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Effects of non-performing loans on return on equity of selected commercial banks in Nigeria

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Abstract

The study examined the effect of Non-Performing Loans (NPL) on return on equity (ROE) of selected Commercial Banks in Nigeria covering the period 2010 - 2021 with special emphasis on Fidelity Bank, Union Bank and Wema Bank Plc. It specifically determined the effect of non-performing loans (NPL) and Bank Size (SIZE) on the profitable of commercial banks measured by Return on Equity (ROE). The study utilized secondary data obtained from the annual financial report and accounts of the selected commercial banks in Nigeria for the period of study. The data were analyzed using panel least square method of analysis. The results revealed that while non-performing loans have negative outcome on return on equity of the selected commercial banks, Bank Size (SIZE) has a positive impact on return on equity of the selected commercial banks within the period of study. The study concludes that there exists a negative effect of non-performing loans on performance of commercial banks in Nigeria and the effect cannot be underestimated because it poses a fundamental threat to the existence and growth of commercial banks as corporate business entities. Based on the above findings, the study recommends that banks should maintain high credit standards while the apex bank (CBN) and other regulatory agencies should maintain high surveillance on commercial banks' credit operations. A decrease in level of loan default will lead to decline in non-performing loans, and successively enhance return on equity of affected banks in Nigeria.

Keywords: Non-performing Loan; Return on Equity; Bank Size; Bank Performance; Bank Profitability

1. Introduction

Return on Equity (ROE) is a financial measure that determines the extent of efficiency the management of a bank adopts in using the shareholders' funds in their disposal. ROE is one of the metrics used in measuring the profitability of Commercial Banks in Nigeria (Naeem, Baloch, & Khan, 2017). Non-performing loans and the banking sector performance nexus continue to gain more attention in research studies. The Nigerian banking sector has experienced a number of business failures, with non-performing loans as the precursor to eventual bank failures in Nigeria (Murdi, 2019). Non-performing loans are those loan facilities which borrowers have difficulties in repaying; they are loans whose tenure have not expired, but it is uncertain whether the borrowers would be able to repay their debts (Sanyaolu, Akintaro, Adebayo, & Adefolu, 2019).

The study focusses on the significance of performance with special emphasis on return on equity (ROE) in the selected three Nigerian commercial banks (Fidelity bank, Union bank and Wema bank). The importance of performance efficiency of commercial banks in Nigeria cannot be overemphasized (Nairametrics, 2020). It is very important to continually examine the allocative intermediation roles and outcome of the loanable funds availed to customers. The key performance indicators of banks are centered on the efficiency examination of key variables like CAMEL: Capital

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adequacy, Asset quality, Management, Earnings, Liquidity and Sensitivity. For the purpose of this study, we shall limit our measure of performance to return on equity (ROE).

In a business venture, profitability level is indicated by the ratio of return on equity (ROE). Several factors can affect the level of profitability of a bank such as factors that can determine bank profitability, namely bank-specific factors, industry-specific factors, and macroeconomic factors (Arindi, 2016). The level of bank profitability is shown through efforts to achieve net profit and increase company value. Various policies are taken by management in an effort to increase the value of the company thereby increasing the prosperity of owners and shareholders as reflected in the stock price. (Bringham & Houston, 2006).

Contemporarily, the Nigerian banking industry battled several macroeconomic headwinds, including interest rate hikes, high inflation and foreign exchange shortages, but it remained resilient (BusinessDay report, 2022). The inflation rate which affects the purchasing power of banks' customers and their ability to save, started the year 2022 at 15.60 percent and rose to 21.47 percent in December 2022 (BusinessDay report, 2022).

1.1. Statement of the problem

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 in 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 exist: 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, non-performing loan facilities are classified into three categories namely, substandard, doubtful or lost (CBN, 2010).

The Nigerian banking industry, according to NDIC (2013) annual statement and account show that the total loans and advances stood at N10.043 trillion in 2013, showing an increase of 23.22 percent over N83150 trillion granted in 2012, and that the non-performing loans to total loan 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 (five) percent. However, despite this improvement, the volume of non-performing loans increased by 13.30 percent from 281.09 trillion in 2012 to 324.14 trillion in 2013 (NDIC, 2014). As a proactive measure to avert the menace of resurgence of non-performing loans and to ensure safe and sound financial system, the central bank of Nigeria (CBN) in June, 2014 directed that no financial institutions shall, without the prior written approval of the CBN, grant a credit facility to a potential borrower who is in default of any existing loan facility to the tune of N500 million and above in the case of deposit banks such as commercial banks and N250 million and above in the case of development banks.

But in 2016, the NDIC report shows that commercial banks' total loans to the domestic economy stood at N16.29 trillion as of 31st December, 2016, out of which the sum of N2.08 trillion was non-performing. The sharp rise in the quantum of non-performing (NPL) loans by 220 percent from N0.65 trillion as at 31st December, 2015 to N2.08 trillion as at 31st December, 2016 and the NPL to total loan ratio (NPL ratio), which increased from 4.88% as at 31st December, 2015 to 12.80% as December 2016, compared unfavorably with the maximum prudential threshold of 5%.

The NDIC report of 2016 indicated a negative note that the commercial banks profitability indices declined in 2016. The commercial banks unaudited profit fell by 30.16% from N0.63 trillion as of 31st December, 2015 to N0.44 trillion as at December, 2016. Also, non-interest income decreased by 32.60% to N0.17 trillion as at December 2016 from N 0.25 as of 31st December, 2015. Net-interest income also decreased to N 0.28 trillion as of 31st December, 2016 from N 1.44 trillion in 2015. Commercial banks return on equity (ROE) fell from 19.78% in 2015 to 12.65% in 2016. Yield on Earning Assets also depreciated from 13.40% in 2015 to 3.51% in 2016.

In 2018, there was a marginal improvement in loan performance with a dip to 11.7 % as compared to 14.81% in 2017. Due to improved macroeconomic conditions, non-performing loans improved in 2019 at 3.51% with further improvement in 2020 at 3.23%. Central Bank of Nigeria set up AMCON in 2010 with the purpose to acquire the bad loans from commercial banks, thereby boosting their liquidity level and recapitalization plan. With the progressive level of non-performing loans, the regulator (CBN) has introduced a new policy that bank with above 10% non-performing loan ratio is restricted from paying dividends to its shareholders (Adegbie, Akintoye & Ashaolu, 2019).

With the rise in the value of non-performing loans, the study is set out to investigate the relative impact of non-performing loans on return on equity (ROE) of the selected commercial banks in Nigeria. Return on equity is a ratio for measuring net income after tax. The Return on Equity ratio reveals the efficiency of the use of a business capital. A high ROE ratio signifies a healthy business operation that places the business in a better position. This implies that the

position of the company will be stronger, and vice versa. Investors invest in companies to get good returns, which consist of yields and capital gains, and the ability of a firm to make high profit, the greater the expected return by investors. The declining profit trend x-rayed in the preceding paragraphs necessitated this study, to investigate the effect of non-performing loan on return on equity of selected commercial banks in Nigeria.

1.2. Objectives of the study

The broad objective of the study is to investigate the effects of non-performing loans on return of equity of the selected commercial banks in Nigeria (Fidelity, Union and Wema bank) from the year 2010 to the year 2021. More specifically, the study aims to:

- Investigate the effect of non-performing loan on return on equity of the selected commercial banks in Nigeria.
- Investigate the effect of bank size (total asset) on return on equity of the selected commercial banks in Nigeria.

1.3. Hypothesis of the study

The following hypotheses, formulated and stated in their null forms provide a basis for deriving testable arguments:

- Non-performing loans do not have significant effect on ROE of the selected commercial banks in Nigeria.
- There is no significant relationship between bank size (total asset) and return on equity of the selected commercial banks in Nigeria.

2. Literature review

2.1. Non-performing loans and commercial banks return on equity

Commercial banks in Nigeria play a crucial role as intermediaries between the surplus and deficit units of funds. Their objectives include maximizing profitability from the funds contributed as equity by the owners of the business, asset growth, and expanding the customer base. To achieve these goals, commercial banks grant loans and advances to individuals, businesses, and the government (Dike, 2021). High non-performing loans lower net income due to the provisions for bad loans, and decreases return on equity (ROE), consequently. If a bank effectively manages non-performing loans and maintains profitability, return on equity (ROE) remains healthy. Return on Equity (ROE) measures a firm's ability to reward its shareholders investment, build its equity base through retained earnings and raise additional equity investment. This ratio demonstrates the bank's ability to generate income from its core financial service activity (Cvetkoska & Fotova, 2021). If a large chunk of the loan amount availed by the management of bank to customers return as bad loans, the effort of the bank management to make money that will return to equity owners of the bank will be thwarted.

Findings revealed that bank defaulting debtors in many cases abandon their debt obligations and approach other unsuspecting banks for fresh loan contracts which again are most likely to degenerate into non-performing credits. The use of status reports on bilateral basis was not effectively utilized to detect such dubious multiple loan defaulters. Thus, the need for a central information database from which the required consolidated credit information on borrowers has become inevitable. This prompted the Central Bank of Nigeria to establishment of the Credit Risk Management System (Ojo and Somoye; 2013).

Mohd Karim and Sallahundin (2010), maintain that the management of non-performing loans is often associated with high operational costs leading to dwindling capital growths in the affected banks. Non-Performing Loans (NPLS) reduces the liquidity of banks, distorts credit expansion, and slows down the growth of the real sector with direct consequences to the performance of banks.

Somoye, (2010) said that NPLS also bring down investors' confidence in the banking system, thereby discouraging them from making reasonable investments. As far as the Nigeria banking sector is concerned, something has to be done seriously and urgently to bring back the confidence of bank customers in the sector. Confidence is one of the factors banks must offer in order to get renewed patronage of customers.

2.1.1. Trend analysis of NPLS in the selected commercial banks

To give a good understanding to the study, analysis of trends of non-performing loans as it affects the selected commercial banks in the scope of the study is carried out. The selected commercial banks are Fidelity bank, Union bank and Wema bank.

2.2. Trend analysis of NPLS in fidelity bank plc

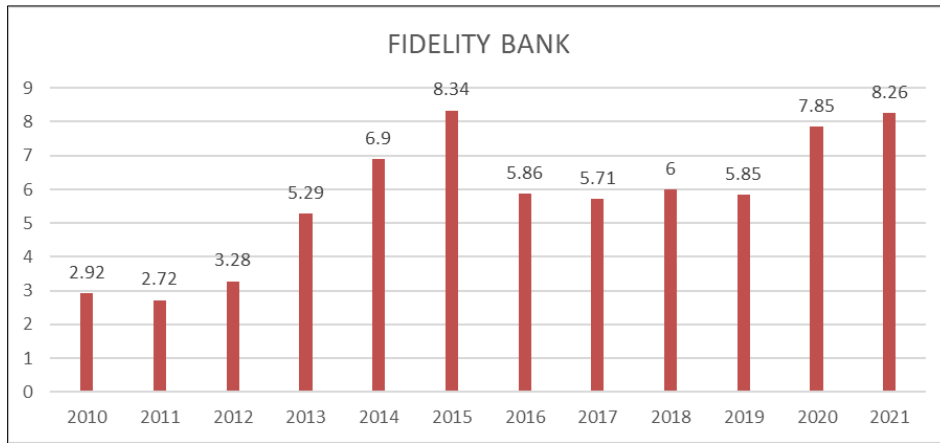


Figure 1 Trend of Non-performing loans for Fidelity Bank.

Key -Y axis represent values of non-performing loans; X axis represent the various years values in Y axis were recorded.

Figure 1 shows the trend analysis for Fidelity bank. Non-performing loans for Fidelity bank rose from 2.92% in 2010 to 3.28% in 2012. It gradually rose from 5.29% 2013 to 8.26% 2021, with a slight fall from 5.86% in 2016 to 5.85% 2019.

2.3. Trend analysis of NPLS in union bank plc

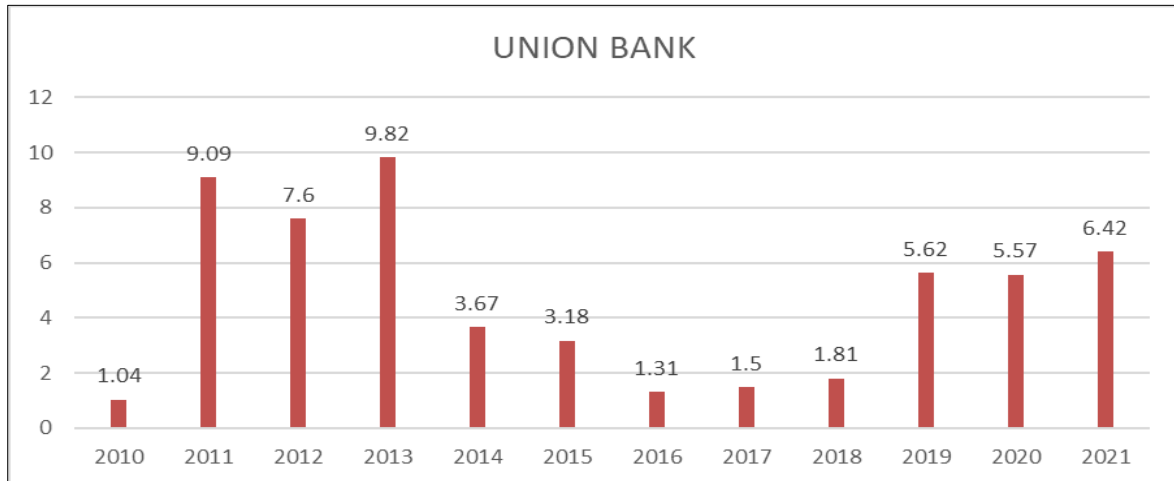


Figure 2 Trend of Non-performing loans for Union Bank.

Key -Y axis represent values of non-performing loans; X axis represent the various years values in Y axis were recorded.

Figure 2 shows the trend analysis of non-performing loans for Union Bank. The bank witnessed a remarkable increase in the 2011 and 2013, ranging between 9.09% to 9.82%. The remaining years recorded thresholds below 5% as stipulated by the Central Bank of Nigeria, except 2019 (5.62%) to 2021 (6.42%) which was a small increase above the 5% regulatory threshold.

2.4. Trend analysis of NPLS in Wema bank plc

Non-performing loans is on the high side in Wema Bank. Figure 3 shows that the bank recorded huge non-performing loans across the years of study. Only 2012, 2015 and 2021 documented thresholds of non-performing loans below the 5% stipulated by regulatory authorities.

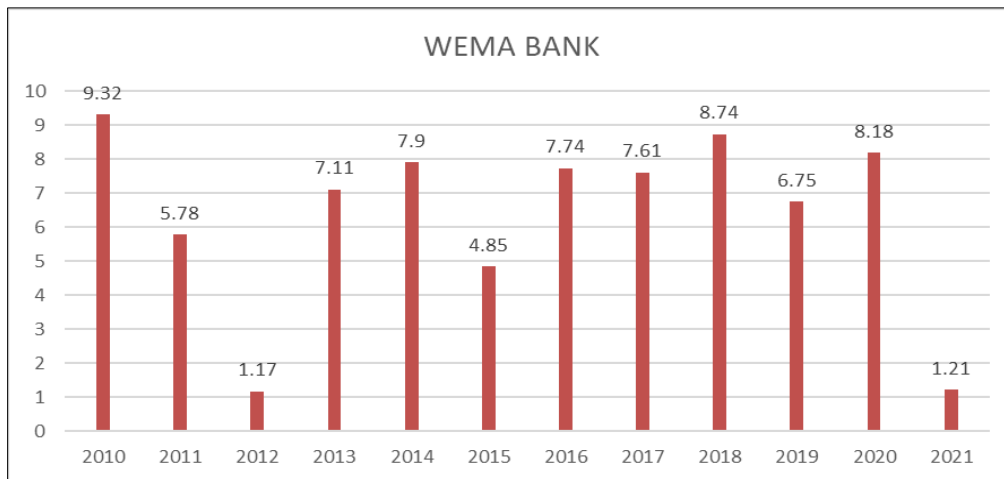


Figure 3 Trend of non-performance loans for Wema Bank.

Key -Y axis represent values of non-performing loans; X axis represent the various years values in Y axis were recorded.

2.5. Empirical literature review

Numerous empirical research has been carried out on the effects of non-performing loans on the return on equity (ROE) of commercial banks.

Felix and Claudine (2008) researched the relationship between bank performance and credit risk management. It could be deduced from their findings that return on equity (ROE) and return on assets (ROA) both measuring profitability were inversely related to the ratio of non-performing loan to total loan of financial institutions thereby leading to a decline in profitability.

Ahmad and Ariff (2013) examined the key determinants of credit risk of Deposit Money Banks on emerging economy banking systems compared with the developed economies. The study found that regulation is important for banking systems that offer multi-products and services; and management quality is critical in the cases of loan-dominant banks in emerging economies. An increase in loan loss provision is also considered to be a significant determinant of potential credit risk. The study further highlighted that credit risk in banks from emerging economies is higher than that in developed economies.

2.6. Theoretical literature review

The theoretical background in which the study hinges its strength is derived from the bad management hypothesis. The bad management hypothesis posits that poorly run banks do bad jobs at both cost control and at loan underwriting, monitoring, and evaluation. This hypothesis was proposed by Berger and De Young (2013). They postulate that poor management in the banking institutions brings about bad quality loans and lower incomes, leading to an increase in the level of non-performing loans. This implies that if due diligence is carried out in loan administration, the value of bad loans would reduce, and profitability will increase. According to this hypothesis, in a bid to mitigate rising non-performing loans, poor managers usually allocate more resources to underwriting and monitoring bad loans. This causes an increase in the operating expenses over interest income, which in the long-run, lead to higher cost-to-income ratio (low-cost efficiency). A good number of empirical studies are founded on this hypothesis. For instance, Norden and Stoian (2014) and Louis et al. (2019) noted that bank specific variables like performance and efficiency indicators influenced the level of non-performing loans, significantly. Based on this argument, a negative relationship between non-performing loans and Return on Asset (ROA) or Return on Equity (ROE) which is a proxy for performance of commercial banks, is expected in the study.

3. Research method

Ex post facto research design is adopted for this study. It is a substitute for true experimental research and can be used to test cause and effect or correlational relationships amongst variables.

3.1. Sources, nature and description of data

The study gathered secondary data for the banks under study for 11 (eleven) years from 2010 to 2021. Data for the selected banks were sourced from the Central Bank of Nigeria (CBN) online statistical bulletin, the financial statement, and annual reports of the affected commercial banks such as: Fidelity Bank, Union Bank and Wema Bank. These sources are considered among the most reliable sources for the data used in the study.

3.2. Measurement of variables

In this study, the dependent variable of performance is represented by return on equity (ROE), and the independent variable is represented by non-performing loan (NPL) and bank size (SIZE).

3.3. Method of data analysis

The study adopts the use of panel least square data analysis. It is the statistical analysis of data sets consisting of multiple observations. The data set could be generated by pooling time series observations across a variety of cross-sectional units, in the context of this study, the selected commercial banks in Nigeria listed in 3.1 above. The general form of panel data model is stated as:

$$y_{it} = \alpha_{i0} + \beta \rho_{it} + U_{it} \quad 3.1$$

y_{it} is the explained variable which is also referred to as the dependent factor; α_{i0} is scalar and the intercept term for all periods (t). β is to be calculated on the independent factors. ρ_{it} consists of the explanatory factors in the model which also includes the controlled variables. Finally, the U_{it} represents the error term.

3.4. Model specification

Following the study objectives, the functional form of the variable is hereby developed in the form of:

$$Y = \beta_0 + \beta_1 X \quad 3.2$$

$$ROE = f(NPL, SIZE) \quad 3.3$$

$$ROE = \alpha_0 + \alpha_1 NPL + \alpha_2 SIZE + \mu \quad 3.4$$

Expressing equation 3.4 in a panel format, we have:

$$ROE_{it} = \alpha_0 + \alpha_1 NPL_{it} + \alpha_2 SIZE_{it} + \mu_{it} \quad 3.5$$

Table 1 A priori Expectation

Dependent variable	Explanatory Variables	Expected Sign	Decision
Return on Equity (ROE)	Non-performing Loans (NPL)	-	Increase in NPL will lead to decrease Return on Equity
	Bank Size (SIZE)	+	Increase in Total Asset/Bank Size will lead to increase in Return on Equity

Source: Author's compilation, (2024)

4. Results

The raw data on the variables employed for this study are presented in the table below. It begins with the trend analysis of the experimented commercial banks.

4.1. Trend analysis

Table 2 presents the trend analysis of the selected commercial banks in Nigeria.

Table 2 Return on Equity (ROE) for the selected Banks for the period (2010-2021)

Year	Fidelity Bank	Union Bank	Wema Bank
2010	6.19	86.84	8.74
2011	6.03	14.34	-1.23
2012	13.22	2.42	-3.87
2013	5.52	3.05	4.70
2014	8.96	10.05	7.07
2015	7.64	7.90	6.61
2016	5.97	6.39	6.76
2017	9.99	4.10	6.15
2018	12.90	9.33	9.47
2019	12.97	10.70	12.23
2020	10.26	10.27	10.02
2021	12.78	8.16	17.60
Average	9.40	14.39	6.67

Source: Extracted and compiled by the author from recent annual reports quoted on the Nigerian Exchange Group (2024)

From table 2 above, return on equity (ROE) for the selected commercial banks over the reviewed period (2010-2021) is seen in positive direction. Union Bank recorded the highest return on equity value of 14.39. This is followed by Fidelity Bank with a value of 9.40%, Wema Bank at 6.67%,

4.2. Analysis of Data

Table 3 presents the descriptive statistics of the selected commercial banks including the mean distribution, standard deviations, minimum and maximum values of study variables for the study period; 2010-2021

Table 3 Summary of descriptive statistics for the selected Commercial Banks

	ROE	SIZE	NPL
Mean	2.37	14.18	1.62
Median	2.50	10.40	1.41
Maximum	4.46	33.30	5.95
Minimum	-0.57	3.80	-0.51
Std. Dev.	0.83	10.4	1.43
Kurtosis	3.96	2.03	4.09
Skewness	-0.74	0.70	1.17
Jarque Bera	15.17	14.18	33.00
Observation	36	36	36

Source: Author's Computation (Eviews-12) (2024) N.B: ROE: Return on Equity; NPL =Non-Performing Loans; SIZE = Bank Size

In table 3, the weighted average of return on equity (ROE) revealed that the mean value for the selected commercial banks was 2.37, the maximum value was 4.46 and minimum value of -0.57. The weighted average of non-performing loans (NPL) revealed that the mean value for the selected commercial banks was 1.62 with maximum value of 5.95 and minimum value of -0.51. The weighted average of Bank Size (SIZE) revealed that the mean value for the selected

commercial banks was 14.18 with maximum value of 33.30. The incremental quantities are because of changes in firm's operational and technical efficiencies which will be captured in the bank's specific descriptive analysis.

Table 4 Correlation analysis for the selected commercial banks

	ROE	SIZE	NPL
ROE	1		
SIZE	0.1485	1	
NPL	-0.1183	-0.1289	1

Source: Author's Computation (Eviews-12) (2024) *N.B: ROE Return on Equity; NPL = Non-Performing Loans; SIZE = Bank Size*

In table 4 above is the analysis of correlation if there exists a positive or negative association between the independent and dependent variables. If the absolute r-value is above 0.5 at 95% confidence level and degree of freedom as n-2. The value 'r' nearer to +1 or -1 indicates high degree of correlation between the variables. The table provides relevant information on the degree of correlation among the variables adopted in the study. From table 4, there is a negative relationship between Non-Performing Loans (NPL) and Return on Equity (-0.1183). There exists a positive correlation between Bank Size (SIZE) and Return on Equity (0.1485).

4.3. Presentation of Results and discussion of findings

The study evaluates the effect of non-performing loans on return on equity of the selected commercial banks in Nigeria. The result of our analysis using linear regression models (cross section and time series); unit root test and cointegration test are presented below:

4.3.1. Panel Unit Root Test

Table 5 Summary of Unit root tests

Test	Level		
	ROE	SIZE	NPL
Levin, Lin & Chu	-2.94 (0.00)*	-8.75 (0.00)*	-2.34 (0.01)*
ADF- Fisher	31.54 (0.01)*	54.28 (0.00)*	17.61 (0.02)**
PP-Fisher	38.27 (0.00)*	34.29 (0.01)*	31.51 (0.01)*
Order of Integration	I(0)	I(0)	I(0)

Source: Author's Computation using E-views 12 (2024); *N.B: Note: p-values are in parenthesis; ** indicates significant at 5%; ROE: Return on Equity; NPL = Non-Performing Loan; SIZE = Bank Size.*

The results presented in table 5 show that the variables, at level, with trend and intercept, are found to be stationary at 5% significance level. This means that the properties (Mean, variance, autocorrelation) of the panel data are constant, implying that the variables are stationary in their level form. This implies that a long run association exists among the selected series. Therefore, this leads to conducting the long run relationship.

In table 6 above, the result of the fixed effect and random effect produce similar outcomes in terms of the signs. The differences are in the magnitude of their impacts on banks' performance for the period of study. Selecting the correctness of the estimated models, the selection criterion thus is:

If the probability value is less than 0.05 significant level ($p < 0.05$), we reject the Null hypothesis, implying that the fixed effect model is appropriate.

If the probability value is greater than 0.05 significant level ($p > 0.05$), we reject the alternate hypothesis, implying that the random effect is appropriate.

From the analysis of the Hausman test in table 6, the probability value (0.09) is greater than (0.05) significant level, implying that the random effect model is appropriate.

Table 6 Panel Linear Regression Results

Dependent Variable: ROE						
Variables	Common Effect (OLS) results		Fixed effect		Random effect	
	Coefficient	t-statistics	Coefficient	t-statistics	Coefficient	t-statistics
NPL	-0.30	-2.02**	-1.10	-1.95**	-0.80	-2.29**
SIZE	0.84	2.29**	0.04	2.24**	0.02	0.73
C	-1.38	-3.57	-0.22	-2.03	0.23	2.04
R ² = 0.13 F-stat = 4.09 D.W stat = 1.97			R ² = 0.31 F-stat = 6.96 D.W stat = 1.87dc		R ² = 0.25 F-stat = 4.05 D.W stat = 1.83	
Hausman Test = 7.81 (0.09)						

Source: Author's Computation using E-views 12 (2024); Note: p-values are in parenthesis; ** indicates significant at 5%; ROE: Return on Equity; NPL = Non-Performing Loans; SIZE = Bank Size.

5. Discussion

The study examines the effect of Non-Performing Loans (NPL) on Return on Equity (ROE) of selected commercial banks in Nigeria (Fidelity bank, Union bank, and Wema bank) between 2010 and 2021. This study revealed that Bank Size (SIZE) has a positive and statistically significant relationship with ROE, while (NPL) impacted negatively but is statistically significant in explaining variations in ROE. This means that an increase in bank size (Total asset) will cause an increase in return on equity (ROE) and an increase in non-performing loans (NPL) will cause a decrease in return on equity (ROE) of the selected banks within the period of study.

6. Conclusion

The results of the financial report for eleven (11) year period of the selected commercial banks were analytically examined and have revealed the effect of non-performing loans on return on equity of the selected commercial banks in Nigeria. The average percentage of non-performing loan variable in Nigeria is 5.48%, this implies the level of loans that are not being paid back by debtors is marginally above the regulatory benchmark. This is a measure of the proportion of problematic loans within commercial bank's portfolio in a year. The study concludes that non-performing loans and bank size, which is a reflection of bank's total asset value are significant in explaining variations in ROE. However, while increase in SIZE resulted in a corresponding increase in ROE, increase in non-performing loans resulted to decrease in ROE in the same period among selected commercial banks in Nigeria.

Recommendation

Based on the findings of this research work, the researcher recommends the need to strengthen supervision of banks by the Central Bank of Nigeria (CBN) and the Nigeria Deposit Insurance Corporation (NDIC) to avert the buildup of non-performing loans in the future. Commercial banks are admonished to sustain high credit standards while the Apex bank and other regulatory agencies should maintain high surveillance on banks' credit operations; Banks should collect and perfect all collaterals which are used for obtaining loans. The collateral value should be more than the worth of the loan approved to mitigate the effect of any loan default.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

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