

**CREDIT RISK MANAGEMENT AND DEPOSIT MONEY BANK PERFORMANCE IN
NIGERIA**

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BENIN CITY**

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**A RESEARCH PROJECT SUBMITTED TO THE DEPARTMENT OF BANKING AND
FINANCE, FACULTY OF MANAGEMENT SCIENCES, UNIVERSITY OF BENIN,
BENIN CITY, IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE
AWARD OF THE BACHELOR OF SCIENCE (BSC) DEGREE IN BANKING AND
FINANCE**

JANUARY, 2023

DECLARATION

I hereby declare that;

1. This project report is based on the study undertaken by me in the Department of Banking and Finance, University of Benin, under the supervision of Dr. O. G. Omorokunwa.
2. This work has not been previously submitted for the award of a degree elsewhere.
3. All ideas and views are products of my personal research effort and where the views of others have been expressed, they have duly been acknowledged

Nathan Chimezie ONUH

Date: _____

CERTIFICATION

We the undersigned persons certified that this project was submitted by **Christopher Chukwuyeni BIELOSE** with Matriculation number **MGS1706517** to the Department of Banking and Finance, University of Benin, Benin City and approved for the partial fulfilment of the requirements for the award of Bachelor of Science Degree (B.Sc) in Banking and Finance.

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Date

DEDICATION

This project is dedicated to God Almighty from whom I draw my ideas and inspiration from and for His unending love and mercy towards me to put this work together.

ACKNOWLEDGEMENTS

Importantly, I want to enunciate my sincere gratitude to God Almighty the creator of the universe for life, sound health, strength, wisdom, guidance, mercy, favor, protection and His unending and unwavering love all through my sojourn in school.

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ABSTRACT

This study empirically estimated the relationship between credit risk management and the performance of DMBs in Nigeria. Twelve (12) quoted deposit money banks were used in this study. Five variables such as; return on asset, non-performing loan, capital adequacy, leverage and loan loss provision were used for the estimation. The data used ranges from 2011 to 2020 across 12 deposit money banks in Nigeria. And the number of observation is (12 deposit money banks times 10 years) 120. This study used the pooled panel regression technique. This implies that the 120 observations are pooled together before the regression is run, thus neglecting the time series nature and cross sectional nature of the data. Specifically, the following findings were made: that non-performing loan has a negative significant impact on the DMBs performance in Nigeria; that capital adequacy does not have any impact on DMBs performance; that leverage does not have any impact on the DMBs performance; and that loan loss provision has a positive significant impact on the DMBs performance of in Nigeria. Following the findings from this study the following recommendations were made: that DMBs should adequately engage in the effective management of it loan in order to yield positive return and reduce non-performing loans; that DMBs should maintain the statutory minimum reserves of capital to avoid bank runs and the apex regulatory authority should supervise and monitor banks to ensure compliance; among others.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

The stability of a country's financial system is critical, and its failure can thwart economic growth and development. Deposit money banks are compared to the blood arteries of the human body in developing economies, particularly in Nigeria, because they account for more than 90% of the country's financial assets (Rwayitare, Shukla & Ruhara, 2016). A bank exists not only to accept deposits from savers, but also to provide credit in order to profit from the interest charged on such credits. This intermediation function of banks generates a variety of risks with varying magnitudes and levels of impact on bank performance, including credit risk, liquidity risk, market risk, legal risk, foreign exchange risk, solvency risk, and operational risk. Credit risk is one of the most common causes of bank failures, and the success of their business is more dependent on accurate measurement and efficient management of credit risk than any other risk (Kolapo, Ayeni & Oke, 2012; Adeusi & Dada, 2017).

Credit risk other risks mentioned above is the risk that arises from default in payment on loans granted by banks to its borrowers. To mitigate this risk, measures have to be put in place by deposit money bank management in order to prevent the risk from occurring.

Bank failures in Nigeria and other emerging economies have been attributed, among other things, to improper lending practises, a lack of experience, and inadequate organisational and informational systems to assess credit risk in a falling economy. A high incidence of non-performing loans on the balance sheet reduces bank profitability, affecting bank performance (Uwalomwa, Uwuigbe & Oyewo, 2015; Ogbulu & Eze 2016; Kolapo, Ayeni & Oke, 2012). According to Bessis (2002), as cited in Adeusi and Dada (2017), credit risk management is important to bank management because banks are risk machines, taking risks and transforming them into banking products and services. Risks are unpredictability caused by changes in expected returns. "The higher the risk, the higher the return," as the adage goes in finance. As a result, risk can be either an opportunity or a threat depending on how well it is managed.

Credit risk is one of the most significant risks that banks face, as credit is one of the primary sources of income for deposit money banks. Banks not only support the viability and profitability of their own businesses by effectively managing credit risk exposure, but they also contribute to systemic stability and the efficient allocation of capital in the economy (Nwanna & Oguezue, 2017). A small number of customers defaulting could result in a large loss for the bank (Adeniyi, Opeyemi, Kayode & Emeje, 2021). It was identified as a major source of risk by the Basel Committee during the early stages of the Basel Accord. As a result, the management of credit risk has an impact on bank profitability (Li & Zou, 2014; Dankwa, 2019).

The Central Bank of Nigeria (CBN) signed the Basel I and Basel accords in 1987 in order to address credit risk management issues in Nigeria. Both agreements emphasised the importance of

capital adequacy in reducing credit risks and mitigating the impact of unexpected financial losses on banks (Iwedi & Onuegbu, 2014). According to Osuka and Amako (2015), non-performing loans in Nigerian deposit money banks were critically high between 1999 and 2009, peaking at 35% in 2009. Poor corporate governance procedures, insufficient credit administration systems, and a lack of or non-adherence to credit risk management practises all contributed to the banks' unusually high NPLs. High levels of NPLs have the potential to limit deposit money banks' lending capacity and, in some cases, force them out of business. According to Iwedi and Onuegbu (2014), low quality loan assets have impacted the banking system as a result of the country's weak economic and financial conditions following the Great Financial Recession of 2008 and the negative oil price shock. Low debt recovery prevented banks from issuing additional credit into the economy, stifling productivity. As a result, the Asset Management Corporation of Nigeria (AMCON) was established in 2010 as a monetary policy solution to the vexing problem of non-performing loans plaguing deposit money banks (Taiwo, Ucheaga, Achugamonu, Adetiloye, Okoye & Agwu, 2017).

Several studies have been conducted to determine how credit risk management affects the overall performance of deposit money banks. Alobari, Naenwi, Zukbee, and Grend (2018), Uwalomwa, Uwuigbe, and Oyewo (2015), and Akinselure and Akinola (2019), for example, investigated the impact of credit management on bank performance in Nigeria. They all agreed that credit risk management had a positive and significant impact on deposit money bank performance. However, given the importance that policymakers and industry practitioners place on credit risk

management as a distress prevention strategy, it is critical to determine whether this optimism is truly justified. That's to say that this study is in a bid to justify the notion of credit risk management in enhancing deposit money bank performance in Nigeria.

1.2 Statement of the Research Problem

Iwedi and Onuegbu (2014) observed that, despite the establishment of risk management departments in all deposits money banks (DMBs), the proportion of non-performing loans to total loans and advances in the banking system was viewed as the primary cause of the 1990s and 2000s financial crisis, which affected both developing and developed countries (Badar & Javid, 2013). Total bank loans in Nigeria, for example, increased by 736.8 percent from N1.9 trillion in 2005 to N15.9 trillion in 2019. Nonperforming loans increased by 99.1 percent from N368.76 billion at the end of December 2005 to N3.2 trillion at the end of December 2013, but the value of nonperforming loans later declined to N1.1 trillion by December 2019. As a result, the non-performing loan to total bank loan ratio increased from 7.92 percent in 2006 to 14.84 percent in 2017 before falling to 6.03 percent in 2019. (Asaolu & Adibe, 2020).

Several studies have been conducted on the relationship between credit risk management and deposit money bank performance both within and outside Nigeria (Okafor, Okafor, & Isibor, 2021; Sibor, Omankhanlen, Chima, Komolafe, & Okereke, 2021; Kargi, 2011; Kolapo, Ayeni, & Oke, 2012; Abiola & Olausi, 2014; Aduda & Gitonga, 2012; Nawaz & Munir, 2012; Ogboi & Unuafe, 2013; Poudel, 2012; Singh, 2013; Alshatti, 2015), but the majority of studies have focused on

describing or examining the impact of credit risk management on bank performance using PAT or PBT or both as performance measuring variables and Loan and Advances, performing and non-performing loans as credit risk management measurement variables. In fact, they provided a large amount of descriptive statistical data and empirical evidence for their studies, but we felt that using PBT or PAT as a measure of performance is inappropriate when compared to ROA or ROE. Few previous studies used a qualitative approach to examine the relationship between credit risk and bank performance, and we believe that such an approach is highly subjective in the face of abundant quantitative data that can accurately capture the nexus between the two variables while also displaying all necessary dynamics among the variables. More importantly, other studies that looked at the relationship between credit risk management and bank performance in Nigeria used smaller samples, making it difficult to generalise their findings. Furthermore, all existing studies were limited to data from 2019 or earlier.

This work will make progress in the following areas: it will use return on assets (ROA) as a measure of performance rather than profit before taxes (PBT), and it will include loan loss provision, which has been overlooked by most previous researchers as a measure of credit risk management to enrich the current study. This study also builds on the work of Sibor et al. (2021), who used the Ordinary least squares (OLS) method and discovered a positive relationship between capital adequacy proportion and Return on Asset; and Adeniyi et al. (2021), who used panel econometric techniques to estimate the effect of credit risk on bank performance and discovered that a percentage change in in loan to deposit ratio reduces profitability by 3% while a percentage

change in Non-Performing loan increases profitability by 7%. This study expands on their previous work by including return on asset as a function of non-performing loans, capital adequacy ratio, loans and advances, loan loss provisions, and loan to deposit ratio.

1.3 Research Questions

The questions which the study seeks to provide answers to are as follows:

- i. What is the impact of non-performing loans on the performance of deposit money banks in Nigeria?
- ii. To what extent does capital adequacy ratio affect the performance of deposit money banks in Nigeria?
- iii. What is the effect of loans and advances on the performance of deposit money banks in Nigeria?
- iv. What is the relationship between loan loss provisions and the performance of deposit money banks in Nigeria?

1.4 Objectives of the Study

The general objective of this study is to establish the effect of credit risk management on the performance of deposit money banks in Nigeria. The specific objectives of the study are to:

- i. Determine the impact of non-performing loans on the performance of deposit money banks in Nigeria.

- ii. Assess the effect of capital adequacy ratio on the performance of deposit money banks in Nigeria.
- iii. Examine the effect of loans and advances on the performance of deposit money banks in Nigeria.
- iv. Ascertain the effect of loan loss provisions on the performance of deposit money banks in Nigeria.

1.5 Hypotheses of the Study

To proffer answers to the research questions and realize the objectives of the study, the following hypotheses stated in their null forms are tested in the course of the study;

- i. Non-performing loans does not significantly impact the performance of deposit money banks in Nigeria.
- ii. Capital adequacy ratio does not have significant impact on the performance of deposit money banks in Nigeria.
- iii. Loans and advances does not significantly affect the performance of deposit money banks in Nigeria.
- iv. Loan loss provisions does not have significant effect on the performance of deposit money banks in Nigeria.

1.6 Significance of the Study

The study is of relevance in the following ways:

Financial Institutions: The study will be able to clearly depict the benefits derived by every bank or financial institution that employs required techniques in managing credit risk, as well as reveal the importance of coordinating efforts that contribute to the overall financial institution's ultimate goal of minimising risk and maximising return.

Financial Analyst and Planners: It will provide financial analysts with a clear understanding of company and consumer risk, which will improve their understanding of credit decisions. It will also assist planners in developing strategies, designs, and plans that will strategically position them in today's highly competitive, diverse, and complex business environment.

Bankers: It will provide bankers, staff, and credit analysts with the knowledge they need to initiate and manage risk assets profitably and with minimal losses in both structured and unstructured businesses in the corporate and middle market.

Academia: Scholars will comprehend the impact of credit risk management on the financial performance of Nigerian deposit money banks. They will also learn about the theories that are guiding this study and how they relate to the study variables. The study's findings could be used as a starting point for future research.

1.7 Scope of the Study

The study seeks to examine the impact of credit risk management on the performance of Nigerian deposit money banks. The study focuses on all of the Nigerian capital market's listed deposit money banks. It is valid for fifteen (15) years (2005 to 2020). The time horizon is thought to be

long enough to capture the long-run variation in the issue of credit risk management and the financial performance of Nigerian deposit money banks. The study scope will be limited to a stated specific objective, which identified the dependent(deposit money bank performance) and four independent variables (Non-performing loans, capital adequacy ratio, loan loss provision,loans and advances) to be investigated. A panel regression model will be used in the study to examine the effect of credit risk management and the performance of Nigeria deposit money banks. The accuracy and availability of data dictates the selection of the listed deposit money banks.

Secondary data for the study will be collected over 15 years.(2005 to 2020). The time frame was chosen as a result of study's use of panel data. A longer time frame is preferable. The beginning year 2005 was chosen because it was the period the recapitalization of banks was initiated. While the end year is thought to be long enough to capture the long-run variation in the issue of credit risk management and financial performance of Nigeria deposit money banks.

The total number of banks as at the study is 21 and a sample of 5 largest banks were drawn from the total population. The banks are: First bank, Access bank, United Bank of Africa, Guaranty Trust Bank and Zenith bank. These banks were selected based on the fact that they are the top players of the Nigerian banking industry.

1.8 Limitation of the Study

The main limitation of this study is the issue of data reliability. Because the study relies heavily on secondary data, such inconsistencies in variable values caused by the data sources used posed a significant constraint to the study's findings. Nonetheless, this constraint will be minimised by attempting to stick as much as possible to data from the Nigeria stock exchange fact book and annual reports of selected Nigerian deposit money banks, as these sources are more credible in Nigeria and internationally.

Also, the panel least square (PLS) econometric analysis that is used in the analysis of data is not without its weaknesses. However, effort is made to minimize the errors and weaknesses by carrying out some preliminary tests such as Panel unit root test, correlation coefficient and the descriptive statistics.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents what other scholars have written about the credit risk management and bank performance. The chapter is divided into three sections; conceptual review, theoretical review and empirical review. The conceptual review shall discuss concepts related to credit risk management and bank performance in Nigeria. The theoretical review shall present theories related to subject matter. The empirical review presents previous findings on the relationship between credit risk management and bank performance in Nigeria. The chapter closes by presenting a gap in empirical literature.

2.2 Conceptual Review

2.2.1 Concept of Financial Performance

The ability of a bank to achieve long-term profitability is referred to as its performance. In order for a bank to be successful, managers must analyze complex trade-offs between growth, return, and risk, favoring the use of risk-adjusted indicators (Bassey, Tobi, Bassey & Ekwere, 2016). Banks can use traditional, economic, and market-based performance measurements. Stern and

Stewart, for example, developed the Economic Value Added (EVA) model, which considers the opportunity cost for stockholders to hold equity in a bank, determining whether a company generates an economic rate of return greater than the cost of invested capital in order to increase the company's market value (Raza, Farhan & Akram, 2011). Many empirical studies on bank performance have been conducted around the world, notably on commercial banks, but there has been comparatively little research on bank performance in Nigeria.

Based on the existing literature, researchers used a variety of surrogates as metric assessments of bank financial performance. Such metrics, according to Buba (2010), are a combination of financial ratio analysis, benchmarking, and performance measurement against budget. Return on assets (ROA), return on equity (ROE), net interest margin, and other metrics are frequently utilized. However, the European Central Bank (ECB, 2010) emphasized that a robust performance measurement framework should contain more performance characteristics than just profitability, as incorporated in pure market-oriented metrics, and should be less subject to market manipulation. With that in mind, the study employed Return on Assets (ROA) as a metric of financial performance.

ROA is an important proxy indicator of bank financial performance that is often utilized in the literature. It displays management's ability and efficiency in generating profits by employing banks' financial and real investment resources (Hassan & Bashir, 2003). The bank's policy activities, as well as uncontrollable economic and government regulatory factors, determine the

ROA. Bank profitability, according to Rivard and Thomas (1997), is best quantified by ROA because high equity multipliers have no effect on it. Guven and Onur (2009) concurred, suggesting that researchers should focus on and use ROA to analyze bank profitability in order to avoid the majority of the restrictions associated with conventional accounting financial performance proxies. Elsayed (2013) utilized ROA as a proxy measure of bank financial performance in his study of the impact of consolidation on the profitability of Qatari banks, as Miko (2010) used in his investigation of the impact of consolidation on the profitability of Nigerian banks. ROA was measured in both studies as profit before taxes divided by total assets. Profit before tax, according to Pandey (2009), is the right measure of profit since it represents earnings that flow directly from the business's commercial operations without the effect of financing. Given this backdrop, this study defined ROA as profit before tax divided by total assets, following in the footsteps of Elsayed (2013) and Miko (2010) who used ROA as a proxy measure of bank performance.

2.2.2 Deposit Money Bank Performance Indicators

In the banking industry, there are various indications of performance. Several authors have employed a variety of classic and non-traditional indicators, but the following will be the focus of this study: Profitability/Efficiency Size; Private Sector Credit; and Liquidity

2.2.2.1 Profitability / Efficiency

Profitability, according to Rose (1999), refers to a deposit money bank's net income; a condition in which the company's income surpasses its expenses. Income is generated by deposit money bank activities, but expenses are the costs of resources required to generate profit. Deposit money banks' principal purpose is profitability. Deposit money institutions can only thrive in the market if they are lucrative. As a result, it is vital to evaluate previous and current profitability, as well as the variables impacting it (Bawa, Akinniyi & Njarendy, 2018). According to Igben, earnings per share (EPS), return on assets (ROA), return on equity (ROE), and return on capital employed (ROCE) are all proxies for profitability (2009).

2.2.2.2 Credit to Private Sector

Credit to the private sector refers to financial resources made available to the private sector, such as loans and advances, non-equity securities purchases, trade credits, and other accounts receivable, that create a claim for repayment (Olowofeso, Adeleke & Udoji, 2015).

Private sector credit denotes financial resources made available to the private sector by deposit-taking institutions other than central banks. Credit regulations govern the availability of financial resources to the private sector. Monetary authorities impose quantitative ceilings on the overall and/or sectoral distribution of banking system loans and advances as part of credit policy (Anyanwu, 1993).

2.2.2.3 Liquidity

Different people define liquidity differently for a variety of reasons. According to the CBN Monetary Policy Series No. 4 (2011), liquidity is a macroeconomic concept that relates to overall monetary conditions and indicates the degree of mismatch between demand and supply of monetary resources. It also looked at liquidity in financial markets, which is defined as the ease with which financial assets can be traded at small bid-ask spreads. Allen and Carletti (2013) defined liquidity in the financial market as the ease with which funds can be produced by selling an asset rather than borrowing against it. Liquidity in corporate finance is described by Olagunju, Adeyanju, and Olabode (2011) as a company's capacity to meet short-term obligations or convert assets into cash. Thus, an asset is liquid if it can be promptly turned into cash without incurring losses (Kohn, 1994). Thus, bank liquidity refers to a bank's ability to keep enough money on hand to meet financial obligations or pay for maturing obligations at a reasonable price.

2.2.3 Factors Influencing Deposit Money Bank Performance

There are two types of bank performance determinants: bank-specific (internal) factors and macroeconomic (external) factors. Internal variables are characteristics of individual banks that influence the bank's financial performance. Internal management and board choices have the most influence on these aspects. The CAMEL framework is widely used as a stand-in for bank-specific variables. The acronyms for Capital Adequacy, Asset Quality, Management Efficiency, Earnings Ability, and Liquidity Management. External determinants of bank profitability are factors beyond the control of a bank's management. They depict events that are beyond the bank's control.

Management, on the other hand, can predict changes in the external environment and position the organization to profit on anticipated developments (Khan & Sattar, 2014).

2.2.3.1 Capital Adequacy

The amount of owner funds available to sustain a bank's operations and provide as a cushion in the case of a crisis is referred to as capital (Athanasoglou, Brissimis & Delis, 2010). Because deposits are the most fragile and vulnerable to bank runs, a bank's capital generates liquidity for the institution. Furthermore, increasing bank capital lowers the likelihood of a bank failure. The amount of capital necessary by banks to resist risks such as credit, market, and operational risks in order to absorb potential losses and safeguard the bank's debtors is referred to as capital adequacy. Capital adequacy is measured using the capital adequacy ratio (CAR). The capital adequacy ratio shows a bank's ability to sustain losses during a crisis. The capital adequacy ratio is closely tied to a bank's ability to withstand a crisis. It also has a direct impact on bank profitability because it determines the bank's development into hazardous but profitable businesses or sectors (Sangmi & Nazir, 2015).

2.2.3.2 Asset Quality

Asset quality is a component of bank management that entails evaluating business assets in order to assist measurement of the level and extent of credit risk connected with the firm's operation. Asset quality is a microprudential driver of deposit money institutions' soundness and profitability. It is related to the left side of a bank balance sheet and focuses on the loan quality that generates

earnings for the bank (Abata, 2014). Seven of twenty-five key criteria of efficient banking supervision were established by the BASEL Committee on Banking Supervision in 1997. Maintaining strong asset quality involves the careful issuance of loans, which must be monitored, as well as compliance with banking regulations. As a microdeterminant of profitability, poor asset quality has an influence on financial performance and the health of the banking system (Lucky, 2015).

2.2.3.3 Management Effectiveness

One of the most important internal elements determining bank profitability is management efficiency. It is represented in a number of financial parameters, including total asset growth, loan growth rate, and earnings growth rate. Despite this, it is one of the most challenging things to capture using financial ratios. In addition, operational efficiency in managing operating expenses is a component for evaluating management excellence. Management performance is commonly stated qualitatively through subjective assessments of management systems, organizational discipline, control systems, staff quality, and other characteristics. Financial ratios can be used to evaluate management's capacity to efficiently deploy resources, maximize income, and reduce operating expenses. One of the ratios used to judge management quality is the operational profit to income ratio (Sangmi & Nazir, 2015). The higher the operating profit-to-total-income (revenue) ratio, the more efficient management is in terms of operational efficiency and revenue production. Another key statistic for assessing management quality is the expense-to-asset ratio. Profitability

is projected to be inversely connected to the operating expense to total asset ratio. In this regard, the level of operating expenses, which affects profitability, is determined by management quality (Athanasoglou, Brissimis & Delis, 2010).

2.2.3.4 Earnings Ability

A bank's ability to create earnings in order to sustain, expand, and remain competitive is a vital aspect in determining its long-term health. Examiners establish this by assessing the bank's earnings, growth, stability, valuation allowances, net margins, net worth level, and the quality of its existing assets (Albertazzi & Gamborta, 2011).

2.2.3.5 Liquidity Control

Liquidity is another factor that determines bank performance. Liquidity refers to a bank's capacity to satisfy its commitments, mainly those of depositors. Bank profitability is linked to an adequate level of liquidity. The most popular financial ratios used to analyze a bank's liquidity condition are customer deposit to total asset and total loan to customer deposits. Other financial ratios can also be used to measure liquidity (Ilhomovich, 2014).

2.2.3.6 Macroeconomic factors

Macroeconomic factors can have a range of effects on banking performance. To begin with, during times of economic boom, there will be a stronger demand for bank loans than during times of

recession. A strong aggregate growth rate may improve the debt payment ability of domestic borrowers, helping to lower credit risk. Negative macroeconomic conditions, on the other hand, wreak havoc on banks by increasing the number of non-performing loans. As a result, higher economic growth is predicted to boost bank performance (Demirguc-Kunt & Huizinga, 2009).

2.2.4 Nigerian Banking Operation History

The history of banking in Nigeria may be traced back to 1892 and 1894, when the African Banking Corporation and First Bank of Nigeria (which was formerly known as the Bank of British West Africa (BBWA)) were created (Onoja, 1998). There was no doubt that the Colonial Banks had a presence in Nigeria throughout history. They managed business affairs, influenced financial transactions, and influenced trade and commercial transactions across West Africa, from Nigeria to Ghana (Chibuike, 1999). Barclays bank entered into financial operation in Nigeria around 1925, through merger between the Colonial Bank, the Anglo-Egyptian Bank and the National Bank of South Africa to create Barclays Bank (Dominion, Colonial and Overseas) (ibid). The British and French Bank for Commerce and Industry was founded in 1948 (later to become the United Bank for Africa). As a result, these banks did not seek to address the requirements of Africans (Sklar, 2004). Dr. Nnamdi Azikwe founded the African-owned bank in 1949 (the African Continental Bank). Because foreign banks discriminated against him and his group of firms, he decided to form the bank in the name of Pan Africanism. It is true that ACB was not the first Nigerian bank to be established. The Industrial and Commercial Bank became the first indigenous bank to be

created in 1929, however it had an anemic existence and so went bankrupt fifteen months later, namely in 1930 (Charles, 1966).

Its demise has been blamed on mismanagement, accounting incompetence, and embezzlement, despite the fact that economic suppression at the time also played a role. In 1931, its remnants were replaced by Mercantile Bank, with the majority of its directors also serving on the board of the defunct ICB. Company established branches in Lagos and Aba a year later, but it likewise fell into voluntary liquidation six years later. The Nigerian Farmers and Commercial Bank was established in 1947. Concerned about the rash of indigenous bank establishments, the government appointed Mr. G.D. Paton, an official of the Bank of England, in 1948 to 'enquire generally into the business of banking in Nigeria and make recommendations to the Government on the form and extent of control which should be introduced.' Its report on this inquiry, which was submitted in 1952, laid the groundwork for the passage of the first Banking Ordinance Act that same year. It was created primarily to ensure commercial banking order and to prohibit the development of unviable banks and unregulated banking operations (CBN, 2013). Later in March 1958, draft legislation for the establishment of the Central Bank of Nigeria was presented to the House of Representatives. On July 1, 1959, it was passed and completely implemented, creating the full operation of the Central Bank of Nigeria. As a result, the period from 1892 to 1952 is known as the "free banking era," because there was no long-term banking regulation in place, and anybody could establish a bank as long as it was registered under the Companies' Ordinance Act (Victor &

Atsede, 2003).

Between 1959 and 1989, when the finance and banking sectors were theoretically deregulated through the development of the Structural Adjustment Programme (SAP) inspired by the Bretton Woods conference, there was a significant expansion in the founding and operation of financial banks. As a result of financial sector reforms, new deposit-taking financial institutions have become the norm (Nwabugo, 2013). There were numerous community banks, finance and short-term credit houses. One significant benefit of this financial oversight was the establishment of People's and Mortgage Banks (formally known as Primary Mortgage Institutions), which currently exist only in name and logo. The government formed the Nigeria Deposit Insurance Corporation (NDIC) in 1988 with the goal of implementing financial reforms and helping the Central Bank of Nigeria in policy formation. It was tasked with maintaining safe and sound financial services and protecting bank deposits through effective monitoring. The NDIC Act served as the foundation for its auxiliary supervisory position with the Central Bank (Nwabugo, 2013).

2.2.5 Credit Risk

Credit risk is simply the possibility that a bank borrower or counterparty may fail to meet its obligations in accordance with the terms agreed upon. Credit risk management seeks to maximize a bank's risk-adjusted rate of return by keeping credit risk exposure below permissible limits (Yuqi Li, 2006). Banks must manage both the overall credit risk of their portfolio and the risk

contained in individual credits or transactions. Banks should also evaluate the interdependence between credit risk and other risks. Credit risk management is a vital component of a comprehensive risk management strategy and is critical to the long-term performance of any banking firm (Edward, 2006).

According to the Basel Committee on Banking Supervision (2003), credit risk is also the probability of losing the outstanding loan in part or entirely owing to credit events (default risk). It can also be described as the possibility of a contractual party failing to meet its duties in accordance with the agreed-upon terms.

Credit risk is also known as default risk, performance risk, or counterparty risk. A bank exists not merely to accept deposits but also to extend credit, making it inherently vulnerable to credit risk. Credit risk is by far the most critical risk that banks confront, and the success of their company is more dependent on accurate measurement and effective management of this risk than on any other risk (Cebenoyan, 2004).

Credit risk, according to Davide and Thangavel (2008), is the degree of value swings in debt instruments and derivatives caused by changes in the underlying credit quality of borrowers and counterparties. Credit risk is defined by Koehn and Santomero (2006) as losses resulting from credit customers' reluctance or incapacity to pay what is owed in full and on time. Credit risk is the exposure that banks have when a borrower (client) fails to meet financial obligations on time or at maturity. If not properly handled, this risk, also known as "counterparty risk," has the potential to

put the bank in jeopardy. Credit risk management maximizes a bank's risk-adjusted rate of return by keeping credit risk exposure within acceptable limits, providing a framework for assessing the influence of credit risk management on a bank's profitability (Edwad, 2006).

2.2.6 Credit Risk Management

According to Tseganesh (2012), credit risk management encompasses all management functions such as credit risk identification, measurement, monitoring, and control. According to the author, good credit risk management practice is a critical issue in the current business climate for long-term success of the banking sector, and inadequate credit risk management policy would produce a severe cause of crisis in the banking industry.

According to Atakelt (2015), credit risk management practice is defined as the process of analyzing and renewing credit risk management documents and applying them continuously in the actual credit granting process, credit administration and monitoring and risk controlling process with appropriate Credit risk environment, understanding and identification of risk so as to minimize the unfavorable effect of risk taking activities, and the effectiveness of credit risk management process is dependent on This means that credit risk management entails a variety of issues, including developing and implementing an appropriate credit risk strategy, policy, and procedure, accurate risk identification, the best credit granting process, credit administration, monitoring, and reporting, determining and controlling the frequency and methods of reviewing

credit policy and procedure, and clearly defining authority and responsibility. Furthermore, he stated that credit performance is developed by developing a good credit risk environment, an acceptable amount of credit limit, the best credit granting process, proper monitoring and controlling credit risk, and maximizing risk return of a bank's credit risk management.

2.2.6.1 Credit Risk Management Instruments

Covenants, collateral, credit rationing, loan securitization, and loan syndication are some of the tools employed by banks around the world to control credit losses (Hugh, 2001). According to Marphatia and Tiwari (2004), risk management is essentially about people - how they think and interact with one another. Technology is but a tool; in the wrong hands, it is rendered ineffective. This emphasizes the vital need of qualified personnel in CR management. Figure 2.1 depicts a synopsis of the CRM system as described in the literature. According to the financial economics literature, a bank's CRM system consists of credit policy and strategies that give general and detailed operating directions. It also includes facilitating variables such as employee quality and technology. Credit risk management is carried out using the following tools, according to Davide and Thangavel (2008):

- a) **Exposure Ceilings:** Prudential Limit is proportional to Capital Funds - for example, 15% for an individual borrower entity, 40% for a group, with an additional 10% for infrastructure projects undertaken by the group; Threshold Limit is set lower than Prudential Limit;

Substantial Exposure, which is the sum of exposures above the threshold limit, should not exceed 600% to 800% of the bank's Capital Funds (i.e. six to eight times).

- b) Review/Renewal:** A multi-tiered Credit Approval Authority, constitution-specific delegation of authority, increased delegated authority for better-rated customers; a discriminatory time schedule for review/renewal, hurdle rates and benchmarks for new exposures, and periodicity of renewal based on risk rating, among other things, are established.
- c) Risk Rating Model:** Establish a thorough risk rating system ranging from six to nine points. Clearly specify rating thresholds and conduct periodic reviews of the ratings, preferably on a half-yearly basis. The rating migration process must be mapped in order to determine the projected loss.
- d) Scientific risk-based pricing:** Align loan pricing with predicted loss. Borrowers in the high-risk group are to be charged a premium. Create a database of default losses in the past. Capital should be allocated to absorb the unexpected loss.
- e) Credit Portfolio Management:** The requirement for credit portfolio management stems from the need to maximize the benefits of diversification while minimizing the possible negative impact of exposures to a single borrower, sector, or industry. Quantitatively limit aggregate exposure to certain rating categories, borrower dispersion across industries and business groups, and undertake rapid portfolio evaluations.

Figure 2.1: Research model for the CRM System of a bank (Berger & Udell, 2002)

2.2.6.2 Bank Lending's Internal Performance Measures

A. Basel II Requirements

Banks are acquiring the skills necessary to analyze their risk portfolios in accordance with Basel II's standards. According to Greenspan, Basel's objective is to incentivize banks to enhance their risk management capabilities, including how they price goods, reserve for loss, and control their operations (Rehm, 2002). This research is consistent with Basel II's objective of reducing a bank's operational risk during the lending process through enhanced supervision of lending department staff. Basel Committee on Banking Supervision (2006) states that the Basel II guidelines define capital adequacy and supervisory norms for banks that must be implemented by 2007. Basel II's primary objective is to develop a framework that will further strengthen the international banking system's soundness and stability, while maintaining sufficient consistency to ensure that capital adequacy regulation does not create significant competitive inequality among internationally active banks. The Committee believes that the updated framework will encourage the banking

industry to adopt improved risk management methods, and regards this as one of its primary benefits (Basel Committee on Banking Supervision, 2006).

Ferguson (2003) noted that the Basel II Accord establishes a framework for strengthening global banking regulation and oversight. Basel II will offer banks with significant incentives to continue enhancing their internal risk management capabilities, as well as the instruments necessary for supervisors to focus on developing problems and difficulties more quickly than ever before. Basel II is meant to more closely match capital adequacy assessment with the critical parts of banking risks and to incentivize banks to improve their risk measurement (Basel Committee on Banking Supervision, 2006). The risk-adjusted underpinning of credit exposures by recourse equity (regulatory capital) is one of the New Basel Capital Accord's core challenges. Basel II will have an equal impact on banks and customers. Significant changes include the adoption of ratings as a basis for risk assessment and regulatory capital calculation; and (ii) a risk-based assessment of credit costs. Among other things, the Basel II Accord provides more specific criteria for credit risk treatment and, for the first time, guidelines for the regulatory handling of operational risk. Beyond calculating capital needs for risk categories, it places a premium on supervisory assessment criteria and improved public disclosure (Rowe, Jovic & Reeves, 2004).

The First Pillar – Capital Requirements Minimum

The Basel II Accord's full version improves risk sensitivity in the way capital requirements are computed for three primary risk components that banks face: credit risk, operational risk, and

market risk. Capital ratios are determined using the regulatory capital and risk-weighted assets (RWA) definitions (Basel Committee on Banking Supervision, 2006). The entire capital ratio must not be less than 8%. Tier 2 capital must not exceed 100% of tier 1 capital. While market risk assessment remained same – a standardized approach or value at risk (VaR) was preserved – credit risk assessment was altered, and operational risk was incorporated for the first time. Basel II establishes three methods for calculating credit risk-based capital (Leippold and Vanini, 2003). The first is a standardized strategy that is based on external ratings. Corporate finance, trading and sales, retail banking, deposit money banking, payment and settlement, agency services, asset management, and retail brokerage are all classified as business lines under this methodology. Each of these lines represents a percentage of the bank's gross income from that line of business for the purpose of computing capital for operational risk.

The second option is the foundation internal ratings-based (IRB) approach, which enables banks to calculate credit risk-based capital based on their internal evaluation of the counterparty's likelihood of defaulting (Basel Committee on Banking Supervision, 2006). The third and most sophisticated approach is the advanced IRB approach, which enables banks to utilize their own internal assessment of not only the probability of default (PD), but also the percentage loss incurred if the counterparty defaults, as well as the quantification of the counterparty exposure. There are four parameters to consider when establishing the IRB: VaR; I loss function, PD of a borrower; (ii) loss given default (LGD), an assessment of the severity of a loss; (ii) exposure at

default, the amount at risk in the event of a default, and the facility's remaining maturity (M) (Kealhofer, 2003). Calculating these components necessitates complex data collecting and risk management strategies (Allen, 2004).

The Second Pillar - The Process of Supervisory Review

Basel II emphasizes financial institutions' self-responsibility for adequately analyzing and managing the numerous risks they face, as well as keeping adequate capital to cover those risks not covered by the first pillar (minimum capital requirements). Additionally, it states that supervisors should monitor and evaluate risk management practices developed on their own initiative by individual financial institutions and take appropriate supervisory action as warranted. The Basel II Accord establishes four essential elements of supervisory evaluation to accomplish this goal (Basel Committee on Banking Supervision, 2006): (i) Banks should have a process for assessing their overall capital adequacy in relation to their risk profile, as well as a strategy for maintaining their capital levels; and (ii) Supervisors should review and evaluate banks' internal capital adequacy assessments and strategies, as well as their ability to monitor and ensure compliance with regulatory capital ratios. Supervisors should take appropriate supervisory action if they are dissatisfied with the outcome of this process; (iii) Supervisors should anticipate banks operating above the minimum regulatory capital ratios and should have the authority to require banks to maintain capital in excess of the minimum; (iv) Supervisors should seek to intervene

early to prevent capital falling below the minimum levels required to support the risk characteristics of a particular bank (Dutta and Perry, 2006).

Market Discipline – The Third Pillar

This pillar's objective is to bolster market discipline through enhanced disclosure. Market discipline creates strong incentives on banks to conduct business in a safe, sound, and efficient manner, including an incentive to maintain a healthy capital base to protect against future losses resulting from risk exposures (Fatemi & Glaum, 2000).

The planned market discipline significantly increases the amount of information that the bank must provide. This is intended to provide the market with a more complete picture of the bank's total risk position and to enable the bank's counterparties to price and trade more properly (Allen, 2004). According to the Basel II Accord, supervisors have a variety of tools at their disposal to compel banks to make such disclosures. Several of these disclosures will serve as qualification criteria for the application of specific techniques or the recognition of specific instruments and transactions (Basel Committee on Banking Supervision, 2006).

2.2.7 Non-Performing Loans (NPLs) and Bank Performance

Non-performing loans are loans that have not generated income for a relatively long period of time; that is, the principal and/or interest on these loans have been unpaid for at least 90 days (Fofac, 2009). According to the International Monetary Fund (IMF), a nonperforming loan is any loan in

which interest and principal payments are more than 90 days past due or more than 90 days' worth of interest has been refinanced.

Felix and Claudine (2008) investigated the relationship between bank performance and credit risk management. It could be inferred from their findings that return on equity (ROE) and return on assets (ROA) both measuring profitability were inversely related to the ratio of nonperforming loan to total loan of financial institutions thereby leading to a decline in profitability. Kithinji (2010) assessed the effect of credit risk management on the profitability of Deposit Money Banks in Kenya. Data on the amount of credit, level of non-performing loans and profits were collected for the period 2004 to 2008. The findings revealed that the bulk of the profits of Deposit Money Banks are not influenced by the amount of credit and non-performing loans, therefore suggesting that other variables other than credit and non-performing loans impact on profits. Kargi (2011) evaluated the impact of credit risk on the profitability of Nigerian banks. Financial ratios as measures of bank performance and credit risk were collected from the annual reports and accounts of sampled banks from 2004-2008 and analyzed using descriptive, correlation and regression techniques. The findings revealed that credit risk management has a significant impact on the profitability of Nigerian banks. It concluded that banks' profitability is inversely influenced by the levels of loans and advances, non -performing loans and deposits thereby exposing them to great risk of illiquidity and distress.

Epure and Lafuente (2012) examined bank performance in the presence of risk for Costa-Rican banking industry during 1998-2007. The results showed that performance improvements follow regulatory changes and that risk explains differences in banks and non-performing loans negatively affect efficiency and return on assets while the capital adequacy ratio has a positive impact on the net interest margin. Ahmad and Ariff (2013) examined the key determinants of credit risk of Deposit Money Banks on emerging economy banking systems compared with the developed economies. The study found that regulation is important for banking systems that offer multi-products and services; management quality is critical in the cases of loan-dominant banks in emerging economies. An increase in loan loss provision is also considered to be a significant determinant of potential credit risk. The study further highlighted that credit risk in emerging economy banks is higher than that in developed economies. Ahmed, Takeda and Shawn (2013) in their study found that loan loss provision has a significant positive influence on non-performing loans. Therefore, an increase in loan loss provision indicates an increase in credit risk and deterioration in the quality of loans consequently affecting bank performance adversely.

2.2.8 Capital Adequacy and Bank Performance

Capital adequacy is viewed as a tool for limiting excessive risk-taking by bank owners with limited liability and, as a result, promoting optimal risk-sharing between bank owners and depositors (Agoraki, Delis and Pasiouras, 2011). Banks with higher capital and liquidity buffers are better able to support businesses and households during a downturn because buffers 20

increase a bank's ability to absorb losses and maintain lending during a downturn. Stringent capital requirements come at a cost because by imposing high capital requirements, banks will be constrained to some extent by competitive pressures that would arise as a result of loan competition (Barth, Caprio & Levine, 2013). Banks are likely to lend less, charge more for loans, and pay less on deposits in order to restore an acceptable return on their larger capital base; as banks have become more constrained, their ability to expand credit has been limited (Farhan, Sattar, Chaudhry & Khalil, 2012).

According to Agoraki, Delis, and Pasiouras (2011), banks with less market power take on less credit risk and have a lower probability of default. The findings also revealed that capital requirements reduce credit risk, but this effect diminishes for banks with sufficient market power; NPLs are primarily influenced by bank-specific factors such as capital adequacy. According to Salas and Saurina (2002), rapid credit expansion, bank size, capital ratio, and market power all explain variation in NPLs. According to Haneef and Karim (2012), the cost of financial intermediation has increased as a result of higher capital costs and loan losses. Hou (2012), on the other hand, views loan loss provision costs as endogenous sunk costs that can escalate over time, causing the banking sector to become more concentrated with more stringent regulation on loan loss provisions and capital adequacy; banks are more likely to profit-maximize (charge higher interest rates) in order to meet the capital adequacy ratio guideline.

2.2.9 Loan Loss Provision (LLP) and Bank Performance

Loan loss provisions (LLPs) are a relatively large accrual for commercial banks, and as such have a significant impact on bank earnings and regulatory capital. These provisions are intended to adjust banks' loan loss reserves to reflect expected future losses on their loan portfolios (Oosterbosch, 2012). This provision is used to cover a variety of factors related to potential loan losses, such as bad loans, customer defaults, and renegotiated loan terms that result in lower-than-previously estimated payments.

One of the most serious issues that banks face is the risk that loans will not be repaid. When banks expect capital losses to rise, they may make provisions to reduce earnings fluctuations, thereby strengthening their medium-term solvency (Pesola, 2007). According to Anandrajan, Hasan, and McCarthy (2007), banks in Australia use loan loss provisions to manage earnings. Their findings suggest that commercial banks engage in more aggressive earnings management than unlisted commercial banks. Arellano (1988) investigates whether loan loss provisions were used in banks as a tool for income smoothing. He concludes that, in addition to loan charge-offs, banks used LLPs to reduce the volatility of earnings.

2.2.10 Loans and Advances and Bank Performance

A banking company's main business is to accept deposits and lend money. Receiving a deposit is risk-free because the banker is obligated to repay the deposit whenever it is demanded. Lending, on the other hand, is always fraught with risk because there is no guarantee of repayment. A banker, on the other hand, earns the majority of his income solely through lending. Because he is

not lending his own money, a banker should be extremely cautious when lending. A large portion of the money lent is derived from public deposits. The majority of these deposits are repayable on demand (Mithani et al, 2008).

The core activities of banks are to mobilize deposits and then lend to borrowers, which creates interest income. This source of income always accounts for a large proportion of the total bank revenue. Accelerating lending activities could help banks expand market shares, increase profits and thus improve business performance as a whole. However, high loan growth tends to accompany poor lending decisions and thereby negatively influences bank profitability. Also in their study, Foos et al. (2010) find that loan growth has a negative impact on both interest income and risk-adjusted interest income, implying that loan growth is an important driver of bank performance. Paul et al. (2016) study a sample of both primary and secondary data of 31 Kenyan commercial banks between 2011 and 2015. Through relatively limited dataset, they also point out that the expansion of the banks' loan portfolio had an insignificantly positive impact on the current financial performance of banks, but had a significantly negative impact on subsequent years. Another study is that of Fahlenbrach et al. (2016) who analyse the US banking system from 1973 to 2014. They find that during this period, banks have high loan growth in a certain year will be ineffective in the third year afterwards, observed through a decline in ROA. The authors also conclude that banks having slowly lending expansion tend to have better outcome than massively growing banks. More generally, a great deal of literature focusing on the impact of rapid growth

on profits shows that more growing companies have lower profits in the future. The study by Hou et al. (2014) shows that companies growing more have lower profits than those grow less. Previously, Cooper et al. (2008) conclude that asset growth is the predictor of future extraordinary profits.

2.3 Theoretical Review

This section will discuss credit risk management and bank performance theories.

2.3.1 Commercial Loans Theory

The commercial loan theory, often known as the real bills doctrine, is the earliest banking theory. According to the commercial loan theory, banks should only lend on short-term, self-liquidating commercial paper. According to Hosna and Manzura (2009), commercial loan theory is designed to exert a persuasive influence on both bank lending and general economic activity. Adherence to this theory strictly demonstrates that it is expected to behave as a monetary supply in response to changes in aggregate economic activity. This ideology is quite prevalent among Nigerian Deposit-Money Banks (DMBs). Nigerian bankers feel that because their depositors' funds are repayable on short notice, they should be used to fund short-term loans. Kargi (2011) argued that the strong ties to this notion are quite conventional when one considers that during the theory's dominance, there were little or no secondary reserve assets that may have functioned as a liquidity buffer for the bank. Additionally, this theory ignores the credit requirements of Nigeria's expanding economy. It has not prompted banks to lend money for the acquisition of plants, equipment, land, or home

ownership. To maintain that all loans should be liquidated during regular business operations demonstrates a theory's failure to acknowledge the relative stability of bank deposits. While demand deposits are subject to demand, not all depositors are likely to demand payment simultaneously. Thus, deposit stability enables a bank to extend funds for an extended length of time without fear of illiquidity. Though not without problems, the commercial loan hypothesis, or real bills concept, has remained a pervasive banking theory. The structure of bank regulatory agencies, bank inspection methods, and the mentality of many bankers all bear witness to it. One cannot comprehend contemporary banking without first grasping the history of banking, and one cannot grasp banking history without first grasping the commercial loan theory.

2.3.2 Shiftability Theory

This approach presupposes that assets need not be restricted to self-liquidating bills but may also be held in other shiftable open-market assets, such as government securities (Moti, Masinde, & Mugenda, 2004). It should be noted that the shiftability argument did not supplant or invalidate the commercial loan idea. Rather than that, the shiftability theory adopted a broader perspective of the banking sector by expanding the list of eligible assets for bank ownership. While the shiftability theory does not assert that commercial loans are unsuitable bank assets, it does assert that they are not the only appropriate asset. The shiftability theory asserts that a bank's liquidity is contingent upon its ability to sell its assets at a predictable price. Thus, it is perfectly appropriate for a bank to maintain short-term open market investments in its asset portfolio. It is difficult to deny that the

shiftability theory had a substantial effect on banking procedures, as Hosna and Manzura (2009) assert. What it accomplished was to shift the focus of bankers and banking authorities away from loans and toward investments as a source of bank liquidity. Indeed, proponents of the thesis contended that short-term commercial loan liquidity was mostly fictitious in any event. According to Kargi (2011), the shiftability theory, like the commercial loan theory, has a fundamental weakness. (In fact, the problem was not so much in the theory itself—it was well recognized by the subject's many writers—as it was in the bank management practices to which the theory led.) The theory's flaw was essentially this: while a single bank might get needed liquidity by repurchasing assets, this was not true of all banks combined.

2.3.3 Anticipated Income Theory

In 1949, Prochnow developed a new lending theory dubbed "the Anticipated Income Theory" as a result of a detailed investigation. According to Afriyie and Akotey (2011), their analysis discovered that: In every case, regardless of the form and character of the borrower's business, the bank planned to liquidate term loans using the borrower's anticipated earnings. Liquidation occurs not through the sale of the borrower's assets as in the commercial or conventional theories of liquidity, nor by the transfer of the term loan to another lender as in the shiftability theory of liquidity, but through anticipating the borrower's income. In fact, this idea presupposes that banks should offer loans based on the borrower's future income, rather than on his current value. One noteworthy feature of this theory, as Kolapo, Ayeni, and Oke (2012) put it, is its "future-oriented

approach" to bank loans and advances. Additionally, it is referred to as the "cash flow strategy" to financing. When properly understood, this idea stood in opposition to solely the commercial loan theory, not the shift ability theory. It makes no challenge to the shiftability position that a bank's primary source of liquidity is its secondary reserves. Rather than that, it refocused attention on the types of loans that a bank should make but reached a result significantly different from that reached by proponents of the commercial loan theory (Moti, Masinde, & Mugenda (2012).

2.3.4 Credit Risk Theory

Anderson and Salas, & Saurina, (2002) define credit risk as the possibility that a borrower would default on any sort of loan by failing to make due payments. The lender bears the majority of the risk, which includes lost principle and interest. Disruption loss can be entire or partial, and can occur in a variety of conditions, such as an insolvent bank that is unable to restore funds to a depositor. To mitigate the lender's risk, the lender may conduct a credit check on the potential borrower, compel the borrower to purchase suitable insurance, such as mortgage insurance, or get third-party security or guarantees. In general, the greater the risk, the higher the interest rate charged to debtors (Owojori, Akintoye, & Adidu (2011).

2.5 Empirical Review

Kargi (2011) examined the effect of credit risk management on Nigerian banks' profitability. Financial ratios were extracted from the annual reports and accounts of sampled banks between 2004 and 2008 and examined using descriptive, correlation, and regression techniques. Credit risk

management has a major impact on the profitability of Nigerian banks, according to the research. It concluded that banks' profitability is negatively related to their loan and advance, non-performing loan, and deposit levels, putting them at severe danger of illiquidity and distress. Additionally, Dietrich, Hess, and Wanzenried (2014) find a negative association between credit risk management and bank profitability in their study estimating credit risk using the loan loss provisions over total loans ratio.

Moti, Masinde, and Mugenda (2012) examined the effect of a bank's specific risk characteristics and the broader banking environment on the performance of 43 deposit money banks operating in six Gulf Cooperation Council (GCC) member nations from 1998 to 2008. Using regression analysis, they determined that bad debts or credit risks, liquidity risk, and capital risk are the major factors affecting bank performance when profitability is measured in terms of return on assets, while liquidity risk is the only risk affecting profitability when profitability is measured in terms of return on equity.

Kolapo, Ayeni, and Oke (2012) conducted an empirical study of the quantitative influence of credit risk management on the performance of Nigerian deposit money banks between 2000 and 2010. Profitability is quantified using return on assets, while credit risk is quantified using the ratio of non-performing loans to total loans and advances, total loans and advances to total deposit, and loan loss provision to categorized loans. Their findings indicate that credit risk management has a comparable effect across banks in Nigeria and that increased non-performing loans and

provision for loan losses lower profitability. Additionally, the statistics indicate that increasing overall loans and advances increases profitability.

Ndifon and Ubana (2014) examined the influence of capital sufficiency on the profitability of Nigerian deposit money banks using a case study of five selected banks. The empirical study spanned the years 1981 to 2011. The study gathered data from secondary sources, including annual reports and financial statements of selected banks, as well as the Central Bank of Nigeria's (CBN) statistical bulletin. The study used the Engle and Granger two-step cointegration approach. Capital adequacy was found to be a key factor in explaining banks' Returns on Assets (ROA), which is a measure of a bank's profitability. The positive and strong association between capital adequacy and bank profitability indicates that banks with more equity capital are regarded to be more secure, which can translate into increased profitability. A bank's profitability is directly proportional to its capital ratio.

Idowu and Awoyemi (2014) conducted research on the effect of credit risk management on the performance of Nigeria's deposit money banks. Seven deposit money banking organizations' financial reports were analyzed over a seven-year period (2005–2011). The model was estimated using a panel regression approach. Return on Equity (ROE) and Return on Assets (ROA) were utilized as performance indicators in the model, whereas Non-Performing Loans (NPL) and Capital Adequacy Ratio (CAR) were employed as credit risk management indicators. Credit risk

management has a major impact on the profitability of deposit money institutions in Nigeria, according to the data.

Adeusi, Akeke, Obawale, and Oladunjoye (2014) examined the relationship between credit risk management techniques and financial performance of banks in Nigeria. Secondary data were gathered from four years of progressive annual reports and financial statements of ten banks, and an estimating technique based on panel data was used. The conclusion implies an inverse link between bank financial performance and dubious loans, with a positive and significant capital asset ratio. Similarly, it implies that the greater the amount of money managed by banks, the better the performance. The study establishes a significant connection between bank performance and credit risk management. As a result, banks must exercise cautious credit risk management in order to safeguard investors' interests.

Kayode, Obamuyi, Owoputi, and Adeyefa (2015) examine the effect of credit risk on the performance of Nigerian banks. The random effect model framework was used to estimate a panel of six banks from 2000 to 2013. Credit risk is found to be negatively and significantly correlated with bank performance as assessed by return on assets (ROA). This implies that higher credit risk exposure affects bank profitability. Additionally, they discovered that total loan had a favorable and statistically significant effect on bank performance.

Uwuigbe, Uwuigbe, and Babajide (2015) examined the impact of credit management on the performance of Nigerian banks. To accomplish the study's aims, the audited annual financial

statements of publicly traded banks from 2007 to 2011 were studied. The study employed both descriptive statistics and econometric analysis to estimate the regression equation, utilizing the panel linear regression methodology with periodic and cross sectional data. While the ratio of non-performing loans and bad debt has a considerable negative influence on bank performance in Nigeria, the association between secured and unsecured loan ratios and bank performance is not significant.

Ali (2015) evaluated the effect of credit risk management on the financial performance of Jordanian deposit money banks from 2005 to 2013. Thirteen deposit money banks were chosen to represent the overall performance of Jordanian deposit money banks. Two mathematical models were developed to quantify this relationship. The research discovered that credit risk management had a positive effect on the financial performance of Jordanian deposit money institutions as assessed by ROA and ROE. Additionally, the research suggests that the credit risk management indicators examined in this study have a considerable impact on the financial performance of Jordan's deposit money institutions.

The influence of credit risk management on bank performance in Nigeria was explored by Olawale, Tomola, James, and Felix (2015). They analyzed data from six Deposit Money Banks from 2000 to 2013 using a dynamic panel model. The findings indicate that profit persistence is low in Nigerian banks. It revealed a statistically significant negative correlation between credit risk and bank profitability. This means that a bank's greater exposure to credit risk management has a

detrimental effect on earnings. Additionally, they discovered a positive and substantial relationship between total loan and bank profitability.

Sujeewa (2015) examined the effect of credit risk management on the performance of Sri Lankan deposit money institutions. The relationship between credit risk management and performance was examined using panel data from selected banks during a five-year period from 2009 to 2013. The Return on Assets (ROA) was used as a performance indicator, while the Loan Provision to Total Loans (LP/TL), the Loan Provision to Non-Performing Loans (LP/NPL), the Loan Provision to Total Assets (LP/TA), and the Non-Performing Loans/Total Loans (NPL/TL) ratios were used as credit risk indicators. Additionally, using E-views software, a regression model was utilized to determine the link between loan amounts, non-performing loans, and profitability over the study period. As a result, non-performing loans and provisions have a detrimental effect on profitability.

Peter Lydnon and Ebitare (2016) investigated the effect of non-performing loans on bank performance in Nigeria from 1994 to 2014. Secondary data was gathered from reputable sources such as the CBN, the NDIC, and the annual reports of Nigeria's publicly traded banks. To capture the link between the variables identified, a multiple regression model was developed. The study analyzed data using augmented Dickey Fuller (ADF) unit root tests, descriptive statistics, and multiple regression. The Unit Root test demonstrates that all relevant variables were integrated to order 1(1) and were stationary at first differencing. The findings of the multiple regression analysis indicate that DOL and BAL had a statistically significant negative effect on ROCE,

whereas SUL had a statistically negligible negative effect on ROCE. It has been demonstrated empirically that non-performing loans have a detrimental effect on bank performance in Nigeria. The aggregate implication of these findings is that any increase in the volume of non-performing loans will eventually lower bank profitability in Nigeria.

Saeed and Zahid (2016) examined the effect of credit risk management on the profitability of five of the largest deposit money banks in the United Kingdom. Two dependent variables were used to determine profitability: ROA and ROE, whereas two variables were used to determine credit risk management: net charge off (or impairments) and nonperforming loans. Multiple statistical evaluations of bank data from 2007 to 2015 were done to span the financial crisis period. Credit risk indicators were found to have a positive correlation with bank profitability.

Egide and Paul (2017) investigated the influence of credit risk management on the performance of Rwandan deposit money institutions. According to the findings of the study, credit risk management monitoring may be used to ensure that credit risk management practices are in line, and adequate risk monitoring also assists bank management in detecting errors at an early stage. As a result, the study indicated that credit risk management had a favorable impact on the financial performance of Rwandan deposit money institutions. This suggests that low asset quality or a high ratio of non-performing loans to total assets is associated with bad bank performance.

Over a 5-year period, EL-Maude, Abdul-Rahman, and Ibrahim (2017) investigated the relationship between bank specific and macroeconomic determinants of non-performing loans in

Nigerian deposit money institutions (2010 to 2014). On a cross-sectional basis, a sample of 10 banks among the 15 listed on the Nigerian Stock Exchange (NSE) was studied. The study employed a non-survey research design using secondary data derived from the bank's annual reports and accounts, the Central Bank of Nigeria (CBN), and the Nigerian Stock Exchange fact book. Descriptive statistics, correlation coefficients, and multiple regressions were used to examine the data. Stata (version 12) was utilized as a statistical tool for data analysis as a result. The findings show a positive significant relationship between non-performing loans, loan to deposit, and bank size; a positive insignificant relationship between capital adequacy ratio and inflation; and a negative insignificant relationship between return on asset and the rate of non-performing loans.

Daniel (2017) used a Multiple Linear Regression Model to analyze the association between liquidity management and the performance of Nigerian deposit money banks from 1986 to 2011. According to the findings of the analysis, there is a considerable relationship between liquidity management and the performance of Nigerian deposit money institutions. According to the study, profitability in terms of return on equity is maximized at the optimal liquidity level when costs are efficient. Bank profit maximization, on the other hand, is dependent on the business model used by each bank, as well as its cash inflow and economic state. Based on the findings of this study, we can conclude that illiquidity and excess liquidity represent "financial difficulties" that can quickly wear down the bank's return base, as both have an impact on bank performance.

Njoku, Ezeudu, and Ifeanyichukwu (2017) investigated the impact of credit risk management on the performance of Nigerian deposit money institutions. For seven years (2005 – 2011), financial records from seven deposit money banking organizations were analyzed. For model estimation, the panel regression model was used. Return on Equity (ROE) and Return on Asset (ROA) were utilized as performance indicators in the model, while Non-Performing Loans (NPL) and Capital Adequacy Ratio (CAR) were employed as credit risk management indicators. The findings revealed that credit risk management has a major impact on the profitability of Nigerian deposit money institutions.

Amahalu, Obi, Chidoziem, and Abiahu (2017) explored the relationship between loan management and financial performance with a focus on deposit money banks reviewed on the floor of the Nigerian stock exchange from 2010 to 2015. The study relied on secondary data gathered from fact books, annual reports, and accounts of Nigeria's listed deposit money institutions. The relevant data obtained were statistically analyzed using STATA 13, Pearson coefficient of correlation, and multiple regression analysis, which revealed that there is a positive and statistically significant relationship between loan management (Proxied by Non-Performing Loan & Deposit) and financial performance (ROA, Earnings Per Share (EPS), Dividend Per Share (DPS) of quoted deposit money banks in Nigeria.

Taiwo, Achugamonu, Adetiloye, Okoye, and Agwu (2017) investigated the influence of credit risk management on the performance of Nigeria's Deposit Money Banks (DMBs) and bank loan

growth during a 17-year period (1998- 2014). Secondary data for empirical analysis was gathered from the CBN Statistical Bulletin 2014 and the World Bank (WDI) 2015. The time series data was analyzed using a multiple linear regression model in this study. The results demonstrated that solid credit management practices can raise investor and saver confidence in banks, resulting in a rise in funds for loans and advances, which leads to higher bank profitability.

Adegbie and Dada (2018) examined the impact of risk asset and liquidity management on the long-term performance of Nigerian deposit money banks. The study included both ex-post factor and survey research approaches. The Statistical Package for Social Sciences was utilized for the studies, which included both descriptive statistics and regression analysis. The findings revealed that there are strong correlations between risk asset management, liquidity management, and long-term success in Nigerian deposit money banks. The survey stated that excellent risk asset management and liquidity management continue to be the nuclear of the banking industry in order to ensure long-term performance. The report advised that the regulatory authority enforce monetary policy compliance; and that banks implement effective and quality risk asset and liquidity management in order to ensure financial stability and sustainability.

Okere, Isiaka, and Ogunlowore (2018) investigated the relationship between risk management and the financial performance of Nigerian deposit money institutions. The computed coefficients of the variables non-performing loans, capital adequacy ratio, and leverage ratio reveal a significant association with deposit money bank performance, while loan deposit ratio has no significant

effect on firm's financial performance in Nigeria. The study's findings revealed a significant direct association between credit risk management and the financial performance of Nigeria's deposit money institutions. With the exception of leverage (LEV), all other variables indicate a positive link with bank performance.

Adegbie and Adebajo (2020) examined the effect of credit risk management on financial stability of deposit money banks in Nigeria; specifically assessing the relationship between credit risk management and financial stability and establishing the level of credit risk measures to be put in place to ensure financial stability of deposit money banks in Nigeria. The study adopted ex-post facto research design. Descriptive and inferential statistics (multiple regression) were used to analyze the result. The findings revealed that asset quality represented by non-performing loan to gross loan ratio (NLPR), Total risk Asset to total asset ratio (TRAR), Loan Loss Provision to total loan ratio (LLPR) and Total Loan to total deposit ratio (TLDR), all had a significant effect on the variables of Financial Stability which are; Debt-to-Shareholders Fund $F(99)=11.17$, $\text{Adj. } R^2=0.2419$, $p < 0.10$, Capital Adequacy Ratio $F(99) = 20.77$, $\text{Adj. } R^2=0.0490$, $p < 0.10$, Fixed Deposit Cover $F(99) = 8.95$, $\text{Adj. } R^2=0.165$, $p < 0.10$ and had joint insignificant effect on Liquidity Ratio $F(99)=1.31$, $\text{Adj. } R^2=0.486$, $p > 0.10$ of deposit money banks in Nigeria.

Adeniyi, Opeyemi, Kamar, and Emeje (2021) examined the influence of credit risk management on deposit money institutions' performance in Nigeria. The influence of credit risk on bank performance in Nigeria was estimated using panel econometric approaches. According to the

study, a percentage change in equity or shareholder funds increases profitability (ROA) by around 19 percent. Additionally, it was discovered that a change in the loan-to-deposit ratio reduces profitability by 3%, whereas a change in the non-performing loan ratio boosts profitability by 7%.

Ndubuisi (2021) studied the influence of credit risk management methods on the profitability of selected deposit money banks in Nigeria from 2010 to 2019. The results of the transformed random effects-generalized least squares regression indicated that increasing loan loss provisions had a detrimental influence on the profitability of the selected Domestic Systemically Important Banks in Nigeria, as demonstrated by its significance at 5%. However, the ratio of non-performing loans to total loans and advances was judged inconsequential at 1% and 5%, implying that non-performing loans erode the profitability of Nigeria's Domestic Systemically Important Banks, reiterating the view established by prior country-based research. Capital Adequacy Ratios of 1% and 5% were determined to be significant, implying that adequate bank capital boosts the profitability of selected D-SIBs in Nigeria.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter presents the methodology which will be used in the study. Methodology of the study is all about the procedures employed to carry out a research work. It spells out the nature of the research design, population of the study, sampling techniques, methods of data collection and tools for data analysis among others.

3.2 Research Design

The ex-post facto research design will be used in this study. Ex-post factor, according to Akuezuilo (2002), seeks to discover the factors associated with specific occurrences, outcomes,

conditions, or types of behavior by analyzing past events or already existing conditions in order to predict future outcomes. The advantages and dependability of the results associated with this research approach led to its selection. Kerlinger (1986) argues that an ex post facto design is empirical in nature due to the nature of the data collected. An empirical research method bridges the theoretical foundations of models with their practical application.

3.3 Population of the Study

The population for the purpose of this study is the total number of 24 deposit money banks (Jaiz Bank inclusive) licensed by the Central Bank of Nigeria to carry out banking operations.

3.4 Sample Size and Sampling Technique

The sample of this study is restricted to five(5) deposit money banks listed on the floor of the Nigerian Exchange Limited. The choice of this sample size (listed banks) is to ensure uniformity of data as listed firms are compelled to publish their statements within certain duration, and failure to do so attracts penalties. Therefore, this study adopts the census sampling technique by taking the total sum (5) of listed deposit money banks as its sample size.

3.5 Sources

For the purpose of this study, only secondary source of data collection will be utilized. All the credit risk management variables and bank performance indicator (ROA) will be obtained from

annual financial reports of deposit money banks and Nigerian Exchange Limited fact-book for the period 2005 to 2020.

3.6 Theoretical Framework and Model Specification

This research will be based on commercial loan theory. The commercial loan theory, often known as the real bills doctrine, is the earliest banking theory. According to the commercial loan theory, banks should only lend on short-term, self-liquidating commercial paper. According to Hosna, Manzura and Juanjuan (2009), commercial loan theory is designed to exert a persuasive influence on both bank lending and their performance. Adherence to this theory strictly demonstrates that it is expected to behave as a monetary supply in response to changes in aggregate economic activity.

In this study, regression analysis will be used to examine the relationship between credit risk management and bank performance in Nigeria. The multiple linear regression analysis model which would be used is given as follows;

$$ROA_{it} = (NPL_{it}, CAR_{it}, LA_{it}, LLP_{it}) \dots \dots \dots (1)$$

This model was further transformed into an econometric model with the introduction of interest rate as a control variable in equation (2) below:

$$ROA_{it} = \alpha + \beta_1 NPL_{it} + \beta_2 CAR_{it} + \beta_3 LA_{it} + \beta_4 LLP_{it} + \varepsilon_{it} \dots \dots \dots (2)$$

Where:

α = constant represent value of ROA when all others explanatory variables are held constant

β_1 - β_4 =Coefficient of the explanatory variables ε_{it} = error term of bank i at time t

ROA_{it}= Return on asset of bank i at time t

NPL_{it}= Non performing loans of bank i at time t, as our independent variable 1

CAR_{it}= Capital Adequacy Ratio of bank i at time t, as our independent variable 2

LAAS_{it} = Loans and Advances of bank i at time t, as our independent variable 3

LLP_{it}= Loan Loss Provision of bank i at time t, as our independent variable 4

Apriori Expectation = $\beta_1 < 0$; $\beta_{2-4} > 0$

3.7 Measurement of the Variables

Variables	Variable Type	Measurement	Source
Return on Asset	Dependent	Calculated by dividing a firm's net income by the average of its total assets	Elsayed (2013)
Nonperforming Loans Ratio	Independent	Non-performing loans divided by gross loans	Ugoani (2015)
Capital Adequacy Ratio	Independent	Bank Tier-1 capital Divided Total Risk Weighted Asset.	Tabari, Ahmadi and Emami (2013)
Loans and Advances	Independent	Gross Loans Divided by Total Asset	Musyoki and Kadubo (2012)
Loans Loss Provision	Independent	Loans Loss Provision divided by gross Loans	Tabari, Ahmadi and Emami (2013)

Source: Researcher Compilation from the Literature (2020).

3.8 Method of Data Analysis

In analyzing the relationship between credit risk management and bank performance in Nigeria, the cross sectional data. However, the Hausmann test will be conducted to ascertain which panel regression (fixed effect panel regression or random effect panel regression) is appropriate for analysis. While, the Pearson correlation will also be used to measures the degree of association between variables under consideration. Preliminary test such as descriptive statistics and unit root test will be conducted to ascertain the normality and stationarity of the data for the study.

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

4.1 Introduction

In this chapter, we focused on the carrying out the empirical analysis of the study. This involves the presentation and analysis of the data used for the empirical evaluation of this study. The aim of this analysis is to verify the working hypothesis of the study with reference to the impact of credit risk on banks' performance in Nigeria. The analysis involves the use of econometric methods in order to provide a rich background for the investigation.

In order to provide a robust analysis, the summary statistics for the data used are reported as background to the empirical analysis. The descriptive statistics provide the initial characteristics

of the data. As explained in the previous chapter, the Panel Data Analysis method is employed in the econometric analysis.

4.2. Descriptive Statistics

The descriptive statistics for the annualized data series are presented in Table 4.1. It shows that average values as well as first and second moments of the data distribution. The mean value of the DMB performance for the period of the study is 0.02851. This shows that the average performance for the period is positive and very low.

The standard deviation value of 0.0543 indicates that the risk level in the banking sector is generally higher than the expected returns. This is corroborated by the maximum and minimum values which are generally close to the average and show little variations of time. This implies that the banking sector performance has remained fairly static irrespective of the era since 2011. The data distribution is however negatively skewed and indicates that the value for most of the years were actually more than the reported mean value. The J-B value of 2029.732 is highly significant and indicates that the series are normally distributed over the period.

Table 4.1: Descriptive Statistics

	ROA	NPLR	CADR	LEVERAGE	LLPR
Mean	0.028510	0.098298	21.02347	3.354642	0.048133
Median	0.017203	0.077300	20.20000	1.940000	0.032367
Maximum	0.355354	0.542000	47.00000	15.47000	0.173800
Minimum	-0.092741	-0.032205	3.720000	-0.606667	-0.021389
Std. Dev.	0.054330	0.090022	6.941833	3.226557	0.044451

Skewness	3.828804	1.625292	1.337840	1.136498	1.086825
Kurtosis	21.63619	7.135910	5.930050	3.931493	3.349436
Jarque-Bera	2029.732	138.3602	78.72229	30.17095	24.23430
Probability	0.000000	0.000000	0.000000	0.000000	0.000005
Sum	3.421185	11.79572	2522.817	402.5570	5.776001
Sum Sq. Dev.	0.351256	0.964378	5734.497	1238.870	0.235128
Observations	120	120	120	120	120

Author computation

The independent variables which comprises of non-performing loan ratio (NPLR), capital adequacy ratio (CADR), Leverage and loss loan provision rate (LLPR) have an average of 0.0983, 21.0234, 3.3546 and 0.0481 respectively. These indicate that the average values are positive and very low except for CADR which was fairly high. The standard deviation of 0.0900, 6.9418, 3.2266 and 0.0445 for NPLR, LEVERAGE and LLPR respectively indicate that there are low variations from the mean except for CADR. All the independent variables are normally distributed since their J.B values were significant. The implication of this is that there is heterogeneity among the firms in terms of bank performance. The implication of this is that there is heterogeneity among the sampled deposit money banks in terms of bank performance and the relevant credit risk variables. Endogeneity problem is therefore expected in the models if the OLS technique is employed. This is the empirical justification for the adoption of the panel data analysis technique for the estimation of the relationships

4.2 Empirical Tests and Results Based on Panel Data Analysis

In this section, the results of the panel data estimates of the models specified in the previous chapter are reported and analysed. The focus of the analysis is actually on the goodness of fit statistics as well as the coefficients' results which will help provide the basis for the tests of hypotheses in the study. The series estimates the relationship between credit risk management and banks' performance in Nigeria.

The panel data estimation strategy adopted in this section presupposes that the biases in the pooled data could either come from cross-sectional heterogeneity or time series (periodic) variations. Hence, the Hausman test of heterogeneity is initially conducted to determine the best effects model (random or fixed) to be adopted in the analysis. The result of the Hausman test is reported in Table 4.2 below. The Chi-square statistic value for the equations is not significant. From these results, if the p-value is significant the fixed effect model should be used but if the p-value is not significant the random effect model is employed. Hence, in this study the best method to apply is the random-effect model since the p-value is not significant at the 5% level.

Table 4.2: Hausman Test for Effects

<i>Test Summary</i>		Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
<i>Cross-section random</i>		2.1291	4	0.7120
<i>Variable</i>	<i>Fixed</i>	<i>Random</i>	<i>Var(Diff.)</i>	<i>Prob.</i>
NPLR	-0.2587	-0.2875	0.0033	0.6174
CADR	0.0004	0.0004	0.0000	0.9288
LEVERAGE	-0.0016	-0.0014	0.0000	0.8385
LLPR	0.5231	0.6784	0.0149	0.2038

4.2.1 Credit Risk Management and Banks' Performance

The result of the impact of credit risk management and DMB performance variables such as return on asset, non-performing loan ratio, capital adequacy ratio, leverage and Loan loss provision ratio is reported in table 4.3 below.

The diagnostic statistics for the model are moderate and very impressive. The adjusted R squared value of 0.09 indicates that over 9 percent of the systematic variations in performance of DMB in Nigeria are explained by the explanatory variables. The F value of 3.99 easily passes the significance test at the 1 percent level. This shows the hypothesis of a significant relationship between performance of DMBs and all the independent variables combined is significant.

The particular impact of each of the explanatory variables on performance is determined by considering the individual coefficients of the explanatory variables in terms of signs and significance. In the results reported, the coefficients of CADR and LLPR have positive sign, while the coefficient of NPLR and LEVERAGE are negative.

The relationship between NPLR and performance is negative and significant at the 1 percent level. This implies that a 1 percent increase in NPLR, the ROA is predicted to decrease by 0.29% holding other variables constant. In other words, the coefficient of NPLR which is 0.29 is the

elasticity of bank performance with respect to NPLR. This indicates that the financial performance of DMBs tend to increase as the NPLR decreases.

The coefficient of LLPR is positively significant at the 1 percent level. This shows that a 1 percent increase in LLPR leads to an increase in ROA by 67% holding other independent variables constant. The coefficient of LLPR is 0.67 is the elasticity of DMB performance with respect to LLPR. This also shows that performances of DMBs tend to increase as the LLPR increases.

The coefficient of CADR and Leverage is not significant at the 5% level. This indicate that both variables do not have any impact on banks' performance.

Table 4.3: Impact of Credit Risk on DMBs' Performance

<i>Variable</i>	<i>Coefficient</i>	<i>t-Statistic</i>	<i>Prob.</i>
<i>C</i>	0.0201	1.1085	0.2700
<i>NPLR</i>	-0.2875	-2.8941	0.0046
<i>CADR</i>	0.0004	0.5757	0.5660
<i>LEVERAGE</i>	-0.0014	-0.8227	0.4124
<i>LLPR</i>	0.6784	3.3828	0.0010
<i>R-squared</i>	0.1217	<i>F-statistic</i>	3.9853 (0.0045)
<i>Adjusted R-squared</i>	0.0912	<i>Durbin-Watson stat</i>	1.5329

Source: Eview 9 output January, 2023

4.3. Test of Hypotheses

The results obtained from the previous section are useful for conducting statistical testing of the hypotheses of the study. They also generate strong issues for discussion. In testing the hypotheses, focus is on the statistical significance of the relevant variables examined in the empirical analysis.

Hypothesis One

Non-Performing loan has no significant impact on the DMB performance in Nigeria. The result obtained from the estimate showed that non-performing loan is negative and significant. Based on the t-test of significance for the variable, the t-value is significant at the 1 percent level. Thus, we reject the null hypothesis.

Hypothesis Two

Capital adequacy has no significant impact on the DMBs performance in Nigeria. The results obtained from the estimates showed that capital adequacy is positive and not significant. Based on the t-test of significance for the variable, the t-value is not significant at the 5 percent level. Thus, we fail to reject the null hypothesis.

Hypothesis Three

Leverage has no significant impact on the DMBs performance in Nigeria.

The result obtained from the estimate showed that the leverage is negative and not significant. Based on the t-test of significance for the variable, the t-value was not significant at the 5 percent level. Thus, we fail to reject the null hypothesis.

Hypothesis Four

Loan loss provision has no significant impact on the DMBs performance in Nigeria.

The result obtained from the estimate showed that the loan loss provision is positively significant. Based on the t-test of significance for the variable, the t-value was significant at the 1 percent level. Thus, we reject the null hypothesis.

4.4. Discussion of Findings

Based on the result above, two of the credit risks variables (NPLR and LLPR) influences bank performance while the CADR and LEVERAGE have no impact on the performance of banks in Nigeria. Based on economic theory non-performing loan dilute the performance of the firm. This shows that the result obtained is in line with economic theories.

CHAPTER FIVE

SUMMARY OF FINDINGS, RECOMMENDATIONS AND CONCLUSION

5.1 Summary of Findings

This study focuses on empirically estimating the relationship between credit risk management and the performance of DMBs in Nigeria. Twelve (12) quoted deposit money banks were used in this study.

Five variables such as; return on asset, non-performing loan, capital adequacy, leverage and loan loss provision were used for the estimation. The data used ranges from 2011 to 2020 across 12 deposit money banks in Nigeria. And the number of observation is (12 deposit money banks times 10 years) 120. This study used the panel regression technique. This implies that the 120

observations are pooled together before the regression is run, thus neglecting the time series nature and cross sectional nature of the data.

The Ordinary Least squares estimations were employed in the estimation of the models. Results from the empirical analysis showed that there is significant relationship between credit risk variables (non-performing loan and loan loss provision) and performance of DMBs in Nigeria. Specifically, the following findings were made:

- That non-performing loan has a negative significant impact on the DMBs performance in Nigeria. This indicates that when loans are recovered or adequately managed it tend to increase the performance of the deposit money banks, since loan is their main source of income.
- That capital adequacy does not have any impact on DMBs performance.
- That leverage does not have any impact on the DMBs performance.
- That loan loss provision has a positive significant impact on the DMBs performance of in Nigeria.

5.2 Recommendations

Following the findings from this study the following recommendations are made:

- i. That DMBs should adequately engage in the effective management of it loan in order to yield positive return and reduce non-performing loans.

- ii. That DMBs should maintain the statutory minimum reserves of capital to avoid bank runs and the apex regulatory authority should supervise and monitor banks to ensure compliance.
- iii. That DMBs should maintain adequate balance of debt to equity to curb dilution of owners' fund.
- iv. That DMBs should maintain adequate balance of loan loss provision to avoid bank run as well as holding down fund that could be put to a better use.

5.3 Conclusion

This study shows the impact of credit risk on the DMBs performance in Nigeria. The empirical result showed that non-performing loan and loan loss provision are significantly related to DMBs performance in Nigeria. The study therefore suggests the CBN should increase its surveillance over the DMBs to ensure full compliance with its monetary policies. And that individual banks should provide loans to trusted customers with adequate collaterals.

REFERENCES

- Abiola, I., & Olausi, A.S. (2014). the impact of credit risk management on the commercial banks performance in Nigeria. *International Journal of Management and Sustainability*, 3(5), 295-306.
- Achou F.T. and Tegnuh N.C (2008). *Bank Performance and Credit Risk Management*. Master Degree. Project School of Technology and Society, University of Skovde Press.
- Adekunle, O., Yimka, A.S., Agbatogun, T., and Abimbola, C. (2014). *Credit risk management and financial performance of selected commercial banks in Nigeria*. *Journal of Economic & Financial Studies*. Available at <http://journalofeconomics.org>
- Adeniyi, A. M., Opeyemi, S. S., Kayode, K. A., & Emeje, S. O. (2021). Credit risk and bank performance in Nigeria: A panel analysis approach. *International Journal of Multidisciplinary Sciences and Advanced Technology*, 2(1), 44–53.
- Adeusi, S. O., & Dada, O. (2017). Impact of credit risk management on deposit money banks performance in Nigeria. *Journal of Association of Professional Bankers in Education (JAPBE)*, 1(1), 163-178.
- Adeusi, S. O., Akeke, N. I., Adebisi, O. S., and Oladunjoye, O. (2014). *Risk management and Financial performance of banks in Nigeria*. European Journal of Business and Management.

- Aduda, J., & Gitonga, J. (2011). The relationship between credit risk management and profitability among the commercial banks in Kenya. *Journal of Modern Accounting and Auditing*, 7(9), 934-946.
- Ahmed, A., Takeda, C., & Thomas, S. (1999). Bankloan loss provision: a reexamination of capital management, earnings management and signaling effects. *Jouranal of accounting and economics* , 1-37.
- Akinselure, O. P., & Akinola, T. A. (2019). Impact of credit risk management on profitability of selected deposit money banks in Nigeria. *International Journal of Economics, Commerce and Management*, 7(9), 254-268.
- Ali, L., & Dhiman, S. (2019). The Impact of credit risk management on profitabilityof public sector commercial banks in India. *Journal of Commerce & Accounting Research* , 86-92.
- Alobari , C., Naenwi , M..E., Zukbee , S. O., & Grend , M. D. (2018). Impact of credit management on bank performance in nigeria. *Equatorial Journal of Finance and Management Sciences*, 3(1), 17-23.
- Alshatti, A. S. (2015). The effect of credit risk management on financial performance of the Jordanian commercial banks. *Investment Management and Financial Innovations*, 12(1-2), 338-345.
- Alshatti,A.S., 2015. *The effect of credit risk management on financial performance of the Jordanian commercial banks*. Investment Management and Financial Innovations, 12(1): 338-339.
- Al-Tamimi, H. and Al-Mazrooei M.(2007).*Banks' Risk Management: A Comparison Study of UAE National and Foreign Banks*”, The Journal of Risk Finance, Vol. 8 No.4, pp. 394-409.
- Annor, E. S. and Obeng, F. S. (2017). *Impact of credit risk management on the profitability of selected commercial listed on the Ghana stock exchange*. Journal of Economics, Management and Trade.
- Asaolu, A. A., & Adibe, O. J. (2020). Effects of macroeconomic indices on non-performing loans in Nigeria banks. *IAR Journal of Business Management*, 1(4), 304-312.
- Athanasoglou, P., Brissimis, S N., and Delis, M D. (2005).*Bank-specific, industry specific and macroeconomic determinants of Bank profitability* ”.MPRA Paper No.153.Available at: <http://www.academicjournals.org/AJB>

- Badar, M., & Javid, A.Y. (2013) Impact of macroeconomic forces on NPLs: An empirical study of commercial banks in Pakistan. *Overseas Transaction on Business and Economics*, 1(10), 40-48.
- Basel Committee. (1999). Principles for the management of credit risk *Consultive paper issued by Basel committee on Banking Supervision, Basel*
- Bessis, J. (2001). *Risk management in banking*. 2nd edition, Chichester, UK: Wiley
- Bhattarai, S. (2015). Determinants of non-performing loan in Nepalese commercial banks. *Economic Journal of Development Issue* , 19&20, 22-38.
- Bhattarai, Y. R. (2015). Determinants of lending interest rates of Nepalese commercial banks. *Economic Journal of Development Issues* , 19&20.
- Bhattarai, Y. R. (2016). Effect of Credit Risk on the Performance of Nepalese Commercial Banks.
- Boahene, S.H., Dasa, J., & Agyei, S.K. (2012) Credit risk and profitability of selected banks in Ghana. *Research Journal of Finance and Accounting*, 3(1), 6-14.
- Boffey R. and Robson G.N. (1995). *Managerial Finance: Bank Credit Risk Management*. Vol. 21 number 1, 1995 pp 66-78
- Brealey, R. A., & Myers, S. C. (2003). *Principles of corporate finance* (7th ed.). McGraw Hill.
- Charles, O., & Kenneth, U. O. (2013). Impact of credit risk management and capital adequacy on the financial performance of commercial Banks in Nigeria. *Journal of Emerging Issues in Economics, Finance and Banking* , 2.
- Chodechai, S. (2004). *Determinants of Bank Lending in Thailand: An Empirical Examination for the years 1892-1996*, Unpublished Thesis.
- Coyle, B. (2000). *Framework for Credit Risk Management*. Chartered Institute of Bankers: United Kingdom.
- Dankwa, E. A. A. (2019). Credit risk management and profitability: Challenges and insight of commercial banks. *International Journal of Research and Innovation in Social Science*, III(VI), 70-76.
- DeYoung R. And Whalen G. (1994): “*Banking Industry Consolidation: Efficiency Issues*”, Working Paper No. 110 A Conference of the Jerome Levy Economics Institute, Office of the Comptroller of the Currency, Washington, DC.
- Donald, K. K., and Delno, L.A.T. (2006). *Study and Thesis Writing; An Introduction*, Nairobi,

Pauline's Publication of Africa.

- Ekinci, R., & Poyraz, G. (2019). The Effect of credit risk on financial performance of deposit banks in Turkey. *Procedia Computer Science*, 158, 979-987.
- Etale, L. M., Ayunko, P. E., & Etale, E. L. (2016, April). The Impact of non-performing loan. *International Journal of Humanities and Social Science Invention*, 01-05.
- Felix, A.T and Claudine, N. T. (2008). *Bank performance and Credit risk Management*.
- Fragouli, E., & Aldayel, M. (2018). Risk management and performance: a case study of credit risk management in commercial bank. *The Business and Management Review*, 10, 169-183.
- Frimpong, R. A., & Akomeah, J. (2020). Credit risk management and financial performance of listed banks in Ghana. *Research Journal of Finance and Accounting*, 11.
- Funso, K. T., Kolade, A. R., & Oja, O. M. (2012). Credit risk and commercial banks performance in Nigeria: A panne model. *Astrallian journal of business and management research* , 31-38.
- Gakure, R.W., Ngugi, J.K., Ndwiga, P.M. and Waithaka, S.M. (2012). *Effect of Credit Risk Management Techniques on the Performance of Unsecured Bank Loans Employed Commercial Banks in Kenya* downloaded from <http://thejournalofbusiness.org>
- Gasore, W. (2017). *Tough Times for Rwanda Banks as NPLs rise* downloaded from <http://www.rwandaeye.com> dated Friday, January 13th, 2017
- Gestel, T.V. and Baensens, B. (2008). *Credit Risk Management Basic Concepts: financial risk components, rating analysis, models, economic and regulatory capital*, Oxford University Press.
- Gibson, S. M., (2007). *Credit Derivatives and Risk Management*.
- Gizaw, M., Kebede, M., and Selvaraj, S. (2015). *The impact of credit risk on profitability performance of commercial banks in Ethiopia*. *Academic journals of Business Management*, 9(2): 59-66. Available at <http://www.academicjournals.org/AJBM>
- Godlewski, C.J.&Ziane, YD. (2008). *How many banks does it take to lend? Empirical evidence from Europe*," Working Papers of LaRGE Research.
- Hosna, A., Manzura, B. And Juanjuan, S. (2009): *Credit risk management and profitability in commercial banks in Sweden*; master's thesis submitted to University of Gothenburg, School of Business, economic and law.

- Iftikhar, M. (2016). *Impact of credit risk management on financial performance of commercial banks of Pakistan*. University of Haripur Journal of Management. Available at www.uoh.edu.pk/uohjm
- International Monetary Fund. (2005.). *The Treatment of Nonperforming Loans*, Washington, D.C Investopedia: Financial Performance. Available at <https://www.investopedia.com/>
- Isanzu, J. S. (2017). The Impact of credit risk on the financial performance of Chinese banks. *Journal of International Business Research and Marketing*, 2 (3).
- Iwedi, M., & Onuegbu, O. (2014). Credit Risk and performance of selected deposits money banks in Nigeria: An empirical investigation. *European Journal of Humanities and Social Sciences*, 31(1), 1684-1694.
- Kabona, E. (2017). *Slow economic activity impacts Rwandan banks*, downloaded from <http://www.theeastafrican.co.ke/business/Slow-economic-activity-impacts->
- Kargi, H. S. (2011). *Credit risk and the performance of Nigerian banks*. Department of Accounting, Ahmadu Bello University, Zaria.
- Kargi, H.S. (2011). *Credit.Risk and the Performance of Nigerian Banks*. Ahmadu Bello University, Zaria.
- Kennon, J. (2017). *Return on Equity (ROE) and Income Statement Analysis*, Financial Times.
- Khrawish, H.A. (2011). *Determinants of Commercial Banks Performance: Evidence from Jordan*. International Research Journal of Finance and Economics. Zarqa University, 5(5), 19-45.
- Kithinji, A. M. (2010). *Credit risk management and profitability of commercial banks in Kenya*. School of Business, University of Nairobi.
- Kithinji, A.M. (2010). *Credit Risk Management and Profitability of Commercial Banks in Kenya*, School of Business, University of Nairobi, Nairobi.
- Kolapo, T. F., Ayeni, R. K., & Oke, M. O. (2012). Credit risk and commercial banks' performance in Nigeria: A panel model approach. *Australian Journal of Business and Management Research*, 2(2), 31-38.
- Kolapo, T. F., Ayeni, R. K., & Oke, M. O. (2012). Credit risk and commercial bank's performance in Nigerian: A panel model approach. *Australian Journal of Business and Management Research* , 31.

- Kurawa, J. M., & Garba, S. (2014). An evaluation of the effect of credit risk management (crm) on the profitability of Nigerian banks. *Journal of Modern Accounting and Auditing*, 10(1), 12-25.
- Kurawa, J., & Garba, S. (2014). An evaluation of the effect of credit risk management (CRM) on the profitability of Nigerain banks. *Journal of modern Accounting and Auditing*. , 10, 104-115.
- Lalon, R. M. (2015). Credit risk management (CRM) practices in commercial banks in Bangladesh " A study on Basis bank Ltd.". *International Journal of Economic, Finance and Management Science*. , 3, 78-90.
- Lecompte, M.D., & Schensul, J.J. (1999). *Analyzing and interpreting ethnographic data*. Walnut Creek, CA: AltaMira Press.
- Li F. and Zou (2014). *The impact of credit risk management on profitability of commercial banks: A study of Europe*, Umea School of Business and Economics. Available at: <http://www.diva-portal.org>.
- Li, F., & Zou, Y. (2014). *The impact of credit risk management on profitability of commercial banks*. Umea school of business and economics: spring semester 2014.
- Lindgren, H. (1987). *Banks, Investment Company, Banking Firms, Stockholm* Enskilda Bank (1924-1945), institute of research in economics History, Stockholm school of economics, Stockholm.
- Lindlof, T. R. & Taylor, B.C. (2010). *Qualitative Communication Research Methods* (Third Edition). Thousand Oaks, CA: Sage Publications, Inc.
- M. Rajeswari. (2014). A study on credit risk management in schedule banks. *International Journal of Management* , 79-89.
- Marsh, I.W. (2008). *The Effect of Lenders' Credit Risk Transfer Activities on Borrowing Firms' Equity Returns*, Cass Business School, London and Bank of Finland.
- Mohammad, N., & Onni, A. N. (2015). Credit risk grading model and loan performance of commercial banks in Bangladesh. *European Journal of Business of Management* .
- Mushtaq, M., Ismail, A., & Hanif, R. (2015). Credit risk, capital adequacy and bank's performance: An empirical evidence from pakistan. *International Journal of Financial Management* .

- Musyoki, D., & Kadubo, A. S. (2012). The impact of credit risk management on the financial performance of banks in Kenya for the period. *International Journal of Business and Public Management*, 2(2), 72-80.
- Mwangi, B. W., & Muturi, W. (2016). Effects of credit risk management on loan repayment performance of commercial banks in Kenya. *International Academic Journal of Economics and Finance*, 2 (2), 1-24.
- Nawaz, M., & Munir, S. (2012). Credit risk and the performance of Nigerian banks. *Interdisciplinary Journal of Contemporary Research in Business*, 4(7), 49-63.
- Nawaz, M., (2012). *Credit risk and performance of Nigerian banks*.
- Ngarambe, A. (2010). *First credit reference bureau in Rwanda launched*. New Times
- Nguyen, L. (2016). *Credit risk control for loan products in commercial banks*. Case: Bank for Investment and Development of Vietnam.
- Ngwa, E., (2010). *Credit risk management in banks as participants in financial markets*. A qualitative study of perception of bank managers in Sweden.
- Nwanna I. O., & Oguezue, F. C. (2017). Effect of credit management on profitability of deposit money banks in Nigeria. *IIARD International Journal of Banking and Finance Research*, 3(2), 137-160.
- Ogboi, C., & Unuafe, O.K. (2013). Impact of credit risk management and capital adequacy on the financial performance of commercial banks in Nigeria. *Journal of Emerging Issues in Economics, Finance and Banking*, 2(3), 703-717.
- Ogbulu, O. M. & Eze, G. P. (2016). Credit risk management and the performance of deposit money banks in Nigeria: An error correction analysis. *Applied Economics and Finance*, 3(2), 97-109.
- Okafor, C. O., Okafor, T. C., & Isibor A. A. (2021). Credit management and deposit money banks performance in Nigeria- A Case Study. *Himalayan Economics and Business Management*, 2(5) 10-16.
- Osuka, B., & Amako, J. (2015). Credit management in Nigeria deposit money banks (2003-2013): A study of selected deposit money banks. *International Research Journal of Education and Innovation (IRJEI)*, 1(3), 66 – 103.
- Paudel, R. P. (2012). The impact of credit risk management of financial performance of

- commercial banks in Nepal. *International Journal of Arts and Commerce* , 5.
- Poudel, R. (2012). *The impact of credit risk management on financial performance of commercial banks in Nepal*. *International Journal of Arts and Commerce* Vol. 1 No. 5 October 2012
- Poudel, R.P. (2012). The impact of credit risk management on financial performance of commercial banks in Nepal. *International Journal of Arts and Commerce*, 1(5), 9-15.
- Pradhan, S., & Shah, A. K. (2019, May 29). Credit risk management of commercial banks in Nepal. *Journal of Business and Social Science Research* .
- Pyakural, R. (2010). *A comparative study of credit risk management of Bank of Kathamndu and Himalayan Bank*.
- Pykhtin, M. (2005). *Counterparty Credit Risk Modelling: Risk Books*, Incisive Media, London
- Ruziqa, A. (2013). The Impact of credit risk and liquidityrisk on bank the financial performance: The case of Indonesian conventional bank with total above 10 trillion Rupiah. *International Journal of Economic Policy in Emerging Economics* .
- Rwandan-banks/2560-3887242-h9tc2rz/index.html on 17/02/2017
- Rwayitare, J. B., Shukla, J., & Ruhara, C. (2016). Credit risk and commercial bank profitability in Rwanda. *International Journal of Advance Research*, 4(9), 294-325.
- Sabeza, F., Shukla, J., Bajpai, G. (2015). Assessing credit risk management practices of commercial banks in Rwanda.
- Scheufler, B. (2002). *Five Risks You Can Target with Best Practices*. Retrieved on 21 July 2015 from <http://www.dnb.com>
- Sibor, A., Omankhanlen, A., Chima, M. M., Komolafe, T. D., & Okereke, K. Y. (2021). The impact of credit risk management, macroeconomic variables on bank performance in Nigeria. *Journal of Legal, Ethical and Regulatory Issues*, 24(1), 1-10.
- Simon H. K. (2010). *Financial Crisis and Bank Lending*. Federal Reserve Bank of San Francisco May 2010. Working Paper 2010-11 <http://www.frbsf.org/publications/economics/papers/2010/wp10-11bk.pdf>.
- Singh, A. (2013). Credit risk management in Indian commercial banks, *International Journal of Marketing, Financial Services & Management Research*, 2(7), 47-51.
- Smirlock, M. (1985). Evidence on the (Non) Relationship between Concentration and Profitability in Banking. *Journal of Money, Credit and Banking*, 17, 69-89.

- Stiglitz, J.E and Weiss, A. (1981). *The American Economic Review*, Volume "11, Issue 3 (Jun, 1981).
- Sultan, T. D. (2017). Determination of financial performance of commercial banks in Ethiopia. *African Journal of Business Management*, 1-10.
- Taiwo, J. N., Ucheaga, E. G., Achugamonu, B. U., Adetiloye, K., Okoye, O., & Agwu, P. E. (2017). Credit risk management: Implications on bank performance and lending growth. *Saudi Journal of Business and Management Studies*, 2(1), 584-590.
- Tandelilin, E., Kaaro, H., & Mahadwarta, P.A., Supriyatna, (2007). *Corporate Governance, Risk Management and Bank Performance: Does Type of Ownership Matter?* EADN Working paper No 34.
- Tumwebaze, P. (2015). *Risk management costs, limited capital cause of high interest rates-* AMIR-<http://www.newtimes.co.rw/section/article/2015-05-05/188470/>
- Uwalomwa, U., Uwuigbe, O., & Oyewo, B. (2015). Credit management and bank performance of listed banks in Nigeria. *Journal of Economics and Sustainable Development*, 6(2), 27-32.

APPENDIX

Regression Result

Dependent Variable: ROA
 Method: Panel Least Squares
 Date: 01/28/23 Time: 07:07
 Sample: 2011 2020
 Periods included: 10
 Cross-sections included: 12
 Total panel (balanced) observations: 120

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.014605	0.016528	0.883697	0.3787
NPLR	-0.320850	0.090153	-3.558959	0.0005

CADR	0.000444	0.000679	0.653924	0.5145
LEVERAGE	-0.000997	0.001513	-0.659047	0.5112
LLPR	0.819767	0.175851	4.661708	0.0000
R-squared	0.211698	Mean dependent var	0.028510	
Adjusted R-squared	0.184279	S.D. dependent var	0.054330	
S.E. of regression	0.049069	Akaike info criterion	-3.150395	
Sum squared resid	0.276896	Schwarz criterion	-3.034250	
Log likelihood	194.0237	Hannan-Quinn criter.	-3.103228	
F-statistic	7.720789	Durbin-Watson stat	1.393277	
Prob(F-statistic)	0.000015			

Dependent Variable: ROA

Method: Panel Least Squares

Date: 01/28/23 Time: 07:08

Sample: 2011 2020

Periods included: 10

Cross-sections included: 12

Total panel (balanced) observations: 120

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.024798	0.018249	1.358846	0.1771
NPLR	-0.258667	0.114893	-2.251369	0.0265
CADR	0.000437	0.000775	0.563459	0.5743
LEVERAGE	-0.001557	0.001895	-0.822091	0.4129
LLPR	0.523144	0.234801	2.228033	0.0280

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.365723	Mean dependent var	0.028510
Adjusted R-squared	0.274241	S.D. dependent var	0.054330
S.E. of regression	0.046284	Akaike info criterion	-3.184457
Sum squared resid	0.222794	Schwarz criterion	-2.812792
Log likelihood	207.0674	Hannan-Quinn criter.	-3.033522
F-statistic	3.997746	Durbin-Watson stat	1.606306
Prob(F-statistic)	0.000011		

Dependent Variable: ROA

Method: Panel EGLS (Cross-section random effects)

Date: 01/28/23 Time: 07:09

Sample: 2011 2020

Periods included: 10

Cross-sections included: 12

Total panel (balanced) observations: 120

Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.020135	0.018164	1.108519	0.2700
NPLR	-0.287499	0.099340	-2.894095	0.0046
CADR	0.000409	0.000711	0.575662	0.5660
LEVERAGE	-0.001376	0.001673	-0.822716	0.4124
LLPR	0.678367	0.200537	3.382754	0.0010

Effects Specification

	S.D.	Rho
Cross-section random	0.020771	0.1676
Idiosyncratic random	0.046284	0.8324

Weighted Statistics

R-squared	0.121742	Mean dependent var	0.016422
Adjusted R-squared	0.091194	S.D. dependent var	0.048155

S.E. of regression	0.045906	Sum squared resid	0.242351
F-statistic	3.985255	Durbin-Watson stat	1.532898
Prob(F-statistic)	0.004585		

Unweighted Statistics

R-squared	0.205257	Mean dependent var	0.028510
Sum squared resid	0.279158	Durbin-Watson stat	1.330781

Correlated Random Effects - Hausman Test

Equation: Untitled

Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	2.129127	4	0.7120

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
NPLR	-0.258667	-0.287499	0.003332	0.6174
CADR	0.000437	0.000409	0.000000	0.9288
LEVERAGE	-0.001557	-0.001376	0.000001	0.8385
LLPR	0.523144	0.678367	0.014916	0.2038

Cross-section random effects test equation:

Dependent Variable: ROA

Method: Panel Least Squares

Date: 01/28/23 Time: 07:10

Sample: 2011 2020

Periods included: 10

Cross-sections included: 12

Total panel (balanced) observations: 120

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.024798	0.018249	1.358846	0.1771
NPLR	-0.258667	0.114893	-2.251369	0.0265
CADR	0.000437	0.000775	0.563459	0.5743
LEVERAGE	-0.001557	0.001895	-0.822091	0.4129
LLPR	0.523144	0.234801	2.228033	0.0280

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.365723	Mean dependent var	0.028510
Adjusted R-squared	0.274241	S.D. dependent var	0.054330
S.E. of regression	0.046284	Akaike info criterion	-3.184457
Sum squared resid	0.222794	Schwarz criterion	-2.812792
Log likelihood	207.0674	Hannan-Quinn criter.	-3.033522
F-statistic	3.997746	Durbin-Watson stat	1.606306

Prob(F-statistic) 0.000011

	ROA	NPLR	CADR	LEVERAGE	LLPR
Mean	0.028510	0.098298	21.02347	3.354642	0.048133
Median	0.017203	0.077300	20.20000	1.940000	0.032367
Maximum	0.355354	0.542000	47.00000	15.47000	0.173800
Minimum	-0.092741	-0.032205	3.720000	-0.606667	-0.021389
Std. Dev.	0.054330	0.090022	6.941833	3.226557	0.044451
Skewness	3.828804	1.625292	1.337840	1.136498	1.086825
Kurtosis	21.63619	7.135910	5.930050	3.931493	3.349436
Jarque-Bera	2029.732	138.3602	78.72229	30.17095	24.23430
Probability	0.000000	0.000000	0.000000	0.000000	0.000005
Sum	3.421185	11.79572	2522.817	402.5570	5.776001
Sum Sq. Dev.	0.351256	0.964378	5734.497	1238.870	0.235128
Observations	120	120	120	120	120