The Empirical Effectsof Credit Risk on Profitability of Commercial Banks: Evidence from Nigeria

Olalere Oluwaseyi Ebenezer[1], Wan Ahmad Wan Omar[2]

[1,2]Universiti Malaysia Perlis, School of Business Innovation and Technopreneurship,
01000, Kangar, Perlis, Malaysia

Abstract: *The study investigates the effect of credit risk on profitability of commercial banks in Nigeria. Specifically, this research is to determine the significant effects of credit risk and its measure indicators; and the relationship between the indicators which influence the profitability of banks. A total 8 commercial banks (SIBs) was selected for the study, from the period 2011-2014. A panel data analysis is employed for the study to provide a robustness to the analytical model which passes all validity and reliability test to be a good fit model for hypotheses testing. Diagnostic test is utilized to test for data reliability and validity. The result of the analysis has revealed that there is a negative and significant relationship between non-performing loan ratio and the profitability; negative and insignificant relationship between debts to total assets ratio and profitability, and a positive and insignificant relationship between debts to equity ratio and profitability of banks during the period of study. In general, the results propose that banks needs to refocus on the effective management of their inherent risk which often affects their profitability and financial viability. Therefore, the study concludes that credit risk impact on profitability of commercial banks in Nigeria.*

Keywords: Credit risk, profitability, commercial banks, systematically important banks (SIBs) and financial institutions

1. Introduction

The banking sector is considered to be an important means of financing for most infant businesses. By its nature, banks face numerous risks which arises as a result of its dynamic operations, and the complexity of the economic environment in which it operates. Thus, since the inception of financial institutions in the early decades in a couple of developing countries especially Nigeria, the studies on the effect of credit risk on profitability of commercial banks and financial institutions have been very active. There are numerous reports on the study of credit risk and profitability in various parts of the emerging economy including developed economy (see [1], [2], [3], [4], [5], [6], [7] and others). Albeit, some significant results is reported in the previous studies but it lacks robustness in the modeling and most of the results are inconclusive. The aim of this study is to examine the effect of credit risk on the profitability of commercial banks, specifically in Nigeria. The application of the panel data analysis in the studies of credit risk on profitability is to overcome the lack of robustness in the modelling. The focus of the study is Nigeria, using recent financial data and adopting the systematically important banks in the country. By definition, theSystematically Important Banks (SIBs) has categorized by Central Bank of Nigeria based on four selection criteria: as defined by their total assets, interconnectedness, substitutability and complexity. Hence, these are the contributions of the study.

Adequate management of credit risk in financial institutions is critical for the survival and growth of the Financial Institutions. In the case of banks, the issue of credit risk is even of greater concern because of the higher level of perceived risks resulting from some of the characteristics of clients and business conditions that they find themselves in. According to [8] banks originates for the main purpose of providing a safe storage of customer's cash. He argued that since this money received from the customers was always available to the bank, they later put it to use by investing in assets that are profit earning. Thus, the practice of advancing credits. Banks are in the business of safeguarding money and other valuables for their clients. They also provide loans, credit and payment services such as checking accounts, money orders and cashier's checks. Credit risk is regarded as the extent of value fluctuations in debt instruments as well as derivatives due to variations in the underlying credit quality of counterparties and borrowers [9]. Credit risk is the most important source of risk for the capital adequacy of banking institutions [10]. However, the net worth and profitability are not only determined by default risk of assets but also on off balance sheet items, re-pricing characteristics, liabilities, and overall credit quality [11].Therefore, the management of credit risk is very imperative to banks because it is an essential part of the loan process, maximizes the risk of the bank to increase their financial performance, adjust the risk rate of return through shielding the bank from the adverse effects of credit risk [12]. Thus, the paper examines the effect of credit risk on profitability of commercial banks in Nigeria.

2. Literature Review

According to the study of [13], it suggested that bank risk taking has pervasive effects on bank profits and safety. The study of [14] also asserts that the profitability of a bank depends on its ability to foresee, avoid and monitor risk. It is also observed that the weak management in banks has net effect of increasing the ratio of substandard credits in the bank's credit portfolio and decreasing the bank's profitability. The bank supervisors are well aware of this problem, it is however very difficult to persuade bank managers to follow more prudent credit policies during an economic upturn, especially in a highly competitive environment. [15] observed that the increased number of banks over-stretched their existing human resources capacity which resulted into many problems such as poor credit appraisal system, financial crimes, the accumulation of poor asset quality among others and this led to increase in the number of distressed banks. Other factors identified are bad

management, adverse ownership influences and other forms of insider abuses coupled with political considerations and prolonged court process especially as regards debt recovery. Most recently, [16] examine the impact of credit risk management on the commercial banks performance in Nigeria. Financial reports of seven commercial banking firms were used to analyze for seven years (2005 – 2011). In the model, Return on Equity (ROE) and Return on Asset were used as the financial performance indicators while Non-performing loans (NPL) and Capital Adequacy (CAR) as credit risk indicators. Using a panel regression model, the findings of the study revealed that credit risk management has a significant impact on the profitability of commercial banks' in Nigeria.

On the contrary [17] also examined the effect of credit risk on the banking profitability: A case of Bangladesh. The study uses annual reports of 18 banks from 2003 to 2013; ROA, ROE and NIM were used as profitability indicators while NPL, LLRGL (ratio of loan loss reserve to gross loan), LLRNPL (ratio of loan loss reserve to non-performing loan) and CAR as credit risk indicators. However, using OLS random effect model and GLS, the findings of the study revealed that non-performing loans and LLRGL as a negative and significant effect on all profitability indicators. In addition, [18] equally examined credit risk management and profitability in Commercial Banks in Sweden. Using the regression model for the empirical analysis, the study found that credit risk indicator (Non-performing loans) has an effect on profitability as measured by (ROE) more than capital adequacy ratio, and the effect of credit risk management on profitability was not the same for all the banks included in their study. However, a significant relationship between credit risk and financial performance were also established by the studies of [19], [20], [21], [22], and [23]. Therefore, previous studies on the relationship between credit risk and profitability are discuss thus;

[19] adopt the NPLs ratio & LATD, the study found that Credit risk has a positive relationship with banks financial performance.

[21] use capital asset ratio and Cost of bad & doubt loans, and the study found that Capital asset ratio & cost of bad loans have effect on banks financial performance

[23] employ the NPLs ratio in his study, the study found that Non-performing loan ratio has positive effect on banks profitability

[18] use NPLs ratio, and the study found that Credit risk has effect on profitability of banks

[16] employ NPLs ratio & CAR in his study, and found that Credit risk has significant impact on profitability of commercial banks

[20] use NPLs ratio & Net charge-off rate in his study, and found that credit risk has positive relationship with banks performance.

[26] employ NPL/LA, ratio of total loan to deposit, and the

study concluded that the effect of credit risk on bank performance measure by ROA of banks is cross-sectional invariant; and that the nature and managerial pattern of individual firms do not determine the impact.

[24] use NPL/total loan, Operating cost/total amount of loans, capital fund/risk weighted assets to measure credit risk. The study revealed that credit risk management is an important predictor of banks financial performance.

[5] employs the amount of credit, level of NPLs. The study revealed that the bulk of the profits of commercial banks are not influenced by the amount of credit and non-performing loans, therefore suggesting that other variable other than credit and NPLs impact on profits.

The above discovery shows that related studies have investigated the effect of credit risk on financial performance; while some of the studies were conducted in Sweden, Bangladesh, Nepal etc. [18], [23], [24] etc. and to lesser extent, for emerging markets in Africa such as Ghana and Kenya [20], [5]. However, quite a number of researchers in Nigeria amongst others have carried out extensive studies on credit risk, and they have produced mixed results [25], [21], [19], [16], and [26] etc. Apart from the oversight role of the regulating authorities' (CBN), there is still paucity of robustness, conclusive and empirical studies on the effect of credit risk on profitability of commercial banks in Nigeria. The study therefore aimed at contributing to the literature gap by examining the effects of credit risk on profitability using recent financial report to capture the impact on the systematically important banks (SIBs).

2.1 Profitability

Mostly, profitability has been arguably the most paramount and continuous monitored aspect of commercial banks. It has gained attention from the last couple of years, reason been that the banking sector is considered as the main engine of economic growth [27]. Technically, profitability can be defined as the assessing of a bank policy and operation in a monetary form. It also shows a banks overall financial health over a period of time. In this study, return on equity will be employed as a proxy for profitability. The reason for choosing return on equity is that it reveals how much profits or income a firm earned in comparison to the total amount of shareholders equity found in the balance sheet. A financial institution that has a high return on equity is more likely to be capable of generating cash internally. Therefore, in order for banks to increase or maximize its profit, it should engage in more transaction by increasing its risk or reduce its operating cost.

3. Research Methodology

3.1 Empirical Investigation and Methodology

Data for this study consists of annual observations on 8 Nigeria commercial banks between 2011 and 2014. The commercial banks chosen are Systematically Important Banks (SIBs) has categorized by Central Bank of Nigeria based on four selection criteria: as defined by their total

assets, interconnectedness, substitutability and complexity. They are term as "too big to fail" because of their critical functions such that, should the firm go unexpectedly into liquidation, the rest of the financial system and the economy would face severe adverse consequence. The data was obtained from annual reports and financial statement of the banks. Because the data contains information on cross sectional units observed over time, a panel data estimation technique is adopted. This allows us to perform statistical analysis and apply inference techniques in either the time series or the cross−section dimension. The model takes the form:

$$Y_{it} = \alpha 0 + \beta X_{it} + \varepsilon_{it} \qquad (1)$$

Therefore, moving a step further, the regression model of the study takes the form of;

$$ROE_{it} = \beta_0 + \beta_1 TDTA_{it} + \beta_2 NPLGLA_{it} + \beta_3 TDTE_{it} + \varepsilon_{it} \qquad (2)$$

Where i is 8 cross sections and periods t is 2011....2014. Y_{it} is a dependent variable which represents bank profitability measured by the return on equity (ROE); ROE is use because it reveals how much profits a firm earned in comparison to the total amount of shareholders equity found in the balance sheet and X_{it} is a vector of the independent variables which represent credit risks. The variables are debt-total asset ratio, non-performing loan ratio, and debt-equity ratio. They have been selected on the basis of their potential relevance to this model, and because of their importance in depicting a bank's real financial position. Some of the independent variables will vary over time and cross sections, whereas others will only vary across sections. The intercept α i varies across banks to capture the specific effects for each country. In what follows we discuss the three broad explanatory variables of the model. Thus, the hypotheses of the study postulates that credit risk impact on profitability of commercial banks in Nigeria.

4. Research Findings and Analysis

4.1 Data Preliminaries

The main aim is to show the pattern of the collected dataset in the study. The variables (ROE, TDTA, NPLGLA and TDTE) represents the profitability and credit risk indicators collected from the annual time series reports of eight (8) systematically important banks in Nigeria. The screening and testing of the dataset confirms that the data is clean.

Figure 2: Financial performance ratio of selected banks in Nigeria for the period of 2011 to 2014 (Return on equity).
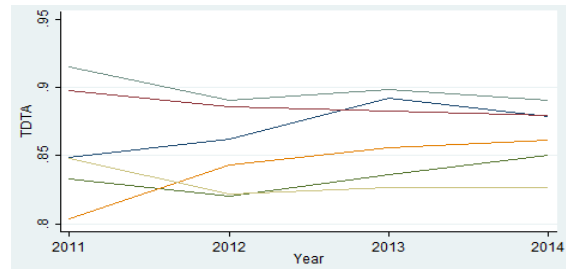

Figure 3: Financial performance and financial risk ratio of selected banks in Nigeria for the period of 2011 to 2014 (Return on equity and total debt to asset ratio)

As depicted in Figure 2 and 3 above, at initial stage, the return on equity of selected banks is time variant during the period of study. This implies that there is a difference between commercial banks in Nigeria in terms of return on equity. Similarly, the total debt to asset ratio is time variant during the period of study. This suggest that there is a difference between commercial banks in Nigeria in terms of debt to asset ratio.
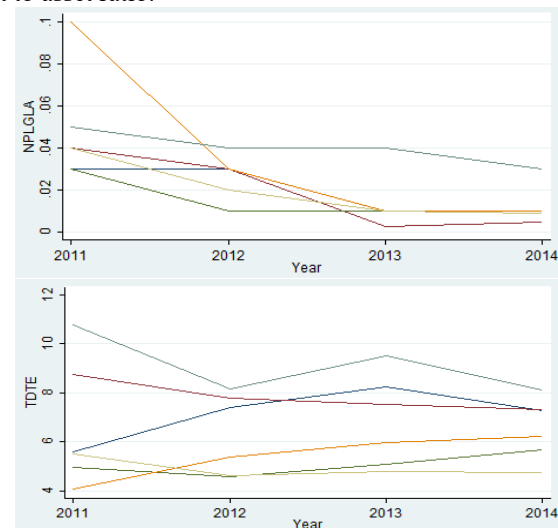

Figure 4: Financial risk ratio of selected banks in Nigeria for the period of 2011 to 2014 (Non-performing loan to total gross loan ratio and total debt to equity ratio)

As depicted in Figure 4 above, at initial stage, the non-performing loan ratio of selected banks is also time variant during the period of study. This implies that there is a difference between commercial banks in Nigeria in terms of non-performing loan ratio. In other words, the study can suggest that the non-performing loan ratio of banks change over time. Also, the debt to equity ratio of selected banks is time variant during the period of study. This suggest that there is a difference between commercial banks in Nigeria in terms of total debt to equity ratio.

4.2 Descriptive Statistics

The descriptive results in Table 2 indicate that ROE has a mean of 18.9 percent with minimum and maximum value of 6.9 and 29.5 percent (i.e. 0.069 and 0.295) respectively. This indicates that the use of shareholders fund to generate earning is averagely low in this period of study. Also, TDTA has a mean of 85.3 percent, with the minimum and maximum value of 80.3 and 91.4 percent (i.e. 0.803 and 0,914) respectively. This implies that most of the Nigerian banks

averagely rely on debt to finance their operations. NPLGLA has a mean of 2.4 percent, with the minimum and maximum value of 0.2 and 10 percent (0.002 and 0.1) respectively. This implies a relatively low concentration of non-performing loan ratio among the Systematically Important Banks in Nigeria. Finally, TDTE has a mean of 616.6 percent, with the minimum and maximum value of 409.0 and 1076 percent (i.e. 4.090 and 10.760) respectively. This implies that the Systematically Important Banks are aggressive in financing their growth with debt. Aggressive leveraging practices are often associated with high level of risk. This may result in volatile earnings as a result of the additional interest expense.

Table 2: Descriptive statistics

	N	Mean	Std. Dev.	Min.	Max.
ROE	32	0.189	0.065	0.069	0.295
TDTA	32	0.853	0.029	0.803	0.914
NPLGLA	32	0.024	0.019	0.002	0.1
TDTE	32	6.166	1.706	4.090	10.760

Source: Authors computation

4.3 Correlation

The correlation matrix of the variable included in the model is presented in Table 3. The correlation matrix is to show that the data is random, implying that it is reliable and stable. However, since the number of significant exceeds the insignificant, we can proceed for hypothesis testing.

Table 3: Correlation matrix of variables

	ROE	TDTA	NPLGLA	TDTE
ROE	1.0000			
TDTA	-0.6022*	1.0000		
NPLGLA	-0.3696*	-0.2432	1.0000	
TDTE	-0.5985*	0.9989*	0.2546	1.0000

Note: **, significant at the 0.05 level (2-tailed)

4.4 Data Reliability Tests

The study conducted a reliability test on the data starting with ADF-Fisher to test for the presence of unit root in the data. The results indicated that all the variables passed the unit root test at level (i.e. stationary at level and at 1% significant level). Also, Breusch-Pagan / Cook-Weisberg test for heteroskedasticity was performed. The outcome of the test indicates that there is no presence of heteroskedasticity in the model. That is to say, since the p-value is greater than 0.05, we accept the null hypothesis supporting the absence of heteroskedasticity in the model. In the same vein, Wooldridge test was conducted to detect whether there is an autocorrelation problem in the model. It is assume that if p-value is less than 0.05, reject H_0. However, the result shows that the p-value is greater than 0.05. Therefore, we accept the null, i.e. there is no autocorrelation problem.

Table 4: ADF-Fisher Unit Root Test with AIC Criteria.

Variables	Intercept only at level	*p*-value	I(d)
ROE	-5.40969	0.0000***	I(0)
TDTA	-6.17195	0.0000***	I(0)
NPLGLA	-6.38276	0.0014***	I(0)
TDTE	-6.55636	0.0000***	I(0)

Note: *** indicates significant at 1% level.

4.5 Panel Data Analysis

The study applies panel data analysis for its estimations, which requires special techniques to account for time-series and cross-sectional dimension of the data. So, the study adopt the fixed effect and random techniques for estimation and choose among them based on specific econometric test to find a model which fits our data best. However, as was discussed earlier, we should account for individual effects of cross-section units (banks) and use panel data techniques to obtain higher precision of the estimates. The fixed effects model accounts for difference in the cross-section units by assuming different constant term for each banks. Thus, random effect model assumes that individual specific effects vary randomly across cross-sections. Therefore, the summary of the analysis is shown in Table 5 below.

Table 5: Summary of panel data analysis using ROE as dependent variable

Variable Effect	Fixed Effect		Random Effect	
	Coef.	*t-stats*	*Coef.*	*t-stats*
TDTA	-1.452	-1.32	-1.681	-1.54
NPLGLA	-1.099*	-2.80	-1.247***	-3.25
TDTE	.0188	0.91	.01586	0.80
_cons	1.338	1.61	1.5553	1.89
R-squared	0.2749		0.6049	
Adj. R-sqd	0.4368		0.4724	
F-stat	2.65		13.94	
Prob > F	0.075*		0.0030***	
Hausman Test			0.2684 (REM)	
No. of Obs.	32		32	

Note: TDTA = Total debt to total assets. NPLGLA = Non-performing loan to gross loan and advances. TDTE = Total debt to total equity.
*** indicates significant at 1%, ** indicates significant at 5%, * indicates significant at 10%.

4.6 Random Effect Model

The study applies the random effect model has it is found to be suitable for the analysis through the Hausman Specification test. Hence, since p-value for the test is > 5%, we accept the null (indicating that the random effects model is efficient, consistent and appropriate for our analysis).

Table 6: Panel data analysis (random effect regression model)

Variable	Coef.	Std. Error	t-Stat	Prob.
TDTA	-1.681	1.0929	-1.54	0.124
NPLGLA	-1.247	0.3839	-3.25	0.001**
TDTE	0.0158	0.0197	0.80	0.422
cons	1.555	0.8226	1.89	0.059
R-squared	0.6049			
F-statistic	13.93			
Prob (F-statistic)	0.003**			
n	32			

Note: ** significant at 1% level.

From Table 6, the R-squared of the model indicated that 60% of the variability in the financial performance (ROE) is explained by the independent variables. The Prob (F-statistic) of the study also indicates that the model is statistically significant at 1% level. However, one of the major financial risk of a banking business is credit risk [29].

As a result, bank specific factors can enhance probability of credit risk at higher side. The total debt to asset ratio is negatively insignificant with ROE during the period. On the contrary, non-performing loan ratio is negatively significant with ROE during the period. This implies that a unit increase in non-performing loan ratio results in the decrease of banks profitability by 12.4% during the period under study, and vice-versa. However, total debt to total equity ratio show a positive but no significant relationship with the profitability of banks. Therefore, based on the coefficient value shown in Table 6 above, this study argue that non-performing loan ratio is one of the major determining factor of return on equity among the systematically important banks (SIBs) in Nigeria.

5. Discussion of findings

The management of credit risk is crucial to financial institutions survival, owner's interest and ultimately, their profitability as well. From the analysis, credit risk indicators (total debt to total asset ratio) is negatively insignificant with ROE. The profitability of banks will be affected negatively if banks rely mostly on heavy debt to finance its operations, and an increase in debt ratio of the banks implies high debt value on the liability side of their balance sheet and ultimately leading to lower profit margin during the period. Consequently, the non-performing loan ratio has a negative and significant relationship with profitability under ROE. The plausible reason for this is that most of the systematically important banks have a fairly bad credit management policies because it reflect a negative influence on their return on equity, and this implies that they are exposed to greater risk of illiquidity and distress. The implication is that, the increasing bad loans in banks occurs as a result of poor credit policies in banks, bad management and this reduces the bank's profitability significantly. This negative and significant relationship is in agreement with the findings of [30], [26], [17], [25], [6], and [29]. Subsequently, the debt to equity ratio show a positive and no significant relationship with profitability under ROE. The implication is that, despite the dependence of the banks on debt, there is only 0.015% significant increase in the profitability of banks during the period under study. Hence, this study argues that credit risk impact on the profitability of commercial banks in Nigeria.

However, it is a major concern for bank customers to be aware of the safety of their deposits in any given banks. For this reason, it is very essential for banks to critically assess the customers who demand the extension of credit or loan facility before granting such. This is because a weak and poorly administered credit policy would lead to bad debt in the loan portfolio of banks. If credit risks increase with the growing volume of credit transactions in the banks, bad and doubtful debts will claim the bulk of the supposed profit estimated to be earned by banks. As these risks remain unchecked, the profitability of banks reduces with each transaction. This also reduces the operational performance of banks.

6. Conclusion

The importance of the study is to fill the gap of empirical evidence on credit risk practices in banking sector of Nigeria. The study cover the period of 2011 – 2014, using the report of the Systematically Important Banks (SIBs). This study has successfully identified the factors that are significantly affecting the profitability of the banks. The study employs panel data analysis to examine the relationship between credit risk and profitability of commercial banks in Nigeria, using Hausman test in realizing the robust model for testing. The diagnostic test (Breusch-Pagan and Wooldridge test) indicates that there is no autocorrelation and heteroskedasticity problem in the dataset and that the variables are independent and identically distributed.

The relationship of debt to asset ratio is found to have negative and insignificant effect on profitability. The non-performing loan ratio established the negative and significant relationship with profitability. This can be explained with the fact that the unusual lending of loans and advances is found to be the major portion of financial risk faced by the banks. The relationship of gearing ratio (debt to equity ratio) with profitability is positive and insignificant. The high geared ratio is attributed to the fact that the banks relies heavily on borrowing because their major source of finance contains debt financing with the combination of equity finance. The findings suggest that commercial banking institutions need to refocus on the effective management of its financial risks; in today's dynamic environment of intense competitive pressures, volatile economic conditions, rising default rates and increasing levels of consumer and commercial, an organization ability to effectively monitor and manage its financial risk could mean the difference between success and survival.

References

[1] Owojori, A., & Akintoye, I. a. (2011). The Challenge of risk management in Nigerian banks in the post consolidation era. Journal of Accounting and Taxation, Vol.3 No.2.

[2] Olusanmi, O. U. (2015). The Effect of Risk Management on Bank's Financial Performance in Nigeria. Journal of Accounting and Auditing: Research & Practice., Acticle ID 239854.

[3] Khizer, A., Muhammad, F. A., & Sharma, S. (2011). Financial and non-financial business risk perspectives: empirical evidence from commercial banks. Middle Eastern Finance and Economics, 11, 151-159

[4] Karim, M. A., & Verhoeven, P. (2005). Islamic financing and bank risks: the case of Malaysia. Thunderbird International Business Review,pp. 75-94.

[5] Kinthinji, A. M. (2010). Credit risk management and profitability of commercial banks in Kenya. A research review.

[6] Olawale, L. S. (2011). The Effect of credit risk on the performance of commercial banks in Nigeria. A Literature review.

[7] Omasete, C. A. (2014). The effect of risk management on the financial performance of Insurance companies in

Kenya. An Unpublished Research Project. University of Nairobi.

[8] Dwayne, W. (2004). An Introduction to Monetary: Theory and Policy. New York: Free press.

[9] Lopez, J. S. (2000). Evaluating credit risk models. Journal of Banking and Finance, 24, 151-165.

[10] IFRI-CRO. (2007). Survey on economic capital practice and applications. The Institute of the Chief Risk Officers (CRO) and International Financial Risk Institute.

[11] Drehmann, M. S. (2008). The integrated impact of credit and interest risk on banks: an economic value and capital adequacy perspective. London: Working Paper no.339, Bank of England.

[12] Musyoki, D., &Kadubo, A. S. (2011). The impact of credit risk management on the financial performance in Kenya. International Journal of Business and Public Management.

[13] Athanasoglou, P., Delis, M., &Staikouras, C. (2006). Determinant of banking profitability in the south eastern European region. Bank of Greece working paper 06/47.

[14] Bobakovia, I. V. (2003). Raising the profitability of commercial banks. BIATEC.

[15] Sanusi, L. S. (2012.). Banking reform and its impacts on the Nigerian economy.

[16] Abiola, I., &Olausi, A. S. (2014). The Impact of Credit Risk Management on the Commercial Banks Performance in Nigeria. International Journal of Management and Sustainability, 3 (5), pp. 295-306.

[17] Noman, A. H., Pervin, S., Chowdhury, M. M., & Banna, H. (2015). The effect of credit risk on the banking profitability: a case on Bangladesh. Global Journal of Management and Business Research: Corporate Finance, pp. 41-48.

[18] Hosna, A., Manzura, B., & Juanjuan, S. (2009). Credit risk management and profitability in commercial banks in Sweden. Journal of Emerging Issues in Economics, Finance and Banking (JEIEFB), Volume: 2 No. 3.

[19] Aruwa, S. A., & Musa, O. A. (2014). Risk components and the financial performance of deposit money in Nigeria. International Journal of Social Sciences and Entrepreneurship, 1 (11), pp. 1-8.

[20] Adeusi, S. O., Akeke, N. I., Adebisi, O. S., & Oladunjoye, O. (2014). Risk Management and Financial Performance of Banks in Nigeria. European Journal of Business and Management, 6 (31), 336-342.

[21] Boahene, S. H., Dasah, J., &Agyei, S. K. (2012). Credit risk and profitability of selected banks in Ghana. Research Journal of Finance and Accounting.

[22] Idowu, A., &Awoyemi, O. S. (2014). The Impact of Credit Risk Management on the Commercial Banks Performance in Nigeria. International Journal of Management and Sustainability, 3 (5), pp. 295-306.

[23] Li, F. (2014). The Impact of credit risk management on profitability of commercial banks: A study of Europe. Umea School of Business and Economic.

[24] Poudel, R. S. (2012). The impact of credit risk management in financial performance of commercial Banks in Nepal. International Journal of arts and commerce.

[25] Kargi, H. S. (2011). Credit risk and the performance of Nigerian Banks, Ahmadu Bello University, Zaria.

[26] Kolapo, T. F., Ayeni, R. K., &Oke, O. (2012). Credit risk management and banks performance. Australian Journal of Business and Management Research.

[27] Hazzi, O. A., &Kilani, M. I. A. (2013). The financial performance analysis of Islamic and Traditional banks: Evidence from Malaysia. European Journal of Economics, Finance and Administrative Sciences, 57, pp. 133-144.

[28] Nigerian Deposit Insurance Corporation. (2015). Annual reports and accounts of banks. NDIC.

[29] Sackett, M. M., & Shaffer, S. (2006). Substitutes versus complements among credit risk management tools. Applied Financial Economics, 16, 1007 - 1017.

[30] Felix, A. T., & Claudine, T. N. (2008). Bank performance and credit risk management. University of Skoyde: Unpublished Masters Dissertation in Finance.