

THE EFFECT OF CREDIT RISK MANAGEMENT ON FINANCIAL PERFORMANCE OF LISTED DEPOSIT MONEY BANKS: EVIDENCE FROM NIGERIA

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Abstract: The study evaluates the impact of credit risk management on deposit money banks financial performance in Nigeria from 2011 to 2020. The study used 12 DMBs in Nigeria as sample of the study. The data employed were extracted from the sampled banks annual reports and accounts. Panel data regression was used to analysed the data. The study documented that loan and advances have negative impact on economic value added which was used as proxies for DMBs financial performance. Similarly, the study found that loan loss provision has negative effect on financial performance of DMBs. The study recommended that the management should implement a credit-sound programme that will boost profits. Management should make loans based on strong collateral. Despite the fact that it is a requirement for sound lending, it could provide as a soft cushion for the recovery of nonperforming loans, reducing loan losses.

Keywords: credit risk management, deposit money banks. DMBs, financial performance.

1. INTRODUCTION

Profitability is a measure of a bank's ability to take on risk and/or raise capital. It identifies a bank's competitiveness and assesses managerial quality (Waifem, 2007). Profitability is the most important factor in every business operation. The business will not exist in the long run if it is not profitable. As a result, determining current and historical profitability is critical. Income and expenses are used to determine profitability. The business generates revenue through its operations. A very lucrative firm can provide its owners with a substantial return on their investment (Waweru & Kalani, 2009). A prosperous banking industry can better withstand negative shocks and contribute to financial system stability. Profitability is the ability of banks to have a sound financial performance (Tanko, 2020; Tanko et al., 2021; Tanko & Saman, 2019)

However, commercial bank profitability can be divided into two (2) categories: those that are within management's control (internal determinants) and those that are outside management's control (external determinants) (external determinants) Bryman and Guru (2010). Internal factors influence a bank's policy and decisions about funding sources and users, capital and liquidity management, and expense management (Longstaff & Schwartz, 2006). Environmental and industrial issues are examples of external variables (Guru & Bryman, 2010). Because the goal of the study is to see how credit management affects profitability, it focuses primarily on internal variables. Internal credit management factors should be included in internal policy and decisions that may be assessed using financial accounts. External regulation, on the other hand, has an impact on bank decisions. One of the internal controls that banks must take serious in order to reduces lost and improve performance is credit risk management.

Credit generation has proven to be a critical function of banks and the primary source of internal revenue; it is one of the oldest and most sensitive tasks of banks. Credit, from a business standpoint, entails lending resources collected from depositors kept in their customers' accounts to another party at a greater interest rate than what they pay to fund suppliers in order to maximise profit (Daniel, Ezekiel, Musa, Muneer & Bashiru, 2018). The largest danger in banking, on a constant basis with any financial institution, is loan money and not receiving it back (Alobari, Naenwi, Zukbee, & Grend, 2018). The likelihood of losing money has increased as bankruptcy rates have climbed. Organizations are being forced to slow payments due to economic pressures and commercial practises, while resources for credit management are being cut in the face of rising expectations. As a result, credit professionals must actively seek for chances to incorporate proven best practises (Kagoyire & Shukla, 2016).

As a result, credit management in financial institutions has become critical to their long-term survival and expansion (Afriyie & Akotey, 2012). It is a structured strategy to managing uncertainty that includes risk assessment, formulation of risk management strategies, and risk mitigation using managerial resources. Credit management tactics include transferring risk to third parties, avoiding risks, lowering risk's negative impact, and accepting some or all of a risk's repercussions. Credit management is a word that refers to accounting operations that are normally carried out under the aegis of accounts receivables. In essence, this collection of processes entails determining whether or not to extend credit to a client, monitoring the receipt and logging of payments on outstanding invoices, initiating collection operations, and resolving disputes or enquiries about charges on a customer invoice. Credit management, when done correctly, is a wonderful way for a company to stay financially stable. Management is responsible for forming a credit administration team to guarantee that once credit is issued, it is effectively maintained and administered. Procedures for determining a company's overall credit risk exposure, as well as strong internal grading systems, should be sufficient.

Some deposit money institutions, particularly those in Nigeria, are hesitant to provide credit to their customers. This could stem from a desire to keep their assets liquid or semi-liquid due to the inherent challenge of debt recovery. Loan recovery is a problem for all commercial banks, and some of the listed banks have no special humanity. The recovery of a loan is one of a banker's most difficult, dull, energy-sapping, and dangerous activities. This is because the banker now has to deal with a difficult and nasty customer who is neither willing nor prepared to repay the loan unless very drastic measures are taken against them. The consumer, who looked to be quite honest and kind when the loan was advanced, becomes antagonistic, cooperative, and troublesome. Nonperforming loan issues may arise as a result of some managers providing credit to just the most powerful and well-placed members of society without following the proper procedures for giving such credit. Most of the time, such loans become bad debts since they are unable to be repaid.

Furthermore, a number of studies have looked at the impact of credit management on profitability in nations with varying characteristics. The research produced various conclusions, which were influenced by the character of each country's current governing structure. For instance Raymond, Adigwe and John-Akamelu (2015); Samoei, (2015); Kagoyire and Jaya (2016); Ifeanyi and Francis (2017); Alobari, Naenwi, Zukbee and Grend (2018); Daniel, Ezekiel, Musa, Muneer and Bashiru (2018); Kipkirui and Omagwa (2018) and Ogunlade and Oseni (2018); Mohammed, Idris and Abdullahi (2019) in their respective findings showed that credit management practices have a significant positive influence on profitability while Uwalomwa, Uwuigbe and Oyewo (2015) and Onuora and Ifeacho (2017) revealed that credit policy and liquidity management has significant negative relationship to Return on Assets.

These conflicting results suggest that more research is needed. Other research has not taken into account loan losses, which were utilised in this study. Furthermore, most of the studies focus on Return on Assets (ROA) Return on Equity (ROE) as measured for firm performance while this study used Economic Valued Added (EVA) as proxied for firm financial performance. As a result, the goal of this study is to determine whether adequate credit management has a favourable impact on the profitability of Nigeria's listed depository banks.

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Loan pricing theory argued that banks are not always able to establish high interest rates in order to maximise interest income. Because it is exceedingly difficult to predict the borrower type at the start of the banking relationship, banks should consider the issues of adverse selection and moral hazard. Charles and Kenneth are two brothers (2013). High-risk borrowers are willing to accept these high rates if banks set interest rates excessively high. When these borrowers obtain the loans, they are more likely to engage in moral hazard behaviour, also known as borrower moral hazard, because they are more likely to undertake high-risk projects or investments. According to Ogboi and Unuafe (2013), it is common to

find that the interest rate imposed by banks is not proportional with the risk of the borrowers in some circumstances. Fernando is a man with many talents (2012).

In addition, information asymmetry theory opined that That borrowers should be vetted, particularly by banks, as part of credit management. As symmetric information theory suggests, gathering trustworthy information from potential borrowers becomes crucial in achieving effective screening. In evaluating borrowers, both qualitative and quantitative methodologies can be utilised, albeit one main drawback of qualitative models is their subjective nature. According to Derban and Mullineux (2005), qualitative models can give numbers to borrowers' qualities, and the sum of the values can be compared to a threshold. This method reduces processing costs, subjective judgement, and potential biases. If it reflects changes in the projected degree of credit loan loss, rating systems will be relevant. Garba and Kurawa (2014).

in this regard quantitative models may be used to numerically determine which characteristics are important in enhancing default risk pricing, screening out bad loan applicants, and estimating any reserve required to cover predicted future loan losses. In conclusion, the transaction cost theory is best suited to a bank's credit management because the bank has a customer relationship based on which the bank will provide credit to clients or debtors. This theory contains the variables that a creditor will evaluate before issuing a loan to a customer, such as information about the customer's ability to pay on time, the type of the bank's financial statement, and the fact that it is not expensive to run. Finally, transaction cost theory is chosen as the figure that best describes credit management since it incorporates all of the qualities of credit management.

Non-Performing Loan and Financial Performance

Kargi (2011) used five years of data to examine the influence of credit management on the profitability of Nigerian banks. The study uses descriptive, correlation, and regression models to investigate the link. Credit management plays a vital part in the profitability of the Nigerian banking sector, according to him. The analysis backs up the assumption that non-performing loans has negative impact on bank profitability, putting banks at danger of illiquidity and distress. Li and Zou (2014), on the other hand, discovered that the indicator of non-performing loans had a favourable impact on bank profitability as assessed by return on equity (ROE) and return on assets (ROA) (ROA). The relationship between bank performance and credit management was examined by Shahi (2012). Their findings suggested that return on equity (ROE) and return on assets (ROA), both of which measure profitability, were inversely related to the percentage of non-performing loans to total loans at financial institutions, resulting in a drop in profitability.

Wan and Omar (2013) investigates the effect of credit risk on profitability of commercial banks in Nigeria. A total eight (8) commercial banks were 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. The result of the analysis has revealed that there is a negative and significant relationship between non-performing loan ratio and the profitability. Similarly, Sanusi (2014) conducted a research on the effect of credit risk management on the profitability of Nigerian banks. Data were generated from secondary sources, especially the annual reports and accounts of quoted banks from 2002 to 2011, 10 years. Descriptive statistics, correlation, well as random effect generalized least square (GLS) regression techniques were utilized as a tool of analysis in the study. The study revealed that nonperforming loan has a significance positive effect on the profitability of Nigerian banks.

On the other hand, Ugoani (2016) evaluate the effect nonperforming loans portfolio and its effect on bank profitability in Nigeria. The study used secondary data and multiple regression was utilised to analysed the data. It was found that nonperforming loans portfolio has negative effect on bank profitability. More so, Nyarko-baasi (2018) investigate the effect of non-performing loans on profitability of four of the major banks listed on the Ghana Stock Exchange (GSE). Panel regression analysis was employed to establish the relationship between credit risk and profitability. The data span of 2006 to 2015. Using EViews, the analysis was conducted based on fixed effects model and Correlated Random fixed effects Hausman test. The study revealed that NPLR negatively affect profitability of the sample banks.

In addition, Atoi (2018) examines Non-Performing Loan (NPL) and its effects on the stability of Nigerian banks with national and international operational licenses from 2014:Q2 to 2017:Q2. A "restricted" dynamic GMM is employed to estimate the macroeconomic and bank specific drivers of NPL for each licensed category. In a panel vector autoregressive framework, the Z-Score is built to proxy banking stability, and its reaction to shocks NPLs is explored. The findings show that while the determinants of NPLs differ across the two types of banks, the weighted average loan rate is a key macroeconomic driver of NPLs for both. The findings are also consistent with the moral hazard hypothesis and the risk-

reward tradeoff efficient market theory. Furthermore, international banks can survive NPLs shocks in the long run, despite transient fluctuations in the short term, whereas national banks' long-term stability is vulnerable to NPLs shocks. Similarly, Gabriel, Inim and Idachaba (2019) examined the effect of Non-Performing Loans on the financial performance of commercial banks in Nigeria between the periods of 1985 to 2016. The study employed the multiple regression techniques to analyse data collated from the Central Bank of Nigeria (CBN) statistical bulletin and Nigeria Deposit Insurance Corporation (NDIC) publications for various years. The result of the study shows that Non-Performing Loans to Total Loans ratio (NPL/TLR) has statistically negative significant effect on Return on Asset (ROA). These result shows that a high level of non-performing loans would reduce the financial performance of commercial banks in Nigeria.

Also, Gugong (2019) study revealed that non-performing loan no significant impact on performance of deposit money bank. Furthermore, Gugong, Ajayi and Aitimon (2019) examine the impact of risk management on the profitability of deposit money banks in Nigeria for the period of twelve years (2007-2018) using secondary data obtained from annual report for the sample firms. The population consists of 14 deposit money banks listed on the Nigerian stock exchange as at 31 December 2018 and the sample size is made up of entire 14 listed banks. This study adopted generalized least square random effect multiple regression technique in analyzing the data. It was established that a significant relationship exists between nonperforming loan and the financial performance of the banks in Nigeria. Similarly, Mohammed, Idris and Abdullahi (2019) study found that non-performing loans has a positive and insignificant effect on profitability.

Bhattarai (2020) examine the effects of non-performing loan on profitability of commercial banks in Nepal with panel data collected from twelve commercial banks of five years from 2013-2014 to 2017-2018 period with the total observations sixty. The multiple regression model has been used to analysis of the data. The Pooled ordinary least square model, fixed effect model and random effect model has been employed to analysed profitability. The profitability measure by return on equity (ROE) taken as dependent variable whereas non-performing loan (NPL), capital adequacy ratio (CAR), liquidity (LIQ), size of banks (SIZE) and inflation (INF) were independent variables. The result of three different model revealed that the NPL, CAR, LIQ have significant and negatively associated with ROE. Similarly, the SIZE has significant and positive associate with ROE. The INF has positive but insignificant result with ROE.

Alshebmi et al. (2020) evaluate the relationship between the non-performing loans and selected specific bank determinants (internal factors) and macroeconomic determinants (external factors) in the Saudi banking sector. The sample of the study covers all the twelve commercial banks that were operating in the Kingdom of Saudi Arabia. The study uses a panel data for period from 2009 to 2018. The study employed a variety of statistical tools such as the descriptive statistics, correlation and the regression analysis. The correlation result showed a negative insignificant weak relationship between nonperforming loans ratio (NPLs) and return on assets ratio (ROA). Linh et al. (2020) investigates the impact of non-performing loans on the ability to make profit of Vietnamese commercial banks in the period of 2008 to 2017. The study employed Generalised Least Squared of which the study revealed negative and significant of NPLs on ROA. Consequently, Budiarto (2021) studied the empathy credit risk model as an effort to overcome the problem of collectability in non-performing loans in improving the financial performance of BPR in Central Java. The population in this study was 260 leaders at the BPR in Central Java Province with a sampling method with a purposive sampling technique to obtain respondents as many as 150 BPR leaders. Data analysis using SEM AMOS shows the result that Non-performing loans have a negative significant effect on the financial performance of banks.

H01: Nonperforming loan has no positive influence on DMBs financial performance.

Loans and Advances and Firm Financial performance

Loans are sums of money borrowed from one person by another. The payment paid to the borrower is the amount in the nature of a loan (Akinleye, Akanji & Oladoja, 2013). Thus, from the borrower's perspective, it is 'borrowing,' while from the bank's perspective, it is 'lending.' A loan is a type of 'credit' that is given when money is issued and then repaid at a later period. Credit is granted for a certain purpose and for a set length of time when giving loans. Interest is imposed on the loan at the agreed-upon rate and payment intervals. The term 'advance' refers to a 'credit facility' provided by a bank. Banks primarily provide advances for short-term reasons, such as the purchase of traded items and the payment of other short-term trading responsibilities.

In a loan, there is a sense of debt, but an advance is a service that the borrower uses. However, advances, like loans, must be repaid. Thus, a loan is a credit facility that is repaid in instalments over a period of time, whereas an advance is a credit facility that is repaid in one year. Individuals, corporations, companies, and industrial concerns benefit greatly from

commercial bank loans and advances (Salami & Arawomo, 2013). Bank financing is used to fund the expansion and diversification of commercial activities to a great extent. Bank loans and advances assist businesses in meeting their short- and long-term financial requirements.

In the study of Kargi (2011) he documented that loans and advances has negative impact on ROA of listed Deposit Money Banks (DMBs) in Nigeria. Kolapo and Oke (2012) found that the effect of credit on bank performance as assessed by (ROA) was cross-sectional invariant, albeit the degree to which individual banks were influenced was not captured by the study's method of analysis. To avoid harm to the bank's profitability, it is critical that lending choices are based on thorough risk analysis. They claimed that good credit management is a vital component of comprehensive credit management procedures and critical to the long-term performance of all banking organisations. Some of the listed commercial banks' credit controls have an impact on loan, Credit insurance, customer covenants, loan diversification, customer credit ratings, financial situation reports, and the decision to refrain from further borrowing all had an impact on loan performance. According to the findings, the level of education of the personnel played a role in enhanced efficiency.

Adeusi, and Oladunjoye (2013) conducted a study on the effect of credit management on the profitability of commercial banks using five (5) quoted banks in Nigeria stock exchange. Data was sourced from annual report of selected banks. It provides empirical evidence for five (5) commercial banks in Nigeria for a period of 2010 to 2014. The data collected was analysed using pooled multiple regression. The result reveals that total loan and advance has significant positive effect to return on assets. Gugong (2019) documented that loan to deposit ratio has negative effect on banks financial performance in Nigeria. Mohammed, Idris and Abdullahi (2019) found that loans and advances has negative effect on DMBs financial performance.

H02: Loan and advances does not have positive impact on DMBs financial performance.

Loan Loss Provision and Financial Performance

Musyoki and Kadubo (2011) investigate the impact of credit risk management on the financial performance of Kenyan commercial banks from 2005 to 2013. They discovered that banks should consider the indicators of non-performing loans/gross loans, provision for facilities loss/net facilities, and leverage ratio when determining credit risk management. Also, Gugong (2019) investigates the impact of credit risk management on the financial performance of listed deposit money banks in Nigeria. The study employed secondary data. The data was extracted from the financial statements of the seven banks as sample size from the entire population of the study after subjecting them to filtering method of sampling technique. The period of the study is 10 years (2008 to 2017). The study used multiple regression as a technique of data analysis. Findings show that loan loss provision have negatively and significantly impacted on the bank's financial performance. Similarly, Mohammed et al. (2019) examined the impact of credit management on profitability (ROA) of commercial banks in Nigeria for the period 2009 to 2018. Secondary data were sourced from the annual reports of all the existing commercial banks studied. This study employed multiple regression technique in analysing the data that were gathered. The analysis was done using ordinary least square with SPSS version 21. the study documented that loan loss provision have negative and significant effect on profitability.

Based on the empirical studies review the study postulated the following hypothesis:

H03: Loan loss provision has no positive effect on DMBs financial performance.

3. METHODOLOGY

The study is of correlational research design. A correlational research design is used to established relationship between two or more variables(Tanko & Siyanbola, 2019). The design has been used to investigate the effect of credit risk management and firm financial performance of DMBs in Nigeria. The study covered the period between 2011 and 2020. The study sample consist of 10 DMBs listed on the floor of Nigeria Stock Exchange. The study will adopt the techniques of census sampling. In a working population, census sampling is the analysis of any unit. Therefore, as data will be collected for each corporation, every DMBs in the working population will be studied. This approach will be implemented because the collected data will give the researcher the ability to have the problem analysed more robustly. More so, the study will employ three-point filters that is the DMB must be listed before 2011, must not be delisted before 2020 and must have the available data for the study (Peter, 2019; Tanko et al., 2021).

Table 1: Variable Measurement

Variable	Variable types	Measurement
Economic Value Added (EVA)	Dependent	Log of Net profit after taxes-(WACC X invested capital) (Tanko, et al., 2021)
Non-performing loan ratio (NPLs)	Independent	Non-performing loan divided by loans and advance used by Marshal and Onyekachi (2014); Gugong, (2019); Mohammed, et al., 2019).
Loan and advances ratio (LAR)	Independent	Total loan and advances divide by total deposit (Gugong, 2019; Mohammed, et al., 2019).
Loan losses provision (LLP)	Independent	Total loan losses divide by classified loan (Gugong, 2019; Mohammed, et al., 2019).
Firm size		Logarithm of total asset as used by (Abor 2007; Tanko, et al., 2021)
Firm Age		The year of listing minus the year of study plus 1. Used by Rashmi (2003)

Source: Literature reviewed

The presentation of analysis was done through descriptive and inferential statistics. A two-stage approach comprising data envelopment analysis (DEA) and linear regression was used Simar and Wilson, (2015), Kimanzi et al (2020). The study used descriptive statistics to assess the centrality of research variables and the dispersal of them. The research used the mean to demonstrate centrality, while the standard deviation, the minimum and the maximum represents the dispersal measures. The correlation will be use to evaluate the nature of relationship between the independent variables and the dependent variable. The analysis was based on multiple linear regression that established the nature of the causal effect of the independent variable on the dependent variable.

The research adopts the models below, consistent with prior studies on credit risk management and firm performance;

$$EVA_{it} = \beta_0 + \beta_1 NPLS_{it} + \beta_2 LAR_{it} + \beta_3 LLP_{it} + \beta_4 FS_{it} + \beta_5 FA_{it} + \varepsilon_{it} \quad \text{--- 1}$$

Where:

EVA = Economic Value Added

NPLs = Nonperforming Loans;

LAR = Loan and advances ratio;

LLP = Loan losses provision

FS = Firm size;

FA = Firm Age;

i = firms 1 – 10;

t = the financial years 2015 – 2019;

β_0 = the intercept;

β_1-5 = the slope coefficient of explanatory variables; and

ε_{it} = error term.

4. RESULTS AND DISCUSSION

Descriptive Statistics

This section presents the descriptive statistics of the data for the study. It shows the mean, Standard deviation (STD DEV), Minimum (MIN), Maximum (MAX), Kurtosis and Skewness of data variables. The result of descriptive statistics is presented in Tables 4.1

Table 2: Descriptive Statistics

Variables	Obs.	Mean	Std Dev.	Min.	Max.
EVA	120	0.018	0.119	0.542	0.887
NPLR	120	0.157	0.381	0.000	3.721
LAR	120	0.441	0.544	0.031	5.459
LLP	120	0.062	0.159	0.000	1.488
FS	120	7.215	0.802	6.626	8.590
FA	120	23.00	14.747	5.000	49.000

Source: STATA Output, 2021 (Appendix)

Table 2 shows that the mean EVA of the sampled DMBs during the period of study was 0.018 with a standard deviation (SD) 0.119. This is an indication that the data for EVA deviate from both sides of the mean by 11.9%, which means that the data is slightly spread from its mean. The EVA also has a minimum and maximum value of 0.542 and 0.887 respectively, which result to the wide range of 0.006. The NPLR has a mean of 0.157 and an SD of 0.381, which implies that data for NPLR deviate from both side of the mean by 0.224; a minimum and maximum value of 0.000 and 3.721 respectively, hence the wide range of 3.721. This underlying of this huge loan loss by commercial banks is poor credit management which is a reflection of the increasing NPLR over the years. The table also shows mean loan and advances ratio during the period of 0.441 and standard deviation (SD) of 0.544. This indicates a wide variation of loan and advances during the period of the study since the mean is greater than the standard deviation. The minimum and maximum values of LAR were 0.031 and 5.459 resulting to the range 5.428.

The table also shows mean loan loss provision during the period of 0.062 and the standard deviation (SD) of 0.159. The minimum and maximum value of LLP were 0.000 and 1.488 resulting to the range 1.488. The results indicate a wide variation. The table also reports the mean firm size of the banks for the period as a mean of 7.215 with standard deviation (SD) of 0.802. This shows that the data for the firm age deviated from both sides of the mean 5.413, meaning that the data is widely spread from the mean. In addition, FS also has a minimum and maximum of 6.626 and 8.590 with the wide range of 2.964.

However, Table 2 shows that the mean firm age of the sampled DMBs during the study period was 23, with a Standard deviation (SD) of 14.747, meaning that the data for FA deviate from both sides of the mean by 8.253%. This is an indication that the data is widely spread from the mean. The data for FA also have a minimum and maximum value of 5 and 49 respectively. The range 44, which is a wide variation.

Diagnostic Tests

To ensure that the data for this study is fit for the model, the study conducted data normality test as well as a test for multicollinearity and heteroscedasticity among explanatory variables. This section presents the result of data normality test and VIF test, while test for heteroscedasticity is presented along with the regression result in section 4.

The Shapiro-wilk test for the data normality was conducted to test the null hypothesis that data for the variables of the study is not normally distributed, at a 5% level of significance. The result of the test was shown in appendix. Indicates that all the data are not normally distributed since the probability value is greater than 5%. However, the study used ladder to transfer the data (Turkey, 1981).

The Variance Inflation Factor (VIF) test was conducted to check for multicollinearity among explanatory variables of the study. It was expected that the VIF for all independent variables should be less than 10, while their tolerance levels should be greater than 0.10. The result of the VIF test as shown in appendix indicate that the higher VIF is 4.86 and the least is 1.33. Since none of the VIF is above 10 this applied the absence of multicollinearity.

Correlation coefficients

This section contains the relationship or level of association among the variable of the study. The summary of the correlation coefficients and p-values are presented on Table 3.

Table 3: Correlation Matrix

Variables	ROA	NPLR	LAR	LLP	FS	FA
EVA	1.000					
NPLR	0.035	1.000				
LAR	0.026	0.062	1.000			
LLP	0.073	0.054	0.022	1.000		
FS	0.485	-0.058	-0.142	-0.007	1.000	
FA	0.072	0.103	-0.131	0.030	0.409	1.000

Source: STATA Output, 2021 (Appendix)

Table 3 shows that there was positive correlation between NPLR and EVA of the sampled DMBs during the period, which was explained by the 0.035 coefficient. This implies that as NPLR increases, it leads to a verse movement in EVA. In the same vein, the table shows that there was a significant positive statistical correlation between LAR and EVA at the correlation coefficient of 0.026. This means that as LAR increases, it leads to same movement in EVA. Similarly, LLP has a positive association with EVA at a coefficient of 0.073 which shows a direct relationship. FS has a positive relationship with EVA at the coefficients of 0.485. This means that FS has verse relationship with ROA such that as FSIZE is increased, EVA improves. The table also shows that FA exhibits a positive relationship with EVA. This is at the coefficients of 0.072

Regression Analysis and Test Hypothesis

This section discusses the regression analysis as well as the test of the formulated hypotheses. It also contains tests for heteroscedasticity (hettest), Hausman fixed- random specification and Breusch and Pagan Lagrangian Multiplier for random effects. Result of these tests are presented in appendix.

The Breusch- Pagan/Cook-Weisberg test for heteroscedasticity was conducted to ascertain the existence or otherwise of heteroscedasticity. The test was to test the null hypothesis that there is presence of heteroskedasticity among the standard errors of the data variable at 5% level of significance. Results shows that hottest has a Chi2 of 4.82, which is significance at the p-value Of 0.0282. The result show that there is presence of heteroskedasticity among values for EVA, NPLR, LAR, LLP, FS and FA.

The presence of heteroscedasticity among explanatory variables, coupled with the fact that data for EVA, NPLR, LAR, LLP FS and FA are abnormally distributed, as it is evident in the result of the Shapiro-wilk test for data normality, implies that data values for the study require a more generalized least squares (GLS) regression analysis, which has fixed effect, random effects and robust regression analysis. Hence, the result of Hausman Fixed Random specification test in appendix B shows a Chi2 of 7.84, which is insignificance at the p-value of 0.1656. This indicates that fixed effect regression analysis is not suitable for the study since the p-value is insignificant. However, the random effect regression is more suitable. To this effect the Breusch and Pagan Langrangian Multiplier test for random effects was also conducted, the result of which shows Chi 2 7.12 at the significance p-value 0.0038. This means that the random effect regression analysis is more appropriate for fitted values of EVA. Thus, the result of the GLS random effect multiple regression analysis is presented in Table 4.

Table 4: Summary of Random Effect Regression Result.

Variables	Coefficient value	Z-Value	p>/z/
Constant	-0.411	-2.37	0.018
NPLR	0.093	0.90	0.368
LAR	-0.025	-0.38	0.702
LLP	-0.081	-0.58	0.565
FS	0.067	3.06	0.002
FA	-0.002	-1.49	0.135
Wald chi 2	16.47		
Prob.	0.0056		
R ²	0.2305		

Source: STATA Output, 2021 (Appendix)

Table 4 contains the result of GLS random effect multiple regression for fitted of ROA. It has shown that the coefficient of the intercept (CONST) is -1.411 which determines the value of EVA when there is an increase or decrease in any of the independent variables by 1 unit, while all others are held constant. The z-value of the CONST -2.37, which is significant at 1.8% (p-value = 0.018). NPLR had a coefficient of 0.093 at the z-value of 0.90 and p-value of 0.386. This indicated that all things being equal, NPLR insignificantly effect ROA at more than 38.6% (1 - 0.386) confidence level, to the extent of 0.093 NPLR. The positive coefficient value indicates that as NPLR increase by 1% EVA also increase by 0.093. The result is consistent with Shahi (2012); Sanusi (2014); Mohammed, Idris and Abdullahi (2019) who documented a positive relationship between NPRL and EVA.

On the other hand, this finding is not in line with the findings of Kargi (2011); Nepal (2012). LAR had a coefficient of -0.025 at the z-value -0.38 and p-value of 0.702. This indicated that LAR is insignificantly and negatively effects EVA at more than 2.5%. The negative coefficient indicate that 1% increase of LAR will lead to 2.5% decrease of EVA. This finding is in agreement with the study of Mohammed, Idris and Abdullahi (2019). However, disagreed with Shahi (2012); Sanusi (2014). The overall p-value of EVA shows insignificantly result of 70.2%. Also, the result revealed a negative and insignificant effect of LLP on EVA at coefficient value of -0.081 and p-value of 0.565. This negative coefficient value indicates that for any 1% increase of LLP will lead to over 8.1% decrease of EVA. The finding aligns with finding of Gugong (2019); In addition, based on the relationship between NPLR, LAR, LLP and EVA are to accept the null hypothesis and rejects the alternative hypothesis.

Table 4 shows the probability of 0.368 on the relationship between NPLR and ROA. This indicate that there is no significant effect of NPRL on EVA. As a result, this, the study provides enough evidence to accept the null hypothesis which states that There has no significance effect of NPRL on EVA of listed deposit money banks in Nigeria.

Table 4 shows the probability of 0.702 on the relationship between LAR and EVA. This indicate that there is no significant effect of LAR on EVA. Hence, this, the study provides enough evidence to accept the null hypothesis which states that There has no significance effect of LAR on EVA of listed deposit money banks in Nigeria.

Table 4 shows the probability of 0.565 on the relationship between LLP and EVA. This indicate that there is no significant effect of LLP on EVA. As a result, this, the study provides enough evidence to accept the null hypothesis which states that There has no significance effect of LLP on ROA of listed deposit money banks in Nigeria.

5. CONCLUSIONS AND RECOMMENDATIONS

Sequel to the finding of the study, the study concluded that loan and advances insignificantly reduce profit of DMBs. This implies that loan advances reduced the performance of DMBs in Nigeria especially when there is default in repayment. Also, loan loss provision negatively impacted on profitability. This implies that loan loss provision reduces DMBs performance since this provision is deducted as expenses before arriving at profit before tax. More, so when the actual loan become nonperforming loan it in turn affects the performance of the banks. Nonperforming loan has a positive significant effect on profitability.

On the basis of the results and conclusions of the study of credit management on profitability of listed deposit money banks in Nigeria. The study considered these recommendations in the future intervention strategies which will improve the credit management.

Commercial banks should use credit analysis and assessment techniques to determine whether their clients (customers) are creditworthy and thereby reduce non-performing loans. Commercial banks must also improve their credit management procedures in order to reduce default rates and non-performing loans. They will be able to improve their financial performance as a result of this. A solid internal control system is also required to reinforce the credit policy and management of the banks' credit facility. This necessitates a careful examination of loan applications at various levels of bank loan and advance approval.

Before granting credit to a prospective creditor, he should be thoroughly analysed to determine his credit worthiness, maybe using the Character, Capacity, Capital, Collateral, and Condition (5c's) of credit (customers). The management should implement a credit-sound programme that will boost profits. Management should make loans based on strong collateral. Despite the fact that it is a requirement for sound lending, it could provide as a soft cushion for the recovery of nonperforming loans, reducing loan losses.

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