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ASSESSING THE IMPACT OF CREDIT RISK MANAGEMENT ON PERFORMANCE OF DEPOSIT MONEY BANKS IN NIGERIA

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Abstract

The banking sector is a major driver of economic prosperity, and this has stimulated the implementation of many reforms over time, aimed at enhancing the system's efficiency and bolstering its capacity for expansion. Although these steps have been implemented, the Nigerian banking system still faces challenges in terms of poor credit management and an increase in non-performing loans. This study, therefore, investigated the effect of reforms and credit management on the performance of deposit money banks in Nigeria. The study's population comprised all deposit money banks that were listed on the Nigeria Exchange Limited as of December 31st, 2023. The study utilised secondary data obtained from the audited reports of the selected banks and the Nigeria Exchange Limited factbook, spanning a duration of 14 years (2010-2023). The estimation approach used was the fixed and random effect regression. The findings indicated all variables employed for measuring credit risk management have a significant effect on financial performance deposit money banks in Nigeria. For the operational performance, all the variables except LATD have a significant effect on operational performance of banks in Nigeria. Also, the findings indicated that reform(s) is a significant driver of bank performance in Nigeria. Therefore, the study concluded that credit risk management plays a crucial role in influencing the performance of banks in Nigeria. Consequently, the study, therefore, recommended that Nigerian banks credit risk management should be well entrenched in banks risk management and assessment because of its ability to influence bank performance. Furthermore, it is imperative for regulatory authorities such as the CBN to regularly undertake reforms aimed at enhancing the resilience of the banking industry and enhancing its overall performance.

Keywords: *ROA, Credit Risk Management, Reform, Fixed/Random Effect*

INTRODUCTION

Banking institutions have consistently played a crucial role in promoting the economic growth and development of nations. The efficacy of the banking industry contributes to the affluence and economic advancement of a nation, whilst the poor performance not only impedes the economic prosperity and framework of a specific area but also impacts the global economy (Khan & Senhadji, 2001). The banking sector facilitates the movement of funds for productive purposes and enables the transfer of funds from sectors with a surplus to sectors with a deficit. The role of intermediation is crucial for economic growth as the stability of a country's financial system relies on the efficiency of its banking sector (Oladele, 2021).

Deposit Money Banks (DMBs) play a crucial role in efficiently utilising the country's resources. In the absence of banks, a significant amount of a country's capital would remain idle. The level

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of credit provided by banks to the public has a significant impact on the speed of the country's economic growth and its ability to be sustained over the long run. Banks' credit role facilitates investors in capitalising on lucrative opportunities (Kargi, 2011). The primary revenue-generating activity of banks is the generation of credit, but this also exposes them to the danger of credit default. Regrettably, the execution of these intermediation activities occasionally exposes banks to the risk of credit. Credit risk refers to the likelihood that a borrower will not fulfil their commitments as agreed with the bank, or the potential for the bank to lose some or all of the outstanding loan owing to credit events (Iwedi, & Onuegbu, 2014).

As a result, various changes were implemented in Nigeria, including Bank Credit changes and Interest Rate Reforms. These reforms aimed to decrease credit risk and improve the system's ability to address non-performing loans. Nevertheless, despite the implementation of these procedures and other strategies like loan loss provision, certain banks continue to face financial difficulties because of inadequate credit management (Godwin, 2017). Nevertheless, despite the concerning credit risk exposures, Nigerian banks have reported profitability that does not appear to be negatively impacted. Several banks with a significant number of non-performing loans (NPLs), caused by inadequate credit risk policies, reported favourable financial results, as evidenced by a strong profit margin on both the profit and loss account and balance sheet. To ensure effective and responsible credit management, lending practices have been marked by exorbitant interest rates (Godwin, 2017). One of aims of banking reform in Nigeria was to improve the sustainability, stability, and strength of the system, enabling it to successfully contribute to the economic prosperity. The reform agenda aimed to prepare the Nigerian banking industry to be globally competitive and equipped to successfully address the repercussions of globalisation. The primary objective is to guarantee that the economy and Nigerian citizens do not lag behind in an increasingly globalised world. The objective of banking reform is to address the problem of a vulnerable capital foundation, as emphasised by Kanu & Hamilton (2014).

The elevated interest rate in the market, combined with the recession, had an impact on the performance of the banking sector in Nigeria (Taiwo *et al*., 2017). Likewise, the imposition of excessive interest by bank authorities has deterred potential investors from borrowing. There has been a violation of lending limits to meet the expected target set by the bank. Insufficient documentation prior to loan disbursement has been a significant factor contributing to the occurrence of non-performing loans, which goes against the principles of responsible lending. These circumstances arise because of the irresponsible and unlawful conduct of bank officials (Kolapo *et al*., 2012).

In addition, prior studies (Alshatti, 2015; Kolapo *et al*., 2012) have investigated the impact of credit management on performance by analysing variables such as provision for loan loss among others. Nevertheless, it is necessary to enhance prior research by investigating the impact of reforms, specifically in credit management, on the performance of DMBs in Nigeria. Prior evidence on credit management and bank performance in Nigeria focused on the financial performance of DMBs but failed to examine the influence of credit management on the operational performance of these banks. Therefore, this work enhances the current understanding by addressing the observed deficiency.

This study is structure into five main parts. The first part which is the introduction gives an overview of what credit risk management, reforms efforts from prior studies to address credit risk management among others. The second part discusses the concept of credit risk management, theoretical review, and review of relevant literature. The third part discusses the

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methodology, model specification, nature, and sources of data as well as the method of data analyses. The fourth part focuses on the interpretation and discussion of findings while the final part focuses on the conclusion and policy recommendations.

LITERATURE REVIEW

This study is grounded in the principle of adverse selection. In 1970, Akerlof introduced the notion of adverse selection with two fundamental postulations: firstly, that lenders lack the ability to discern between borrowers with different levels of risk, and secondly, that loan agreements possess specific limitations (Wangai *et al.*, 2012). In a market, the party possessing greater knowledge about a particular object being exchanged (borrower) might get more favourable terms for the transaction compared to the other party (lender) (Richard, 2011). Individuals with a lesser understanding of the terms of trade is thus, likely to make an inaccurate conclusion regarding the transaction.

Mwengei (2013) posited that information exchange reduces adverse selection, hence augmenting banks' understanding of lending applicants. Nevertheless, this approach solely considers situations in which borrowers are incapable of repaying their loans owing to factors outside of their influence, presuming that they would indeed repay if they possessed the financial means to do so. In a situation where borrowers and lenders who are not concerned about risk participate in simple loan agreements, the fact that borrowers have very little legal responsibility encourages them to prefer taking risks, while lenders are hesitant to take risks in response. The rationale for this is that borrowers have a restricted level of liability, whereas lenders bear full responsibility for any potential losses. Nevertheless, any surplus revenues beyond the amount needed to repay the loan are allocated to the borrowers (Wangai *et al.*, 2012).

Banks are essential in enabling the transfer of monies from individuals with excess money to others who require it. When individuals are in this capacity, they constantly encounter the obstacle of risk, which has attracted a lot of attention from experts and practitioners in the finance area. Effective credit management is a vital determinant of a banking institution's performance. Credit risk, as defined by Mohammad and Garba (2014), is the likelihood of incurring a financial loss on a loan due to credit hazards such as the risk of default, which may result in the partial or whole non-repayment of the loan.

Credit risk typically include occurrences such as failure to fulfil financial obligations, repudiation or moratorium, changes in credit ratings, and restructuring. Lending carries multiple hazards. This is because loans constitute a significant proportion of a bank's assets, usually accounting for approximately half to nearly three-quarters of the overall value. Credit risk is the result of the uncertainty regarding whether a counterparty will be able to meet the terms specified in the credit agreement (Alalade *et al.*, 2014). The ambiguity surrounding a counterparty's capacity or willingness to meet their contractual commitments may also give rise to credit risks.

Comprehending credit risk management is essential for banks, as it plays a pivotal part in the loan process. It maximises the bank's risk-adjusted rate of return by carefully controlling credit risk exposure to safeguard against potential adverse effects. The bank is dedicating substantial resources to the development of models for managing credit risk, as emphasised in a research conducted by Poudel (2012). Effective credit risk management is of utmost importance, as banks predominantly participate in credit financing. The possible economic ramifications of

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bank collapses render this matter of considerable significance.

Effective risk control mechanism includes a range of policies and techniques that address risk identification, evaluation among others. The rules establish the boundaries and distribution of a bank's credit facilities and delineate the management of the credit portfolio. This includes the procedures for loan initiation, evaluation, monitoring, and recovery, as specified by Basel accord (Greuning & Bratanovic, 2003). The predominant emphasis of numerous studies has been on formulating an efficient approach to disposing of these detrimental loans, rather than constructing a regulatory and legal structure to prevent and manage them (Campbell, 2007).

Empirically, Poudel (2012) emphasised that parameters like default rate have the capacity to affect bank financial performance. Similarly, Haron *et al*. (2012) showed interest charged and client appraisal significantly influence loan performance. Athanasoglou *et al.* (2005) findings revealed that excessive risk exposure reduces bank profitability. Kolapo *et al.* (2012) and Kargi (2011) findings indicated that bank profitability is hinged on the bank capacity to reduce the nonperforming loans in their loan portfolios. Taiwo and Abayomi (2013) and Alalade *et al.* (2014) findings align with prior evidence that credit risk management have the capacity of influence bank financial performance. Kwashie *et al.* (2022), Felix and Claudine (2008) and Ogboi and Unuafe (2013) established that credit management is very critical in banks financial performance. However, Kargi (2011) study gave a contrary result as the study established that credit management does not in any way influence bank performance.

To the extent of literature search, emphasis has only been given to the effect of credit risk management of bank financial performance. Emphasis have not been given to how credit risk management and reforms may influence bank operational performance. This informs why this study looked at bank performance from the financial and operational dimension. In addition, this study examines the role of government reforms on bank performance as it has not been well researched.

DATA AND METHODOLOGY

The study's population comprised all the DMBs in Nigeria. Nevertheless, the sample size was limited to the DMBs that are listed on the Nigerian Exchange Limited (NGX). According to those specific criteria, the final sample consisted of fifteen (15) DMBs that are currently listed as of December 31, 2023. The study utilised an *ex post facto* research design, with secondary data obtained from the annual reports of the studied institutions and the Nigerian Exchange Limited Factbook. The study covers the performance of banks spanning from 2010 to 2023. The study both utilise inferential and descriptive statistics. For the inferential statistics, mean, minimum, maximum among others were employed. For the inferential statistics, the fixed and random effect model was employed. The dataset is an unbalanced panel dataset.

The Hausman test is employed to contrast the fixed and random effect models. If both fixed and random effects are shown to have statistical significance, the Hausman test can offer helpful guidance in choosing between them. The null hypothesis for the Hausman test posits that there is no association between the (fixed or random) effect and other regressors (independent variables). It also indicates that a random effect model is preferable to a fixed effect model, or that a random effect model is dependable. Rejecting the null hypothesis in a random effect model can lead to a violation of the Gauss-Markov theorem, causing biassed and inconsistent estimates. On the other hand, a fixed effect model will retain its unbiasedness and consistency. To summarise, if the null hypothesis is not supported, utilise the fixed effect model. Otherwise,

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opt for the random effect model.

The model of Kolapo *et al* (2012), Ogboi and Unaife (2012) was adopted for the study. Their original model is stated as follows:

ROA= *f* (CRM)……3.1

Where ROA= Return on Assets

CRM= Credit Risk Management

It follows that:

CRM= *f* (NPLLA, LLPCL, LATD) ……3.2

The original models were modified by including variables considered for this study. Model one is now stated as follows:

$ROA_{it} = B_0 + B_1NPLLA_{it} + B_2LLPCL_{it} + B_3LATD_{it} + B_4RFM_{it}\ \mu_{it}$……..……..…3.4

Where:

B_0 = Constant

ROA= Return on Assets

CRM= Credit Management

NPLLA= non-performing loans to loans and advances

LLPCL= loan loss provision to classified loans

LATD= loans and advances to total deposits

RFM= Reforms (proxy with dummy variable where 0 was allocated for pre-consolidation period while 1 was allocated to post-consolidation period)

μ_{it} = Error term

The subscripts *i* stands for sampled banks under investigation and *t* = time.

The second model was used to examine the impact of credit management on operational performance of deposits money banks which serve as the major gap of the study and is specified as:

OP= *f* (CRM)……3.5

Where OP= Operational Performance (Proxy with operating expenses divided by total asset)

CRM= Credit Management

It follows that:

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CRM= *f* (NPLLA, LLPCL, LATD, RFM) …….3.6

Econometrically, the Model Two can be written thus:

$OP_{it} = B_0 + B_1NPLLA_{it} + B_2LLPCL_{it} + B_3LATD_{it} + B_4RFM_{it} + \mu_{it}$……..…….3.7

Where:

B_0 = Constant

OP= Operational Performance (Proxy with operating expenses divided by total asset)

CRM= Credit Management

NPLLA= non-performing loans to loans and advances

LLPCL= loan loss provision to classified loans

LATD = loans and advances to total deposits

RFM= Reforms (proxy with dummy variable where 0 was allocated for pre-consolidation period while 1 was allocated to post-consolidation period)

μ_{it} = Error term

DATA PRESENTATION AND ANALYSES

Table 1: Descriptive Statistics

Statistics / Variables	ROA	OP	NPLLA	RFM	LLPCL	LATD
Mean	7.66	5.04	4.57	4.65	8.32	0.59
Median	0.41	0.23	370	2.60	9.61	0.96
Maximum	172.53	19.60	2.40	1.90	8.60	1.09
Minimum	0.01	5.19	121	319	7.24	0.15
Standard Dev.	28.12	3.09	2.64	5.07	1.66	0.20
Skewness	4.76	0.18	8.73	1.11	3.03	0.55
Kurtosis	26.01	4.74	78.45	3.57	12.84	3.81
Jarque-Bera	214	111	2074	17.54	4.62	4.21
Probability	0.00	0.00	0.00	0.00	0.00	0.00

Source: Author's computation, (2024)

The statistical characteristics of the variables in this investigation is presented in Table 1. The data indicates that the mean values for return on asset (ROA), operational performance (OP), non-performing loans to loans and advances (NPLLA), Reform (RFM), loan loss provision to classified loans (LLPCL), and loans and advances to total deposits (LATD) across the 15 banks throughout the given period are 7.66, 5.04, 4.57, 4.65, 4.65, 8.32, and 0.59, respectively. The variables exhibited significant dispersion, with substantial gaps between their minimum and maximum values. This indicated that while some of the banks under consideration recorded a significant improvement in their performance and credit risk management within the period under consideration, others perform poorly. Additionally, most of the variables have a high standard deviation. This demonstrates substantial fluctuations in the series of all variables.

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except for LATD, during the given time and among different banks. Implicitly, there is minimal fluctuation in the LATD across the given time frame. This may be attributed to some policies by the regulatory authorities that discourage borrowing.

The skewness indicated that all the variables exhibit positive skewness. When the kurtosis of a series is more than three, the distribution is considered leptokurtic. Conversely, when the kurtosis is less than three, the distribution is considered platykurtic. The variables in this scenario exhibit leptokurtosis, indicating a heavier tail than that of a normal distribution. The Jarque-Bera statistic is statistically significant (with a probability value less than 5%) for all the series, indicating that none of the series are normally distributed. The variables in the series do not exhibit a normal distribution, as indicated by the relevant statistical analysis. Therefore, the utilisation of the Ordinary Least Square estimator is inappropriate. Thus, the pool regression for panel data was disregarded and instead, the fixed effect model and random effect model were correctly utilised in this work.

Table 2: Correlation Matrix for ROA

Correlation	ROA	LATD	LLPCL	NPLLA	RFM
ROA	1.0000				
LATD	0.0872	1.0000			
LLPCL	0.0248	0.0093	1.0000		
NPLLA	-0.0344	-0.0179	-0.0207	1.0000	
RFM	0.0183	0.0141	0.0181	-0.0423	1.0000

Source: Author's computation, (2024)

Table 3: Correlation Matrix for Operational Performance (OP)

Correlation	OP	LATD	LLPCL	NPLLA	RFM
OP	1.0000				
LATD	0.0643	1.0000			
LLPCL	0.0210	0.0004	1.0000		
NPLLA	-0.0161	-0.0301	-0.0170	1.0000	
RFM	0.0210	0.0162	0.0133	-0.0252	1.0000

Source: Author's computation, (2024)

Multicollinearity is a significant issue in multiple regression models. This problem can create biased estimates of coefficients and hence make the regression results incorrect. In this study, a pair-wise correlation test was undertaken to assess the presence of multicollinearity among the independent variables. The correlation coefficients among the independent variables presented in Table 4 and 5 are below 0.5. Thus, the level of linearity among the independent variables are within the acceptable standard. The correlation coefficients for the two dependent variables (ROA & OP) are below 0.5. The results indicated that the level of multicollinearity among the independent variables are still within the acceptable standard.

The fixed and random effect models produced similar results, a Hausman test was conducted to identify the most appropriate model. The test result, showing the F-statistics of ROA as 0.08 and the P-Value of the chi-statistics of ROA as 0.991. In addition, the analysis shows that the F statistic for OP is 15.21 and the P-value for the chi-square statistic of OP is 0.3521. Since the

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p-values are more than 5%, we accept the null hypothesis, which suggests that random effects are more appropriate. Therefore, the result of the random effect is given priority, and the study's conclusion is ascribed to the random effect model.

Table 4 Results of Fixed and Random Effect Regressions for ROA

INDEPENDENT VARIABLES	**Dependent variable: ROA**	
	(1) Fixed effect	(2) Random effect
NPLLA	-0.021 (-0.011) **	-0.023 (0.016) **
LLPCL	0.055* (0.012) **	0.052 (0.017) **
LATD	0.0052 (0.002) *	0.0054 (0.001) *
RFM	0.0037 (0.016) **	0.043 (0.020) **
Constant	-0.11 (0.26)	-0.42 (0.600)
Observation	255	255
R^2	0.73	0.76
F-statistics	2.42 (0.0004) *	10.22 (0.0021) *
Hausman Test	3.25(0.9986)	0.08 (0.991)
No. of Banks	15	15

Note: *, **, *** denote significance at level at 10%, 5% and 1% respectively. Also, p-values are reported in parentheses.
Source: Author's Computation, (2024).

The Hausman test produces a chi-square of 3.25 with a p-value of 0.9986 for the fixed effect and chi-square of 0.08 with a P-value of 0.991 for the random effect. The Hausman test results shows that the random-effects model produces better and consistent estimates than the fixed effects model. Thus, only estimates from the random-effects model are interpreted to achieve the study objectives. The results of fixed effect and random effect for model one was presented in Table 3, where the dependent variable is ROA and the independent variables are non-performing loans to loans and advances (NPLLA), loan loss provision to classified loans (LLPCL), loans and advances to total deposits (LATD), and reform (RFM). The fixed and random effect analysis of NPLLA show a negative and significant effect on ROA, while all other variables show a positive and significant effect on ROA. Consequently, an increase in NPLLA will lead to a decrease in ROA. That is, as NPLLA increases, the financial performance of banks would deteriorate. However, an increase LLPCL, LATD, and RFM shall leads to a commensurate increase in return on assets. These findings implies that a significant and positive reforms in the banking sector shall lead to a significant improvement in the financial performance of banks. Both the fixed effect and random effect models show that all variables. The findings align with previous research conducted by Kwashie *et al.* (2022), Ogboi and Unaife (2012) and Alalade *et al.* (2014). The study's findings also indicated that loan loss provision has a significant and positive effect on return on assets. The study found that loan loss provision has a significant effect on return on assets, which aligns with the findings of Kolapo *et al.* (2012), Taiwo and Abayomi (2013) and Alalade *et al.* (2014) that loan loss provision is a significant driver of bank performance.

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Table 5: Results of Fixed and Random Effect Regressions for Operational Performance

INDEPENDENT VARIABLES	**Dependent variable: Operating Performance (OP)**	
	(1) Fixed effect	(2) Random effect
NPLLA	0.046 (-0.024) **	-0.049 (-0.021) **
LLPCL	0.024 (0.069) ***	0.058 (0.023) **
LATD	1.01 (0.034) **	1.97 (0.033) **
RFM	0.34 (0.057) ***	0.10 (0.038) **
Constant	9.88 (7.37)	8.94 (6.85)
Observation	255	255
R^2	0.83	0.86
F-statistics	4.61 (0.0000) *	16.69 (0.0000) *
Hausman Test	3.64 (0.8796)	15.21 (0.352)
No. of banks	15	15

Note: *, **, *** denote significance at level at 10%, 5% and 1% respectively. Also, p-values are reported in parentheses.
Source: Author's Computation, (2024).

The Hausman test produces a chi-square of 3.64 with a p-value of 0.8796, for the fixed effect model and Chi-square of 15.21 with a P-value of 0.352 for the random effect. The implication of the test is that the random-effects model produces better and consistent estimates than the fixed effects model. Thus, the estimates from the random-effects model were relied on in interpreting the results. Table 5 presents the results of fixed and random effect regressions, where the ependent variable is Operation Performance (OP) and the independent variables are non-performing loans to loans and advances (NPLLA), loan loss provision to classified loans (LLPCL), loans and advances to total deposits (LATD), and Reform (RFM). The fixed and random effect analysis of NPLLA show a negative effect on OP, while all other variables show a positive and significant effect with OP except LATD. Consequently, an increase in NPLLA will lead to a decrease in OP. This is not surprising as increase in nonperforming loans would have a negative effect on operational performance. However, an increase LLPCL and RFM shall leads to a commensurate increase in operational performance (OP) This is expected as a significant and positive reforms in the banking sector by the regulatory authority could lead to a significant improvement in banks operational efficiency. A change in LATD (either positive or negative) would have no effect on OP. The study's findings indicated that there between loans and advances and the performance of deposit m]oney banks in Nigeria. The findings align with previous research conducted by Kwashie *et al.* (2022), Ogboi and Unaife (2012) and Alalade *et al*. (2014).

CONCLUSION AND RECOMMENDATIONS

The study concluded that credit risk management and its component are major drivers of bank performance in Nigeria. The study infers further that reform is a major determinant of bank performance in Nigeria. Consequently, the study recommended that for deposit money banks in Nigeria to improve their performance and remain competitive globally, credit risk management should be given proper attention. Finally, the regulatory authority should incorporate necessary reforms that would be beneficial to the banks in their programme, be proactive and anticipatory in their policy formulations.

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