



Research Paper

Effect of Credit Risk on the Performance of Deposit Money Banks in Nigeria

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ABSTRACT

This study examined the effect of credit risk on the performance of Deposit Money Banks (DMBs) in Nigeria (1994-2018). The aggregate effects of nonperforming loans to total loans ratio and non-performing loans to shareholders' funds ratio changes on the return on assets and the return on equity of the DMBs were studied. Data were sourced from the Nigerian Deposit Insurance Corporation (NDIC) annual reports and the Central Bank of Nigeria (CBN) statistical bulletin for the respective years under study. The study adopted *ex post facto* research design and Descriptive research methods. Two models were adapted from models of earlier studies, which hinged on the Arbitrage Pricing Theory. The goodness-of-fit of the variables data were established using the Jarque-Bera test. The non-stationarity of the Dickey-Fuller and Phillips-Perron's Unit Root tests, determined the selection of Ordinary least square technique as the tool of estimation for the models. The results revealed that the aggregate effect of credit risks is insignificant on DMBs performance. The risk of Non-performing loans to total loans ratios affects performance negatively while the risk of Non-performing loans to shareholder's funds affects performance positively. Diagnostic tests of heteroskedasticity, multicollinearity and serial correlationality were used to confirm the reliability of the outcome. The study concluded that situations where Nigeria DMBs have been averse towards lending have not improved their performance, as increased credit actually increased performance irrespective of increased nonperforming loan ratios. The study recommended among others that DMBs in Nigeria should lend more especially in increasing their consumer loans and bank guarantees portfolios. Also regulators should impose sanction on DMBs based on their non-performing loans as it affects liquidity rather than on the volume of the non-performing loan. The study contributed to knowledge, by improving the model of earlier studies in the inclusion of the ratio of non-performing loans to shareholder's funds variable which showed a positive effect on performance, contrary to a priori expectations.

Key words: Credit Risks; Deposit Money Banks, Performance; Non-performing loan to Total Loans Ratio; Non-performing loan to Shareholders' Ratio.

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I. INTRODUCTION

Banks are primarily intermediaries between savers and borrowers (Nwakoby & Ananwude, 2016). Deposit Money Banks (DMBs) are the first entrant and largest partners with the Central Bank of Nigerian (CBN) in money market transactions (Mordi, Englama & Adebusuyi, 2004). They similarly serve as the intermediaries between the Central Bank and the general public in the processing, sales and purchase of banking products and monetary policy instruments. Thus, in carrying out its functions as intermediaries they absorb the risk of savers and borrowers in order to make profit. Credit risks are the risks that banks face when they lend out savers funds. It is the risk or probability that funds lent out will not be repaid. This risk is interrelated with the performance of the bank (Apatachioae, 2015).

Bank performance is defined as the reflection of the way in which the resources of a bank are used in a form which enables it to achieve its objectives, (Moles, 2004). Hence to perform better, banks require taking more credit risks to achieve better profit positions. The situation in Nigerian DMBs as regards intermediation

has been characterised by low Credit risks appetite (Audu, 2014; Etale, Ayunku & Etale ,2016). This is a perceived situation on how the DMBs respond to Credit, but in order to determining if this disposition has been beneficial or not, it becomes imperative to study the effects of credit risks holistically.

Some empirical studies on the effect of credit risk on performance for DMBs have given useful results. These results question the usefulness of the effort channelled towards managing credit risks and if such resources may be applied elsewhere. However, some of these studies have not provided enough conclusions required to trigger effective policy and regulatory changes, in the DMBs and their regulators, towards changing the lending bias in the country. There is no clear consensus as to the effect of Nonperforming loan to total loans and to shareholder's funds ratios on performance. These conflicting results is most likely to stem from the varying period of studies, aside the varying selection of DMBs studied as there mostly similar variables and methods of analysis applied. The time frame of earlier studies found covered short periods, mostly less than ten year. Longer periods of study are required for more comprehensive research and for the establishment of detailed long run effect.

The Return on Asset (ROA) and the Return on Equity (ROE) are two widely used variables for measuring bank performance to account for risk criteria. Bikker (2010) emphasised the use of a combination of indicators for better description of performance. However, earlier studies found in the Nigerian context used either ROA or ROE. There are scanty studies found that gave the effect of credit risks on both ROA and ROE.

This study will provide answers to the following research questions: (i) What are the effects of Nonperforming loan to total loan ratio changes on the performance of DMBs in Nigeria? (ii) How has Nonperforming loan to shareholder's funds ratio changes affected the performance of DMBs in Nigeria?

Hypotheses: H_0 1- Nonperforming loan to total loans ratio changes have no significant effect on the performance of Nigerian DMBs. H_0 2- Nonperforming loan to shareholder's funds ratio changes have no significant effect on the performance of Nigerian DMBs.

II. REVIEW OF RELATED LITERATURE

Conceptual Review

Credit Risk

The International standard on risk management (ISO 31000, 2009) defines risk simply as the effect of uncertainty on objectives. Chartered Institute of Procurement and Supply CIPS, also defined risk as the probability of an unwanted outcome happening, where probability is the measure of the likelihood that a given or result might occur. The Basel Committee on Banking Supervision defines credit risk as the potential that a bank borrower, or counterparty, will fail to meet its payment obligations regarding the terms agreed with the bank. It includes both uncertainty involved in repayment of the bank's dues, and repayment of dues on time. It could occur because of the following reasons, inadequate income of borrowers, Inadequate underwriting frameworks, Business failure of the borrowers, and the unwillingness of the borrowers to repay. Banks desire loans to perform, in granting loans create credit risks, which are basically nonperforming loans (NPL). Credit Options are derivative instruments sold to investors who speculate if there are is more risk to the debtor in not repaying their obligation than in repaying.

Nonperforming loans to total loan ratio

The nonperforming loan ratio, or the NPL ratio, is the ratio of the amount of nonperforming loans in a bank's loan portfolio to the total amount of outstanding loans the bank holds. The NPL ratio measures the effectiveness of a bank in receiving repayments on its loans. The total amount of the loan, not just the outstanding loan balance when the loan was considered nonperforming, counts toward the NPL total. To achieve this ratio, the NPL total is divided by the total amount of outstanding loans in the bank's portfolio. The ratio can also be expressed as a percentage of the bank's nonperforming loans. Financial analysts frequently use the NPL ratio to compare the quality of loan portfolios among banks. They may view lenders with high NPL ratios as engaging in higher-risk lending, which can lead to bank failures. Economists examine NPL ratios to predict potential instability in financial markets. Investors can view NPL ratios to choose where to invest their money; they can view banks with low NPL ratios as being lower-risk investments than those with high ratios, (Moles, 2004). The advantage of using this ratio to assess performance over just the NPL is that banks that are credit risk averse will not score higher over banks that are more credit risk inclined, unnecessarily.

Nonperforming loans to shareholder's equity ratio

The Moody's investor service, banking and ratio definitions of 2011, defines Nonperforming loans to shareholder's equity ratio as the NPL as a percentage of shareholder's equity plus provisions. This definition draws attention more to the reason for the use of this ratio in the measurement of the quality of the bank's assets. This reason is simply the ability of the bank to replace the amount lost to bad loans without involving savers funds. Hence the ratio gives an indication of the performance of the bank in its ability to protect its savers. This

is a critical indicator as it hinges on a primary responsibility of a bank. The additional benefit of applying this ratio as a measure of performance is that it can be classified as not only an asset quality ratio but also as a solvency ratio.

Bank Performance

Return on equity (ROE) and Return on assets are important components in banking for measuring corporate performance (Moles, 2004). Return on equity (ROE) helps investors gauge how their investments are generating income, while return on assets (ROA) helps investors measure how management is using its assets or resources to generate more income. Bank managers and bank analysts generally evaluate overall bank profitability in terms of return on equity (ROE) and return on assets (ROA), and when a bank consistently reports a higher than average ROE and ROA, it is designated a high performance bank (Apatachioae, 2015).

Theoretical Framework

From the conceptual review, the relationship between risk and performance is basically that of expectation and actual return respectively. A theoretical justification to measuring risk that is attractive in the sense that it postulates a number of sensitivity factors that determines the return characteristics, is the Ross's Arbitrage Pricing Theory (APT) in Ross (1976). The model postulates that the equilibrium expected return on the venture is the risk-free rate and the sum of a number of risk sensitivities to economic factors.

$$E(r_b) = r_f + b_1E(f_1 - r_f) + b_2E(f_2 - r_f) + b_3E(f_3 - r_f) + \dots + b_iE(f_i - r_f) + \varepsilon$$

Where for the banking industry, $E(r_b)$ is the expected return of the industry, r_f is the risk-free rate, f_i is the i th risk factor and b_i is the i th sensitivity of industry b to the factor i and ε is a residual element which has an expected value of zero. This study is hinged upon this model.

Empirical Review

Kolapo, Ayeni, and Oke (2012) investigated the quantitative effect of credit risk on the performance of commercial banks in Nigeria over the period of 11 years for five banks. The traditional profit theory was employed to formulate profit, measured by Return on Asset, as a function of the ratio of Non-performing loan to loan & Advances, ratio of Total loan & Advances to Total deposit and the ratio of loan loss provision to classified loans as measures of credit risk. Their results showed that the effect of credit risk on bank performance measured by the Return on Assets of banks is cross-sectional invariant. That result cuts across banks in Nigeria, though the degree to which individual banks are affected was not captured by the method of analysis employed in their study.

The study of Adeusi, Akeke, Adebisi, and Oladunjoye (2013) researched on both liquidity and credit risks, and found that the bank's motivation for risk management comes from those risks which can lead to underperformance, and also that risk effects do not only have greater impact on bank performance but also on national economic growth and general business development. Their result suggests an inverse relationship between financial performance of banks and doubt loans, and capital asset ratio was found to be positive and significant. Similarly it suggests the higher the managed funds by banks, the higher the performance. Their study concludes a significant relationship between banks performance and risk management.

Abiola, and Olausi (2014) studied the association between risk management practices and bank financial performance in Nigeria using a sample of seven commercial banks for seven years. Return on Equity and Return on Asset were used as the performance indicators while Non-Performing Loans and Capital Adequacy Ratio as credit risk management indicators. Their findings are in harmony with the conventional view that credit risk management has a significant impact on the profitability of commercial banks' in Nigeria.

Olusanmi, Uwuigbe and Uwuigbe (2015) studied the impact of what they described as effective credit risk management, in line with standards, on bank's financial performance in Nigeria and their results was not consistent with the traditional views as the all the risk variables employed: Non performing loan ratio, Capital Ratio, Loan to Total Deposit, and Risk Disclosure proved to be non significant with the widely used return on equity for performance. This result is at variance with many conventional results on Nigerian banks even with similar dependent and independent variables and with a fair large scope of fourteen banks and seven years period of study and also with similar methodology. Their study however concluded that financial performance cannot be explained away by the compliance or non-compliance to Basel's regulation by financial institutions, but could be as a result of the accumulation of minor difficulties and inconsequential malfunction of the individual actors resulting in a massive breakdown. Another study with some inconsistency with the traditional position is that of Adeusi, Akeke, Adebisi & Oladunjoye (2013).

The study of Fapetu, Seyingbo and Owoeye (2015) also examined the impact of credit risk but further narrowed the performance of banks in Nigeria to interest income, and their results showed that non-performing loan, Loan Loss Provisions and Loans and advances are statistically significant in explaining the variation in interest income across banks in Nigeria, while Loan Advances/Total Deposit is not. While it is interesting to

note that the inclusion of total deposit to loan and advance makes the ratio insignificant to income, the more important issue with the evidence is the lack of depth of the performance variable. Banks can hardly depend on only interest income for performance.

Perhaps the only study found on Nigeria DBMs that involved an aggregate data of the banks is that of Etale, Ayunku, and Etale (2016). However, this study only investigated the relationship between non-performing loans and bank performance, using only return on equity for performance and bad, doubtful, and substandard loans for non-performing loans. This research can be considered as very shallow considering the selection of very few and similar independent variables. As expected their results showed that bad and doubtful loans negative and significant influence on return on equity, while the impact of substandard loan though also negative but insignificant.

Saheed (2018) also examined credit and liquidity risks affecting profitability of DMBs in Nigeria for the period of 2008-2016 using panel data of 14 listed banks. The result revealed liquidity risk had a positive and significant relationship with bank profitability while Credit Risk had a negative and significant relationship with bank profitability during the study period.

III. METHODOLOGY

The study applied *ex-post facto* design by using historical records. It adopted a descriptive research method to explain how the control independent variables affect the dependent variables. The Correlational approach was applied using regression analysis to determine the level of correlation and significance between the variables.

The study adapted the model by Kolapo, Ayeni and Oke (2012) and Abiola and Olausi (2014):-Bank performance = f (credit risk).

Where, Kolapo, Ayeni and Oke (2012) represented Bank performance as Return on Assets and credit risks as non performing loan to total loans and total loans to total deposit ratios (LTD). Given as $ROA = f(NLT, LTD)$.

Abiola and Olausi (2014) improved on the model by including Return on Equity to the dependent variable and by replacing the independent variable, LTD with Capital adequacy ratio (CAR), defined as the bank's capital divided by its risk weighted assets, in order to account for the effect of the risk on Equity. Given as $(ROA, ROE) = f(NLT, CAR)$.

However, some authors posits that LTD and CAR are more of Liquidity risk control variables than Credit risk (Boudreaux, 2003; Moles, 2004), because both accounts more for the bank's readiness to meet cash obligations. Agbada and Osuji (2013); and Saheed (2018) concur with this and have applied LTD and CAR as Liquidity risk control variable. Thus, this study further improved on the model by replacing LTD and CAR with Non-performing loan to shareholder's funds NLS, which even captures the effect of credit risk on equity more. Given as

$$(ROA, ROE) = f(NLT, NLS).$$

Hence, in determining the effects of credit risks on banks, extent of the relationship between the return on asset, and return on equity and the nonperforming loans ratio to total loans, and nonperforming loans ratio to shareholders' funds of banks in Nigeria was represented by the equations

$$ROE_t = \beta_{c0} + \beta_{c1}NLT_t + \beta_{c2}NLS_t + \varepsilon_{ct} \dots \dots \dots a$$

$$ROA_t = \beta_{c0} + \beta_{c1}NLT_t + \beta_{c2}NLS_t + \varepsilon_{ct} \dots \dots \dots b$$

Where, NLT_t and NLS_t are the nonperforming loans ratio to total loans, and nonperforming loans ratio to shareholders' funds with time. β_{c0} and β_{c1} , β_{c2} are the constant coefficient of credit risk and the coefficients of the credit risk variables respectively. ε_{ct} is the credit risk residual term.

The method of data analysis employed involved the descriptive statistics tests, the stationarity tests, the actual model estimation and the diagnostics tests.

IV. PRESENTATION AND ANALYSES OF DATA

Descriptive Statistics Table 4.1 Descriptive Statistics of the variables employed in the study

| | Mean | Maximum | Minimum | Standard Deviation | Jarque-Bera | Probability | Obs |
|-----|--------|---------|---------|--------------------|-------------|-------------|-----|
| ROA | 2.13 | 5.92 | -9.28 | 2.96 | 81.12 | 0.00 | 25 |
| ROE | 38.67 | 162.98 | -64.72 | 47.01 | 2.72 | 0.26 | 25 |
| NLT | 20.20 | 69.00 | 2.81 | 17.77 | 14.68 | 0.00 | 25 |
| NLS | 122.11 | 567.70 | 12.01 | 158.91 | 17.37 | 0.00 | 25 |

Source: Author's computations.

The descriptive properties of the data from Table 4.1 feature the mean, maximum, minimum, standard deviation, Jarque-Bera, p-value and number of observations spanning 25 years. The dependent variables: ROA and ROE have means of 2.13 and 38.67, maximum of 5.92 and 162.98, minimum of -9.28 and -64.72 with

standard deviations of 2.96 and 47.01, respectively. This shows that return on equity is higher than assets on Nigerian firms indicating the possibility of higher value of shareholders wealth over the firm asset.

The probability of Jarque-Bera statistics showed that ROA variable is not normally distributed over time while ROE has a normal distribution. However the variables of NLT (14.68) and NLS (17.37) both have p.values less than 0.05 indicating lack of normal distribution.

4.3 Unit Root Test Result

In an attempt to avoid spurious regression result, the stationarity of the data was checked through Augmented Dickey-Fuller (ADF), and Phillips Peron (PP) tests. The ADF, and PP stationarity check was performed at a level and first difference, and in two sets at intercept, at intercept and trend. The results for ADF and PP tests are presented on Table 4.2 and 4.3 respectively.

The standard rule for regression analyses is to employ the OLS when all the variables are integrated at 1(0); Johansson Cointegration for variables integrated at 1(1) and Autoregressive Distributive Lag (ARDL) for variables integrated at both 1(0) and 1(1). Again, the analyses will first be considered for data set with intercept only, and where variables are not suitable (stationary) at intercept only, other conditions such as intercept and trend or none (no intercept or trend) will be considered.

The ADF and PP results show that the dependent variables (ROA and ROE) are stationary at level. This means that the ROA and ROE are integrated at 1(0). Thus, they will be used at their original state for regression analyses.

The variables for the model being NLT and NLS are also stationary at level in both ADF and PP tests. The stationarity are also obtainable at intercept only. This implies that all variables for the model, ROA, ROE, NLT and NLS are all stationary at level. This suggests that the regression for the model can be performed using the Ordinary Least Square technique at intercept only.

Table 4.2: Result of ADF Stationarity test

| Variables | ADF Test at Level | | ADF Test at 1st Difference | | Remark |
|-----------|-------------------|-------------------|----------------------------|-------------------|--------|
| | Intercept | Trend & Intercept | Intercept | Trend & Intercept | |
| ROA | -5.0609 (0.0005)* | -5.1041 (0.0025)* | - | - | 1(0) |
| ROE | -4.5397 (0.0018)* | -5.5743 (0.0012)* | - | - | 1(0) |
| NLT | -3.1136 (0.0402)* | -3.8107 (0.0377)* | - | - | 1(0) |
| NLS | -3.4107 (0.0217)* | -3.6272 (0.0517)* | - | - | 1(0) |

Source: Author's computation

Table 4.3: Result of Philip-Perron Stationarity test

| Variables | PP Test at Level | | PP Test at 1st Difference | | Remark |
|-----------|-------------------|-------------------|---------------------------|-------------------|--------|
| | Intercept | Trend & Intercept | Intercept | Trend & Intercept | |
| ROA | -5.0686 (0.0005)* | -5.2273 (0.0019)* | - | - | 1(0) |
| ROE | -4.5546 (0.0017)* | -5.0129 (0.0030)* | - | - | 1(0) |
| NLT | -3.8696 (0.0080)* | -3.4939 (0.0649)* | - | - | 1(0) |
| NLS | -7.8895 (0.0000)* | -5.6055 (0.0009)* | - | - | 1(0) |

Source: Author's computations.

Credit Risk and Bank Performance Nexus

Hypothesis: $H_{o1 \& 2}$ - Non performing loan to total loan and to shareholders' funds ratios changes has no significant effect on the performance of Nigerian DMBs.

The coefficients of determination (R-squared) for ROA and ROE models are 0.1316 and 0.1086 respectively. This indicates that credit risk variables (NLT and NLS) explained about 13% and 11% of the changes in return on asset (ROA) and return on equity (ROE) respectively. The coefficient of regression for NLT showed a negative and insignificant effect for both ROA and ROE while NLS showed a positive and insignificant effect for both ROA and ROE. However, the F-statistics for both ROA and ROE models are not statistically significant indicating that credit risk has no significant effect on bank performance (measured as ROA and ROE).

Decision: Hypothesis $H_{o1 \& 2}$ - Null accepted

4.5 Diagnostics Tests of the Regression Models

The diagnostics were tested to determine the reliability of the model estimations and empirical findings on this study. Following diagnostics including multicollinearity, serial correlation, heteroskedascity and normality test.

4.5.1 Multicollinearity Test

Table 4.11: Result of the Variance Inflation Factor for test of multicollinearity

| Variable | Variance | VIF | Variance | VIF |
|----------|-------------|----------|----------|----------|
| | ROA | | ROE | |
| | Credit Risk | | | |
| NLT | 0.006333 | 5.288391 | 1.663546 | 5.288391 |
| NLS | 7.92E-05 | 5.288391 | 0.020809 | 5.288391 |

Source: Author's Computations, extracts from appendix 4

The test of multicollinearity becomes pertinent as high multicollinearity can causes the confidence intervals of the coefficients to become very wide and the statistics tend to be very small, making the hypothesis testing to be misguided. Presence of multicollinearity is tested using the Variance Inflation Factor (VIF). VIF shows how multicollinearity has increased the instability of the coefficient estimates (Freund & Littell 2000). The **Decision Rule:** If any of the VIFs exceeds 10.5, it is an indication that the associated regression coefficients are poorly estimated because of multicollinearity.

From the results of the VIF, none of the variables have a center VIF above 10. This indicates that there is no presence of multicollinearity of the models. The results from the model will not likely overstate the coefficients of the regression and coefficient of determination. Thus it can be said that the result of the coefficient are true to the relationship of the model.

4.5.2 Serial Correlation Test

Table 4.12: Breusch-Godfrey Serial Correlation LM Test

| Models | Estimated Equation | F-statistic | P-value |
|---------|--------------------|-------------|---------|
| Model 2 | ROA →NLT + NLS | 0.2969 | 0.7467 |
| | ROE →NLT + NLS | 2.4302 | 0.1163 |

Source: Author's Computations, extracts from appendix 4

This test investigates whether there is a correlation between one time period and another over time in the time series used for the analyses. The presence of correlation of time periods will lead to serial correlation which will have huge effect on the reliability of model estimation. It may lead to high significant value, inefficient estimation, exaggerated goodness of fit and false coefficient of regression sign (positive or negative). The presence of serial correlation is tested using the Breusch-Godfrey Serial Correlation LM Test. The null hypothesis is no presence of serial correlation. The decision rule is to reject the null hypothesis if the p.value is less than 0.05 level of significance. From result in Table 4.12, the p.value of the models are greater than 0.05, revealed that the models are not serially correlated at 5% level of significance.

In the results of the F-statistics for the models, the probability values are greater than 0.05. Thus, we cannot reject the null hypothesis of no serial correlation. The study thus concludes that there is no serial correlation (of time series) in the model. This confirms that the natures of the relationships (negative or positive) as found in the estimation are the correct and true of the model characteristics.

4.5.3 Heteroskedasticity Test

Table 4.13: Model Heteroskedasticity Test Results

| Models | Estimated Equation | F-statistic | P-value |
|---------|--------------------|-------------|---------|
| Model 2 | ROA →NLT + NLS | 1.3402 | 0.2843 |
| | ROE →NLT + NLS | 0.0024 | 0.9976 |

Source: Author's Computations, extracts from appendix 4

To avoid a situation where the magnitude of residuals seems to be related with the magnitude of recent residual, the heteroskedasticity test was conducted. Presence of heteroskedasticity is implies that the coefficients estimated from the regression analyses will be a biased one. Presence of heteroskedasticity means that there is an unequal error variance in the model from the data observations. The null hypothesis is that the residuals are homoscedastic and the alternate hypothesis is that the residuals are heteroscedastic. The decision rule is to reject the null hypothesis if the p.value is less than 0.05 level of significance.

From result in Table 15, the p.value of the models are greater than 0.05, revealed that the models do not have homoscedastic at 5% level of significance. This confirms that the result obtained from the estimated model is not a biased value.

4.5.4 Normality Test

Table 4.14: Model Normality test results

| Models | Estimated Equation | JarqueBera Statistics | P-value |
|---------|--------------------|-----------------------|---------|
| Model 2 | ROA →NLT + NLS | 48.9150 | 0.0000 |
| | ROE →NLT + NLS | 1.6802 | 0.4317 |

Source: Author’s Computations, extracts from appendix 4

The presence of normality of the variables in the model is examined. Lack of normal distribution implies that the results cannot be used to make future predictions about the economy. Jarque-Bera is a test statistic for testing whether the series is normally distributed. The null hypothesis is that the variable is normally distributed. Decision rule is to reject when p.value is less than 0.05 level of significance.

From the results of the Jarque-Bera statistics, all the models except ROA for model 2 have p.value above 0.05. This means that the residuals do not have normal distribution. This implies that the results from these data can be used for prediction of future effect of risk management (market risk, liquidity risk, operational risk and ROE model of credit risk) on bank performance. However, the result of the model of credit risk using ROA cannot be used for economic predictions.

V. DISCUSSION OF FINDINGS

Both independent variables NLT, NLS showed no significant effect on both performance indicators. However, while NLS had a negative effect on both ROA and ROE, NLT had a positive effect also on both, interestingly. The effects are the same for long and run phases, since the independent and dependent variables showed stationarity at level. Therefore in response to research the question (I &ii), our findings showed that the extent of effect of credit risk on DMBs in Nigeria is conclusively insignificant and could be positive and negative depending on the whether NLS and NLT are the credit risk variable applied respectively. While these results agree partly with those of Adeusi, Akeke, Adebisi, and Oladunjoye,(2013), Kolapo, Ayeni and Oke (2012), and Abiola and Olausi, (2014), who declared that credit risks has negatively affected performance, the results of Olusanmi, Uwuigbe, and Uwuigbe (2015), Fapetu, Seyingbo, and Owoeye, (2015).and Etale, Ayunku, and Etale (2016) disagrees totally, and rather submitted that credit risk improved performance significantly. The implication of this result is that Non performing loans are not detrimental, where there is sufficient equity, thus the CBN should tie Non performing loans limits of DMBs to their level of equity, rather than applying specific limits of the Non performing loan to total loan for all DMBs. This is because the effect of Nonperforming loans to shareholder’s funds has been positive. Another implication is that the use of Options will be beneficial in reducing the impact of credit risk on performance as the cause of the negative effect is in the nonperforming loans fraction to total loan. This is because selling of Options will not only guaranty repayment of the bank’s risk asset portfolio, but also add to the net income considering the accruable from the contract fees.

VI. SUMMARY, CONCLUSION AND RECOMMENDATIONS

Summary-The results showed that the aggregate effects of credit risk on the performance of Nigerian DMBs are as follows: (1) Non-performing loans to total loan ratio changes has a negative effect on Performance but its effect is insignificant (2) Non-performing loans to shareholder’s equity ratio changes has a positive effect on performance but its effect is also insignificant.

Conclusion-Situations where Nigeria DMBs have been averse towards lending have not improved their performance, as increased credit actually increased performance irrespective of increased nonperforming loan ratios, and lending has only been detrimental, where it affected liquidity. **Recommendations-** (1) DMBs in Nigeria should lend more, especially to its consumer customers, given that increased lending improved performance even where nonperforming loans increased and the consumer sector lending is less likely to affect liquidity. Also the banks sell credit Options to hedge against the non-performance of its loans and its inherent credit risks implications on liquidity. Furthermore the liquidity concerns could also be abated from the inflows of sale of these Options contracts, as evidenced by the huge turnover witnessed in the derivatives market of developed countries. (2) DMBs should source its funds more from the stock market. This is because this study gave prove that meeting their liquidity obligations in Nigeria affects the returns expected from assets but not the returns expected from equity. Regulators, particularly the CBN should impose sanctions on DMBs based on Nonperforming loans, as it affects liquidity rather than on the volume of Nonperforming loan which is the present practice. This should be so because it’s the Nonperforming loan to total deposit ratio that showed negative effect on performance. In fact nonperforming loan to shareholder’s fund showed positive effect on both performance proxies. Hence, emphasis should be on ensuring compliance on maintaining the standard liquidity ratio requirement of the CBN and banks not exceeding the threshold of this requirement.

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