



IMPACT OF NON-PERFORMING LOAN ON PROFITABILITY OF DEPOSIT MONEY BANKS IN NIGERIA

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Abstract

This study examined the impact of non-performing loan on profitability of Deposit money banks in Nigeria. Annual data were employed and sourced from the Nigerian Deposit and Insurance Company (NDIC) Annual Reports and statement of accounts various issues for the period 2006 -2020) the post 2005 consolidation era. A multiple ordinary least squares regression estimation was employed. The empirical findings revealed that non-performing loan has significant negative effect on profitability of Deposit money banks in Nigeria. Based on this finding, the study concludes that asset quality has significant effect on the profitability of Deposit money banks in Nigeria. It is recommended that managers of banks should continue to practice prudent credit risk management to safeguard shareholders' funds. Also, deposit money banks need to regularly review their credit policies to further reduce the incidence of bad loans. Lastly, the financial sector regulatory agencies like Central Bank, NDIC, SEC and other should maintain high surveillance on banks' credit operations.

Keywords: Return on Equity, Non-performing Loan, Profitability, and Deposit Money Banks

INTRODUCTION

Commercial banks invest customer deposits in various short term and long-term investment outlets; however, core of such deposits is used for loans to generate profits. Hence, the more loans and advances they extend to borrowers, the more the profit they make (Solomon, 2012). One major problem of DMBs in Nigeria is the poor credit creation of banks. According to Sansui (2011), banks have deviated from their traditional banking function of providing loans and advances to small and medium scale industries to delving into investment in blue chip companies, stocks trading, foreign exchange trading and oil trading which are speculative in nature thus raising the high level of their non-performing loans. According to international practice, nonperforming loans (NPLs) include doubtful and bad loans. The IMF recommends that loans should be considered inactive if the principal and interest payments are past due: 1) for three months (90 days), or more; 2) less than 90 days; however, according to national banking

supervision, it is considered that servicing such a loan is weak or unsatisfactory (Bondarenko, Zhuravka, Aiyedogbon, Ologunla, and Andrieieva, 2020).

One of the major problems faced by the Nigerian financial sector is the huge amount of non-performing loans which not only harm efficiency and growth of the banking sector but also endanger growth and development of the Nigerian economy. The level of deterioration in loan quality contributed to low profitability and bank distress (NDIC, 1991). The magnitude of nonperforming loans in Nigeria increased from N225.08 billion naira in 2006 to 1077.66 billion naira in 2010. Although the total nonperforming loans decreased to 648.91 billion naira in 2015 presently it further increased to 1212 billion naira in the first half of year 2020 (NDIC, 2020). As part of a broad banking sector crisis resolution strategy. The AMCON Act 2010 was signed into law on July 19, 2010. And invariably became operational in the same year, 2010. AMCON is an establishment owned by the Federal government of Nigeria managed through the Central Bank of Nigeria (CBN) and Federal Ministry of Finance. It is an implementing agency whose operational policies originate from the CBN and Federal Ministry of Finance (Chude and Chude, 2014). The company (AMCON) has the responsibility of absorbing the non-performing loans of the deposit money banks in the country. In broad terms, AMCON is established to assist eligible financial institutions to efficiently dispose of eligible bank assets, efficiently manage and dispose of eligible bank assets the best achievable financial returns on eligible bank assets or other assets acquired by it.

The phenomenal increase in non-performing loans in Nigeria over the years therefore makes it imperative to examine its impact on the profitability of deposit money banks. This study therefore, is divided into five sections. Following this introduction is section two which covers the literature review where conceptual, theoretical and empirical issues are discussed. Section three is the methodology section which discusses the empirical model. The analysis of results is presented in section four. Section five covers the conclusion and recommendations of the study.

LITERATURE REVIEW

Conceptual Issues

There is no global standard to define non-performing loans at the practical level. Variations exist in terms of the classification system, the scope, the contents. Such problem potentially adds to disorder and uncertainty in the NPL issues. A loan is non-performing when payments of interest and/or principal are past due by 90 days or more, or interest payments equal to 90 days or more have been capitalized, refinanced, or delayed by agreement, or payments are less than 90 days overdue, but there are other good reasons – such as a debtor filing for bankruptcy – to doubt that payments will be made in full (Bondarenko, *et al.*, 2020). In addition, the Nigerian banking regulation also defines NPL as follows: Nonperforming loan and advances are a loan whose credit quality has deteriorated and the full collection of principals and/or interest as per the contractual repayment terms of the loan and advances are in question (CBN, 2015). A loan is categorized as non-performing when the principal or interest is due and unpaid for six months or more from the first day of default (Prudential Financial Policy Department, 2014). However, 2010 CBN prudential guidelines for money deposit banks in section 15.1, classified non-performing loans facilities into three distinct categories as sub-standard, doubtful and lost loan.

Non-performing loans can lead to efficiency problem for banking sector, failing banks tend to be located far from the most efficient frontier, Chude and Chude, (2014). According to John (2018)

profitability is a bank's first line of defence against unexpected losses, as it strengthens its capital position and improves future profitability through the investment of retained earnings. An institution that persistently makes a loss will ultimately deplete its capital base, which in turn puts equity and debt holders at risk. Moreover, since the ultimate purpose of any profit-seeking organisation is to preserve and create wealth for its owners, the bank's return on equity (ROE) needs to be greater than its cost of equity in order to create shareholder value. Although banking institutions have become increasingly complex, the key drivers of their performance remain earnings, efficiency, risk-taking and leverage. In detail: while it is clear that a bank must be able to generate "earnings", it is also important to take account of the composition and volatility of those earnings. "Efficiency" refers to the bank's ability to generate revenue from a given amount of assets and to make profit from a given source of income. "Risk-taking" is reflected in the necessary adjustments to earnings for the undertaken risks to generate them (e.g. credit-risk cost over the cycle). "Leverage" might improve results in the upswing - in the way it functions as a multiplier - but, conversely, it can also make it more likely for a bank to fail, due to rare, unexpected losses. There are a multitude of measures used to assess bank performance, with each group of stakeholders having its own focus of interest. Among the large set of performance measures for banks used by academics and practitioners alike, a distinction can be made between traditional, economic and market-based measures of bank performance. Traditional performance measures are similar to those applied in other industries, with return on assets (ROA), return on equity (ROE) or cost-to-income ratio being the most widely used. In addition, given the importance of the intermediation function for banks, net interest margin is typically monitored. The return on assets (ROA) is the net income for the year divided by total assets, usually the average value over the year. ROE is an internal performance measure of shareholder value, and it is by far the most popular measure of performance. Profitability ratio, especially return on equity (ROE) signals the earning capability of the organization. They also suggest that higher return on equity (ROE) ratio is appreciable as it is the primary indicator of bank's profitability and functional efficiency.

Return on Equity (ROE) shows the extent of equity investment effectiveness. ROE metric reveals how effectively a bank is generating profit from the money that investors have put into the business. ROE is calculated by dividing net income by total shareholders' equity. ROE is a very effective metric for evaluating and comparing banks, providing a solid indication of earnings performance. Because shareholders' equity is equal to a company's assets minus its debt, ROE is considered the return on net assets. ROE is considered a measure of the profitability of a corporation in relation to stockholders' equity. ROE is expressed as a percentage and can be calculated for any company if net income and equity are both positive numbers. Net income is calculated before dividends paid to common shareholders and after dividends to preferred shareholders and interest to lenders.

Theoretical Framework

Following Atoi (2018), the theory of NPLs as it relates to performance of banks depends on the following three frameworks: information asymmetry, adverse selection and moral hazard theories. They provide useful information on the traditional causes of loan default that translates to banking system poor performance. Information asymmetry theory was first applied by Akerlof (1970). The theory states that it may be complex to differentiate between good and bad borrowers and this may lead to adverse selection and moral hazard problems. In line with the theory, Cottarelli et al. (2005) and Kraft and Jankov (2005) show the role of loan growth in bank risk-

taking and resulting instability. The theory also relates to contagious withdrawals when depositors are imperfectly informed about the type of shocks hitting banks and about interbank exposures (De Bandt and Hartmann, 2000). Propounded by Akerlof (1970) and later expanded by Rothschild and Stiglitz (1976), the adverse selection theory describes the situation where the probability of loan default increases with rising interest rate and the quality of borrowers worsens as the cost of borrowing rises (Musara and Olawale, 2012). The theory is founded on the assumption that banks are not certain in selecting credit-worthy borrowers from a pool of loan seekers with different credit risk exposures ex-ante. Thus, financial intermediaries are more likely to lend to high-risk borrowers who are not concerned about the harsh lending conditions and are prone to loan default (Ezeoha, 2011). Pagano and Jappelli (1993) argue that information sharing reduces adverse selection problems by enhancing information on loan applicants. More so, Padilla and Pagano (2000) document that if banks exchange credit information on defaults, then borrowers are encouraged to apply more energy in their projects knowing fully well that loan default carries the penalty of higher interest rates or no future access to credit facility.

Arrow (1963) documents that the phenomenon of using private information to benefit from an incomplete contract in the presence of information asymmetry is known as moral hazard. Musara and Olawale (2012) also noted that moral hazard exists where the borrower of bank credit takes action that adversely affects the returns to the lender. Gorton and Pennacchi (1995) posit that a bank that makes and sells loans is subject to a moral hazard problem with respect to screening borrowers. The theory is based on the assumption that the likelihood of borrowers engaging in activities that will guarantee repayment of bank credit extended to them cannot be determined ex-post by banks.

Review of Related Literature

Ozurumba, (2016) examined the impact of non-performing loans on the performance of selected commercial banks in Nigeria covering the period 2000 - 2013 with special emphasis on Access Bank, United Bank for Africa and Union Bank of Nigeria Plc. It specifically determined the effect of non-performing loans, provision for loan loss and loans and advances on the performance of banks measured by Return on Assets and Return on Equity. The study utilized secondary data obtained from annual report and accounts of the selected banks for the period under study. The data were analyzed using ordinary least square method and ratio analysis. The specific finding of the work is that return on asset and return on equity have inverse relationship with non-performing loans and loan loss provision respectively while they are positively related to loans and advances. The conclusion therefore is that the effects of non-performing loans on Commercial Banks' performance is negative and cannot be underestimated, and poses a fundamental danger to the very existence of the Banks as corporate business entities.

Ugoani, (2016), asserts that huge nonperforming loans portfolio erodes the ability of banks to make profits. In the 1990s and beyond many Nigerian banks became weak and highly unprofitable due to excessive nonperforming loans portfolio accumulated by bank promoters and management that led to their demise. Insider dealing was the major cause of large non-performing loan portfolio in Nigeria, involving over-extension of loans to promoters, directors and significant others that became bad and irrecoverable. To clean up the mess in the banking sector and return the banks to the paths of sound management and profitability, the CBN had to inject about N700bn in a bailout exercise while purging the system of bad and irresponsible management teams.

Non-Performing loans arises from the extension of credit facilities to customers Inekwe, (2013). This exposes banks constantly to credit risk due to the possibility that the borrower will default. Usually banks try to avoid or minimize credit risk in their portfolio. There are various ways of evaluating the credit worthiness of a borrower, one of which is the 5Cs of credit, i.e Character, Capacity, Condition and Collateral. They are also known as the Canons of good lending. In the same vein, Aremu, Suberu and Oke (2010) described three basic principles of evaluating credit as Safety, Suitability and Profitability. First, they maintained that the safety of any advance or loan is of utmost importance. Under this principle, the character, amount generated from cash flow and acceptable securities were equally emphasized. Secondly, they contended that the purpose of the loan must be legal and not conflicting with the economic and monetary policies of the government, Central Bank of Nigeria (CBN) guidelines and Banks and Other Financial Institutions Act (BOFIA). Finally, that profitability is a guiding force to any operation of the bank. They argue that as profit oriented institutions, banks usually expect their facilities to yield certain level of profit. That was why Pandey (2006), believed that bad debts are familiar words to bankers; and people wonder occasionally why bad debts occur despite all the rules and regulations guiding banks. Yet the best way to avoid bad debt is to make zero lending, but banks cannot afford zero lending since greater proportion of their earnings come from interest earned on loan and advances. Despite the above methods of evaluating credit in the banking industry in Nigeria a lot of its advance and loans end up as NPLs. However, Hou and Dickinson (2007) definition do summarize the elements of NPLs as defined in many jurisdictions including Nigeria. He defined NPLs as a loan that is not earning income and: Full payment of principal and interest is no longer anticipated, Principal or interest is 90 days or more delinquent, or the maturity date has passed and payment in full has not been made.

Ojo and Somoye, (2017) reviews the impact of commercial banks non-performing loans on financial development in Nigeria from 1981 to 2012. The authors employ unit root, causality, and co-integration tests and subsequently develops the Error Correction Models (ECM) econometric techniques to measure the impact of non-performing loans on the level of financial development in Nigeria. Also utilized are uses time-series data covering 1981-2012. The results show that non-performing loans, commercial bank interest rate, liquidity ratio and inflation exert long-run relationship and significant influence on financial development.

Okoh, 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 analyze 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) and Cash Reserve Ratio (CRR) had 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.

Ogboru, (2019) investigates the relationship between asset quality and deposit money banks performance in Nigeria over a period of 30 years ranging from 1986 to 2016, utilizing time series data collected from the Nigeria deposit insurance corporation annual reports and accounts, CBN financial stability report and CBN statistically bulletin for various years. The variables of study include return on asset (ROA) proxy for Deposit Money Bank performance in Nigeria, ratio of non-performing loan to total loan (NPL), ratio of liquid assets to total assets (LAT) and ratio of

liquid assets to short term liabilities (LAS) as measures of asset quality. The study utilizes both the descriptive and econometric techniques to analyze the time series data. The result shows that there is a short run relationship between asset quality and deposit money bank performance in Nigeria. Also, the co-integration result reveals the presence of a long run relationship between asset quality and deposit money bank performance in Nigeria while the granger causality result shows evidence of causality between asset quality and deposit money bank performance in Nigeria.

Inekwe (2013) examines the relationship between real GDP and Non-performing loans in Nigeria during the period 1995-2009. Based on the Pearson Product-Moment Correlation Coefficient, the time series analysis revealed that there is a significant and positive relationship between real GDP and Non-performing loans in the Nigerian banking industry. This is contrary to the findings in previous studies.

Edem (2017) empirical finds evidence of the impact of liquidity management on the performance of deposit money banks. 24 banks were surveyed which constitute the entire deposit money banking industry in Nigeria between 1986 and 2011. Secondary data were collected and analysed using SPSS. The study uses descriptive, correlations and inferential statistics. Bank performance in terms of profitability is measured by its return on equity. Multiple Linear Regression Analysis was employed. Findings from the empirical analysis show that there is a significant relationship between liquidity management and the performance of Deposit Money Banks in Nigeria. The correlation results reveal positive impacts between return on equity and liquidity management variables: liquidity and cash reserve ratios, whereas loan to deposit ratio shows negative impact. However, the key results indicate that only the banks with optimum liquidity were able to maximize returns. The study concludes that illiquidity and excess liquidity pose problem to bank management operations and recommends that bank should adopt optimum liquidity model for efficiency and effectiveness.

Akinlo and Mofoluwaso (2014) provides a macroeconomic model for non-performing loans for Nigeria. The empirical analysis confirms that in the long run, economic growth is negatively related to non-performing loan. On the other hand, unemployment, credit to the private sector and exchange rate exerts positive influence on nonperforming loans in Nigeria. In the short-run, credits to the private sector, exchange rate, lending rate and stock market index are the main determinants of non-performing loans.

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. Z-Score is constructed to proxy banking stability, and its response to shocks NPLs is examined in a panel vector autoregressive framework. The results reveal that drivers of NPLs vary across the two categories of banks, but, weighted average lending rate is a vital macroeconomic driver of NPLs for both. The results also confirm the moral hazard hypothesis and risk-return trade off efficient market theory.

RESEARCH METHODOLOGY

Nature and Source of Data

Secondary data were used in this study. The variables used include: the dependent variable: annual figure for all the deposit money banks combined on Return on Equity (ROE) as measure of banks’ profitability. The explanatory variables employed are volume of non-performing loan (NPLV) and ratio of nonperforming loan on shareholders’ fund (NPLER). The data were obtained from NDIC Annual Reports and Statement of Accounts Various Issues. The data covered the period the period 2006 -2020. The 2020 data is for the first half of the year.

Model Specification

The model specified to suit the objectives of this current study is to satisfactorily capture the effect of non-performing loan on profitability of deposit money banks in Nigeria. The model for this research study is specified in the following functional form:

$$ROE = f(NLV, NPLER) \text{ -----} \tag{1}$$

Transforming this functional representation into a linear equation or explicit form:

$$ROE = \beta_0 + \beta_1 NPLV + \beta_2 NPLER + \mu_t \text{ -----} \tag{2}$$

Where:

ROE = Return on Equity of deposit money banks in Nigeria a measure of profitability

NPLV = Volume of Non-performing Loan a measure of asset quality

NPLTLR = Ratio of Non-performing Loan to Total loan also a measure of asset quality

μ_t is the error term that is assumed to be normally distributed with the mean of zero and constant variance;

β_0 = intercept parameter of the model;

$\beta_1 - \beta_2$ = coefficient of the independent variables.

Normalization is necessary to aggregate the different individual indicators, which are measured on different units and have different ranges. We use the distance from the best and worst performers, where positioning is in relation to the sample annual maximum and minimum, and the index takes values between 0 (laggard) and 1 (leader):

$$N_j = \frac{X_j - X_j^{\min}}{X_j^{\max} - X_j^{\min}} \text{ -----} \tag{3}$$

Where N_j is the normalized value, X_j is the original value, and X_j min and X_j max are the minimum and maximum values of the annual sample data.

Estimation Technique

The Ordinary Least Square method (OLS) of the classical linear regression model was used to carry out this research. This involve the estimation of a multiple linear regression model. The justification for using the OLS method stems from its superiority over other estimators. The OLS method possesses the best linear unbiased estimator (BLUE) property (Gujarati and Porter, 2009). The OLS is unbiased and has the minimum variance within the class of linear estimators.

EMPIRICAL RESULTS AND DISCUSSION

This section deals with model estimation and interpretation. The estimation starts from unit root analysis and regression analysis were carried out thereafter.

Unit Root Test

Table 1 presented the results of the time series properties of the variables using the Augmented Dickey-Fuller (ADF) unit root test. The results showed that apart from return on equity the other variable volume of non-performing loan and ratio of non-performing loan to total loan were non-stationary at levels. However, these series became stationary after taking the first differences.

Table 1: Summary Results of Augmented Dickey-Fuller Unit Root Tests

Variables	ADF Test Statistics and MacKinnon (1996) one-sided P-values for the Variables in bracket		MacKinnon Critical Value at 5%		Order of Integration
	Level	1st Difference	Level	1st Difference	
ROE	-6.119438 (0.0003)*	-15.16977 (0.0000)*	-3.098896	-3.212696	I(0)
NPLV	-2.503300 (0.1353)	-3.893622 (0.0133)*	-3.098896	-3.119910	I(1)
NPLER	-2.658507 (0.1054)	-3.386023 (0.0337)*	-3.098896	-3.144920	I(1)

Note: * Significant at 5 per cent Level of Significance (LOS). ADF is calculated with intercept using Lag Length: 0, (Automatic - based on SIC, maxlag=3)

Source: Author computation (2020) using E-views 10

Regression Analysis

The main objectives of this study are to examine the impact of non-performing loan on deposit money banks' profitability in Nigeria. To carry out these objectives a multiple regression analysis using ordinary least squares (OLS) was conducted and the result is as presented in table 2.

Table 2: Summary of Regression Results

Dependent Variable: ROE

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.401755	0.040723	9.865599	0.0000
NPLV	-0.46279	0.105534	-4.385193	0.0009
NPLER	-0.65774	0.125929	-5.223069	0.0002
R-squared	0.72803	F-statistic		16.06127
Adjusted R-squared	0.682702	Prob(F-statistic)		0.000405
Durbin-Watson stat	1.989596			

Source: Author computation (2020) using E-views 10

The regression results in Table 2 revealed that non-performing loan volume is statistically significant at 1, 5 and 10 per cent, respectively, suggesting that it contributed to changes in the contribution of the profitability of deposit money banks in Nigeria. Non-performing loan

volume also returned with a negative sign which is in tandem with the *a priori* expectation of the model. The implication of this result is that a unit scale increase in non-performing loan volume will lead to 0.46-unit scale decrease in the profitability of deposit money banks in Nigeria. Ratio of Non-performing loan shareholders' fund also returned negative and is statistically significant. The coefficient for NPLER also imply that a unit scale increase in non-performing loan to total loan ratio will lead to 0.73- unit scale decrease in the profitability of deposit money banks in Nigeria.

The adjusted R-squared of 0.682702, implied that the independent variables accounted for 85 percent of changes in the dependent variable. Meaning the model has a "good fit". The F-statistics reveals information about the joint statistical significance of the model. As presented in the table, the p-value for the F-statistic gives evidence for the rejection of the null hypothesis, implying that the explanatory variables determined the profitability of deposit money banks in Nigeria. In essence, the explanatory variables were jointly significant in explaining the dependent variable. The Durbin-Watson statistic (1.989596) reported in the model indicated the absence of serial correlation in the residuals of the estimated equation as is in the neighbourhood of two.

CONCLUSION AND POLICY RECOMMENDATIONS

The study examined the impact of non-performing loan on deposit money banks profitability in Nigeria. The unit root test revealed that apart from ROE that is level stationary all the variables attained stationary trend at first difference. The multiple regression analysis indicates a significant negative relationship between the explanatory variables and banks' profitability. The empirical findings revealed that both volume of non-performing loan and the ratio of non-performing loan to shareholders' fund have significant negative effects on the profitability of deposit money banks in Nigeria during the period of the study. Based on these findings, the study concludes that asset quality has significant effect on the profitability of deposit money banks in Nigeria. Given that volume of non-performing loan has a significant negative relationship with the profitability of deposit money banks in Nigeria, it is recommended that; managers of banks should continue to practice prudent credit risk management to safeguard shareholders' funds. Also, deposit money banks need to regularly review their credit policies to further reduce the incidence of bad loans. Lastly, the financial sector regulatory agencies like Central Bank, NDIC, SEC and other should maintain high surveillance on banks' credit operations.

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