

Credit Risk Management and Financial Performance of Quoted Deposit Money Banks in Nigeria

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Abstract

This study analyzed the effect credit risk management on the financial performance of quoted deposit money banks in Nigeria for a 9-year period (2010-2018). The study used data gathered from annual reports and financial statements of seven deposit money banks. Credit risk management was proxied by Loan to deposit ratio, credit risk, capital adequacy risk, and solvency risk while financial performance was proxied by return on assets. Firm size served as control variable. The study uses ex-post factor research design. Descriptive and inferential statistics comprising: Correlation Analysis, Multiple Regression Analysis using Ordinary Least Square and Generalized Least Square methods of Panel Regression Models were used. STATA 13 software aided the analysis. The findings revealed that Loan to deposit ratio, credit risk and capital adequacy risk have insignificant effect on return on assets while solvency risk and firm size have positive significant effect on return on assets. The study therefore, recommends that the management of the banks should establish a proper credit risk environment, sound credit granting processes, appropriate credit administration, measurement, monitoring and control over credit risk, policy and strategies that clearly summarize the scope and allocation of bank credit facilities as well as the approach in which a credit portfolio is managed i.e. how loans are originated, appraised, supervised and collected, which are the basic elements for effective credit risk management. The bank management should sustain or improve on the level of total assets as it enhances firms' size.

Keywords: *deposit money banks, financial performance, return on assets, credit risk management*

1. Introduction

Credit risk is one of the major types of risk threatening continuous existence of banks and other financial institutions which engages in the disbursement of loans. Credit risk in the simplest terms, is the risk of default. Credit risk is the possibility that a bank customer- individual or corporate will not meet loan repayment obligation as at when due. Credit creation is one of the main income generating activities for the banks and adequate management of credit risk is critical for the survival, growth and development of banks. In fact, banks give target to staff particularly marketing

staff on the amount of credit to create i.e. loans and advances. Mitigating the risk of default, calls for proper risk management framework. Credit risk management is an integral part of the overall risk management efforts of organizations.

Credit risk management and its implications on banking sector performance have been fraught with difficulties and challenges that ultimately results to poor banking performance that incubate tendency and leading to unfavourable banking performance with unclear balance sheet, bank failure and crisis in the financial sector leading to a systemic risk and thus have a negative functional ramification on economic growth. However, among the risks faced by banks credit risk plays a crucial role on banks performance since huge amount of banks revenue are from credit as a result of interest charged on credit. It is important to note that, interest rate charged is directly correlated with credit risk; high interest rate may increase the chances of credit default (Ahmed & Ariff (2007).

The importance of credit risk management in banks is due to its ability in affecting the banks' financial performance, existence and growth. Credit risk management encompasses the systems, procedures and controls which a company put in place to ensure the effective and efficient collection of customer payments thereby minimizing the risk of non-payments (Mokogi, 2003). Weak credit risk management is a major cause of many business failures (Kalui & Kiawa, 2015).

Financial performance is a company's ability to generate new resources from day-to-day operations over a given period of time and it is measured by net income and cash from operation (Rajkumar & Hanitha, 2015). Organisational researchers generally use either accounting-based measures of profitability such as ROA, return on sales (ROS) and ROE or stock market-based measures such as Tobin's Q and market return to assess financial performance (Combs, Crook & Shook, 2005; Hult, Ketchen, Griffith, Chabowski, Hamman, Dykes & Cavusgil, 2008). Accounting measures are reflections of past or short-term financial performance, while market measures are the reflections of future or long-term financial performance (Hoskisson, Johnson & Moesel, 1994).

In Nigeria, deposit money banks play an important role in mobilizing financial resources for investment by extending credit to various businesses and investors. Lending represents the heart of the banking industry and loans and advances are the dominant assets as they generate the largest share of operating income. Loans however expose the banks to the greatest level of risk. Many banks that collapsed in the late 1990's and up to the recent restructuring of the deposit money banks in Nigeria were as a result of the poor management of facility which was portrayed in the high

levels of non-performing loans. Looking at the emphasis that is laid on credit risk management by deposit money banks in the recent time, the level of contribution of this factor to financial performance has not been analyzed which called for this study.

Banks' performance is considered very important as well as necessary mechanism for the survival of the financial sector of any economy of the world. And also, the soundness of a banking system is the most crucial pillar for economic development (Ongore & Kusa, 2013). Hence, banks are the most involved financial institutions in the financing of the economy. Bank performance is of dynamic significance to the researchers, policy makers and economic planners for economic development, stakeholders, and investors because the real sector depends on the banks efficiency in performing their financial intermediation function (Sharma & Mani, 2012).

Performance of banks in Nigeria remains of great concern to stakeholders and practitioners in the banking industry. Obamuyi (2013) states that bank performance in Nigeria remain unimpressive for a number of years. Moreover, Central Bank of Nigeria affirms that Deposit Money Banks in Nigeria are facing many challenges such as liquidity challenges, poor risk management, bank account hackers (fraudulent) due to cyber problem, poor asset quality, inefficient management and upsurge in their Non-performing loans have contributed in declining the profitability of the Deposit Money Banks in 2016. Similarly, the performance of banks as shown in the banking index in 2016 recorded a decline throughout 2016 from the second to the last quarter (Itsibor, 2017).

2.0 Literature review

2.1 Empirical review

Kolapo, Ayeni and Oke (2012) studied the effect of credit risk on the performance of commercial banks of five commercial banks in Nigeria over the period of 11 years (2000-2010). Return on Asset (ROA) measured performance while loan and advances to deposit ratio measured credit risk. Panel model analysis was used for the study. The study revealed that loan and advances to deposit ratio has positive significant effect on ROA. Similarly, Marshal and Onyekachi (2014) carried out investigation on the effect of credit risk and performance of banks in Nigeria over the period of 15 years (1997-2011). The study revealed that there exist a positive effect between loan and advances to deposit ratio and banks performance (ROA). However, in a study conducted by Taiwo, Ucheaga, Achugamonu, Adetiloye, Okoye and Agwu (2017) on quantitative effect of credit risk management on the performance of Nigeria's Deposit Money Banks. Total loans and advances have insignificant

impact on performance. In the same vein, Ogboi and Unuafe (2013) examined the impact of credit risk management on banks financial performance in Nigeria for the period of six years (2004-2009). Panel data model was used to examined the impact of Loans and Advances to deposit, Non-performing Loans, Capital Adequacy on Return on Assets (ROA). The findings revealed that loans and advances to deposit has negative impact on banks' performance the period under studied.

Alalade, Agbatogun, Cole and Adekunle (2015) examined the impact credit risk management on financial performance of 10 commercial banks in Nigeria during the period of 5 years (2006-2010). Loan and advance loss provision, total loan and advances, non-performing loan and total asset were used to represent credit risk management while ROE and ROA were adopted as measures of financial performance. The panel least squares (PLS) result revealed that credit risk management has positive significant effect on financial performance of commercial banks in Nigeria. Similarly, Afriyie and Akotey (2012) applied panel data regression model in the study of the relationship between credit risk management indicators (non-performing loans ratio and capital adequacy ratio) and profitability (ROE and ROA) of 10 rural banks for the period of 5 years (2006 to 2010). The finding indicated positive significant relationship between non-performing loans and profitability. In the same vein, Alshatti (2017) assessed the effect of credit risk management indicators Non-performing loans/Gross loans, Provision for facilities loss/Net facilities and the leverage ratio on financial performance represented by ROA and ROE. The result indicated that Non-performing loans has significant effect on ROA and ROE as metrics for measuring financial performance.

In a study of 5 commercial banks in Nigeria, Kolapo, Ayeni, Kolade and Ojo (2012) studied the effect of credit risk performance covering the period 11 years (2000-2010) using panel model technique. The authors discover that the ratio of non-performing loan to loan & advances and ratio of loan loss provision to classified loans have negative significant effect on ROA, while ratio of total loan and advances to total deposit exert positive significant effect on ROA. In another study of Nigerian banks, Funso, Kolade and Ojo (2012) investigated the effect of credit risk on performance of 5 commercial banks in Nigeria for the year 11 years (2000-2010). The study found that non-performing loans and loan loss provision have statistically negative significant impact on ROA while loans and advances have statistically positive significant impact on ROA. However, Oluwafemi, Israel, Simeon, Olawale (2014) in a panel study of 10 deposit money banks in Nigeria evaluated the association of risk management practices and financial performance for the period of 4 years (2006-2009). The results revealed among others that non-performing loans and liquidity

have insignificant effect on the financial performance measured as return on capital employed (ROCE), return on asset (ROA) and return on equity (ROE).

Dezfouli, Ali and Shahchera (2014) conducted a study by investigating the effectiveness of Non-Performing loans ratios, liquidity ratios, liquidity gap ratio, capital ratio, and bank size on banks profitability in Iraq using 18 sample banks. The study revealed a positive significant effect between mentioned variables and profitability proxied by ROE and ROA. However, Hakimi, and Zaghdoudi (2017) conducted study in Tunisia. The study found that liquidity risk significantly decreases Tunisian bank performance. Similarly, Ogboi and Unuafe (2013) examined the impact of credit risk management and capital adequacy on the financial performance, using panel data evidence from 6 deposit money banks in Nigeria over the period of 5 years (2005-2009). Results from the pooled ordinary least squares (POLS) revealed that the ratio of non-performing loans to loans and advances, loan loss provisioning to classified loans and liquidity ratio have insignificant impact on the financial performance, while loans and advances to total deposit has negative significant impact on the financial performance.

Elshaday, Kenenisa and Mohammed (2018) placing emphasis on 8 private commercial banks in Ethiopia for the period ten years (2007-2016). The result showed that capital adequacy ratio, credit interest income and size of the bank have positive significant effect on financial performance measured by return on asset (ROA) and return on equity (ROE). Similarly, Charles (2013) examined the impact of credit risk management, capital adequacy ratio on financial performance of 6 banks in Nigeria for the period of six years (2004-2009) using panel data model. Loan loss provisions, loans and advances, non-performing loans and capital adequacy ratio are the proxies for credit risk management, and financial performance is proxy by return on assets (ROA). Result showed that capital adequacy is positively and significantly related to financial performance.

Li and Zou (2014) evaluated the link between credit risk management and profitability of commercial banks in Europe. The authors adopted non-performing loan ratio and capital adequacy ratio as proxies for credit risk, and return on assets (ROA) and return on equity (ROE) as measures of profitability. Results showed that non-performing loan ratio has negative significant impact on profitability whilst capital adequacy ratio has insignificant impact on profitability.

Therefore, in view of the inconsistency, mixed findings and the extant literature which no study focuses on automation and cyber risk, which this study considered as suggested by Bagh, Asif, and Razzaq (2017), this study becomes necessary in order to fill the gap and contribute to knowledge. Again, unlike some studies conducted in Nigeria that used ATMs, mobile banking and other measures, this study uses intangible asset to total assets as proxy for automation cyber risk variable under the study. The main objective of this study is to investigate credit risk management on the financial performance of deposit money banks in Nigeria.

2.2 Theoretical framework

The study is anchored on two (2) theories: Enterprise Risk Management Theory (ERM) and Modern Portfolio Theory (MPT)

2.2.1 Enterprise Risk Management Theory

According to Gordon, Loeb and Tseng, (2009), a corporation that chooses to manage risks can do so in two fundamentally different ways: it can manage one risk at a time, or it can manage all of its risks holistically. The latter approach is often called enterprise risk management (ERM). ERM is a framework that focuses on adopting a systematic and consistent approach to managing all of the risks confronting an organization. According to COSO (2004), ERM is a process, effected by an entity's board of directors, management and other personnel, applied in strategy setting and across the enterprise, designed to identify potential events that may affect the entity, and manage risk to be within its risk appetite, to provide reasonable assurance regarding the achievement of entity objectives. In addition, EMR can be seen as the overall process of managing an organization's exposure to uncertainty with particular emphasis on identifying and managing the events that could potentially prevent the organization from achieving its objective.

2.2.2 Modern Portfolio Theory:

A quant revolution started on Wall Street in 1952, when Harry M. Markowitz established the Modern Portfolio Theory (MPT) which applies mathematical concepts to finance.

MPT deals with the selection of portfolios that maximize expected returns consistent with individually acceptable levels of risk. Using quantitative models and historical data, modern portfolio theory defines "expected portfolio returns" and "acceptable levels of portfolio risk," and shows how to construct an "optimal portfolio."

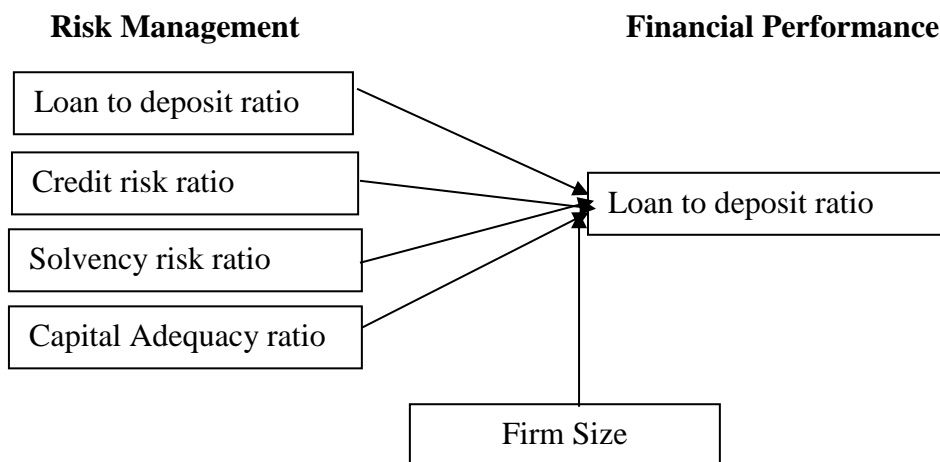
MPT is an investment theory based on the idea that risk-averse investors can construct portfolios to optimize or maximize expected return based on a given level of market risk, emphasizing that risk is an inherent part of higher reward. It is one of the most important and influential economic theories dealing with finance and investment.

MPT assumes that investors are risk averse, meaning that given two portfolios that offer the same expected return, investors will prefer the less risky one. Thus, an investor will take on increased risk only if compensated by higher expected returns. Conversely, an investor who wants higher expected returns must accept more risk. The exact trade-off will be the same for all investors, but different investors will evaluate the trade-off differently based on individual risk aversion characteristics.

Harry Markowitz came up with Modern portfolio theory (MPT) and won the Nobel Prize for Economic Sciences in 1990 for it.

Figure 1. Conceptual Framework

From the theoretical and empirical literature reviews, the following conceptual framework of the study is developed by the researchers.



Source: Authors' model (2018)

In the light of the conceptual framework, four null hypotheses were formulated and tested.

H₀₁: Loan-to-deposit ratio has no significant effect on the financial performance of quoted deposit money banks in Nigeria.

H₀₂: Credit risk ratio has no significant effect on the financial performance of quoted deposit money banks in Nigeria.

H₀₃: Solvency risk ratio has no significant effect on the financial performance of quoted deposit money banks in Nigeria.

H₀₄: Capital adequacy ratio has no significant effect on the financial performance of quoted deposit money banks in Nigeria.

Method

This study adopts ex-post factor design in the analysis of risk management and financial performance of quoted deposit money banks. The choice of the designs is based on the nature of the data which combines time series (2010- 2018) and cross sectional units 7 banks ($t= 9, i=7$). The importance of Ex-Post Facto research design is that it is a realistic approach in solving business and social science problems which involves gathering records of past event.

The study uses descriptive and inferential statistics which comprises Correlation Analysis, Multiple Regression Analysis using Ordinary Least Square and Generalized Least Square methods of Panel Regression Models. The analysis is based on a balanced panel data. In order to know the best model for the regression, hausman specification test and Breusch-Pagan Lagrangian Multiplier Test were carried out before arriving at the best model for the analysis. In addition, tests for Heteroskedasticity and multicollinearity were conducted in order to comply with the classical assumption of regression analysis. The analysis was conducted using STATA 13.

The data used for this study was gathered from annual reports and financial statements of the selected quoted banks. The population of the are 11 deposit money banks quoted on the banking sub-sector of the Nigerian Stock Exchange (NSE) as at 31st December, 2010 and still remain listed as at 31st December, 2018. A sample of seven (7) banks were selected based on four considered criteria. (i) Banks that are wholly or majorly owned by Nigerians; (ii) Banks that retained their brand names over time; (iii) Banks that experienced either universal reform or consolidation reform in Nigeria and (iv) Banks that also experienced merger and acquisitions in Nigeria. Based on these

criteria, the seven banks selected are: First Bank PLC, United Bank of Africa, Guaranteed Trust Bank, Union Bank, First City Monument Bank, Access Bank and Zenith Bank.

Model specification for the Study

The empirical model used in this study is specified as follows:

$$ROA = f (LDR, CRR, CAR, SR, ACR) \dots\dots\dots (1)$$

$$ROA_{it} = \alpha + \beta_1 LDR_{it} + \beta_2 CRR_{it} + \beta_3 CAR_{it} + \beta_4 SR_{it} + \beta_5 ACR_{it} + C_i + \mu$$

Where:

- ROA_{it} = Return on Assets for bank i in year t, α = the intercept,
- β₁ β₂ β₃ β₄ β₅ = coefficients of credit risk management measures.
- LDR_{it} = Loan to deposit ratio for bank i in year t.
- CRR_{it} = Credit risk ratio for bank i in year t.
- SR_{it} = Solvency risk for bank i in year t.
- CAR_{it} = Capital adequacy ratio for bank i in year t.
- ACR_{it} = Automation and Cyber Risk
- C_i = Unit-specific error component
- μ = Remaining error component
- i = No of firms (7)
- t = Period of study (9)

Table 1: Variables and Measurements

Variables	Measurements
Return on assets (ROA)	Profit after tax divided by Total Assets
Loan-to-deposit ratio (LDR)	Total loans divided by total deposits
Credit risk ratio	Non-performing loans divided by gross loans
Solvency risk ratio (SRR)	Net operating income divided by total debt
Capital adequacy ratio (CAR)	Total regulatory capital(Tier I capital plus Tier II capital) divided by risk weighted asset
Automation and Cyber Risk	Intangible asset to total assets
Firm Size	Natural log of total assets

Results and Discussion

The descriptive statistics is presented in table 1 which shows the mean, minimum, maximum and standard deviation of the data.

Table 2: Descriptive Statistics

Variables	Obs.	Mean	Minimum	Maximum	Std. Dev.
ROA	63	0.021	9.265	0.190	0.034
LDR	63	1.125	0.188	9.147	1.838
CRR	63	0.034	0.004	0.173	0.026
SR	63	0.123	0.048	0.706	0.091
CAR	63	0.238	0.021	2.222	0.292
ACR	63	0.022	0.000	0.431	0.620
Firm Size	63	9.265	8.003	9.635	0.280

Source: Authors computation (2019) STATA 13 output

Table 2 provides a summary of the descriptive statistics of the dependent and independent variables for seven deposit money banks for the period of nine years with a total of 63 observations. The table shows that the mean value of ROA is 0.021 (2.1%) with a minimum of 9.265 (926.5%) and a maximum of 0.190 (19%). That means during the period under consideration sampled banks earned an average of N2.1 profit before tax for a every single Naira invested in their assets. The standard deviation for ROA is 0.034 which indicates that the profitability variation between the selected banks is 3.4%.

Loan-to-deposit ratio has a mean value of 1.12 while the minimum and maximum values of 0.18 and 9.14 respectively. The mean value of Loan-to-deposit ratio means that 100% of loans granted are from deposit. That means loan-to-deposit ratio is more risky than any variables because 100% of loan is granted form deposit. Deposit monies are liabilities to the bank therefore, it needs to be reasonably managed to guide against credit risk of default.

The mean of Credit risk ratio is 0.034% with a minimum of 0.004 and a maximum of 0.173. This indicates that, from the total loans that deposit money banks disbursed, an average of 3.4% were being default or uncollected over the period under consideration. Credit risk ratio has a percentage change of 4.225% ($0.173 - 0.004/0.004 \times 100$), which shows a low loan loss by the banks under the period of the study. This reflection of decrease Credit risk ratio over the years could be as a result of effective credit risk management embarked by the banks. The standard deviation of 0.026 of Credit risk ratio's from its mean value shows the existence of variation of 2.6% among the banks in terms of their loan recovering capacity.

Solvency ratio has a minimum value of 0.048 and maximum of 0.706 with an average (mean) of 0.123 which is 12%. The standard deviation for Solvency ratio is 0.091 which indicates that the Solvency ratio variation between the selected banks is 9.1%.

Capital adequacy ratio has a minimum value of 0.021 and maximum of 2.222 with an average (mean) value of 0.238 which is 23%. Although this is above the 15% statutory requirement, CBN requires commercial banks to maintain a 15% capital adequacy ratio, it indicates that the deposit money banks are highly geared. That is, they rely more on the funds from long term liabilities to finance their assets. Such a situation may lead to bankruptcy in the commercial banking industry. The standard deviation for Capital Adequacy ratio is 0.292 which indicates that the capital adequacy ratio variation between the selected banks is 29% in terms of capital adequacy.

Capital adequacy ratio is very important for the solvency and profitability of banks. This is because the business of banking is risky due to the possibility that loans may not be paid back leading to financial losses to the bank. Banks are therefore required to have adequate capital, not only to remain solvent, but to avoid the failure of the financial system.

Automation and cyber risk ratio has an average value of 0.022 that is, the sampled banks are prone to cyber risk at the rate of 2.2% while the minimum value of 0.000 and maximum value of 0.431 represent the least and the highest values of automation and cyber risk. The standard deviation for Automation and cyber risk ratio is 0.620 which indicates that the automation and cyber risk ratio variation between the selected banks is 62%.

Collinearity Test

Correlation technique is utilized to detect if the coefficients between any two combinations of the independent variables have high correlation to a collinearity problem. The correlation coefficients matrix in table 3 shows a range between -0.01 and 0.81. This means the correlation among the variables lies between 0.01 and 0.81 which indicates lack of multicollinearity problem among the variables. Swain, (2008) says multicollinearity exist where the correlation value is above 0.9.

Table 3 Correlation coefficient matrix of the study variables

	ROA	LDR	CRR	SR	CAR	ACR	Firm Size
ROA	1						
LDR	0.020	1					
CRR	0.386**	0.627***	1				
SR	0.773***	-0.095	0.627***	1			
CAR	-0.017	0.062	-0.095	0.463***	1		
ACR	0.596***	-0.085	0.810***	0.095	-0.039	1	
Firm Size	-0.257**	0.126*	-0.773***	-0.563***	0.048	-0.718***	1

Note ***, ** and * implies significant at 1%, 5% and 10% respectively

Source: Authors computation (2019) STATA 13 output

The results in table 3 show that CAR and firms size have negative correlation with ROA while LDR, CRR, SR and ACR have positive correlation with ROA. The results show that LDR is more correlated with ROA than any other explanatory variables while CAR is least correlated with ROA than all other explanatory variables.

Table 4 Summary of Robust Regression Results

Variables	Pooled OLS Coefficient	T-Value	P-Value
Constant	-0.338	-1.97	0.055**
LDR	0.002	1.00	0.325
CRR	0.167	0.69	0.492
SR	0.374	5.35	0.000 ***
CAR	0.003	0.30	0.765
ACR	-0.094	-0.66	0.511
Firm Size	0.033	1.84	0.074**
F-Statistics	13.29(0.000)		
R-Squared	0.654		
Adj. R-Squared	0.606		
Rho			
Lagrangian test	1.000		

Note: *** implies 1% level of significance

** implies 5% level of significance

Source: Authors computation (2019) STATA 13 output

Table 4 shows the Robust OLS regression result for the study. From the analysis output, the values of F-Statistics equal to 13.29 (0.000) which signifies that the model is appropriate since the probability is less than the specified 5% level of significance, the overall effect of the credit risk management variables on financial performance is statistically significance. The analysis also shows that total divergence in the dependent variables explained by the independent variables (R-

squared) is 0.65 (0.000) and (Adjusted R-squared) 0.60 (0.000). This explains that LDR, CRR, SR, CAR, ACR, Firm size, jointly explain 65% of total variations in the performance of deposit money banks for the period under study while the remaining 35% of the total variation in performance was caused by other factors not explained by the model.

From the regression results in table 4, loan-to-debt- ratio has a beta coefficient of 0.002 with a t-value of 1.00 and P-Value of 0.325 which means that LDR has insignificant effect on ROA. The finding is consistent with Kolapo, Ayeni and Oke (2012) and Marshal and Onyekachi (2014) but inconsistent with Ogboi and Unuafe (2013); Funso, Kolade and Ojo (2012), Taiwo, et al. (2017). Therefore, the study accepts the null hypothesis which says Loan to deposit ratio has no significant effect on return on assets of deposit money banks in Nigeria.

Again, from the regression results in table 4, credit risk ratio has a beta coefficient value of 0.167 with a t-value of 0.69 and P-Value 0.492. This means that CRR has insignificant effect on ROA. The finding is compatible with the findings of Alalade, Agbatogun, Cole and Adekunle (2015) and Afriyie and Akotey (2012) but incompatible with Alshatti (2017), Oluwafemi, Israel, Simeon, Olawale (2014). Therefore, the hypothesis which says Credit risk ratio has no significant effect on return on assets of deposit money banks in Nigeria is hereby accepted by the study.

Again, table 4 also reveals that solvency risk has a beta coefficient value of 0.374 with a t-value of 5.35 and P-Value 0.000. This signifies that SR has positive significant effect on ROA. By supposition, holding all other variables constant, 1 unit increase in solvency ratio increases ROA by 37%. The finding is well-matched with the findings of Dezfouli, Ali and Shahchera (2014) but unmatched Hakimi, and Zaghdoudi (2017) and Ogboi and Unuafe (2013). The study concludes that solvency risk has effect on the financial performance of the banks. Therefore, the study rejects the proposed hypothesis which says Solvency risk ratio has no significant effect on return on assets of deposit money banks in Nigeria.

Once more, table 3 reports that, capital adequacy ratio has a beta coefficient of 0.003 with a t-value of 0.30 and P-Value of 0.765 which means that CAR has insignificant effect on ROA. It is theoretically acceptable that banks with good capital adequacy ratio have a good profitability. A bank with a strong capital adequacy is also able to absorb possible loan losses and thus avoids bank 'run', insolvency and failure. Our result indicates that, although capital adequacy ratio is positive, it is not significant. The insignificant impact of the level of CAR on deposit money banks'

profitability confirms the directive of the Central Bank of Nigeria (CBN) to deposit money banks to increase their capital from N25 billion. The finding is consistent with Li and Zou (2014) but inconsistent with Elshaday, Kenenisa and Mohammed (2018) and Charles (2013). Therefore, the study accepts the null hypothesis which says Capital adequacy risk ratio has no significant effect on return on assets of deposit money banks in Nigeria.

From the regression results in table 4, automation and cyber risk ratio has a beta coefficient value of -0.094 with a t-value of 1.84 and P-Value 0.511. This means that ACR has insignificant effect on ROA. The result has confirmed the proposed hypothesis which says automation and cyber risk has no significant effect on the financial performance of quoted deposit money banks in Nigeria.

Finally, the results show that firms size has insignificant effect on returns on assets. The firm size has a beta coefficient value of 0.033 with a t-value of 1.84 and P-Value 0.074. This means that firm size has significant effect on ROA. That is increase in firm size increases performance. Elshaday, Kenenisa and Mohammed (2018) supported this finding.

Conclusion and Recommendations

This study analyzed the effect credit risk management on the financial performance of quoted deposit money banks in Nigeria for a 9-year period (2010-2018). Based on the analysis carried out on the variables in question, the study concludes that risk management has little effect on the financial performance of deposit money banks in Nigeria as regards return on assets. Therefore, the study recommends that the management of the banks should establish a proper credit risk environment, sound credit granting processes, appropriate credit administration, measurement, monitoring and control over credit risk, policy and strategies that clearly summarize the scope and allocation of bank credit facilities as well as the approach in which a credit portfolio is managed i.e. how loans are originated, appraised, supervised and collected, which are basic elements for effective credit risk management. The bank management should sustain or improve on the level of total assets as it enhances and firms' size.

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