CREDIT MANAGEMENT AND NON PERFORMING LOAN IN NIGERIAN DEPOSIT MONEY BANKS

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CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Credit creation is the main income generating activity for banks and this activity involves huge risks to both the lender and the borrower. The risk of a trading partner not fulfilling his or her obligation as per the contract on due date or anytime thereafter can greatly jeopardize the smooth functioning of banks business. Also, a bank with high credit risk has high bankruptcy risk that puts the depositors in jeopardy. In a bid to survive and maintain adequate profit level in the highly competitive banking environment, banks have tended to take excessive risks. However, the increasing tendency for greater risk taking has resulted in insolvency and failure of a large number of banks.

The efficiency of the bank's performance is a function of how they are able to satisfy their customers at a minimum risk level and maximize profit as well. Deposit money banks are the dominant financial institutions in most developing and emerging economies and well-functioning deposit money banks accelerate the rate of economic growth while poorly functioning deposit money banks are an impediment to economic progress (Richard, 2014). Loans are part of the assets of a commercial institution since they are meant to earn interest in the course of time (Waweru & Kalani, 2019). This, however, is not always the case. Some loans do not perform as expected and are termed non-performing loans (NPLs). Obviously, credit creation is the main income generating activity of banks (Kargi, 2018). However, it exposes the banks to credit risk. The Basel Committee on Banking Supervision (2001) defined credit risk as the possibility of losing the outstanding loan partially or totally, due to credit risks (default risk). Credit risk is an external determinant of bank performance.

The higher the exposure of a bank to credit risk, the higher the tendency of the bank to experience financial crisis and vice-versa. According to Ahmad and Ariff (2019), most banks in Nigeria and other economies such as Thailand, Indonesia, Malaysia, Japan and Mexico experienced high Non-Performing Loans (NPLs) and significant increase in credit risk during financial and banking crises, which resulted in the closing down of several banks in Indonesia and Thailand. The negative effect of credit risk and non-performing loans on banks performance and the economy in general has made the issue of NPLs a global one and of great importance in the last decades. According to Hou and Dickinson (2017), many researches on the causes of bank failures found that asset quality is a statistically significant predictor of insolvency, and that failing bank institutions always have high level of Non-performing loans prior to failure. Hence, this study seeks to investigate the effect of Nonperforming loan on the financial performance of deposit money banks in Nigeria.

1.2 Statement of Problem

In Nigeria, due to the rising increase of non-performing loans, the CBN (2010) through its prudential guideline, required licensed banks to periodically review their credit portfolios continuously, at least once in a quarter with a view to recognizing any deterioration in credit quality and that a credit facility should be deemed to be non - performing once any of the following conditions exists; where Interest or principal is due and unpaid for 90 days or more and interest payments equal to 90 days, interest or more have been capitalized rescheduled or rolled over into a new loan. Thus they classified non-performing credit facilities into three categories namely, substandard, doubtful or lost (CBN, 2010).

The Nigeria banking industry, according to NDIC (2019) annual statement and account show that the total loans and advances stood at N10.043 trillion in 2019, showing an increase of 23.22 percent over N8.150 trillion granted in 2012, and that the non-performing loans to total loans ratio improved from 3.51 percent in 2012 to 3.23 percent in 2019, this according to the report was within the regulatory threshold of 5 percent. However, in spite of this improvement, the volume of non-performing loans increased by 13.30 percent from 281.09 billion in 2012 to 324.14 billion in 2019 (NDIC, 2019). As a proactive measure to avert the menace of resurgence of non-performing loan and to ensure safe and sound financial system the CBN in June 2014 directed that no financial institutions shall without the prior written approval of the CBN grant a credit facility to a potential borrower who is in default of the any existing credit facility to the tune of N500Million and above in the case of deposit banks and N250Million and above in the case of development banks and banks in liquidation.

But in 2019, the NDIC report shows that, the deposit money banks total loans to the domestic economy stood at N16.29 trillion as at 31st December, 2019, out of which the sum of N2.08 trillion was non-performing. The sharp rise in the quantum of non-performing loans (NPLs) by 220% from N0.65 trillion as at 31st December, 2015 to N2.08 trillion as at 31st December, 2019 and the NPL to Total loans ratio (NPL ratio) which increased from 4.88% as at 31st December 2015 to 12.80% as at 31st December 2019, compared unfavorably with the maximum prudential threshold of 5%.

The NDIC report 2019 indicated on a negative note that the deposit money banks profitability indices declined in 2019. The deposit money banks unaudited profit fell by

30.16% from N 0.63 trillion as at 31st December, 2015 to N 0.44 trillion as at 31st December, 2019. Also, Non-interest income decreased by 32.60% to N 0.17 trillion as at 31st December 2019 from N 0.25 as at 31st December, 2015. Net-interest income also decreased to N 0.28 trillion as at 31st December, 2019 from N 1.44 trillion in 2015. The deposit money banks Return on Assets (ROA) decreased from 2.34% in 2015 to 1.48% in 2019 while Return on Equity (ROE) fell from 19.78% in 2015 to 12.65% in 2019. Yield on Earning Assets also depreciated from 13.40% in 2015 to 3.51% in 2019. The declining profit trend necessitated this study, to investigate the effect of non-performing loan on the financial performance of deposit money banks in Nigeria.

1.3 Research Questions

The following are the research questions of this study:

i. To what extent does cash reserve ratio affect profitability of Nigerian deposit money banks?

ii. What is the effect of non-performing loans on the profitability of Nigerian deposit money banks?

iii. To what extent does interest rate affect profitability of Nigerian deposit money banks?

1.4 Objectives of the Study

The aim of this study is to examine the effect of credit management on nonperforming loan in deposit money banks, while the specific objectives are:

i. To examine the effect of cash reserve ratio on the profitability of Nigerian deposit money banks.

ii. To examine the effect of non-performing loans on the profitability of deposit money banks in Nigeria.

iii. To determine the extent to which interest rate affect profitability of deposit money banks in Nigeria.

1.5 Statement of Hypotheses

The following hypotheses are stated in their null form were tested in course of this research work:

Hypothesis One

Ho_1: Cash reserve ratio has no significant effect on the profitability of Nigerian deposit money banks.

Hypothesis Two

Ho_2: Non-performing loans has no significant effect on the profitability of Nigerian deposit money banks.

Hypothesis Three

Ho_3: Interest rate has no significant effect on the profitability of Nigerian deposit money banks.

1.6 Significances of the Study

The study will help bank management to boost the bank's profitability from credit management. In addition, the degree to which credit is controlled has a bearing on the progress and sustainability of deposit money banks and the economy at large. The purpose of this research is to discover effect of liquidity on the profitability of banks in Nigeria. The customers and investors need to know whether their deposits are managed or utilized efficiently, so it is an eye-opener. The research would serve as an incarnation of knowledge to individuals, management and practitioners in the banking and non-bank financial industry. The result would also be useful in academic field.

1.7 Scope of the Study

This research work covers credit management and Non performing loan in Nigeria deposit money banks in Nigeria. This study intends to focus on all the listed Deposit Money Banks in Nigeria. Thus, the Micro-finance banks and other banks will not be included in our study.

1.8 Limitation of the Study

The limitations of this study are itemized below:

i. The sample size is relatively small. Hence, a large number of the population were excluded from the study.

ii. Inappropriate measurement of the variables.

iii. Problem of determining the appropriate statistical tools for data analysis.

iv. Challenges in sourcing for secondary data which is the most important for the study.

1.9 Operational Definition of Terms

Credit risk: Credit risk is the possibility of losing the outstanding loan partially or totally, due to credit events (default risk). Credit events usually include events such as bankruptcy, failure to pay a due obligation, repudiation/moratorium or credit rating change and restructure.

The credit risk management strategies: The credit risk management strategies are procedures banks adopted in the mitigation or reducing the negative effect of credit risk

Non-performing loans: It is the major determinant of credit risk in deposit money banks. It is the ratio of non-performing loans to total loans which reveals the quality of a bank's loan portfolio.

Liquidity: liquidity refers to the ability of a bank to ensure the availability of funds to meet financial commitments or maturing obligations at a reasonable price at all times.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Conceptual Review

2.1.1 Credit Management and Profitability in Deposit Money Banks

The issue of profitability is a contentious subject that a bank has to consistently face. Profit is the disparity between expenses and revenue over a period of time, normally one year. According to Heibati, Nourani and Dadkhah (2018), a business is organic; it survives and grows. Therefore, it is important that a bank earns profit for its long term survival and growth. It is also necessary that enough profit must be earned to maintain the activities of the business to be able to obtain funds for expansion and growth of the bank.

Agbada and Osuji (2018) argued that corporate profit planning remains one of the most difficult and time consuming aspects of bank management because of the many variables involved in the decision which are outside the control of the bank. It is even more difficult if the bank is operating in a highly competitive economic environment, such as that of Nigeria.

Tabari (2018) remarked that the profitability variable is represented by two alternative measures: the ratio of profits to assets i.e. the return on assets (ROA) and the returns to equity ratio (ROE). In principle, return on assets (ROA) reflects the ability of a bank's asset to generate profit, although it may be biased due to off-balance-sheet activities. ROE indicates the returns to shareholders on their equity and equals ROA times the total assets-to-equity ratio.

The issue of bank profitability and performance efficiency has been widely discussed in the scientific literature. It has also been considered in a number of theoretical and empirical researches of different kind. However, return on assets (ROA) and return on equity (ROE) have always been mentioned among the main indicators characterizing bank performance. Bourke (2017) was one of the first who discovered in his research that exactly the internal factors of bank performance, such as net income before and after tax against total assets, capital and reserves factors, have the greatest impact on profitability indicators. In turn, the studies conducted in the USA and Europe demonstrate that a great concentration of banks and financial institutions surpass profitability.

At the same time, Ramlall (2018) discovered a positive relationship between the size of the bank and profitability – the larger the bank is, the more profitable it is in comparison with a smaller bank thus demonstrating the effect of economy of scale. In contrast, Sufian (2017) states that large size of the banks may leave a negative impact on bank profitability. He notes that small banks can earn higher profit because they have lower expenses and better performance efficiency. Berger (2017) correlates it with routine practical activities of an enterprise and states that profitability grows along with the increase of the operational efficiency. Despite difference of opinion, all scholars agree that banks' profitability and efficiency indicators consist of external and internal factors. Rasiah (2018) in his research found asset portfolio mix, loans and interest income, investments, non-interest income earning assets, total expenses, operating expenses, personnel expenses, liability composition, deposit composition, liquidity ratios, capital structure as internal factors influencing bank profitability. In turn, external factors comprise regulations, inflation, interest rate, short and long terms effects of interest rate on assets, market share, market growth, firm size. Pimentel (2019) defines profitability as the final measure of economic success achieved by a company in relation to the capital invested in it. This economic success is determined by the magnitude of the net profit accounting generated as a percentage of the assets invested in. To achieve an appropriate return over the amount of risk accepted by the shareholders is the main objective of companies operating in capitalist economies. After all, profit is the propulsive element of any investments in different projects.

2.1.2 Interest Rate

The objectives of interest rate policy in Nigeria include but not limited to the moderation of inflation, financial savings and investment, encouragement of reduction of pressure in the balance of payments achieving favorable exchange rate stability and the promotion of macroeconomic and financial sector stability. Interest rate in Nigeria has been affected by the incidence of oligopolistic structure of Nigeria banking systems (Ajayi, 2019).

Interest rate management has passed through two main approaches in Nigeria namely direct and indirect approaches. The direct approach entails the administrative adjustment of lending rate and saving rates, while the indirect approach relies on the mutual effect of market forces, all the above approach tend to have its own way of inducing economic growth. The Central Bank of Nigeria retains the discretionary power to intervene in the money market to ensure orderly development in interest rates.

The Nigerian government has since 1987 been pursuing a market–determined interest rate which does not permit a direct state intervention in the general direction of the economy (Nyong, 2017). In January, 1994 there was another policy reversal, this time the government had rightly introduced some measures of regulating interest rate management. It was claimed that there were wide variation and unnecessarily high rate under the complete deregulation of interest rate. Immediately, deposit rates were once again set up at 12 percent per annum from the previous 8 percent while a ceiling of 21 percent per annum was fixed for lending. The gap of interest rates introduced in 1994 was retained in 1995 with little modification for flexibility.

On the other hand the economic growth of any country reflects its capacity to increase production of goods and services. The simplest definition of economic growth can be stated as the increase in the gross domestic product (GDP) of that country. Nominal GDP is usually adjusted for inflation factor to reflect real GDP. Interest rate is one of the macroeconomic growth factors; it's up and down volatility is closely related to inflation rates. Its high or low rate also impact economic boom (high GDP) thus extending to influence economic growth rate. In business fields, it is very important to accurately predict interest rate trends. Many previous studies have assumed that the time series data is stationary and they ignored that non stationary could exist in the data. This study is a contribution to the existing literature on real growth applied to Nigeria's economy; it will examine the effect of interest rate on the GDP.

One of the essential element for encouraging a sustainable and inclusive economic growth is through access to financial services including a productive interest rate. Hence, interest rate is a fundamental component of macroeconomic analysis and a significant tool through which the apex banks conduct monetary policy operations. The possible impact of monetary policy can be determined through different monetary transmission channel in which interest rate, inflation, asset prices and exchange rate relate with one another. One of the prominent and effective monetary transmission mechanism is the interest rate. The interest rate has the potentials to impact on the aggregate economy through determining the magnitude of macroeconomic indicators like capital flows, investment, exchange rate and credit demand. Under the financial sector liberalisation in Nigeria, an interest rate policy reform is introduced. The policy reform is expected to enhance the development of financial sector in the country, encourage domestic savings and provides an enabling environment where borrowing funds are accessible at the banking institutions

Since the global financial crisis, interest rate has been on the low trend (even negative) in various developed countries, as the nominal interest rate lingered around zero. This scenario shows the implication that monetary policies and approaches that are implemented in response to the financial crisis are the reason behind the low interest rate. Given this condition, the whole circumstances would be over if central bank begins to normalise the monetary policies. As the central banks utilise the interest rate as a policy instrument, measuring its implications on output growth is therefore consistent with the bank's policy target and a necessary condition for an effective conduct of macroeconomic policies. Analysis of interest rate is not only meaningful in this contemporary era, but also essential to the understanding of financial intermediation process and the macroeconomic environment in which the central banks operate.

2.1.3 Non- Performing Loans

It is the major determinant of credit risk in deposit money banks. It is the ratio of non-performing loans to total loans which reveals the quality of a bank's loan portfolio. That the percentage of the total loans and advances that is on the verge of going bad. A higher ratio sends a signal that the management was not efficient when evaluating loan applications. Again it shows that there is a higher probability the most of the loans might not be recovered. (Pimentel 2019) Non-Performing credit facilities should be classified into three categories namely: sub-standard, doubtful or lost on the basis of criteria specified by the Banking laws in a country.

2.1.4 Credit Management and Liquidity in Deposit Money Banks

According to Olagunji (2017), liquidity refers to the ability of a bank to ensure the availability of funds to meet financial commitments or maturing obligations at a reasonable price at all times. Put differently, bank liquidity means banks having money when they need it particularly to satisfy the withdrawal needs of their customers. The survival of deposit money banks depends greatly on how liquid they are, since illiquidity being a sign of imminent distress can easily erode the confidence of the public in the banking system and results to run on deposit.

Liquid assets should be marketable or transferable. This means they are expected to be converted to cash easily and promptly, and are redeemable prior to maturity. Another quality of liquid assets is price stability. Based on this characteristic, bank deposits and short term securities are more liquid than equity investments due to the fact that the prices of the former are fixed than the prices and value of the later (Richard, 2018). According to Greuning and Bratanovic (2017), banking liquidity represents the capacity of a bank to finance itself efficiently the transactions. The liquidity risk for a bank is the expression of the probability of losing the capacity of financing its transactions respectively of the probability that the bank cannot honor its obligations to its clients (withdrawal of deposits, maturity of other debt, and cover additional funding requirements for the loan portfolio and investment). The management of the liquidity risk presents important at least from two points of view: primarily an inadequate level of liquidity may lead to the need to attract additional sources of with higher costs reducing profitability of the bank that will lead ultimately insolvency; and secondly an excessive liquidity may lead to a decrease of the return on assets and in consequence poor financial performance. A bank has a potential of appropriate liquidities when it is in the condition to obtain the funds immediately and at a reasonable cost when these are necessary. In practice, achieving and maintaining optimum liquidity is a real art of bank management.

Greuning and Bratanovic (2019) noted that maintaining an adequate degree of liquidity in the whole banking system is extremely important, because the registration of a liquidity crisis at a single bank can have negative repercussions over the whole banking system thanks to the risk of contagion through interbank settlements. The sophistication of liquidity management and liquidity risk depends on the size and characteristics of each bank as do the nature and complexity of activities held by it. The management of liquidity policies of a bank has to include a decisional structure for the risk management, a pattern (a strategy) for approaching operations and funding, a set of exposure limits to liquidity risk and a set of procedures for planning liquidities after alternative scenarios including crisis situations.

2.2 Theoretical Framework

2.2.1 Quantitative Liquidity Theory

Baumol's (2009) inventory management model and Miller and Orr's (1966) model which recognized the dynamics of cash flows are some of the earlier research efforts attempted to develop models for optimal liquidity and cash balances, given the organization's cash flows the focus was on using quantitative models that weighed the benefits and costs of holding cash (liquidity). These earlier models help financial managers understand the problem of cash management, but they rest on assumptions that do not hold in practice. The trade-off model postulates that firms identify their optimal level of cash holdings by weighting the marginal costs and marginal benefits of holding cash. The benefits related to cash holdings are: reduces the likelihood of financial distress, allows the pursuance of investment policy when financial constraints are met, and minimizes the costs of raising external funds or liquidating existing assets. The main cost of holding cash is the opportunity cost of the capital invested in liquid assets. A firm that currently pays dividends can raise funds at low cost by reducing its dividend payments, in contrast to a firm that does not pay dividends. Firms will trade-off holding cash and investing it depending on its investment needs.

Miller and Orr (2017) model of demand for money by firms suggests that there are economies of scale in cash management. This would lead larger firms to hold less cash than smaller firms. Also, it is argued that the fees incurred in obtaining funds through borrowing are uncorrelated with the size of the loan, indicating that such fees are a fixed amount. Thus, raising funds is relatively more expensive to smaller firms encouraging them to hold more cash than larger firms. Firms with more volatile cash flows face a higher probability of experiencing cash shortages due to unexpected cash flow deterioration. Thus, cash flow uncertainty should be positively related with cash holdings.

Barclay and Smith (2009) however provide evidence that firms with the highest and lowest credit risk issue more short-term debt while intermediate credit risk firms issue long-term debt. If we consider that firms with the highest credit rating have better access to borrowing. It is expected that these firms will hold less cash for precautionary reasons, which would cause debt maturity to be positively related to cash holdings.

2.2.2 Liquidity Motive Theory

The economics and finance literature analyze possible reasons for firms to hold liquid assets. Keynes (1936) identified three motives on why people demand and prefer liquidity. The transaction motive, here firms hold cash in order to satisfy the cash inflow and cash outflow needs that they have. Cash is held to carry out transactions and demand for liquidity is for transactional motive. The demand for cash is affected by the size of the income, time gaps between the receipts of the income, and the spending patterns of the cash available. The precautionary motive of holding cash serves as an emergency fund for a firm. If expected cash inflows are not received as expected cash held on a precautionary basis could be used to satisfy short-term obligations that the cash inflow may have been bench marked for. Speculative reason for holding cash is creating the ability for a firm to take advantage of special opportunities that if acted upon quickly will favor the firm.

Almeida (2002) proposed a theory of corporate liquidity demand that is based on the assumption that choices regarding liquidity will depend on firms' access to capital markets and the importance of future investments to the firms. The model predicts that financially constrained firms will save a positive fraction of incremental cash flows, while unconstrained firms will not. Empirical evidence confirms that firms classified as financially constrained save a positive fraction of their cash flows, while firms classified as unconstrained do not. The cost incurred in a cash shortage is higher for firms with a larger investment opportunity set due to the expected losses that result from giving up valuable investment opportunities. Therefore, it is expected that there be a positive relation between investment opportunity and cash holdings. The theory also predicts that firms with better investment opportunities have greater financial distress costs because the positive Net Present Value (NPV) of these investments disappears (almost entirely) in case of bankruptcy. In this case, firms with better investment opportunities will keep higher levels of cash to avoid financial distress. To the extent that liquid assets other than cash can be liquidated in the event of a cash shortage, they can be seen as substitutes for cash holdings. Consequently, firms with more liquid asset substitutes are expected to hold less cash. It is generally accepted that leverage increases the probability of bankruptcy due to the pressure that rigid amortization plans put on the firm treasury management. To reduce the probability of experiencing financial distress, firms with higher leverage are expected to hold more cash. On the other hand, to the extent that leverage ratio acts as a proxy for the ability of the firms to issue debt it would be expected that firms with higher leverage (higher ability to raise debt) hold less cash. Thus, the predicted relationship between cash holdings and leverage is ambiguous.

2.2.3 Liquidity Theory

Longworth (2018) notes that liquidity is an instrumental factor during financial crisis. In the recent financial crisis uncertainty led funding sources to evaporate, many banks quickly found themselves short on cash to cover their obligations as they came due. In extreme cases, banks in some countries failed or were forced into mergers. As a result in the interest of broader financial stability, substantial amounts of liquidity were provided by authorities in many countries, including Canada and the United States. Since liquid assets such as cash and government securities generally have a relatively low return, holding them imposes an opportunity cost on a bank. In the absence of regulation, it is reasonable to expect banks will hold liquid assets to the extent they help to maximize the firm's profitability. Beyond this, policymakers have the option to require larger holdings of liquid assets, for instance, if it is seen as a benefit to the stability of the overall financial system. While regulation can make the financial system more resilient to liquidity shocks, calibration should recognize any associated costs to the efficiency of financial intermediation as this could result in higher borrowing costs for other agents in the system.

2.3 Empirical Review

Alalade, Binuyo and Oguntodu (2017) examine the impact of loan loss provision and profitability of banks in Lagos state. The research hypothesis was tested and analyzed in relation to loan loss provision and its significant effect on banks" profitability. They employed the Ordinary Least Square (OLM) method of data analysis. It was also the aim of this research to evaluate how effective it is for a bank to manage its credit risk (loan loss provision) effectively to enhance profitability. Data for the study was an obtained through the administering structured questionnaires which were answered by respondents. Correlation coefficient was used to decide whether or not credit risk management has an impact on profitability. The results revealed that loan loss provision reduces the profit and therefore recommended that management of credit risk (loan loss provision) should be of great importance to management of bank in Lagos state.

More comprehensively, Kolapo (2018) used panel data analysis in studying the effect of loan loss provision on banks‟ performance using ROA as a measure for performance. The result was that an increase in nonperforming loans or loan losses provision diminishes profitability (ROA), while an increase in total loan and advances enhance profitability. They recommended that before giving out a loan, field audit should be carried out on the customer so as to know their credit worthiness as this will help to reduce the incidence of loan loss.

Taiwo and Abayomi (2018) evaluates the impact of non-performing loans on bank profitability of some selected DMBs in Nigeria their objective was to determine the impact of non-performing loans on bank profitability of some selected DMBs in Nigeria. They Employed ordinary least square method of data analysis (OLM). The result from Panel Least square (PLS) estimate found that non-performing loans has a significant impact on the profitability of Nigerian banks and they recommend that drastic measure should be put in place so as to retrieve loan in the hands of customers that are not well utilized.

Poudel (2018) studied the factors affecting deposit money banks performance in Nepal for the period of 2001-2018 and used a linear regression analysis technique. The study revealed a significant inverse relationship between deposit money bank performance measured by ROA and credit risk measured by default rate and capital adequacy ratio. In this study, the apriori assumption is that non-performing loans has a negative impact on profitability. Additionally, there are other internal variables such as capital adequacy, bank size and age that could affect the profitability (ROA & ROE) of a bank.

The 2019 Credit Management and Bank Performance of Listed Banks in Nigeria revealed that ratio of non-performing loans and bad debt do not have a significant negative effect on the performance of banks in Nigeria. While secured and unsecured loan ratio and bank's performance was not significant and they recommended that other measure should be taken so as to improve profitability (Uwalomwa, Uwuigbe & Oyewo 2019).

Saeed and Zahid (2019) studied the impact of credit risk on profitability of the deposit money banks and the result showed that credit risk indicators had a positive association with profitability of the banks. They recommended that sound management of credit risk is a significant element of an all-inclusive method to risk management as a whole and vital to the future progress of any financial institution. Banks play a major role in the credit market because they assemble deposits from the various surplus units and make them available to the deficit unit for development activities. This implies that banks give out loan to borrowers from deposits made by the public with the objective of increasing their profitability. Now, since banks make huge profit through their role as financial intermediaries, it beholds on them to find pragmatic ways of managing credit risk and thereby guarding and enhancing their profitability (Muhammad & Garba 2017).

CHAPTER THREE

METHODOLOGY

3.1 Research Design

The research design adopted for the study is cross-sectional research design it is sufficient and suitable for determining the relationship that exists between credit management and the incidence of non performance loan in deposit money banks.

3.2 Description of Population of the Study

The population of the study consists of all deposit money banks quoted on the Nigeria Exchange Group (NGX) between 2015 and 2021. With a population of 37 deposit money banks.

3.3 Sample Size

The data obtained in relation to the variables is between the periods of 2015-2021 hence, the sample size for this study is 37 deposit money banks.

3.4 Sampling Techniques

The study examines credit management and nonperforming loan in money deposit banks. However, the purposive sampling method was used in this study.

3.5 Source of Data Collection

The data were extracted from the annual reports and accounts of the some banks obtained from the NSE fact book for the years 2015 to 2021 editions published by the Nigeria Stock Exchange.

3.6 Method of Data Presentation

Data obtained from secondary data were analyzed using STATA Computer Software. The study used regression analysis to investigate the impact of independent variables on dependent variable. A multiple linear regression model was used to establish the significance of the model. The results obtained from the model are presented in tables to aid and ease the analysis.

3.7 Model Specification

The model adopted for this study is underpinned to the model of (Taiwo and Abayomi 2019) in their study "Credit Management Spur Higher Profitability? Evidence from Nigeria Banking Sector" which measured profitability with Return on Asset (ROA).

The regression model used is as shown below:

ROA= f (CRR, NPL, IR)……….(1)

Where;

ROA= $\alpha_0+\alpha_1CRR+\alpha_2NPL+\alpha_3IR+\varepsilon$**……….(2)**

Where;

ROA: Return on Assets

CRR: Cash Reserve Ratio

NPL: Non-Performing Loan

IR: Interest Rate

α_0= Constant

ε= Error Term.

$\alpha_1 - \alpha_3$ = Estimation Parameters

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

4.1 Descriptive Statistics

Table 1 presents the summary of the descriptive statistics for the dependent and independent variables for 37 observations. For the Profitability ranking it shows that ROA has a mean rating value of 3.0047 and a standard deviation of 1.0725. The maximum in ROA rating is 5 while the minimum is 1.

For the CRR, the variable has a mean rating value of 3.2150 and a standard deviation of 1.0529. The other two variables have comparably the same mean rating values of 3.0233 and 2.9532 but higher standard deviations of 1.0939 and 1.0381.

The table shows that the data used in the estimation of the parameters of the model are significantly normally distributed. This is implied by the probability values of Skewness and Kurtosis of nearly all the variables which are less than 0.05. This connotes that the studied firms are not dominated by firms of any particular extreme values.

Table 1 Descriptive Statistics

Variable	Obs	Mean Std. Dev.	Min	Max	Skewness	Kurtosis
ROA	37	3.004673 1.07248	1	5	0.0428	0.0000
CRR	37	3.37953 1.052857	1	5	0.0003	0.0030
NPL	37	3.023364 1.093908	1	5	0.0019	0.0000
IR	37	2.953271 1.038084	1	5	0.0927	0.0000

Source: Author’s Computation (2022)

4.2: Correlation Analysis

Table 2: Correlation Matrix

	ROA	CRR NPL IR		
ROA	1.0000			
CRR	-0.0633	1.0000		
NPL	-0.1600	0.1872	1.0000	
IR	0.1263	-0.1884	-0.3381	1.0000

Source: Author's Computation (2022)

Table 2 shows that the measure of activity, profitability has mixed correlations with the various dependent variables used in the study. That is, ROA is positively correlated with CRR and NPL, but positively related with IR which all measures of performance.

The table shows that no two of the variables are perfectly correlated or nearly so. Thus, the problem of multi-colinearity is absent in these models.

4.3: Regression Analysis

Tables 3, 4and 5 show very low Pseudo R-squared values of 0.0085, 0.0024 and 0.0059, respectively. These low values of the R-squared statistics suggest that there are many other variables in explaining changes in the dependent variables. For the models, the p-values of the Chi squared-statistics (0.0390, 0.0233 and 0.0068) show that the models overall are suitable for estimating the stated models.

4.4 Testing of Hypotheses

Test Statistic

The statistical tool used in testing the stated hypotheses is the ordered logistic regression test of the maximum likelihood estimation (MLE) procedure which uses the individual significance test (z-test) and the overall significance test (Chi squ-test). The goodness of fit of the model is tested using the coefficient of determination (Pseudo R-squared-statistic). The estimation of these statistics is done using the STATA 14 computer software.

Significance Level

The level of significance adopted in this study in testing the stated hypotheses of this study is 5%. This level is usually considered adequate for studies in management and other behavioural sciences.

Decision Rule

The critical p-value used in these tests is 0.05. Thus, the researcher accepts a given alternative hypothesis as being accepted if calculated p-value is less than or equal to 0.05, otherwise the researcher accepts the null hypothesis that there is no significant effect.

***Hypothesis* 1**

H_o: Cash reserve ratio has no significant effect on the profitability of Nigerian deposit money banks.

H_1: Cash reserve ratio has a significant effect on the profitability of Nigerian deposit money banks.

Computation

The test statistic is computed by STATA 14 software and the results are as shown in Table 3.

Table 3: Regression Results

Ordered logistic	Regression		Number of obs =	37
Log likelihood =	-301.28039		LR chi2(1) =	5.15
			Prob > chi2 =	0.0390
			Pseudo R2 =	0.0085
CRR	**Coef.**	**Std. Err.**	**z**	**P>z**
ROA	-0.2609	0.1156	-2.26	0.024

Author's Computation (2022)

Decision

With a coefficient of -0.2609 the results indicate that cash reserve ratio negatively impacts profitability, while the probability value of 0.024 indicates that the negative impact is significant. This leads to the acceptance of the alternative hypothesis which state that cash reserve ratio has a significant effect on the profitability of Nigerian deposit money banks. thus rejecting the null hypothesis.

Hypothesis II

H_o*:* Non-performing loans has no significant effect on the profitability of Nigerian deposit money banks.

H_1: Non-performing loans has a significant effect on the profitability of Nigerian deposit money banks.

Computation

The test statistic is computed by STATA 14 software and the results are as shown in Table 4.

Table 4: Regression Results

Ordered logistic	Regression		Number of obs =	37
Log likelihood =	-301.28039		LR chi2(1) =	5.15
			Prob > chi2 =	0.0233
			Pseudo R2 =	0.0085
NPL	**Coef.**	**Std. Err.**	**Z**	**P>z**
ROA	-0.2609	0.1156	-2.26	0.024

Author's Computation (2022)

Decision

With a coefficient of -0.2609 the results indicate that Profitability negatively impacts non performing loan, while the probability value of 0.024 indicates that the negative impact is significant. This leads to the acceptance of the alternative hypothesis which state that Non-performing loans has a significant effect on the profitability of Nigerian deposit money banks.

***Hypothesis* III**

H_0: Interest rate has no significant effect on the profitability of Nigerian deposit money banks.

H_1: Interest rate has a significant effect on the profitability of Nigerian deposit money banks.

Computation

The test statistic is computed by STATA 14 software and the results are as shown in Table 5.

Table 5: Regression Results

Ordered logistic regression		Number of obs =	37
Log likelihood = -282.04193		LR chi2(1) =	3.36
		Prob > chi2 =	0.0068
		Pseudo R2 =	0.0059
IR **Coef.**	**Std. Err.**	**Z**	**P>z**
ROA 0.2171	0.1186	1.83	0.047

Author's Computation (2022)

Decision

With a coefficient of 0.2171 the results indicate that interest rate positively impacts Profitability, while the probability value of 0.047 indicates that the positive impact is significant because it is less than 0.05. This leads to the acceptance of the alternative hypothesis which state that Interest rate have a significant effect on the profitability of Nigerian deposit money banks.

4.4 Discussion of Findings

The study used forty five (37) observations. The study adopted the ordered logistic regression of the maximum likelihood estimation (MLE) procedure. The dependent variables used in the model employed are cash reserve ratio (CRR), Non performing loan (NPL) and interest rate (IR).

The results indicate that all the variables are significantly normally distributed at 5% level of significance. The correlation matrix indicates the dependent variables have mixed relationships independent variable. The results also indicate the absence of multi-colinearity.

With a coefficient of -0.2609 the results indicate that cash reserve ratio negatively impacts profitability, while the probability value of 0.024 indicates that the negative impact is significant. This leads to the acceptance of the alternative hypothesis which state that cash reserve ratio has a significant effect on the profitability of Nigerian deposit money banks. thus rejecting the null hypothesis.

With a coefficient of -0.2609 the results indicate that Profitability negatively impacts non performing loan, while the probability value of 0.024 indicates that the negative impact is significant. This leads to the acceptance of the alternative hypothesis which state that Non-performing loans has a significant effect on the profitability of Nigerian deposit money banks.

With a coefficient of 0.2171 the results indicate that interest rate positively impacts Profitability, while the probability value of 0.047 indicates that the positive impact is significant because it is less than 0.05. This leads to the acceptance of the alternative hypothesis which state that Interest rate have a significant effect on the profitability of Nigerian deposit money banks.

CHAPTER FIVE

SUMMARY OF FINDINGS CONCLUSION AND RECOMMENDATIONS

5.1 Summary of Findings

Having examined liquidity and profitability of deposit money banks in Nigeria, the findings from the study are summarized below:

i. Cash reserve ratio has a significant effect on the profitability of Nigerian deposit money banks.

ii. Non-performing loans does not have a significant effect on the profitability of Nigerian deposit money banks

iii. Interest rate has a significant effect on the profitability of Nigerian deposit money banks.

5.2 Conclusion

The peculiar nature of operation of deposit money banks differentiate them from other business firms whereas other business firms are able to control their liabilities; deposit money banks have very liquid control over their liquidities. This is because a high proportion of these liabilities are repayable on demand and as such volatile. In order to be profitable, banks must. Invest at least some proportion of these highly volatile funds into earning assets-loans and investment while at the same time retaining a proportion of these funds in nor-earning assets reserves to provide funds to meet payment obligations loan demand withdrawals.

The need then arises for the balancing out of assets-earning and non-earnings in such a manner as to satisfy the two basic requirements of commercial banks, liquidity and profitability. Another important factor that crops up is the differential relationship between yield and riskiness of assets. Highly profitable assets are less liquid and hence more risky, while less profitable assets are highly liquid and less risky.

5.3 Recommendations

Base on the findings of this study, the following recommendations are suggested:

i. Deposit money banks should come up with innovative ways of boosting their internal financial capacity to be able to handle any possible policy movement (changes) in CRR and inflation rate.

ii. Regulatory authorities in Nigeria should (through the Asset Management Corporation of Nigeria AMCON) create and support an environment where banks in Nigeria can have a strong risk management practices, by strengthening the bank's internal risk management process of identification, measurement and monitoring of risk

iii. The CBN should lower interest rate for deposit money banks so as to boost their profitability.