which the relevant tools for analysis was used. The study adopted the expose factor research design, the population of the study include all the twenty-one banks listed on the floor of the Nigerian stock exchange. Seven banks were sampled from the population of the study as the sample size to be used for analysis. The annual report and accounts of these banks were used to generate data for the study period using STATA 14. The study employed the panel data methodology of Fixed effect, random effect and the pooled OLS for analysis and employed the use of Breusch- pagan I, M test and the F-test to test for random and fixed effect respectively.

The result was presented and discussions were made from the analysis of the data generated using descriptive statistics, correlation and panel data methodology. This was done in order to test the two-research hypothesis of the study that led to the rejection of all null hypothesis formulated. The robustness check was conducted using the multicolinearity test, heteroskedasticity test, Flausman lest, Breusch-Pagan Lagrangian multiplier test for random effect and the F-test for fixed effect to validate the statistical inferences made in the study.

**The findings revealed that profitability measured using return on asset (ROA) have a statistically significant positive effect on loan loss provision (LLP). While the effect of capital adequacy ratio (CAR) on profitability showed a statistically significant positive effect, which was also in line with Mbatuegwu, Musa, & Yoko, (2022) findings.**

### 5.3 Conclusions

This study investigates the effect of credit risk management on profitability of deposit money banks in Nigeria. Therefore, from the findings of the study, the following conclusions where made;

i. There is a significant positive impact of loan loss provision on profitability of banks in Nigeria-It is essential to state that the strategy of making provisions for loan loss and or reducing non-performing loans has never been misleading. However, it is concluded that there is a poor loan quality, poor loan portfolio management and the presence of a high risk of a bank's loan portfolio among Nigerian banks. Thus, loan loss provision is being used to manage earnings by Nigerian banks.

ii. There is a positive and significance effect of capital adequacy ratio on the profitability of Nigerian banks. The positive result confirms the enhancement of capital base of Nigerian banks to 25 billion naira in other to significantly improve the Nigerian bank financial performance. This protecting was made against financial losses arising from default loans, and also gives Nigerian banks the right opportunity to compete internationally especially with other banks.

### 5.4 Recommendations

The following recommendations were made base on the conclusions of the study.

i. Nigerian listed Banks need to adequately and accurately obtain information from both internal and external sources on credit standard of loan seekers in order to access the multiplicity of credit risk they can face when presented with a loan proposal. The use of credit risk models in determining loan quality can be used and Credit bureaus can also be reached when 'tracking the financial behavior of a credit

customer.

ii. Deposit money banks in Nigeria should enhance their capacity in credit analysis and loan administration so as not to make over provision on non-performing loans and while regulatory authorities should pay serious attention on bank's compliance to the relevant provisions of the prudential guidelines and IFRS on loan loss provision.

iii. The CBN and other regulators should try and see to the full implementation of banking regulations and provision of prudential guidelines by Nigerian banks. Banks should hold adequate capital to serve as a buffer against loan losses as this will increase depositors' confidence, attract large customer base and gives them opportunity to compete internationally with other banks around the globe.

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