

Credit Risk Management and its Influence on the Financial Performance of Banks: A Study of Selected Banks in Nigeria

Abstract

This study examines the influence of credit risk management on the performance of Nigerian banks with particular reference to selected banks. Purposive sampling technique was used to select five Nigerian banks. Secondary data was used for this study. It was adopted from the audited financial statements of the listed banks in the Nigerian Stock Exchange (NSE), for the period of the year 2006 – 2017. This study also made use of Nigerian Stock Exchange Fact Book 2017 for the Nigerian banks and CBN bulletin 2017. The method of analysis used descriptive statistics and Linear Regressions. Result reveals that NLPR ($\beta = 0.809$), CARR ($\beta = 11.246$) and LTDR($\beta = 6.300$) have significant influence on financial performance measured by ROA. Furthermore, the result also shows that CARR ($\beta = 17.982$) and LTDR ($\beta = 3.227$) have a significant *influence on financial performance measured by ROE but NLPR ($\beta = - 1.57$) has a negative influence* on ROE. The study concludes that credit risk management apparatus employed by the selected banks for the periods of study have a significant influence on their financial performance.

The study, therefore, recommends that regulatory authorities should implement a new code of corporate governance that bank directors with non-performing loans (NPLs) are to either quit or be sacked and also banks' boards to remove any director with insider non-performing loans.

Keywords: Credit Risk Management, Non- Performing Loan Ratio, Capital Adequacy Ratio, Loan-Deposit Ratio

Introduction

Financial institutions and their impact on economic growth and sustainable development have acknowledged by governments and academics in both developed and developing economies. The role of the financial sector in any economy is that of intermediation by mobilising savings from the areas of surpluses to those of deficits has well documented in the literature [1]. The emergence of 2007-08 global financial crises has made countries all over the world to recognise

the role of financial sector development in sustaining economic growth and development especially in Africa, Nigeria in particular. For the banking sector to perform optimally and contribute significantly to economic growth and sustainable development, the sector embarked on series of financial reforms since 2004 to date. The reform was geared towards making the banks strong and reliable financial institution, and to ensure the safety of depositors fund [2].

In spite of these laudable efforts, the sector still witnessed several cases of collapses. This is evidenced by the recent revocation of Skye bank operation licence by Central Bank of Nigeria (CBN), saying the decision was premised on the inability of the owners of the bank to shore up its capital after it received a N350 billion intervention in July 2016. The incessant distressed syndrome facing banking sector has eroded the confidence of both indigenous and foreign investors in the sector. This menace has been attributed to unsuccessful credit risk management [3]. In line with this revelation, [4] admit that poor credits (asset quality) are the primary cause of banking crises across the world. In Nigeria, director of a new Code of Corporate Governance approved by the Central Bank of Nigeria (CBN) lamented that Banks' assets have depreciated due to increase in provisions of Non-Performing Loans which has hit N856.9 billion [4]. According to [5], poor credit administration reduces bank profitability and leads to bank distress and/or failure.

Credit risk management has been identified by financial experts as a prerequisite to maximizing bank risk, adjustment in risk rate of return by maintaining credit risk exposure with a view to shielding the bank from the adverse effects of credit risk. According to [6], the effective risk management system minimises the complexities involved in planning, executing and controlling the overall running of a business which is critical to success and this maximises profitability in business. Credit risk Management can be viewed as written guidelines that set the

terms and conditions for supplying goods on credit, customer qualification criteria, the procedure for making collections, and steps to be taken in case of customer delinquency [7].

Pertinent question agitating the mind of researchers is; to what extent does credit risk management influence the financial performance of banks in Nigeria?

Objective of the Study

The main objective of this study is to examine the effect of credit risk management on the performance of Nigerian banks with particular reference to selected Banks.

Research Hypothesis

The following hypothesis is formulated for this study;

Ho: Credit risk management has no significant influence on the performance of banks in Nigeria.

H1: Credit risk management has a significant influence on the performance of banks in Nigeria.

Literature Review

Concept of Credit Risk Management

Credit risk management is germane to financial institutions as it is an integral part of the loan process. According to [6], Credit risk management maximises bank risk, adjusted risk rate of return by maintaining credit risk exposure with a view to shielding the bank from the adverse effects of credit risk. Banks are investing a lot of funds in credit risk. [8] sees credit risk management as a practice of systematically selecting cost effective approaches for minimising the effect of threat realisation to the organisation. All risks can never be fully avoided or mitigated simply because of financial and practical limitations [8]. According to [9], credit risk management refers to the systematic application of management policies, procedures and practices to the tasks of identifying, analysing, assessing, treating and monitoring risk. In another study, [10] defines credit risk management as the identification, assessment, and

prioritisation of risks followed by coordinated and economical application of resources to minimise, monitor, and control the probability and/or impact of unfortunate events or to maximise the realisation of opportunities.

[11] elaborate risk management as the process of adjusting both the risk of large losses and the firm's vulnerability to them. This vulnerability depends on the portfolio of positions and on the amount of capital that is backing the firm's investment activities. [12] points out that the risk management function has been regarded as an advisory function for senior management rather than a control function within the business. This has rendered the risk managers impotent when they see things going wrong but are ignored by senior management.

Theoretical Review

The study anchors on shiftability theory and anticipated income theory because the two theories are relevant to this study.

Shiftability Theory:

This theory postulates that by making short-term commercial transactions that will mature in a timely manner will keep banks in a ready state to meet the demands of their depositors. According to [13], Shiftability theory allows the banking system run more efficiently with fewer reserves or investing in long-term assets and also under this theory, the banking system tries to avoid liquidity crises by enabling banks to always sell or repo at good prices. [14] accords that the theory assumes that assets need not be tied on only self-liquidating bills, but also held in other shiftable open-market assets, such as government securities. However, one shortcoming of the Shiftability Theory, similar to one that led the banking system away from the orthodox theory, was that in times of stress or crisis, the effectiveness of these assets for liquidity purposes

goes away as there is no market for them [15]. If all banks are looking to liquidate assets, they are doing so at a cost because it would be difficult to find buyers, meaning lower prices for the assets and ultimately by doing so would not leave the banking system as a whole in a more liquid condition [16].

Anticipated Income Theory

Anticipated income theory developed in 1945 by H. V Prochnow and presented on his book named “Term loan and Theories of Bank Liquidity”. The theory considered the following factors; bond and securities can be used as collateral to give term loan so bank can collect fund in times of emergencies by selling them in the secondary market or by keeping it as collateral to the central bank. [17] argue that under the anticipated income theory banks’ management can plan its liquidity based on the expected income of the borrower and this enables the bank to grant a medium and long-term loans, in addition to short-term loans as long as the repayment of these loans are linked by the borrowers expected income to be paid in the periodic and regular premiums, and that will enable the bank to provide high liquidity, when the cash inflows are regular and can be expected. The theory recognises that certain types of loans have more liquidity than others. On the basis of this theory, bank management adopted a ladder effect in the investment portfolio. Banks ensured a certain amount of securities maturing annually and at times when funds might be demanded lending or withdrawal. However, there was no clue about the future income of the borrower.

Empirical Review

Prior studies on the effect of credit risk management on the performance of banks in Nigeria and abroad have conflicting and inconclusive results. For example, studies in Nigeria such as [1] who examined the influence of credit management on financial performance of Nigerian banks with

specific reference to First bank Plc. Their findings reveal that credit management practices have a significant positive influence on the financial performance of First bank. In a similar study, [17] examine the nexus between credit management and profitability (ROA) of Deposit Money Banks (DMBs) in Nigeria context for the period of 2006 to 2015. Findings of their study reveal that loans and advances and loan loss provision have a positive and insignificant effect on profitability, while non-performing loan has a negative and insignificant effect on profitability. In the same vein, [18] assess the effects of credit risk management on banks' performance in Nigeria. Their findings indicate that ratio of non-performing loans and bad debt do have a significant negative effect on the performance of banks in Nigeria, on the other hand, the relationship between secured and unsecured loan ratio and bank's performance was not significant.

[19] examines the effect of efficiency of credit risk management on the Performance of Banks in Nigeria with particular reference to Union Bank PLC (2006-2010). The result indicates that credit risk management has a strong effect on the performance of Union Bank PLC. In a similar study, [20] investigate the impact of credit risk management on the Commercial Banks Performance in Nigeria between 2005 and 2011. In the model, Return on Equity (ROE) and Return on Asset (ROA) were used as the performance indicators while Non-Performing Loans (NPL) and Capital Adequacy Ratio (CAR) as credit risk management indicators. The findings reveal that credit risk management has a significant impact on the profitability of commercial banks' in Nigeria. In another study, [21] also evaluate the impact of credit risk management on bank profitability of some selected commercial banks in Nigeria for the period of 2006 to 2012. The results show that credit risk management has a significant impact on the profitability of Nigeria banks.

The impact of credit risk management and capital adequacy on banks financial performance in Nigeria has been evaluated [22]. The study used variables of loan loss provisions (LLP), loans and advances (LA), non-performing loans (NPL), capital adequacy (CA) and return on asset (ROA). Panel data model was used to estimate the relationship that exists among variables. Results showed that sound credit risk management and capital adequacy impacted positively on bank's financial performance with the exception of loans and advances which was found to have a negative impact on banks' profitability in the period under study. In another study, [23] examines the impact of credit risk on the profitability of Nigerian banks. Findings from the study revealed that credit risk management has a significant impact on the profitability of Nigerian banks.

However, [24] examine the impact of managing credit risk and profitability of banks in Lagos state. The correlation coefficient was used to decide whether or not credit risk management has an impact on profitability. The results reveal that credit risk management has a negative impact on profitability. In a similar study, [25] investigates the quantitative effect of credit risk on the performance of commercial banks in Nigeria for the period 2000-2010. Findings from their study showed that the effect of credit risk on bank performance measured by the return on assets of banks is cross-sectional invariant. Their findings did not support the claim that credit risk management has a positive and significant effect on the performance banks in Nigeria.

EMPIRICAL REVIEW ON OTHER COUNTRIES

In Rwanda, [26] determine the effect of credit management on the financial performance of commercial banks. Results reveal that client appraisal; credit risk control and collection policy had an effect on the financial performance of Equity bank in Rwanda. Another study in Ghana,

[27] assess credit risk management practices in the Banking Industry of Ghana. The result indicated that the bank had documented policy guidelines on credit risk management with senior managers having oversight responsibility for implementation. Result also revealed that there were some implementation challenges of the credit risk policies which have resulted in the low quality of loan portfolio of the bank. Another Similar study in Bangladesh, [28] examines the impact of credit risk management on the financial performance of commercial banks of Bangladesh. Results show that the relationship between credit risk management and banks profitability is positive. Similar study in Nepal, [29] examine the impact of the credit risk management in bank's financial performance in Nepal for the period of 2001 to 2011. The result of the study indicates that credit risk management is an important predictor of banks' profitability and financial performance. Another similar study in China, [30] also examine the credit management of commercial banks of Lianyungang City for the small scale and medium enterprises (SMEs). The result shows that the risk management plan and operation method that suit for credit demand for the SMEs is still not mature and it caused that the bad debts and dead loan were overstocked in Lianyungang commercial bank. Result also reveals that credit management has a negative impact on the performance of the commercial banks.

However, [31] evaluates the impact of credit risk management on the financial performance of Banks in Kenya for The Period 2000-2006. Result reveals that credit risk management parameters have an inverse impact on banks' financial performance in Kenya for the study period. In addition, [32] investigate the factors affecting commercial bank performance in Nepal for the period of 2001 to 2012. The study reveals a significant inverse relationship between commercial bank performance measured by ROA and credit risk measured by default rate and capital adequacy ratio. [33] also examines the effect of credit risk management on

banks performance of four Swedish banks covering a period of 2000 to 2008. The result shows that the rate of non-performing loan and capital adequacy ratios were inversely related to ROE through the degrees vary from one bank to the other. Their studies also contract the claim of previous studies that credit risk management has a positive effect on banks profitability.

Methodology

Table 1: Definition of Variables

Variable	Definition	Formula
Non- Performing Loan Ratio	Non- performing loan ratio is a ratio between the banks total loans and total deposits [6]. If the ratio goes above 25%, is an indication that the bank is getting into the zone of weak credit risk control system [6].	$\text{NPLR} = \frac{\text{NPLs}}{\text{Total Loan}}$
Capital Adequacy Ratio	Capital adequacy ratio is the proportion of the bank's tier 1& tier 2 equity (Qualifying Capital or Equity) as a proportion of its risk weighted assets (loans). It is the proportion of a bank's own equity in relation to its risk exposure [6].	$\text{CAR} = \frac{\text{Total Equity}}{\text{Total Asset}}$
Loan-Deposit Ratio	Loan-deposit ratio, also known as the LTD ratio, is a ratio between the bank's total loans and total deposits. If the ratio is lower than 1, the bank relied on its own deposits to make loans to its customers, without any outside borrowing. If, on the other hand, the ratio is greater than 1, the bank borrowed money which it relined at higher rates, rather than relying entirely on its own deposits [6].	$\text{LTDR} = \frac{\text{Total Loan and Advance}}{\text{Total Deposit}}$
ROA	This is the earnings of the firm based on its total before taxes and other interest charges are deducted divided by the total asset.	$\text{ROA} = \frac{\text{Earnings before interest and tax}}{\text{Total assets}}$
ROE	Total earnings before interest and taxes divided by shareholders equity of the firm.	$\text{ROE} = \frac{\text{Earnings before interest and tax}}{\text{Total Equity}}$

Research Design: Ex-post facto research design was adopted for this study. Ex-post facto research is a methodological verifiable investigation which the researcher cannot manipulate the

independent variables because they apparently had occurred or because they are intrinsic not manipulated. Ex-post facto research attempts to explain the possible relationship between a set of independent variables and dependent variables or to determine the influence of a variable on another [34].

Sampling Technique and Sample size: Purposive sampling technique was used to select Zenith bank, Guaranty bank, First bank, Access bank and United bank for Africa out of 20 Deposit Money Banks operating in Nigeria. The choice of these banks is base on the fact that there are five banks being ranked among 1000 global banks by The Banker Magazine in 2018 and it is expected to have the same credit risk management apparatus.

Method of Data Collection: Secondary data was used for this study. It was adopted from the audited financial statements of the listed banks in the Nigerian Stock Exchange (NSE), for the period of the year 2006 – 2017. This study also made use of Nigerian Stock Exchange Fact Book 2017 for the Nigerian banks and CBN bulletin 2017. Most of the yearly reports that were inaccessible in the NSE fact book were obtained from the corporate offices of concerned banks and were also downloaded from their corporate websites.

The validity of Instrument: Validity is to check whether the measuring instrument measures what it intends to measure. The instruments used for the study are among the instruments adjudged by experts in the field as suitable.

Reliability of Instrument: Reliability of instrument has to do with the consistency or reproducibility, the degree to which the instrument consistently measures what it intends. The study made use of secondary data; published audited annual financial statements of the firms. The process of preparing the audited financial statement had followed the stringent accounting standard both national and international.

Method of Data Analysis: Panel data was used since it incorporates time series and cross sectional data. The method of analysis used descriptive statistics and Linear Regressions.

Mathematical model

Few available studies in Nigeria used different indicators to measure credit risk management and financial performance. For example, [18] in their study, they used bad debt, non-performing loans, secured and unsecured loans to measure credit risk management, while bank performance was measured as profit after tax. [22] and [25] also used variables of loan loss provisions (LLP), loans and advances (LA), non-performing loans (NPL) and capital adequacy (CA) to measure credit risk management while return on asset (ROA) was used to measure financial performance. [23] in his study, measured profitability with Return on Asset (ROA) as a function of the ratio of Non-performing loan to loan & Advances (NPL/LA) and the ratio of Total loan & Advances to Total deposit (LA/TD) used as indicators of credit risk. Also, [17] in their study, they made use of loans and advances, non-performing loan and loan loss provisions to measure credit risk management, while return on assets and return on equity was employed to measure financial performance.

This current study, therefore, adopts Non- Performing Loan Ratio, Capital Adequacy Ratio and Loan-Deposit Ratio as credit risk management apparatus, while financial performance is measured by Return on Assets (ROA) and Return on Equity (ROE).

Model I

Return on Asset = f (Non- Performing Loan Ratio, Capital Adequacy Ratio, Loan-Deposit Ratio)

$$ROA = \beta_0 + \beta_1 NPLR + \beta_2 CAAR + \beta_3 LODR + U_i$$

Model II

Return on Equity = f (Non- Performing Loan Ratio, Capital Adequacy Ratio, Loan-Deposit Ratio)

$$ROE = \beta_0 + \beta_1 NPLR + \beta_2 CAAR + \beta_3 LODR + U_i$$

Where;

NPLR = Non- Performing Loan Ratio

CAAR = Capital Adequacy Ratio

LODR = Loan-Deposit Ratio

β_0 = intercept

$\beta_1 - \beta_3$ = Regression coefficient of the independent variables

Data Analysis, Results and Discussion

Table 2: **Descriptive Statistics** of Dependent and Independent Variables

Variable	N	Minimum	Maximum	Mean	Std. Deviation
ROA	12	.02	.07	.0460	.01616
ROE	12	.08	.51	.2858	.13561
NLPR	12	.04	.12	.0868	.02278
CARR	12	.07	.31	.1404	.06919
LTDR	12	.35	2.03	.8192	.45827

267

268 From table 2 above, Return on Assets (ROA) measured by total earnings of the firm based on its
269 total before taxes and other interest charges are deducted divided by the total asset ranges from
270 2-7%. It has a mean value of 4.6% and a standard deviation value of 1.6%. This implies that on
271 average the study banks in Nigeria earned a 4.6% return on assets per year with a 1.6% standard
272 deviation. Also, Return on Equity (ROE) measured by total earnings before interest and taxes
273 divided by shareholders equity of the firm ranges from 8-51%. It has mean and standard
274 deviation values of 28.6% and 13.56% respectively. This indicates that on average the study
275 banks in Nigeria earned a 28.6% return on equity per year with a 13.56% standard deviation.
276 Prior studies affirm that Return on equity between 15% and 20% is considered desirable [6]. This
277 indicates that the selected banks in Nigeria have been performing above desirable range during the
278 periods under study. However, [35] argues that getting this much return on equity may not
279 always send a good signal, but it may also result from having a small, inefficient and less
280 competitive market.

281 Non- performing loan ratio is a ratio between the banks total loans and total deposits.
282 Table 2 reveals that average NPLR in selected banks for the periods under study was 8.7% with
283 standard deviation of 2.2%. The difference between minimum value (4%) and the maximum
284 value (12%) as well as standard deviation indicates that there is no that much variation among
285 banks credit risk exposures. Also, CAR ratio measured by the proportion of owners' equity to

total assets having a minimum of 7% and maximum of 31% with a mean value and standard deviation of 14% and 6.9% respectively. The average amount of CAR is higher than the international minimum of 8% set by BASEL for commercial banks globally. This implies that the selected banks have capital adequacy ratio to protect the depositors' funds from credit risk and other failure.

In Table 2, LTDR which was measured by the proportion of also total loan and advance to total deposit. The average LTDR in the selected banks for the periods under study was 81.9% with a standard deviation of 45%. The minimum value and maximum values are 35% and 200% respectively. This is suggesting that the selected banks concentrating on lending venture rather those other viable options.

Diagnostic Test

Diagnostic tests such as heteroscedasticity and multicollinearity test were conducted to decide whether the model used in the study is appropriate and fulfil the assumption of the classical linear regression model.

Table 3: Heteroscedasticity and Multicollinearity Test

Model	Unstandardized Coefficients		Standardised Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	2.843	.851	0.341	.779		
	NLPR	.313	.136	.607	.347	.340	2.938
	CARR	-.120	.123	-.258	.353	.383	2.612
	LTDR					.187	5.353
a. Dependent Variable: AbUt							

Source: SPSS output

Based on output from the Table 3, coefficients obtained the value of Sig. NLPR variable of 0.779, the Sig. CARR variable of 0.383 and ,the sig. LTDR variable of 0.353, meaning that

the value of the variable sig NLPR, CARR and LTDR > 0.05 , it can be concluded that there is no heteroscedasticity problem. Also, from Table 3, the values of VIF of NLPR, CARR and LTDR are 2.938, 2.612 and 5.353 respectively are greater than 1 but less than 10 which was the benchmark for multicollinearity. This means there is no multicollinearity among the independent variables in the model.

Variables Regression Model

Table 4: Influence of credit risk management on return on assets

Variable	Coefficient	Std. Error	t-statistics	Probability
(Constant)	5.583	.809	3.721	.000
NLPR	.809	14.639	2.455	.047
CARR	11.246	3.326	7.206	.022
LTDR	6.300	1.200	4.503	.031
R Square	0.373			
Adjusted R Square	0.138			
Durbin-Watson	2.739			
F- statistics	104.09			

Dependent Variable: ROA

The result obtained using the Ordinary Least Square (OLS) estimation technique. $ROA = 5.583 + 0.809NLPR + 11.246CARR + 6.300LTDR$. The result in Table 4 shows that the predictor variables (i.e NLPR, CARR and LTDR) were significantly joint predictors of ROA ($F = 104.09$; $R^2 = 0.373$; $P < 0.05$). The predictor variables jointly explained 37.3% of ROA, while the remaining 62.7% could be due to the effect of extraneous variables. Furthermore, it can be deduced from the result obtained that the constant parameter in the long – run is positive. This implies that if all the explanatory variables are held constant, ROA will increase by 5.583 units. And also NLPR ($\beta = 0.809$; $t = 2.455$; $P < .05$), CARR ($\beta = 11.246$; $t = 7.206$; $P < .05$) and LTDR($\beta = 6.300$; $t = 4.503$; $P < .05$) were significant independent predictors of ROA. This implies that a unit increase in NLPR, CARR and LTDR will lead to an increase in ROA by 0.81units, 11.25 units and 7.206 units respectively.

Table 5: Influence of credit risk management on return on equity

Variable	Coefficient	Std. Error	t-statistics	Probability
(Constant)	2.975	.410	2.381	.045
NLPR	-1.571	7.415	-.212	.038
CARR	17.982	4.724	3.807	.005
LTDR	3.227	.101	2.242	.045
R Square	0.734			
Adjusted R Square	0.634			
Durbin-Watson	1.902			
F- Statistics	98.107			

Dependent Variable: ROE

The result obtained using the Ordinary Least Square (OLS) estimation technique. ROE = 2.975-1.571NLPR +17.982CARR+ 3.227LTDR. Table 5 reveals that the predictor variables (i.e NLPR, CARR and LTDR) were significantly joint predictors of ROE ($F = 98.107$; $R^2 = 0.734$; $P < .05$). The predictor variables jointly explained 73.4% of ROE, while the remaining 26.6.7% could be due to the effect of extraneous variables. Furthermore, it can be deduced from the result obtained that the constant parameter in the long – run is positive. This implies that if all the explanatory variables are held constant, ROE will increase by 3units. And also CARR ($\beta = 17.982$; $t = 3.807$; $P < .05$) and LTDR($\beta = 3.227$; $t = 2.242$; $P < .05$) were significant independent predictors of ROE. However, NLPR ($\beta = - 1.57$; $t = -0.212$; $P < .05$) has negative influence on ROE. This implies that a unit increase in CARR and LTDR will lead to an increase in ROE by 18units and 3units respectively, while a unit increase in NLPR will lead to a decrease ROE by 1.6units. This study is consistent with [6].

The implication of this finding is that credit risk management apparatus are major predictors of financial performance in the selected banks.

Conclusions

This study examines the influence of credit risk management on the performance of Nigerian banks with particular reference to selected banks. Purposive sampling technique was used to

select five Nigerian banks being ranked among 1000 global banks by The Banker Magazine in 2018. The credit risk management measured by Non- Performing Loan Ratio, Capital Adequacy Ratio and Loan-Deposit Ratio has a significant positive influence on financial performance measured by return on assets. Moreover, the study confirms that credit risk management measured by Non- Performing Loan Ratio, Capital Adequacy Ratio and Loan-Deposit Ratio has a significant positive influence on financial performance measured by return on equity except Non- Performing Loan Ratio. It is concluded that credit risk management apparatus employed by the selected banks for the periods of study have a significant influence on their financial performance.

Recommendations

Based on the findings and conclusion the following recommendations are made:

1. Regulatory should implement a new code of corporate governance that bank directors with non-performing loans (NPLs) are to either quit or be sacked. And also banks' boards to remove any director with insider non-performing loans.
2. Banks should have formidable credit policies and standards that conform to regulatory requirements and also banks' credit and loan officers should be well trained by attending seminars and conferences on credit risk management in Nigeria and abroad so as to further reduce the level of their credit risk exposure.

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