The impact of Non-performing Loans and Bank Performance in Nigeria

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Abstract : *This study investigated the relationship between non-performing loans and bank performance in Nigeria for the period 1994-2014. The study employed ADF Unit Root test, descriptive statistics, and multiple regression techniques to analyze data collected for the study from the CBN, NDIC and annual reports of listed banks. The results of the study show that BAL and DOL had statistically negative significant influence on ROCE, while SUL had statistically negative insignificant impact on ROCE. These results show that high level of non-performing loans would reduce the performance of banks in the long run in Nigeria. The study therefore recommended that credit reporting agencies and supervising authorities should be strengthen in order to reduce the high level of non-performing loans in the banking sector of Nigeria.*

Keywords: *Non-performance loans, Sub-standard loans, Doubtful loans, Bad loans, Asset quality, Return on capital employed*

I. Introduction

In Nigeria, due to the rising increase of non-performing loans, the CBN (2010) through its prudential guideline, required licensed banks to periodically review their credit portfolios continuously, at least once a quarter with a view to recognizing any deterioration in credit quality and that a credit facility should be deemed to be non-performing once any of the following conditions exists; where Interest or principal is due and unpaid for 90 days or more and interest payments equal to 90 days, interest or more have been capitalized rescheduled or rolled over into a new loan. Thus they classified non-performing credit facilities into three categories namely, substandard, doubtful or lost (CBN, 2010).

The banking industry, according NDIC (2013) annual statement and account show that the total loans and advances stood at ₦10.043 trillion in 2013, showing an increase of 23.22 percent over ₦8.150 trillion granted in 2012, and that the non-performing loans to total loans ratio improved from 3.51 percent in 2012 to 3.23 percent in 2013, this according to the report was within the regulatory threshold of 5 percent. However, in spite of this improvement, the volume of non-performing loans increased by 13.30 percent from 281.09 billion in 2012 to 324.14 billion in 2013 (NDIC, 2013)

Highlighting, Bloem and Gorter (2001) stressed that the causes of non-performing loans is entirely of our own making of poor risk management. They opined that bank credit officers do not properly access the sustainability of granting credit to their customers and that they do not adhere to the good lending principles and all the affected banks display similar symptoms such as insider abuse, poor monitoring of loan accounts, lack of qualified staff, little or no cash flow appraisal of loan requests.

This study examined the impact of non-performing loans on bank performance in Nigeria, using return on capital employed (ROCE) as proxy for bank performance (the dependent variable) and sub-standard loans (SUL), doubtful loans (DOL), and bad loans (BAL) as proxy for non-performing loans (the independent variables). The objective was to investigate the impact of non-performing loans on bank performance in Nigeria and thus contribute to existing literature.

The rest of this study is structured as follows: section two provides the review of related empirical literature, section three highlights on the methodology employed while section four presents the findings and discussion. Section five is focused on the conclusion and recommendations.

II. Review of related empirical literature

This study conducted an empirical literature search in order to establish a basis for the study and achieve the study objective. The review of the related empirical literature is therefore presented in this section.

Godlewski, (2004) used return on asset (ROA) as a proxy for bank performance and the result shows that banks profitability negatively impacted on the level of non-performing loans. Also Warue (2013) in a study identified that bank lending rates are positively and significantly related to non-performing loans in commercial banks.

While Skarica (2014) studied the determinants of non –performing loans (NPLs) in Central and Eastern European countries for the period 2009-2012 and found out that GDP growth rate and unemployment rate has statistically significant and negative association with non-performing loans while inflation has a positive impact on non-performing loans.

Saba, Kouser and Azeem (2012) in their study on determinants of non-performing loans in the US banking sector for the period 1985-2010 using OLS regression model for data analysis and found that real total loans have positive significant effect on non-performing loans, while interest rate and GDP per capital has a negative significant association with non-performing Loan (NPLs). Ali and Iva (2013) conducted a study on the impact of bank specific factors on non-performing loans (NPLs) in the Albanian banking system. The study employed OLS regression model to analyze panel data for the period 2002-2012. Their findings reveal that real exchange rates and loan growth rate have a positive association with non-performing loans (NPLs), while GDP growth rate and interest rate had negative association with NPLs. The also show that inflation rate had insignificant effect on non-performing loans (NPLs).

Also in Albanian, Shingjergji (2013) studied the impact of bank specific factors on non –performing loans (NPLs) in the banking system using a simple regression model for data analysis. The study found that capital adequacy ratio had negative but insignificant association with non-performing loans, while return on equity and loans to asset ratio had negative but significant effect on NPLs, Their study also found that total loan and net interest margin had positive significant relationship with non-performing loans (NPLs).

Ranjan and Chandra (2003) analyze the determinants of non-performing loans (NPLs) of commercial banks in Indian, using panel regression model and they found that lending rate has positive influence on non-performing loans (NPLs). This meant that higher interest rate induced the changes in cost conditions to further fuel and increase in non-performing loan (NPLs). Similarly Vogiazas and Nikolaidou (2011) investigated the determinants of non- performing loans in the Romanian banking sector during the Greek crisis for the period 2001- 2010. Their findings indicated that construction and investment expenditure, unemployment and inflation rate and the Romanians external debt to GDP and M_2 narrow money and intermediate money) influence the credit risk of the country's banking system.

Hamisu (2011) studied credit risk and the performance of Nigerian banks using descriptive, correlation and regression techniques for a sample of banks from 2004- 2008. Their findings reveal that credit risk management has a significant impact on the profitability of Nigeria banks and that the management of banks needs to be cautious in setting up a credit policy that might not negatively affects profitability of banks. Further implications of their study findings, was that the management of banks also need to know how credit policy affects the operation of their banks to ensure judicious utilization of deposits.

Mohammad, Ammara, Abrar and Fareeha (2012) examined economic determinants of non-performing loans using correlation and regression analysis to analyze the impact of selected independent variables and the result reveals that interest rate, energy crisis, unemployment, inflation and exchange rate has a significant positive relationship with the non-performing loans of Pakistan banking sector, while GDP growth rate has a significant negative relationship with the non-performing loans of Pakistan banking sector. Bofondi and Ropele (2011) investigated the macroeconomic determinants of bad loans of Italian banks for the period 1990-2010 using quarterly data and found that non-performing loans are positively associated with the unemployment rates, lending rates and negatively associated with the GDP growth rate.

Similarly, Ekanayake and Azeez (2015) investigated the determinants of non-performing loans in licensed commercial banks in Sri Lanka for the period 1999- 2012 and found that the level of non-performing loans can be attributed to both macro-economic conditions and banks specific factors. Their study results reveal that non-performing loans tends to increase with deteriorating banks efficiency and there was a positive correlation between loan to asset ratio and non-performing loans. They also observed that banks with high level of credit growth is associated with a reduced level of non-performing loans, while larger banks incur lesser loan defaults compared to smaller banks. However the study found with regards to the macro economic variables, that non-performing loans vary negatively with growth rate of GDP, while inflation was positively related to the prime lending rate.

III. Methodology

This section presents the research methodology employed for this study. The study examined the impact of non-performing loans and bank performance in Nigeria. The study adopted *ex-post facto* research design as there was the existence of variables and secondary time series data at the time of the study. Secondary data for 21 years period covering 1994 to 2014 was collected for listed banks in Nigeria. Data was collected from the Central Bank of Nigeria (CBN), the Nigerian Deposit Insurance Corporation (NDIC) and the annual reports of listed banks. These are sources considered to be most reliable.

Data Analysis Technique

The study employed return on capital employed (ROCE) as proxy for bank performance – the dependent variable. While sub-standard loans, doubtful loans and bad loans were employed as proxy for non-performing loans – the independent variables. The study hypotheses considered bank performance as a function of non-performing loans in conducting the study analysis. The study employed ADF Unit Root test, descriptive statistics, and multiple regression techniques to analyze the data collected using E-Views 7 computer software.

Model Specification

A multiple regression model of the following order was formulated to capture the relationship between SUL, DOL, BAL and ROCE:

ROCE = f (SUL, DOL, BAL)

The above regression model is further translated into its explicit form as follows:

ROCE = α + β₁SUL + β₂DOL + β₃BAL + µ   Equation 1

Where;

ROCE = Return on capital employed

SUL = Sub-standard loans

DOL = Doubtful loans

BAL = Bad loans

α = the intercept or constant term

β_1, β_2 = Coefficients of the independent variables to be estimated

µ = the error term of the regression equation.

IV.   Findings and discussion

The findings of this study and subsequent discussions are presented in the section. The findings and discussion commenced with the test of unit roots, using augmented Dickey Fuller (ADF) test to ascertain whether the variables of interest are stationary at level or first differencing so as to avoid the estimation of spurious regression. The Augmented Dickey- Fuller (ADF) unit root test results are presented in table 1 below.

Table 1 Augmented Dickey Fuller (ADF) unit Root test results

Variables	ADF Test Statistics	5% Critical Values	10% Critical Values	Order of Integration	Remarks
ROCE	-6.249452	-2.998064	-2.638752	1	Stationary at 1st diff
SUL	-6.193323	-2.998064	-2.638752	1	Stationary at 1st diff
DOL	-6.455469	-2.998064	-2.638752	1	Stationary at 1st diff
BAL	-6.283743	-2.998064	-2.638752	1	Stationary at 1st diff.

 Source: Authors Computation using E-view 7.2 version

The unit root test results indicate that all the variables used in the study were integrated of order one, that is 1(1) and thus, they were stationary at first difference. The ADF test statistic result values were greater than the critical values at 5% and 10% respectively.

A descriptive statistical analysis was carried out from the computer regenerated outputs. This is presented in table 2 below.

Table 2 Descriptive Statistics

	ROCE	SUL	DOL	BAL
Mean	38.69600	3.311200	23.15760	745.9528
Median	29.11000	2.65000	21.73000	472.5400
Maximum	114.2900	17.57000	36.09000	2103.180
Minimum	-64.72000	-9.280000	18.36000	8.980000
Std. Dev.	38.41952	5.361465	4.258208	737.0791
Skewness	-0.159949	0.709158	1.531229	0.464789
Kurtosis	3.714668	5.567599	4.876451	1.746799
Jarque –Bera	0.638630	8.962692	13.43720	2.536071
Probability	0.726647	0.011318	0.001208	0.281384
Sum.	967.4000	82.78000	578.9400	18648.82
Sum sq.dev.	35425.42	689.8875	435.17161	13038856
Observations	25	25	25	25

 Source: Authors Computation Using E-veiw 7.2 version

From table 2 above, the results of the descriptive statistics indicate that ROCE averages 38.70 and ranges from -64. 72 to 114.29 with a standard deviation of 38.42 while the median, Skewness, and Kurtosis values stood at 29.11, -0.16 and 3.71 respectively.

The mean or average values of SUL was 3.31 and it ranges from -9.28 to 17.57 while it Std dev. Skewness and Kurtosis stood at 2.65, 5.36 0.71 and 5.57. On the other hand, BAL had a mean value of 745.95 and it varies from 8.98 to 2103.18 with a standard deviation of 737.08 while its skewness and Kurtosis stood at 0.46 and 1.75 respectively.

DOL has an average mean of 23.16 which also ranges from 18.36 to 36.09 maximum and its standard deviation, Skewness and Kurtosis all stood at 4.26, 1.53 and 4.88 with a median value of 21.73.respectively.

Multiple regression results

Table 3 Estimation regression results of independent variables (SUL, DOL and BAL)

Variables:	Coefficient	Std Error	t-Statistics	Prob.
C	2551.135	689.2804	3.7011157	0.0013
SUL	-10.42557	26.99598	-.0.386190	0.7032
DOL	-9.304088	3.764328	-2.471647	0.0221
BAL	-60.91435	29.03981	-2.097615	0.0482

Dependent variable: ROCE
R^2- = 0.42
Adj R^2 = 0.33
Prob (F-stat) =0.009
DW = 0.95
Source: Authors Computation Using E-veiw 7.2 version

From the above results, the coefficient for all the variables, SUL, DOL and BAL had negative signs, meaning that in every one percent decrease in SUL, DOL and BAL will on the average, lead to 10.43, 9.30 and 60.91 per cent reduction in ROCE.

These results show that DOL and BAL had negative relationship with ROCE at 5 per cent significant level. Suggesting that an increase in DOL and BAL will result to a reduction in ROCE, that is return on capital employed as proxy for bank performance. This result supports the study findings of Felix and Claudine (2008) and Godlewski (2004) using return on asset (ROA) as a proxy for bank performance, meaning that non-performing loans negatively impacted on the profitability of banks.

On the other hand, the R^2 value shows that the explanatory variables in the model, that is, SUL, DOL and BAL well accounted for about 42 per cent of the variation in the dependent variable ROCE, while the 58 per cent that is unaccounted for is due to the error term. This suggests that the independent variables are good predictors of ROCE. The prob. (F- statistics) value of 0.009 further indicates the overall goodness of the regression model, while the Durban Watson statistics value of 0.95 shows the absence of auto-correlation among the independent variables.

V. Conclusion and recommendations

This study investigated the impact of non-performing loans on bank performance in Nigeria for the period 1994-2014. Secondary data was collected from reliable sources such as CBN, NDIC and the annual reports of listed banks in Nigeria. The study identified four variables; return on capital employed (ROCE), sub-standard loans (SUL), doubtful loans (DOL) and bad loans (BAL). ROCE was employed as proxy for bank performance – the dependent variable, while SUL, DOL and BAL were employed as proxy for non-performing loans – the independent variables. A multiple regression model was formulated to capture the relationship between the variables identified. The study employed data analysis techniques such as Augmented Dickey Fuller (ADF) unit root test, descriptive statistics and multiple regression statistics. The Unit Root test shows that all the variables of interest were integrated of order 1(1) and were stationary at first differencing. The multiple regression results show that DOL and BAL had statistically significant negative influence on ROCE, while SUL had statistically insignificant negative influence on ROCE. It was empirically proved that non-performing loans had a negative impact on bank performance in Nigeria. The overall implication of these results is that any increase in the volume of non-performing loans would reduce profitability of banks in the long run in Nigeria.

Based on the findings of this study, the following recommendations were made: That credit reporting agencies and supervising authorities be strengthened in order to reduce the high level of non-performing loans in the banking sector; That prudential supervision of banks be encouraged, as well as strengthening the activities of the Asset Management Corporation of Nigeria (AMCON) to deal with the problem of non-performing loans in the banking sector; and furthermore, the Internal Control Departments of banks be strengthened and empowered to adequately tackle the problem of high level of non-performing loans in banks.

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