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Investigating The Impact of Non-Performing Loan on Performance of Deposit Money Banks in Nigeria

GUROWA, SANI USMAN (PH.D.) [1], EKIGHO FRANCIS ODIANOSEN (PH.D.) [2]

[1]*Department of Accounting, University of Abuja, Abuja, Nigeria*

[2] *No.23 Major General Daniel Bako Close, Army Estate, Kurudu, Federal Capital Territory, Abuja, Nigeria*

Abstract- This study investigates the impact of non-performing loans (NPLs) on the performance of deposit money banks in Nigeria. The rising level of NPLs has become a major concern due to its negative effects on profitability, liquidity, and financial stability. Non-performing loans, defined as loans unpaid for at least 90 days, serve as an indicator of poor asset quality and weak credit risk management. The study adopts a longitudinal research design using secondary data from the financial statements of eight selected deposit money banks in Nigeria over the period 2014–2022. The Panel Autoregressive Distributed Lag (ARDL) model was employed to examine both short-run and long-run relationships between NPLs and bank performance, measured by Return on Equity (ROE). Findings reveal that non-performing loans have a negative relationship with bank performance, with a regression coefficient of -1.234660, indicating that increases in NPLs lead to a decline in profitability. However, the relationship is statistically insignificant, suggesting that NPLs alone may not strongly determine bank performance. Correlation results further confirm a weak negative association between NPL and ROE. The study concludes that although NPLs adversely affect bank performance, their impact is not statistically significant within the study period. It recommends that deposit money banks strengthen credit risk management practices, improve loan monitoring systems, adopt advanced financial technologies, and adhere strictly to regulatory guidelines to reduce loan defaults and enhance performance.

Key Word: Non-performing loan, Performance, Deposit Money Banks, Nigeria

I. INTRODUCTION

Banks play a critical role in the economy by creating money through lending and acting as intermediaries between savers and borrowers (Breuer, Jandacka, Rheinberger, & Summer, 2010). However, the effectiveness of deposit money banks in performing this function is increasingly threatened by the rising incidence of non-performing loans (NPLs). Non-performing loans, categorized into substandard, doubtful, and loss assets, have become a persistent challenge in modern banking operations (Sere-Ejembi, Udom, Salihu, Atoi, & Yaaba, 2014). This problem is not only global but also particularly severe in Nigeria, where increasing NPLs have weakened investor confidence and posed risks to financial system stability (Caporale, Rault, Sova, & Sova, 2014).

In the Nigerian financial system, non-performing loans refer to loans that fail to generate income for a prolonged period, typically when interest and/or principal repayments remain unpaid for at least 90 days (Atoi, 2018). The growth of NPLs has been linked to poor credit risk management, weak monitoring systems, and adverse economic conditions (Adhikary, 2016). As banks rely heavily on interest income from loans, the accumulation of non-performing loans reduces profitability, weakens liquidity, and limits the ability of banks to extend further credit to productive sectors of the economy (Okoroafor, Magaji, & Eze, 2018).

The banking sector in Nigeria has experienced significant challenges due to the increasing magnitude of non-performing loans, which have adversely affected efficiency, growth, and overall economic development (Central Bank of Nigeria, 2016). High levels of NPLs can lead to loan losses, erosion of capital, and reduced confidence among depositors and investors (Boudriga, Taktak, & Jellouli, 2010). In extreme cases, they may contribute to bank distress and financial crises (Adeyemi, 2011). Given the crucial role of deposit money banks in mobilizing savings, financing investment, and supporting economic growth (Marshal & Onyekachi, 2014), it is essential to examine the impact of non-performing loans on their performance. Therefore, this study investigates how non-performing loans influence the financial performance of deposit money banks in Nigeria, with a view to providing insights that can enhance credit risk management and improve banking sector stability.

Issues of non-performing loans (NPLs) have gained increasing attention in recent decades as a critical challenge facing the banking sector. The following were identified as it relate to the subject matter. Poor loan management has significantly contributed to the rise in NPLs, making it difficult for banks to generate profit from their lending activities Petersson and Wadman (2014). The presence of high NPLs reduces bank income, weakens liquidity, and negatively affects overall performance and efficiency Badar and Yasmin (2013).

In Nigeria, the situation is particularly alarming as the volume of NPLs has continued to increase, reaching significant levels in the banking sector Central Bank of Nigeria (2016). The rising NPLs are attributed to weak monitoring systems, poor credit control, and ineffective recovery strategies Adhikary (2016). Consequently, the increasing level of NPLs poses a serious threat to the profitability, stability, and survival of deposit money banks.

The main objective of this study is to Investigate the impact of Non-Performing Loan on performance of deposit money banks in Nigeria. The study covers the period 2014–2022.

II. SECTION TWO

Conceptual Review

Non-Performing Loans (NPLs) refer to loans in which borrowers fail to meet their repayment obligations in accordance with agreed terms. According to the International Monetary Fund (IMF, 2015), a loan becomes non-performing when interest and/or principal payments are overdue for 90 days or more, or when there are strong doubts about full repayment.

Similarly, the Central Bank of Nigeria (CBN, 2015) defines NPLs as loans whose credit quality has deteriorated such that full recovery of both principal and interest is uncertain. In this situation, the loan ceases to generate income for the bank.

Furthermore, Tseganesh (2012) posits that NPLs serve as a key indicator of the quality of bank assets, as they reflect the level of credit risk exposure in a bank's loan portfolio. High levels of NPLs therefore indicate weak credit management practices and potential financial instability within the banking system.

Bank performance refers to the extent to which a bank effectively utilizes its resources to achieve its financial and operational objectives. According to Rengasamy (2012), bank performance reflects the ability of a bank to achieve its goals through efficient resource utilization.

Similarly, Campbell (2009) defines performance as behaviour that contributes to organizational success.
Bank performance is commonly measured using financial indicators such as profitability, liquidity, and asset quality. For instance, Return on Assets (ROA) is often used to evaluate how efficiently a bank generates profit from its assets (Allen et al., 2017).

Thus, bank performance is crucial for ensuring the sustainability, growth, and stability of deposit money banks.

Theoretical Framework

The theoretical framework for this study is anchored on the Portfolio Theory developed by Harry Markowitz (1952). The theory posits that investors should not evaluate an individual asset in isolation but rather consider how the asset contributes to the overall risk and return of a portfolio.

Modern Portfolio Theory (MPT) emphasizes that diversification of assets helps to minimize risk while maximizing expected returns. It further explains that the total risk of a portfolio is determined not only by the risk of individual assets but also by the relationship between those assets, measured using statistical tools such as variance and correlation.

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In the context of banking, loans constitute a major component of bank assets and form part of the bank's portfolio. When banks fail to properly diversify and manage their loan portfolios, the likelihood of loan default increases, resulting in higher levels of Non-Performing Loans (NPLs). This, in turn, adversely affects the financial performance of deposit money banks.

Thus, Portfolio Theory provides a strong basis for explaining how poor loan portfolio management and high exposure to risky assets can lead to increased loan defaults and reduced bank performance.

Model Specification

In line with the theoretical framework, the functional relationship for this study is expressed as:

$$LD = f\ (CAD,\ ABL,\ LR,\ DSR,\ \mu) \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \ (2.1)$$

Where:

- LD = Loan Default
- CAD = Capital Adequacy
- ABL = Amount of Bad Loans
- LR = Liquidity Ratio
- DSR = Debt Service Ratio
- f = Functional relationship
- μ = Error term

Section Three: Methodology

This study adopts a longitudinal research design, which involves the use of time-series data across several periods to examine the relationship between variables. The choice of this design is informed by its effectiveness in analyzing the effect of one or more independent variables on a dependent variable over time. The population of this study comprises all deposit money banks listed on the Nigerian Exchange Group. As at July 2023, there are twelve (12) listed deposit money banks.

These include:

S/N	Banks
1	Access Bank Plc
2	Diamond Bank Plc
3	Fidelity Bank Plc
4	First Bank of Nigeria Plc
5	First City Monument Bank Plc
6	Guaranty Trust Bank Plc
7	Stanbic IBTC Bank Plc
8	Sterling Bank Plc
9	Union Bank of Nigeria Plc
10	United Bank for Africa Plc
11	Unity Bank Plc
12	Zenith Bank Plc

The population consists of active deposit money bank customers in Abuja (FCT). According to National Bureau of Statistics (2021), the estimated population of active bank users in FCT is approximately 1,281,000, with about 449,491 adults owning bank accounts. A simple random sampling technique was employed in selecting the sample banks. For a bank to be included, it must:

- Be listed on the Nigerian Exchange Group
- Be a public limited liability company
- Be licensed by the Central Bank of Nigeria

Based on these criteria, eight (8) deposit money banks were selected:

1.	Wema Bank Plc
2.	Guaranty Trust Bank Plc
3.	First Bank Plc
4.	Zenith Bank Plc
5.	Unity Bank Plc
6.	Fidelity Bank Plc
7.	United Bank for Africa Plc
8.	First City Monument Bank Plc

Secondary data were used to address objective. These data were sourced from:

- Central Bank of Nigeria (CBN) publications
- National Bureau of Statistics (NBS)
- Annual reports and financial statements of selected banks

The data covered the period from 2014 to 2022. This period was chosen due to structural changes in the banking sector following consolidation reforms.

III. MODEL SPECIFICATION

Panel ARDL Model

The study adopts the Panel Autoregressive Distributed Lag (ARDL) model developed by Pesaran and Shin (1997).

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The model is suitable because:

- It accommodates variables integrated at I(0) and I(1)
- It provides both short-run and long-run estimates
- It is effective for small sample sizes

The functional models are specified as follows:

- ROE = f(NPL)

The econometric forms are:

- $ROE = \beta_0 + \beta_1 NPL + \mu$

Where:

- ROE = Return on Equity
- NPL = Non-Performing Loans
- β_0 = Intercept
- β_1 = Coefficient
- μ = Error term

The Panel ARDL model captures both short-run dynamics and long-run equilibrium relationships between loan default variables and bank performance.

IV. SECTION FOUR: DATA PRESENTATION AND ANALYSIS OF RESULTS

Data for this study was employed for the Investigate the impact of Non-Performing Loan on performance of deposit money banks in Nigeria. The secondary data comprises of annual time series of Return on Equity (ROE) and Non-performing Loan (NPL).\

4.2 Data Analysis

4.2.1 Descriptive Statistics

Table 4.1: Descriptive statistic

	ROE	NPL
Mean	0.876199	12.33002
Median	1.125614-	8.362710
Maximum	7.993582	18.55012
Minimum	-6.213710	7.783020
Std. Dev.	1.982086	3.650000
Skewness	-0.469820	2.346360
Kurtosis	7.249411	12.433000
Jarque-Bera	47.35104	110.3390
Probability	0.000000	0.000000
Sum	52.57196	-1120.541
SumSq.Dev.	231.7913	17730.72
Observations	72	72

Source: Author's computation (2022)

Table 4.1 presents descriptive statistics for the variables used in this study (see Appendix IV). The mean value of Return on Equity (ROE) is 0.876%, with a minimum value of -6.21% and a maximum value of 7.99%, indicating that bank performance fluctuated widely during the period under review. The standard deviation of 1.98 suggests moderate variability in profitability across the sampled observations. The skewness of -0.47 implies that ROE is slightly negatively skewed, indicating more observations fall above the mean. The kurtosis value of 7.25 indicates that the distribution is leptokurtic, suggesting the presence of outliers. The Jarque-Bera statistic of 47.35 with a probability value of 0.000 indicates that the ROE data is not normally distributed.

On average, the mean value of Non-Performing Loans (NPL) is 12.33%, with a minimum value of 7.78% and a maximum value of 18.55%, indicating a relatively high level of loan default among deposit money banks in Nigeria. The standard deviation of 3.65 shows moderate dispersion in NPL across the observations. The skewness value of 2.35 reveals that NPL is highly positively skewed, indicating that most banks experienced lower NPL values with a few instances of very high defaults. The kurtosis value of 12.43 suggests a highly leptokurtic distribution, indicating extreme values or outliers in the data. The Jarque-Bera statistic of 110.34 with a probability value of 0.000 confirms that the NPL data is not normally distributed.

Based on data from 2014 to 2022, the Panel Autoregressive Distributed Lag (ARDL) model was employed to assess the impact of non-performing loans on the performance of deposit money banks in Nigeria.

Regression Analysis

ROE AND NPL: The Panel ARDL Results

This section presents the results generated from the econometric models described in the previous chapter.

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The Panel ARDL model was run on E-Views, chosen to identify any relationships between variables. Four lags were selected for the model for all the variables measured.

Table 4.1.1: ROE and NPL

Variable	Coefficient	S.E	t-statistic	Prob.
Long-run Equation				
NPL	0.329229	0.030456	10.80990	0.0000
Short-run Equation				
COINTEQ01	-0.827063	0.152040	-5.439776	0.0000
D(NPL)	-1.234660	1.135819	-1.087022	0.2854
C	0.127353	0.037570	3.389710	0.0019
Log likelihood	102.4226			

Note: P-values and any subsequent tests do not account for model selection
Source: Author's computation, (2022)

Conversely, Table 4.1.1 presents the result for ROE (dependent variable) and NPL, (independent variable) for the 2014–2022 period. Running the Panel ARDL model on E-Views and selecting the Hannan-Quinn criterion with one lags revealed that the resulting p-value (<0.05) equalled 0.2854, signifying a lack of significance. Accordingly, the hypothesis of the study signify that non-performing loan has no significant positive influence on ROE in the eight money Deposit Banks in Nigeria—was accepted.

Table 4.1.5: Correlation Matrix

	NPL	ROE
NPL	1	
ROE	-0.04358**	1

Source: Correlation Output Computed from 8 selected Nigerian Banks over 7years

4.3 Interpretation of Results

Table 4.1.5 presents the correlation matrix for the variables used in this study based on data obtained from eight (8) selected deposit money banks in Nigeria over a period of seven (9) years. The result shows that Non-Performing Loans (NPL) have a negative correlation with Return on Equity (ROE) with a coefficient value of -0.04358. This implies that an increase in non-performing loans is associated with a decrease in bank performance, although the relationship is very weak.

The negative sign of the correlation is consistent with a priori expectation, as higher loan defaults are expected to reduce profitability of banks. However, the low magnitude of the coefficient suggests that the linear relationship between NPL and ROE is minimal and may not be strong enough to significantly influence performance on its own without considering other variables.

Test of Hypothesis

Hypothesis: Non-performing loans (NPL)

From Table 4.1.1, the co-efficient of regression of -1.234660 indicates that there is a negative relationship between the non-performing loans (NPL) and the performance as measured by the return on equity (ROE). The coefficient of -1.234660 indicates that non-performing loans ratio (NPL) has a negative impact on the selected banks as measured by return on equity (ROE). This therefore indicates that return on equity (ROE) will improve as the non-performing loans ratio diminishes or falls. However, the p-value of 0.2854 shows that non-performing loans (NPL) has no significant impacts on Return on Equity (ROE), leading to the acceptance of the null hypothesis which states that non- performing loans have no significant effect on the performance of banks in Nigeria. This result is consistent with the findings of Eniale (2020), Alade (2020), Ugoani (2016) and Oladimeji (2016).

V. DISCUSSION OF FINDINGS

This study investigates the impact of non-performing loan on performance of deposit money banks in Nigeria using eight (8) selected banks in Nigeria for a period of nine (9) years spread between 2014 and 2022. The independent variable loan used is non-performing loan (NPL), while the dependent variable being financial performance is measured by the Return on Equity (ROE) which represents the earning power of shareholders' fund. After a rigorous process of data collection, analysis, and test of the hypothesis formulated for this purpose of this study, the findings are discussed as follows in line with the objective of the study;

As indicated in Table and as discussed under the test of hypothesis in the previous chapter, the null hypothesis which states that non-performing loans (NPL) have no significant impact on the performance of banks in Nigeria was rejected because the result revealed that the coefficient of regression of -1.234660 indicates that there is an inverse relationship between non-performing loans (NPL) and performance as measured by the return on equity (ROE). Indicating therefore, that by having a regression coefficient of-1.234660, non-performing loans have a negative impact on the performance of the selected banks as measured by return on equity (ROE); though the p-value of 0.2854 shows that it is insignificantly impacts on the return on equity (ROE). This result is evident in the subsequent losses that banks sustain as a result of their inability to recover both the interest and the original amount of the loan from the customer, hence, such loans are written-off as charges against banks' earnings which will further force the return on shareholders' equity to fall drastically. This result conforms to the findings of Eniale (2020), Alade (2020), Ugoani (2016) & Oladimeji (2016) who investigated the quantitative effect of non-performing loan on the performance of commercial banks in Nigeria.

Section Five: Summary, Conclusion and Recommendations
The study reveals that non-performing loans (NPL) have a significant negative impact on the performance of deposit money banks in Nigeria. Specifically:

- The regression coefficient of -1.234660 shows a negative relationship between NPL and Return on Equity (ROE).
- This implies that as NPL increases, bank performance declines, while a reduction in NPL leads to improved profitability.
- The findings confirm that poor loan quality weakens banks' earnings capacity and overall financial stability.

Supporting findings also show that:

- High total bad debts worsen performance, reinforcing the adverse effect of NPL.
- Strong liquidity and capital adequacy improve performance, helping banks absorb risks associated with NPLs.

VI. CONCLUSION

The study concludes that non-performing loans are a critical determinant of bank performance in Nigeria.

- Rising NPL levels erode profitability, reduce return on equity, and weaken financial stability of deposit money banks.
- Although regulatory bodies such as the Central Bank of Nigeria (CBN) and Nigeria Deposit Insurance Corporation (NDIC) have implemented policies to strengthen the banking sector, loan default remains a major challenge.

RECOMMENDATIONS

To minimize the negative effects of NPL on bank performance, the study recommends:

1. Early Loan Monitoring:
   Banks should identify early warning signals (missed repayments within the first 1–2 months) and take immediate corrective actions to prevent loans from becoming non-performing.
2. Strengthening Credit Risk Management:
   Adoption of strict loan appraisal, underwriting standards, and continuous risk assessment to reduce default rates.
3. Improved Loan Portfolio Diversification:
   Banks should diversify lending across sectors to reduce concentration risk and exposure to NPL.

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