

## CREDIT MANAGEMENT AND PROFITABILITY OF COMMERCIAL BANKS IN NIGERIA

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### Abstract

*The study examined the impact of credit management on the profitability of commercial banks in Nigeria. The study covered the period from 2010 to 2023. The study adopted export facto research design. The Panel data was sourced from the annual financial report of the selected banks. In analyzing the panel data collected, panel data regression analysis was employed, conducting the Hausman test to ascertain the appropriate model. Furthermore, a model with five variables was used. With emphasis on the fixed effect models finding from the study revealed that non-performing loans ratio has negative and significant effect on earnings per share commercial banks in Nigeria, loan loss provision has negative and insignificant effect on earnings per share of commercial banks in Nigeria while loans and advances, and capital adequacy ratio have positive and significant effect on earnings per share of commercial banks in Nigeria. It was recommended that Central Bank of Nigeria should monitor commercial banks closely to ensure that commercial banks comply with the corporate governance codes when it comes to issuing of loan to customers and Commercial banks should regularly review their credit policies from time to time to reduce the incidence of non-performing loans experienced in the banking sector.*

**Keywords:** Credit Management, Profitability, Commercial Banks, EPS, Nigeria

### INTRODUCTION

Credit management is one of the most challenging tasks confronting banks around the world and Nigeria in particular, where efficient credit management has been noted as one of the main sources of bank profitability throughout the country's history. As a result, credit management in our banking sector today has taken a different dimension from what it used to be (Emmanuel & Ekwere, 2022). The banking industry has adopted several strategies in checking credit management to stay in business (Adegbeie & Otolaiye, 2020). Credit management refers to a strategy used by bank executives to plan, control, and monitor loans and advances made to their customers to keep them from becoming non-performing loans or bad debts (Akinselure & Akinola, 2019).

The goal of credit management by banks in the country is to ensure that banks recover their investment in loans issuing while also stimulating a steady flow of income from advances. Serwadda (2018) opined that credit management influences the success or failure of commercial banks and other financial institutions. This is because the failure of commercial banks is influenced primarily by the quality of credit decisions and thus the quality of the risky assets. He further notes that credit management provides a leading indicator of the quality of deposit banks' credit portfolios. A key requirement for effective credit management is the ability to manage customer credit lines intelligently and efficiently. Also, credit management indicators include but are not limited, to loan and

advance, non-performing loan, loan loss provision and capital adequacy ratio. Loans and advances represent the heart of the banking industry operation (Olabamiji & Michael 2018). Loans and advances are the dominant assets as they generate the largest share of operating income. Loans and advances, however, expose the banks to the greatest level of risk. Many banks that collapsed in the late 1990s and up to the recent restructuring of the commercial banks in Nigeria were because of the poor management of Loans and advances which later resulted in high levels of non-performing loans (Philip & Abisola 2019).

This excessively high level of non-performing loans in the banks was caused by poor corporate governance practices, lax credit administration processes and the absence or non-adherence to credit risk management practices. A high level of non-performing loans tends to reduce the lending ability of commercial banks and put them out of business (Oke & Wale-Awe, 2018).

To tackle the issues of poor credit management in the country, the Central Bank of Nigeria (CBN) entered into an agreement in 1987 known as Basel I and Basel II accords. Both accords emphasized the importance of capital adequacy for mitigating credit risks, which cushions the effects of sudden financial losses on banks (Adedeji, Taiwo, Ikumapayi & Akpevwe 2021).

Hence, it is assumed that credit management may affect the probability of commercial banks in the country. Eno, Ukpe and Essien (2018), define profitability as the process of measuring the results of a bank's operations and policies in monetary terms and the degree by which the financial objectives of a bank are achieved. Over the years, the established proxies with which the profitability of banks are Return on Assets (ROA), Return on Equity (ROE), Profit after Tax (PAT) and Earnings per Share (EPS).

The incessant crisis in the 90s and mid-2000s in the Nigerian banking sector has been attributed to poor credit management by the management of various commercial banks in the country. This emanated from the recognition given to finance as an important ingredient of business growth in an economy with the fact that every economy has both surplus and deficit sides. As a result of this, commercial banks create loans and advances from customer deposits and these loans and advances are major income-generating sources for most of the commercial banks. The intermediation function of commercial banks in the country from surplus unit to deficit unit is associated with enormous risks to the commercial banks. Commercial banks are now working so hard to attract the massive number of people who are not banking with them. This has led to an increase in banks' surplus units and deficit units as well. To increase their profitability, many banks have given out loans and advances which could not be recovered leading to a massive growth in Non-performing Loans (NPLs) in the accounts of some of these commercial banks in the country, which is assumed to hurt the profitability of the commercial banks (return on asset, return on equity, profit after tax and earning per share (Farooq, Safdar & Bilal 2019).

Also, due to emphasis laid on credit management by commercial banks in recent days, the Central Bank of Nigeria and Nigeria Deposit Insurance Company from time to time have come up with stringent regulations and reforms to reduce loan loss provision from commercial banks, the banking industry is still plagued with high loan loss provision as a result of the high level of non-performing loan accumulated by these commercial banks and it is assumed to hurt the profitability of the commercial banks (return on asset, return on equity, profit after tax and earning per share (Festus, & Olaniyan 2022) However, the wrong

application of the capital adequacy ratio by the Central Bank of Nigeria may affect the profitability of the commercial (Gadzo, Oduro & Asiedu, 2022).

Furthermore, there seems to be a lack of consensus among researchers on the impact of the impact of credit management on the profitability of commercial banks in Nigeria. For instance, Bose, Abdulmalik and Halima (2022), Busayo (2022), Okafor, Okafor and Isibor (2021), and Abiola, Yahaya and Olaiya (2021), maintained that credit management indicators have positive effect on profitability while Adeyinka, Abiodun and Kayode (2019), Patrick (2020) and Jackline and Patrick (2018), supported that credit management indicators have negative impact on profitability. The review of the literature shows mixed results and lack consensus on the topic. Thus necessitated the investigation into the impact of credit management on the profitability of commercial banks in Nigeria.

## **LITERATURE REVIEW**

### **Credit Management**

A lot of scholars have defined credit management. Kithinji (2019) defined credit management as a method by which a bank collects and controls the payments from customers. Hambolu, Omuemu and Abdul-Majeed, (2022), describe credit management as a strategic plan put in place by a bank to ensure that it maintains an optimal level of credit and its effective management. Kithinji (2019) sees credit management as the aspect of financial management involving credit analysis, credit rating, credit classification and credit reporting. Credit management, according to Kagoyire and Shukla (2016) is an integral part of the management of any bank involved in credit transactions because it is impossible to have null credit or default risk.

The frequently recognized measures of credit management are defined below:

### **Non-performing Loan**

The concept of non-performing loans (NPLs) has been defined by different scholars and institutions in Finance and other related courses within and outside Nigeria. These include Ogboi and Unuafe (2019), who defined non-performing loans (NPLs) as loans that do not generate income over a sustained period of at least three months. In the same vein, Alton, and Hazen (2021), stress that non-performing loans are loans that are 90 days or more, past due and are no longer accruing interest, while the European Central Bank (2020), defined non-performing loans as loans that borrowers fail to pay the agreed installments or interest after 90 days; they are also called bad debts. The International Monetary Fund's (IMF) on Financial Soundness (2020), also defined non-performing loans as loans whose payments of interest and principal are past-due by 90 days or more, or interest payments equal to 90 days or more on any payment of bank credit, have been capitalized, refinanced, or delayed Ongore and Kusa, (2018), described non-performing loans as loans that do not generate income over a sustained period of at least three months. In the same vein, Uwalomwa, Uwuigbe, and Babajide (2019), stress that non-performing loans are loans that are 90 days or more, past due and are no longer accruing interest, while the European Central Bank (2014), refers to installments as loans that borrowers fail to pay the agreed installments or interest after 90 days; they are also called bad debts. In Nigeria, banking regulation defines non-performing loans as a loan whose credit quality has deteriorated, and the full collection of principal and interest as per the contractual repayment terms of the loan and advances are in question (Adegbie, Akintoye, & Ashaolu, 2019).

Non-performing loans are loans that are outstanding both in their principal and interest payments for an extended period, disagreeing with the terms and conditions under

the loan contract. Agbogun, Ehiedu. Bayem and Onuorah, (2022) see non-performing loans are those loans that are not paid up as due. Agu and Nwankwo (2019) stated that non-performing loans are those loans that do not generate income for a relatively long period. That is, the principal and or interest on these loans have been left unpaid after the dates of repayments. Agu and AiAli (2020), defined non-performing loans as monetary assets from which banks will not collect interest, or if the payment of loans will not be paid as per the original loan schedule.

Non-performing loans are loans that are outstanding both in, principal and interest for a long period, contrary to the terms and conditions under the loan contract. Any loan facility that is not up to date in terms of payment of principal and interest contrary to the terms of the loan agreement is an NPL (Ajao & Oseyomon, 2019). Non-performing loans (NPL) are a portion of loans and advances of the bank in which clients are unable to settle their debt and such does not produce any return or income to the bank. Patwary and Tasneem (2019), state that a non-performing loan is an irregular loan from which the principal and interest amount become due for a certain period. Non-performing loans are one of the indicators of the credit risks of banks. The NPL ratio is calculated by dividing non-performing loans into total loans and advances. A higher NPL ratio means poorer credit quality and vice versa. The higher credit risks generate worse loans and charges against income (Akerlof, 2019).

### **Loan Loss Provision**

Based on this study, loan loss provision has been considered as an indicator to measure credit management. According to Beatty and Lioa (2019), loan loss provision is defined as a policy that is followed by commercial banks putting some money aside (reserves) to face any potential loan default, which in turn would help to protect banks' positions in terms of profitability and capital. Loan loss provision is defined as the amount kept as a reserve from the profit to cover the non-performing loan. Amahalu, Emmanuel, Nweze, Obi, and Okika, (2019), see loan loss provision. It is a cushion against future contingencies created by the default of borrowers. Loan Loss Provision is also defined as the figure, which is the summation of provisions made against all types of loans as per the NRB directives. This Loan Loss Provision occupies the larger share of the total provision presented in the Profit and Loss Account and decreases the profit (Aminu, 2019).

### **Loan and Advances**

Loans and Advances are also considered as an indicator to measure credit management. Loans and Advances dominate the asset side of the balance sheet of any bank and constitute the primary sources of income for the banks. Loans and advances may take different forms and are allowed against various types of securities. Loans, overdrafts, discounting of bills of exchange etc. are some of the forms of bank lending. Granting loans and advances always carries a certain degree of risk. (Atoi, 2018).

### **Capital Adequacy**

The capital adequacy ratio is defined as a metric to assess the stability of the banking system and make sure that banks can absorb it. Capital adequacy ratio is a measure of a bank's financial strength and its ability to absorb losses. It is typically assessed through capital adequacy ratios, such as the Tier 1 capital ratio and the total capital ratio, which compare a bank's core equity capital to its risk-weighted assets (Basel Committee on Banking Supervision, 2011). Adequate capitalization is crucial for banks, as it provides a

buffer against losses and ensures their solvency in times of financial stress (Basel Committee on Banking Supervision 2018).

### **Profitability**

According to Salma and Cesario (2023), profitability measures show how the company is performing in the market compared to other companies and it also measures how the management is performing in terms of adding value to capital invested many studies were been carried out by many researchers such as Uchendu, (2021), found out that profitability measure company performance in the market further research was also carried Simon (2008) he found out that profitability enable the company to increase its market shares and measure how the company is performing in the market (Umar, Abdullahi, & Haruna 2020)., According to IASB (2006, 2008), profitability is the degree of costs, an increase in costs will decrease profits, this could include labour costs, raw material costs and cost of rent Wahlen, Baginski, and Bradshaw (2020), further, they contended that if a firm increases its productivity by improving technology then profits also increase. Various profitability measures are used to measure the performance of commercial banks, such as the profit after tax (PAT), Return on Assets (ROA) and Return on Equity (ROE) (Sreeti, 2017).

### **Earnings per Share (EPS)**

Earnings per share (EPS) is the portion of a company's profit that is allocated to every individual shareholder of the bank. Earnings per share (EPS) is also defined as the amount of income earned by each ordinary share in a period. It is the most frequently quoted measure of financial performance to which investors attach a great deal of importance (Adebanjo, 2015). It is a term that is of a lot of importance to investors and people who trade in the stock market. The higher the earnings per share of a bank, the better its profitability is. This means that a high earning per share can generate a significant dividend for investors or may plough the funds back into its business for more growth. The resulting number serves as an indicator of a company's profitability. While calculating the Earnings per share (EPS), it is advisable to use the weighted ratio, as the number of shares outstanding can change over time (Ogbulu & Eze, 2016).

$$\text{Earnings per share} = \frac{\text{Net income - preferred dividend}}{\text{The weighted average shares outstanding}}$$

Earnings per share is a tool that market participants use frequently to gauge the profitability of a company before buying its shares.

In a study conducted by Jackson (2011), contended that earning per share is used as a considerable tool indicator of a firm's performance. It measures performance from the perspective of investors and potential investors. Additionally, it shows the amount of earnings available to each ordinary shareholder, so that it indicates the potential return on individual investments. These results can be achieved by comparing the EPS of either different entities or the same entities in different accounting periods or even better, using both. Sometimes, the trend in EPS may be a more accurate performance indicator than the trend in profit, though it is based on profit from ordinary activities after taxation (Olabamiji, & Michael, 2018).

## **Theoretical review**

### **Information Asymmetry Theory**

Information asymmetry theory was propounded by Akerlof, in 1970. Information asymmetry theory states that in accessing lending applications, there is the existence of information asymmetry (Nwana & Oguezie, 2017). The theory describes conditions in which all the necessary information may not be availed to all the parties undertaking a particular transaction. The information asymmetry is perceived to pose problems and difficulties for the financial institution in terms of monitoring borrower behaviour and this may lead to moral hazard and errors because of poor lending decisions (Hamza, 2017).

Asymmetric information theory relates to this study on the ground that there exists an information gap between commercial banks and loan borrowers. There is information that the loan borrowers may have that commercial banks do not have. This calls for credit management practices in the administration of loans to reduce credit risk effects. With credit information sharing among commercial banks, banks may determine the creditworthiness of the applicants for careful lending to customers (Alphonsus, 2019). By reducing information asymmetry between the borrowers and lenders, good lending practices will be enhanced translating to minimized default rates (Alhassan & Isman, 2021).

Asymmetric information theory proposes that through information symmetry in credit transactions, the profitability of the banks will be significantly improved due to the ability of commercial banks to accurately make informed credit decisions. The credit managers will have better determination of the borrower's creditworthiness and either charge higher interest that corresponds to the risk or decline the credit request. In this regard, credit management practices are expected to reduce the number of non-performing loans through enhanced credit quality of the customers thus minimizing credit risk exposure translating into improved loan performance in the banks (Alphonsus, 2019).

### **Credit Risk Theory**

Credit Risk Theory was proposed by Melton, in 1974. Credit Risk Theory provides a foundation through which financial institutions can not only measure but also manage credit risk exposure. Credit Risk Theory states that default of loans to an embedded put option which is available to the borrower when the circumstances are economically favorable for the borrower to exercise their option to default. Crosby *et al*, (2003), further add that currently, the main credit risk analysis methods include a structural approach, appraisal form and information completeness approach as per Credit Risk Theory. The theory is important because listed procedures in credit risk management by providing an option-theoretic framework which may be individualized for specific borrowers and used as a basis for modelling the default occurrence.

The study was anchored on credit risk theory. Theory is relevant to the study on the ground that the theory affirms that credit management practices such as looking at the percentage of non-performing Loan, loan loss provision, loan and advance and capital adequacy ratio are dynamic and have a standard approach to managing and mitigating risk. It provides a framework which may be utilized in assessing any credit risk being faced by the bank hence resulting in improved performance of the loans in commercial banks (Betubiza, *et al*; 2021).

### Empirical Review

Manuel (2023), investigated the impact of non-performing loans (NPLs) on deposit money banks' (DMBs) performance in Nigeria, focusing on the role of capital adequacy, net interest income, and loan-to-deposit ratio in determining return on equity (ROE). The research utilizes panel data analysis, encompassing a sample of 5 Nigerian DMBs between 2018 and 2022, to explore the relationships between these variables. The findings revealed that capital adequacy has a significant positive effect on ROE, suggesting that well-capitalized banks are more efficient in generating income, leading to higher profitability. Net interest income also exhibits a significant positive relationship with ROE, indicating that banks with higher net interest income are better positioned to manage risks and maintain profitability. Conversely, the loan-to-deposit ratio does not show a significant impact on ROE in the Nigerian context. This outcome could be attributed to several factors, such as the high level of non-performing loans in the Nigerian banking sector, which may dilute the positive impact of lending activities on profitability.

Bose *et al.* (2022) examined the effect of credit management on the profitability of deposit money banks in Nigeria using non-performing loans, loan loss provision and growth in interest earnings on loans and advances as proxies for credit risk management. Therefore, for a period of 5 years, between 2015 and 2021, the impact of these proxies on the profitability of deposit money banks was analyzed in this study using correlation and regression analysis processed on STATA 13 statistical software. Based on the empirical analysis, the study found a positive non-significant relationship between non-performing loans and profitability. The study also found a positive insignificant relationship between loan loss provision and bank profitability. On the contrary, the study found a negative but significant relationship between growth in interest earnings on loans and advances and the profitability of deposit money banks.

Busayo (2022), investigated credit management effects and the performance of the Deposit Money Banks in Nigeria. The study used secondary data which was sourced from the Zenith Bank from 2009 to 2020. The chosen data was subjected to descriptive analysis, regression analysis, and Granger causality. The findings reported that non-performing loans were insignificantly positive to influence profit after tax, loan loss provision was significantly negative to influence PAT, loan to deposit ratio revealed a positive significant impact on PAT, and capital adequacy ratio exhibited a positive insignificant impact on PAT. The study concluded that no causal relationship between non-performing loan (NPL) and profit after tax (PAT), loan loss provision and profit after tax have no causal relationship, loan to deposit ratio (LDR) and profit after tax (PAT) revealed no uni or bi-directional relationship, and capital adequacy ratio (CAR) move free without any direction.

Okafor and Isibor (2021) investigated how credit management impacts on performance of Deposit Money Banks in Nigeria covering the period 2000 - 2019 with special emphasis on First Bank, Access Bank, and United Bank for Africa. The model in the study used secondary data obtained from annual reports and accounts of the selected banks for the period under study to determine the effect of loan management (through Loans and Advances and Non-performing loans of banks) on the performance of the selected banks (through Return on Asset). The Data were analyzed using ratio analysis and the Ordinary least square method. The specific finding of the work is that return on asset has an inverse relationship with non-performing loans while they are positively related to loans and advances. The conclusion is that there is a significant relationship between bank performance and loan management.

Dramani (2021), examined the influence of non-performing loans on Ghana commercial banks' profitability in the 2009–2018 period. The factors that explain the NPL contain very essential information for banks. The results indicate that the effect of non-performing loans on profitability is not statistically significant: operating expense efficiency and return on equity, have a positive and statistically significant relationship with profitability. The sample consisted of the banking sector (commercial banks) in the 2009–2018 period. The factors include return on assets as a function of the ratio of non-performing loans, credit risk, exchange rate, inflation, unemployment, and bank size as a control variable. The estimation was done by regression using multivariate linear regression through SPSS software. The study considered limited banking indicators as determinants of non-performing loans and was limited to the specific 2009 – 2018 period. The regression results indicate that bank profitability is strongly impacted by the increase in non-performing loans. The multivariate linear regression shows that profitability has a positive insignificant influence on non-performing loans. On the other hand, operating expense efficiency and return on equity have a positive and statistically significant relationship with profitability.

Nwosu, Okedigba, and Anih, (2020), examined the extent to which non-performing loans affect commercial bank profitability and suggested measures for mitigating their impact on the banking sector in Nigeria. Data on a sample of 18 commercial banks, covering the first quarter of 2014 to the fourth quarter of 2018 were analyzed using the panel fixed effect and auto-regressive distributed lag models. Empirical results showed a negative and statistically significant impact of non-performing loans on banks' profitability. Most of the coefficients of other determinants of bank profitability were in line with *a priori* expectations. The study showed that lower bank profitability can be explained by a higher volume of non-performing loans, increased liquidity ratio and inflation, while higher profitability could be because of an increase in bank size and capital adequacy ratio.

Magomere, and Otinga (2020), investigated determinants of Micro Financial Institutions' financial performance in Kaka mega County, Kenya. The study adopted a descriptive survey and targeted 122 senior management staff from 17 MFIs located in Kaka Mega County. The study used a structured questionnaire as its research tool. The data collected was coded for the accuracy of the information at the end of every field data collection day and stored both manually and electronically. Computer software, Statistical Package for Social Sciences (SPSS) version 23 was used in data analysis. A total of 85 respondents out of the sampled 94 respondents returned filled questionnaires representing a response rate of 90.4%, thus good for the generalizability of research findings to a wider population. The study concluded that capital adequacy significantly influences Micro Financial Institutions' return on investment in Kaka mega County, Kenya; indicating that capital adequacy issues such as adequate capital base, relative capital and minimum capital requirements have a significant bearing on Micro Financial Institutions' return on investment;

Patrick (2020) analyzed the effects of credit management on the financial performance of commercial banks in Uganda. Specifically, the study sought to establish whether there is a relationship between credit policy and performance, Capital Adequacy and performance and credit risk control and performance. In achieving the objectives assigned by the study, a causal research design was undertaken and that was facilitated using secondary data which was obtained from published audited financial statements of commercial banks and the BOU annual supervision reports. The study used universal



sampling techniques, where all banks licensed and operational in Uganda were selected, and multiple regression was used. The findings indicated a significant relationship ( $r = 0.639$ ) between credit management and the financial performance of commercial banks in Uganda. The coefficient of determination  $R^2$  was 0.408 meaning that credit management indicators explain up to 40.8% of variations in the financial performance of commercial banks in Uganda. The results from the coefficients summary in the regression model indicate that the significance of coefficients of credit policy (LR), capital adequacy (CAR) and Credit Risk Control (NPL/TL) are - 0.031, -0.555 and -1.005, respectively. It was therefore found that both the CAR and the NPL/TL are negatively significant though have an impact at different significance i.e., capital adequacy and Credit Risk control have a greater impact compared to Credit policy (LR) on the financial performance of commercial banks in Uganda. It was established that there is no significant relationship between credit policy and the performance of banks in Uganda, however, a significant relationship between credit risk control, capital adequacy and the performance of commercial banks was established.

Adeyinka, Abiodun and Kayode (2019), investigated the effect of credit management on the performance of deposit money banks in Nigeria. The study employed secondary data sourced from the Central Bank of Nigeria (CBN) statistical bulletin and annual reports of Nigeria Deposit Insurance Corporation (NDIC) from 1986 to 2016. From the data, bank performance (dependent variable) was measured by return on assets (ROA) while credit management (independent variable) was proxied by the ratio of non-performing loans to total loans (NPFL), bank deposit (BDEP) and lending rate (LENDR). The study employed the autoregressive distributed lag (ARDL) technique to examine the effect of the independent variables on the dependent variable. The findings revealed that the ratio of non-performing loans to total loans with a coefficient of -0.362733 had a negative effect in the short run but produced a positive effect on the performance of deposit money banks in the long run as indicated by the coefficient of 1.583503. On the other hand, bank deposits exhibited a positive influence while lending rates hurt the dependent variable both in the short run and long run. Given the overall significance of the model, it was concluded that credit management had a significant effect on the performance of deposit money banks in Nigeria.

Jackline and Patrick (2018), determined the effect of credit management on the financial performance of commercial banks in Rwanda. The study adopted a descriptive survey design. The target population of the study was 57 employees of the Bank of Kigali in the credit department. The entire population was used as the sample giving a sample size of 57 employees. A purposive sampling technique was used in sampling where the entire population was included in the study. Primary data were collected using questionnaires which were administered to the respondents by the researcher. Descriptive statistics and ANOVA were used to analyze data. The findings of the study revealed that client appraisal; credit risk control and collection policy affected the financial performance of the Bank of Kigali. Findings also showed that there is a positive relationship between credit management and the financial performance of the bank, where a unit increase in client appraisal would lead to increase in performance of bank by a factor of 0.335, a unit increase in credit risk control would lead to increase in performance of bank by a factor of 0.234 and also unit increase in collection policy would lead to increase in performance of bank by a factor of 0.243.

Olabamiji and Oseni (2018), examined the influence of credit management practices on the financial performance of Nigerian banks with specific reference to First Bank Plc.

Data was collected using the Purposive sampling technique from thirty (30) respondents as a sample size used to collect data from the respondents. Both descriptive and inferential statistics were used to analyze data, such as frequency, percentage, weighted mean score, and multiple regression. The result revealed that credit management practices have a significant positive influence on the financial performance of First Bank. The result concluded that client appraisal, credit risk control, and collection policy are major predictors of the financial performance of First Bank. Subsequently, the study recommended that the management of other banks should learn from First Bank by enhancing their client appraisal techniques, credit risk control and adopting a more stringent policy to improve their financial performance.

Alobari Naenwi, Zukbee and Grend (2018), examined the impact of credit management and bank performance in Nigeria. The study adopted a cross-sectional survey design. The population of the study consisted of all management staff of commercial banks operating in Nigeria. The sample sizes of eleven (11) select commercial banks were considered by systematic technique. The Purposive sampling technique was adopted; hence six respondents were administered a questionnaire (Bank Manager and five senior staff) from each bank to make up 66 respondents for the study. Multiple regression analysis was adopted for the study to determine the influence/impacts of credit management variables (Credit Appraisal, Credit Risk Control, and Collection policy) on bank performance. The study revealed that credit management has a significant impact on bank performance in Nigeria. The study also revealed that among the credit management variables considered, credit risk control has the highest driving force for bringing about an effect financial performance of banks in Nigeria.

Fan (2014) investigated if there is a relationship between credit risk management and the profitability of commercial banks in Europe. We also aim to investigate if the relationship is stable or fluctuating. In the research model, ROE and ROA are defined as proxies of profitability while NPLR and CAR are defined as proxies of credit risk management. The research collects data from the largest 47 commercial banks in Europe from 2007 to 2012 and formulates four hypotheses which are related to the research question. A series of statistical tests are performed to test if the relationship exists. Other statistical tests are performed to investigate if the relationship is stable or not. The findings revealed that credit risk management does have positive effects on the profitability of commercial banks. Between the two proxies of credit risk management, NPLR has a significant effect on both ROE and ROA while CAR has an insignificant effect on both ROE and ROA. However, from 2007 to 2012, the relationships between all the proxies are not stable but fluctuating

Based on the literature reviewed, previous studies employed various proxies to measure profitability but none to the best researcher's knowledge, utilized earning per shares as a proxy to measure profitability. This study intends to fill this gap.

## **METHODOLOGY**

The study adopted *ex post facto* research design. From the population of twenty-four (24) commercial banks in Nigeria, from which five commercial banks were selected using purposive sampling technique based on capital base, a volume of deposit and accessibility of financial statement. The commercial banks selected were Access Bank Plc., First Bank Plc., Eco Bank Plc., Union Bank Plc. and Zenith Bank Plc. The panel data was sourced from the financial statements of the selected commercial banks in Nigeria for the

study period from 2010 to 2023. The data collected was analyzed using panel regression. Hausman test was conducted to ascertain the appropriate model between the random effect model and fixed effect model in the study.

Furthermore, the study adopted the model of Bose, Abdulmalik and Halima (2022) which was modified to reflect the desire of the study and expressed thus:

$$\text{EPS} = f(\text{NPL}, \text{LLP}, \text{LA}, \text{CAR}) \quad \text{eqn 1.}$$

$$\text{EPS} = \beta_0 + \beta_1 \text{NPL}_{it} + \beta_2 \text{LLP}_{it} + \beta_3 \text{LA}_{it} + \beta_4 \text{CAR}_{it} + \text{et} \quad \text{eqn 2.}$$

Where:

EPS = Earnings per share

NPL = Non-performing loan ratio

LLP = Loan loss provision

LA = Loan and advance

CAR = Capital adequacy ratio

$\beta_0$  = constant slope to be estimated

$\beta_1 - \beta_4$  = intercept to be estimated

Ut = error terms

## RESULTS AND DISCUSSIONS

The descriptive analysis displayed the basic features of the panel data was presented in Table 1.

**Table 1: Summary of the descriptive statistics**

	LOG(NPL)	LOG(LLP)	LOG(LA)	LOG(CAR)	LOGEPS
Mean	0.394912	5.955601	6.074802	1.265171	0.235916
Median	0.431364	-6.065648	6.04206	1.309609	0.242861
Maximum	0.672098	5.950789	6.95028	1.437751	0.414973
Minimum	0.041393	-6.692238	5.4954	0.66756	0.041393
Std. Dev.	0.150959	1.53066	0.312472	0.249674	0.103958
Skewness	0.609649	7.131491	0.304777	6.956693	0.003262
Kurtosis	2.766208	55.59588	2.61228	54.41965	1.939024
Jarque-Bera	4.367143	8414.318	1.478669	8039.761	3.189518
Probability	0.112639	0.190651	0.477432	0.10922	0.202957
Sum	26.85399	-404.9809	413.0865	86.03166	16.04228
Sum Sq. Dev.	1.526838	156.9756	6.541784	4.176578	0.724088
Observations	68.0000	68.0000	68.0000	68.0000	68.0000

*Source: Researcher computation from E-View 12*

In Table 1 shows descriptive statistics of the overall sample of the study. Descriptive statistic is mostly used as a preliminary analysis technique to gain a better understanding of the dataset before applying more complex statistical methods in a particular study. Descriptive statistics also lay the groundwork for inferential statistics by assisting researcher in drawing inferences about a population based on observed data set

From the descriptive analysis in Table 1 above the mean value of LOG (NPL) for the period was 0.394912%. The maximum value of LOG (NPL) was 0.672098% while the minimum value of LOG (NPL) was 0.041393. Standard deviation of LOG (NPL) for the period of this study was 0.150959 which shows that the standard deviation was high and that the data are a cluster around the mean over the period. The skewness of the study shows a

positive value of 0.609649 meaning the data is skewed to the right and Kurtosis, which was 3.766208 >3, which is the normal value, this indicates which indicates the dataset has heavier tails than a normal distribution

The mean value of LOG (LLP) for the period was 5.955601. The maximum value of LOG (LLP) was 5.950789 while the minimum value of LOG (LLP) was 0.66756 Standard deviation of LOG (LLP) for the period of this study was 452674.7 which shows that the standard deviation was high and that the data are a far from the mean over the period. The skewness of the study shows a positive value of 7.131491 meaning the data is skewed to the right and Kurtosis, was 55.59588 >3, which is the normal value, this indicates which indicates the dataset has heavier tails than a normal distributed

The mean value of LOG(LA) for the period was 6.074802. The maximum value of LOG (LA) was 5.950789 while the minimum value of LOG(LA) was 5.49540, Standard deviation of LOG(LA) for the period of this study was 0.312472 which shows that the standard deviation was low and that the data are cluster around the mean over the period. The skewness of the study shows a positive value of 0.304777 meaning the data is skewed to the right and Kurtosis, was 2.61228 < 3, which is the normal value, this indicates which indicates the dataset has lighter tails than a normal distributed

The mean value of LOG(CAR) for the period was 1.265171. The maximum value of LOG(CAR) was 1.437751 while the minimum value of LOG(CAR) was 0.667560, Standard deviation of LOG(CAR) for the period of this study was 0.249674 which shows that the standard deviation was low and that the data are cluster around the mean over the period. The skewness of the study shows a positive value of 6.956693 meaning the data is skewed to the right and Kurtosis, was 54.41965 >3, which is the normal value, this indicates which indicates the dataset has heavier tails than a normal distributed

Finally, the mean value of LOG (EPS) for the period was 0.235916. The maximum value of LOG (EPS) was 0.414973 while the minimum value of LOG (EPS) was 0.041393, Standard deviation of LOG (EPS) for the period of this study was 0.103958 which shows that the standard deviation was low and that the data are cluster around the mean over the period. The skewness of the study shows a positive value of 0.003262 meaning the data is skewed to the right and Kurtosis, was 1.939024 < 3, which is the normal value, this indicates which indicates the dataset has lighter tails than a normal distributed.

**Table 2: Result of the Hausman Test**

Test Summary		Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random		27.905420	4	0.0000
<b>Cross-section random effects test comparisons:</b>				
Variable	Fixed	Random	Var(Diff.)	Prob.
LOGNPL	0.387177	0.145168	0.002868	0.0000
LOGLLP	0.010961	0.011865	0.000004	0.6515
LOGLA	0.012744	0.001285	0.001319	0.7524
LOGCAR	-0.010077	-0.027172	0.000100	0.0874

*Source: Researcher computation from E-View 12*

For the Hausman test, the null hypothesis is that the preferred model is random effects, while the alternative hypothesis is that the fixed effects model is preferred (Green, 2008). Based on this premise, the fixed effect model was selected since the p-value of the Hausman’s test is less than 0.05. This implies that the study accept the alternative hypothesis of the Hausman test in and reject the null hypothesis that the fixed effect model

is preferred. Hence, the fixed effect model was used as the best estimator of the effect of credit management on the profitability of commercial banks in Nigeria.

**Table 3: Summary of Panel Regression (dependent variable, EPS)**

Variables	Fixed Effect Model ++	Random Effect Model
LOGNPL	-0.387177 (-3.733514)***	-0.145168 (-0.634651)
LOGLLP	-0.010961 (-1.454327)	0.011865 (0.633169)
LOGLA	1.112744 (7.114049) ***	0.01285 (0.9763)
LOGCAR	1.110077 (7.553034) ***	0.027172 (0.592075)
C	0.083625 (0.258502)	0.275825 (1.158325)
R-Squared	0.615854	0.465920
Adjusted R-Squared	0.601868	0.406614
F-Statistics	4.254818	1.111515
Prob (F-Statistic)	0.000443	0.359046

*Source: Author's computations 2024 using Eviews 12.0 (Panel regression table)*

\*\*\* and \*\* denotes significance @ 5% level, respectively. Values in parenthesis () are t- values of variables, ++ show the accepted Model

Kurt (2015) asserted that emphasis on panel regression is based on the fixed effect model or the random effect model depending on the outcome of the Hausman test. According to Kurt, pooled OLS estimator ignores the pane; structure of the data and simply estimates the parameters and its usual standard errors are incorrect. Based on Hausman test presented above, the chosen model was fixed effect model because the fixed effect model has the highest variables that are significant in the model and also the chosen model based on Hausman test. Based on the fixed effect model, the adjusted R-squared (0.601868) indicates that (LOGNPL, LOGLLP, LOGLA and LOGCAR) accounted for 60% of the earning per share (EPS) as the dependent variable while remaining 40% was due to the error term. The significance of the F-statistic prob. of 0.000443 implies that the entire result was statistical significance. T-statistic of LOGNPL was -3.733514 with prob. value of 0.0004, which revealed that LOGNPL has negative and significant impact on the earning per share (EPS) on the selected commercial banks in Nigeria.

T-statistic of LOGLA was 7.114049 with prob. value of 0.0004, which revealed that LOGLA has positive and significant effect on the earning per share (EPS) on the selected commercial banks in Nigeria. Also, t-statistic of CAR was 7.553034 with prob. value of 0.0000, which revealed that CAR has positive and significant impact on the earning per share on the selected commercial banks in Nigeria.

The table above indicates that the coefficient value of LOGNPL, LOGLA and LOGCAR are 0.387177, 1.207586 and 1.127274 while the probability value (p-value) is 0.0004, 0.0000 and 0.000 the t-statistic value are -3.871777, 7.114049 and 7.553034 all at 5% level of significance. Since their prob, value are less than 0.05 at 5% level of significance, the alternative hypothesis three is therefore accepted. This implies non-performing loans ratio has negative and significant effect on earnings per share commercial banks in Nigeria, loan loss provision has negative and insignificant effect on earnings per share of commercial

banks in Nigeria while loans and advances, and capital adequacy ratio have positive and significant impact on earnings per share

The result revealed that non-performing loans ratio has negative and significant effect on earnings per share commercial banks in Nigeria, loan loss provision had negative and insignificant effect on earnings per share of commercial banks in Nigeria while loans and advances, and capital adequacy ratio have positive and significant effect on earnings per share of commercial banks in Nigeria. The result of the hypothesis three holds on the ground that with non-performing loans are those selected assets from which the bank cannot generate any incoming cash flow as loan repayment instalments. In many cases, borrowers' default and the full amount of the loan and advance cannot be recovered. For instance, non-performing loans were critically high and in 2009 peaked at 35% in commercial banks in Nigeria. This excessively high level of non-performing loans in the banks was caused by poor corporate governance practices, lax credit administration processes and the absence or non-adherence to credit risk management practices. A high level of non-performing loans tends to reduce the lending ability of commercial banks and put them out of business. The result of the study is in line with the finding of Okpala, Osanebi, and Irinyemi, (2019).

### CONCLUSION AND RECOMMENDATION

The study examined the impact of credit management on the profitability of commercial banks in Nigeria. The study covered the period from 2010 to 2023. The study adopted *export facto* research design. From the population of twenty-four (24) commercial banks in Nigeria, Five commercial banks were selected using purposive sampling technique. The Panel data was sourced from the annual financial report of the selected banks. In analyzing the panel data collected, panel data regression analysis was employed, conducting the Hausman test to ascertain the between the fixed and Random effect model which appropriate model. With emphasis on the fixed effect models finding from the study revealed that non-performing loans ratio has negative and significant effect on earnings per share commercial banks in Nigeria, loan loss provision has negative and insignificant effect on earnings per share of commercial banks in Nigeria while loans and advances, and capital adequacy ratio have positive and significant effect on earnings per share of commercial banks in Nigeria. Based on the findings of the study, it amongst other things recommended that Central Bank of Nigeria should monitor commercial banks closely to ensure that commercial banks comply with the corporate governance codes when it comes to issuing of loan to customers and Commercial banks should regularly review their credit policies from time to time to reduce the incidence of non-performing loans experienced in the banking sector.

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