

Debt Recovery and Bank Performance in Nigeria: Evidence from Panel Data Analysis

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Abstract— High non-performing loan levels continue to threaten the profitability and stability of Nigerian banks, yet the empirical link between debt recovery practices and bank performance over an extended period remains underexplored. Anchored in credit rationing theory of Stiglitz and Weiss and the psychological theory of credit recovery, the study used panel data from seven Nigerian banks (2004–2023, 140 observations). Four credit recovery indicators, NPL ratio, loan loss provisions, debt recovery rate, and write-off ratio—were regressed against net income and ROE using a Random Effects panel model, selected via Hausman and unit root tests. Loan recoveries ($\beta = 0.106$, $p = 0.047$), write-offs ($\beta = 0.145$, $p = 0.002$), and loan loss provisions ($\beta = 0.419$, $p = 0.000$) all had significant positive effects on net income, with the model explaining 42.7% of the variation ($R^2 = 0.4272$). It concludes that credit recovery, write-offs, and provisioning practices significantly enhance Nigerian bank performance, confirming that credit risk management is a key driver of profitability rather than a mere compliance exercise. The study offers rare two-decade panel evidence jointly assessing recoveries, write-offs, and provisioning in Nigerian banking, provides empirical support for credit rationing theory in an African context, and reveals a strategic role for write-offs in balance-sheet management, an area prior studies have largely overlooked. It is recommended that Nigerian banks should strengthen proactive loan recovery mechanisms, such as enhanced credit monitoring systems, dedicated recovery units, and data analytics for tracking delinquent loans, while adopting transparent, strategic write-off policies and maintaining forward-looking, IFRS 9-aligned provisioning standards to sustain profitability and manage credit risk effectively.

Keywords: Debt recovery; credit risk management; bank performance; non-performing loans; Nigerian banks; credit rationing.

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INTRODUCTION

Almost all businesses have a credit connection with financial institutions, particularly banks. Some businesses rely on short-term loans from commercial banks to meet their working capital needs. Others focus on long-term capital increases. Debt recovery is the process of pursuing loans which have not been repaid and managing to recover them by convincing the defaulter to make attempts to repay their outstanding loans Yahiya & Ahmad (2024). All credit requests, regardless of kind, require a systematic investigation of the borrower's ability to repay and this applies to loans for capital expenditure, new acquisitions, or permanent public investments, as well as cash for bank deposits, transferring bank deposits between businesses, providing bank clients, employees, and most importantly, shareholders (Bedada, 2020; Ativie & Eguvwebere, 2025).

Debt Recovery is a completely critical issue of banking because it performs a key position in making sure that the principal goal of the bank (to difficulty loans) effects into the favored final results of creating a margin out of the loans advanced. It is obvious that the presence of debt Recovery places stress to the defaulter to pay up lest they get the feared calls from the banking team of workers via the debt Recovery unit (Orok et al., 2023).

According to Smolina et al., (2023), the goals and objectives of commercial banks have thus made room for the bank's objective to be profit maximization and its clients to create and acquire credit in the form of loans, which have an effect on corporate development and economic progress (Orok et al, 2023). The enterprise marketers and buyers who have exceptional thoughts on how to create extra wealth within side the economic system however lack the important capital to execute their thoughts. Teneng and Kehdinga (2023) explained that given the significance of credit reimbursement in operationalizing MFIs, implementation of debt recuperation techniques is pivotal hence, lending is a risky challenge which banks most effective interact on after a rigorous and excellent evaluation of the project for which lending is being made. The most important preoccupation of banks is extending loans to their customers (John et al, 2024).

The lending coverage of a financial institution ought to be precise on the amount of credit to be made available to whom, for what duration, and for what reason and for this reason, lending rules need to be properly documented in order that lending officers could be capable of recognizing the area of prohibition and the location in which they can operate (Orok, et al, 2023).

According to Saulītis (2023), the subsequent may be used to lessen debt restoration issues in African banks; use of reminders has proved to be a great degree to inspire borrowers to pay up their money owed. Some debtors are honestly not able to

remember when their credits are matured. In this case, reminders consisting of brief text (SMS), e mail or a easy phone name does the magic and allow the patron do not forget their responsibility to the financial institution thereby making them be in a role to pay off their money owed (John et al, 2022). Lenders are particularly concerned with adverse fluctuation in net income or cash flows, which hinder the borrowers' ability to service a loan. Some risks can be measured with historical and projected financial data, while others such as those associated with borrowers' character and willingness to repay a loan, are not directly measurable.

Bank performance in Nigeria is influenced by various factors, including macroeconomic conditions, regulatory policies, and bank-specific characteristics. For the macroeconomic factors; Nigeria's banking sector is susceptible to macroeconomic fluctuations, such as changes in oil prices, inflation rates, and exchange rates. The country's heavy reliance on oil exports makes its economy vulnerable to external shocks, which can impact bank performance. Additionally, high inflation rates can erode the purchasing power of consumers, leading to reduced demand for banking services (Edom et al, 2022; Akoni & Eguvwebere, 2025).

For the regulatory framework; the Central Bank of Nigeria (CBN) regulates the banking sector, setting policies and guidelines to ensure stability and security. The CBN's regulatory framework has undergone significant reforms in recent years, including the introduction of risk-based supervision and stricter capital adequacy requirements. These reforms aim to strengthen the banking sector and improve bank performance (Eba, Orok & John, 2021).

For bank-specific factors; Factors, such as management quality, asset quality, and operational efficiency, also impact bank performance in Nigeria. Banks with strong management teams, diversified asset portfolios, and efficient operations are better equipped to navigate challenges and capitalize on opportunities. Conversely, banks with poor management, high non-performing loan ratios, and inefficient operations may struggle to maintain profitability.

However, despite progress in recent years, Nigerian banks still face several challenges, including, high Non-Performing Loan Ratios: Many banks in Nigeria struggle with high levels of non-performing loans, which can impact their profitability and stability, inadequate infrastructure: Nigeria's infrastructure deficits, such as poor power supply and inadequate transportation networks, can increase operational costs and hinder bank performance, cybersecurity risks: As banks in Nigeria increasingly adopt digital technologies, they face growing cybersecurity risks, which can compromise customer data and impact bank reputation (Orok et al, 2021).

In addition, despite these challenges, there are opportunities for growth and improvement in Nigeria's banking sector including digitalization: The adoption of digital technologies, such as mobile banking and online payment systems, can enhance

customer convenience, reduce costs, and increase revenue streams, financial inclusion: Nigerian banks can play a crucial role in promoting financial inclusion, particularly in rural areas where access to banking services is limited, and infrastructure development: Investments in infrastructure development, such as power generation and transportation networks, can improve the business environment and support economic growth.

According to Jiang (2024), just like investments usually come with risks, banks also face risks when giving out loans or making financial decisions, but if banks take the time to properly study and understand these risks, they can make better and more realistic decisions that are likely to succeed. Again, lack of adequate knowledge of the loan sector could result in most bad debts, and moreover, the success of most loans depends on the perfect assessment of the customer's character. If the customers are introduced by another customer, the market fairly becomes simpler because the introducer may often guarantee on behalf of the new customer. He suggested that loan for speculative business should not be granted even if it is fully supported by collateral, the possibility of default is high.

In her contribution enumerated some of the causes of loan default as decline in business, abandonment of account, delay in project completion, diversion of funds and increase in interest rate. Also, bad debt in lending is caused by highly defective loan administration operations at the bank which stem from the over bearing influence of directors who relegates central rules in favour or personal and political interest by virtue of the nature of appointments. Other attributes to the cause of these bad debts are improper documentation, insufficient security, unstable economy, customer's dishonesty, loopholes in legal handlings and improper perfection of security documents. Thus, the study aims to examine the relationship between debt recovery and bank performance, with a focus on returns on equity of banks (ROE). The specific objectives are:

1. To analyze the impact of credit recoveries on the performance of Nigerian banks between 2004 and 2023.
2. To examine the relationship between loan write-offs and the financial performance of Nigerian banks during the study period.
3. To assess the effects of loan loss provisioning on the performance of Nigerian banks.

THEORETICAL FRAMEWORK AND LITERATURE REVIEW

Theoretical framework

Several theories have been propounded that supports credit recovery. Among them include:

Credit theory of money

The credit theory of money was also developed and propounded by the British economist Mitchell Innes in his 1913 article titled “What is Money” cited in Innes (2004). The credit theory of money is an economic theory that states that money is not a physical commodity but is instead a form of credit created through the extension of loans and other forms of credit by financial institutions. This theory suggests that money is created as a result of the lending and borrowing activities of these institutions and is not backed by any physical commodity, such as gold or silver. The theory further argues that the supply of money is determined by the total amount of credit created by the institutions and that the value of money is determined by the demand for it.

From this main theory springs the sub-theory that the value of credit or money does not depend on the value of any metal but on the right which the creditor acquires to “payment,” that is to say, to satisfaction for the credit, and on the obligation of the debtor to “pay” his debt and conversely on the right of the debtor to release himself from his debt by the tender of an equivalent debt owed by the creditor and the obligation of the creditor to accept his tender in satisfaction of his credit”.

The Psychological Theory of Credit Recovery

Although it is not credited to a single academic, the psychological approach to credit recovery draws on ideas from the psychology of indebtedness and behavioral economics. It highlights how the attitudes, motives, and emotional reactions of borrowers influence their repayment behaviour. The psychological theory of credit recovery is an emerging perspective that examines how borrower behavior, attitudes, and cognitive biases influence credit repayment decisions and loan recovery outcomes. Rather than focusing solely on financial metrics or legal enforcement, this theory recognizes that human psychology plays a critical role in how individuals respond to debt obligations, collection efforts, and financial stress.

The psychological theory of credit recovery emphasizes that a borrower’s repayment behavior is influenced not only by financial capacity but also by psychological factors such as motivation, perception of fairness, cognitive dissonance, trust, and social pressure. It suggests that borrowers are more likely to repay when they feel respected, when repayment options are framed positively, and when there is a strong lender-borrower relationship built on trust. The theory also highlights how emotional responses such as stress or shame can lead to avoidance behavior, making it essential for lenders to adopt empathetic, non-confrontational communication strategies. Overall, it advocates for a human-centered, behaviorally informed approach to loan recovery.

Credit Rationing Theory (Stiglitz and Weiss, 1981)

Joseph Stiglitz and Andrew Weiss made a significant theoretical contribution in their 1981 American Economic Review paper, which examined credit markets characterized by imperfect information. Their model demonstrates that credit rationing can arise as a stable feature of market equilibrium rather than a temporary distortion. As defined by these authors, credit rationing occurs when financial institutions cap the volume of loans extended to borrowers, even in cases where those borrowers would accept higher interest rates.

The underlying cause is not the interest rate itself but rather the lender's exposure to risk stemming from information asymmetry specifically, the lender's inability to fully assess a borrower's creditworthiness. Borrowers subject to rationing are effectively willing to pay more for financing than the lender is prepared to charge, since raising rates further would reduce the lender's expected returns rather than increase them. This dynamic can produce equilibrium rationing, a state in which demand for credit exceeds supply at the prevailing interest rate. Competitive pressures among lenders can also shape this equilibrium, as institutions differ in their appetite for risk; some lenders may be more willing than others to extend credit to riskier borrowers, creating a distribution of lending relationships based on varying risk tolerances on both sides of the transaction. This equilibrium emerges partly because lenders' approaches to adverse selection differ, and because they cannot observe the true risk profile (or "type") of each borrower's underlying project. The logic here is that low-risk borrowers are less willing to accept steep interest rates, since their low likelihood of default means they will ultimately repay a substantial sum over time.

Drawing on Muller et al. (2024), higher-risk borrowers tend to accept steeper interest rates precisely because their projects are less likely to succeed, making loan repayment less certain. Lenders compensate for this elevated default risk by charging these borrowers more. In essence, when a borrower carries a greater probability of non-repayment, the lender raises the interest rate to offset potential losses, using the additional income generated to cushion against default. This premium effectively balances the heightened risk against the possibility of non-repayment, providing the lender a measure of protection. It is worth noting that when a lender chooses to restrict credit supply and hold interest rates down instead, this behavior presupposes limited liability and reinforces the logic of credit rationing though the theoretical outcome can still apply under conditions of unlimited liability.

Empirical Review

In their study of mobile lending firms, Atandi and Kuiri (2022) investigated the relationship between debt collection approaches and financial sustainability. Employing

a combination of cross-sectional, descriptive, and correlational survey designs alongside mixed quantitative and qualitative methods, the researchers drew a sample of 269 respondents from a population of 900. Analysis of both primary and secondary data, using descriptive and inferential techniques, revealed that strengthening credit recovery processes could boost firm income while reducing losses. The findings further suggested that collection approaches should focus on encouraging voluntary repayment rather than adversarial tactics toward borrowers, and that weak financial management policies tend to undermine the efficiency of financial service delivery. The authors recommended future research into how government regulation affects the performance and sustainability of mobile lending institutions.

Obae and Jagongo (2022) investigated how credit rationing and client appraisal practices influenced loan performance among Kenya's commercial banks. Using a descriptive survey design across 38 commercial banks, the researchers gathered primary data via questionnaires on credit management practices, supplemented by secondary data drawn from loan records spanning 2018 to 2020. Data were processed using SPSS (version 21) for both descriptive and inferential analysis. Regression results revealed a strong positive relationship ($R = 0.759$) between the predictor variables and loan performance, with a coefficient of determination (R^2) of 0.5761.

Both credit rationing and client appraisal emerged as statistically significant predictors: a one-unit increase in credit rationing was associated with a 0.356 rise in loan performance, while a one-unit increase in client appraisal corresponded to a 0.408 improvement. At the 95 percent confidence level, both credit rationing ($p = 0.001$) and client appraisal ($p = 0.001$) proved statistically significant within the model. The researchers concluded that debt collection practices meaningfully influence loan performance, with shorter collection periods yielding better outcomes for commercial banks. They also found that robust client appraisal processes enhance credit performance across the banking sector, and that overall loan performance is closely tied to the quality of credit management practices institutions adopt. Consequently, the study recommended the uniform adoption of sound credit management practices across Kenya's commercial banks to curb non-performing loans.

Kinyua et al. (2022) explored how loan recovery strategies and borrower characteristics affected repayment rates for revolving funds disbursed by the Kenyan government between 2010 and 2019, conducting the study over an 18-month period from January 2020 to June 2022. Drawing from a population of 181 officers (including Youth officers across constituencies and Women Enterprise Fund officers across all 47 counties), the researchers used purposive sampling to select their sample and collected data through questionnaires, later analyzed with SPSS version 23. The results showed that auction-related collection had a negative but statistically insignificant effect on repayment performance (coefficient = -1.953, $p = 0.094$), meaning that each additional

shilling spent on collection budgets was associated with a 1.953-unit decline in repayment performance, holding other factors constant. Staffing levels for arrears collection showed a positive but insignificant relationship with repayment (coefficient = 1.28, $p = 0.350$), such that adding one collection employee corresponded to a 1.28-fold increase in repayment performance. Credit risk training likewise showed a negative, statistically insignificant effect (coefficient = -2.174, $p = 0.28$), with each additional training session linked to a 2.174-fold decrease in repayment performance, other variables held constant. Third-party service involvement had a positive but insignificant effect (coefficient = 2.587, $p = 0.389$), while the number of external debt collectors engaged had a negative, insignificant effect (coefficient = -3.889, $p = 0.133$), each additional external collector was associated with a 3.889-unit drop in repayment performance. All borrower-characteristic variables showed positive but statistically insignificant relationships with repayment outcomes. The study concluded that neither loan recovery implementation strategies nor collection strategies significantly affected repayment performance, though borrower characteristics showed a positive, if statistically insignificant, association.

Enoch et al. (2021) assessed how collection policy shaped portfolio quality among microfinance banks in Nigeria's Adamawa State. Data were gathered from 51 credit officers, with a multi-stage sampling approach used to draw a subsample of 21 respondents from this group. Regression analysis and descriptive statistics were applied to test the study's hypotheses, revealing that collection policy exerts a substantial influence on portfolio quality. The findings led the researchers to recommend that microfinance banks maintain rigorous debt collection policies, since stricter enforcement supports loan recovery and, in turn, strengthens portfolio quality.

Cheptum (2019) investigated how credit collection practices affected the financial performance of manufacturing firms in Kenya, employing both descriptive and causal research designs. From an accessible population of 558 registered manufacturing firms, a sample of 233 was selected via stratified sampling and Yamane's formula. Primary data were gathered through questionnaires and analyzed using both descriptive and inferential statistics in SPSS, with results presented through frequency tables and percentages. Univariate testing incorporated both parametric methods (F-test) and non-parametric methods (Pearson correlation), while multiple regression analysis was used to examine relationships between independent and dependent variables. The findings revealed that collection practices particularly the repossession of collateral, had a statistically significant positive effect on manufacturing firms' financial performance ($p < 0.05$), a pattern attributed to firm owners' capacity to manage credit effectively through experienced credit management staff. The study concluded that credit collection practices exert a significant, positive influence on firm financial performance overall.

Orok and Tim (2023) set out to gain a deeper understanding of debt recovery approaches within Nigeria's banking sector and to examine how outstanding debt, recovered funds, and client retention relate to overall bank performance. Using the Chi-Square test to evaluate their hypotheses, the researchers found that outstanding debt substantially affects bank performance, a result consistent with the credit theory of money. They also identified a positive relationship between client retention and bank performance, along with a connection between profitability and the strength of customer relationships. Cultivating strong, trustworthy customer relationships was found to enhance a bank's reputation by fostering greater client satisfaction, loyalty, and confidence in the institution's reliability as a lender. Based on these findings, the study recommended that credit officers continuously monitor outstanding debt to help prevent payment defaults.

METHODOLOGY

The method of data analysis for this study involves the use of panel data econometric techniques to examine the relationship between loan recovery and bank performance across the selected banks from 2004 to 2023.

Independent Variables (Credit Risk Indicators):

X1: Non-Performing Loan (NPL) Ratio

X2: Loan Loss Provision to Total Loans (%)

X3: Debt Recovery Rate (%)

X4: Write-off Ratio (%)

Dependent Variables (Bank Performance Indicators):

Y1: Return on Equity (ROE)

Structural Model Equations

$$Y_2 = \beta_{21}X_1 + \beta_{22}X_2 + \beta_{23}X_3 + \beta_{24}X_4 + \epsilon_2 \dots\dots\dots(2)$$

RESULTS

Table 1 Descriptive Statistics

	N	Minimum	Maximum	Mean
	Statistic	Statistic	Statistic	Statistic
BankCode	140	1.00	7.00	4.0000
TotalLoans	138	8804.55	4,445,911,868.00	331113854.5837
NonPerformin gLoans	139	.00	741451779.00	36001547.9338

Recoveries	140	-540.00	48542211.00	1581517.5143	
WritteOff	140	.00	102953282.00	1885641.1357	
NetIncome	140	1944.00	539654674.00	21403197.3143	
Provisions	140	-	182361406.00	6197749.3500	
		9503412.00			
ROE	135	1.00	25957.00	212.5382	
Valid	N 132				
(listwise)					
	Std. Deviation		Skewness	Kurtosis	
	Statistic		Statistic Std. Error	Statisti c	Std. Error
BankCode	2.00718		.000 .205	-1.252	.407
TotalLoans	742276699.75627		3.005 .206	10.250	.410
NonPerformin gLoans	114089695.80257		4.475 .206	21.020	.408
Recoveries	6570101.59812		5.389 .205	30.488	.407
WritteOff	10217408.21042		8.356 .205	75.902	.407
NetIncome	61728763.43038		5.279 .205	36.925	.407
Provisions	22689696.61370		5.341 .205	32.658	.407
ROE	2232.37695		11.617 .209	134.973	.414
Valid	N				
(listwise)					

Source: Researcher Analysis with SPSS27

The descriptive statistics in table 1, for variable reveal significant disparities in financial performance and data distribution among the banks. BankCode shows a symmetric distribution with a mean of 4.00, indicating balanced representation across seven coded banks. TotalLoans has a very high mean of ₦331.1 billion and is heavily positively skewed (Skewness = 3.005), suggesting that a few banks account for the bulk of the loans. Similarly, Non-Performing Loans (NPL), with a mean of ₦36 million and skewness of 4.475, indicates that most banks have relatively low NPLs, but a few carry significantly high burdens. Recoveries and Write-Offs are also highly skewed (5.389 and 8.356 respectively), implying extreme values in debt recovery and loan losses in a few banks. Net Income, averaging ₦21.4 million, is heavily skewed (5.279), showing that while many banks earn modest profits, a few report extraordinarily high figures. Provisions for loan losses show similar behavior, with a skewness of 5.341 and instances of negative values, which may reflect reversals or anomalies. Most striking is Return on Equity (ROE), with a mean of 212.5% and an extreme skewness of 11.617, suggesting massive outliers that could distort analysis unless adjusted. Overall, these indicators

highlight the presence of outliers, asymmetry, and high variance across the banking dataset, warranting further data transformation or cleaning before advanced analysis.

Table 2 Correlation among variables

	total~s	nonper~s	recove~s	writte~f	netinc~e	provisions	roe
totalloans	1						
nonperform~s	0.2284	1					
recoveries	0.7542	0.0744	1				
writteoff	0.2917	0.0669	0.2334	1			
netincome	0.5661	0.1979	0.1674	0.6555	1		
provisions	0.7052	0.1785	0.5525	0.3307	0.398	1	
Roe	-0.0361	-0.0242	-0.0204	-0.0155	-0.0271	-0.0217	1

The correlation matrix from table 2 shows the Pearson correlation coefficients between key financial indicators, highlighting the strength and direction of relationships among them. Total loans have a strong positive correlation with recoveries ($r = 0.7542$) and provisions ($r = 0.7052$), suggesting that banks with larger loan portfolios tend to have higher recoveries and also make more provisions for loan losses. A moderate positive relationship is observed between total loans and net income ($r = 0.5661$), implying that more lending generally contributes to higher income, likely through interest earnings. Write-offs are moderately correlated with net income ($r = 0.6555$), possibly because banks with higher income can afford to absorb bad debts. The correlation between total loans and non-performing loans (NPLs) is relatively weak ($r = 0.2284$), indicating that larger loan portfolios do not necessarily correspond to higher NPLs. Interestingly, ROE (return on equity) is virtually uncorrelated with any of the other variables — all correlation values with ROE are near zero and negative — suggesting that ROE in this dataset is influenced by other factors outside the immediate loan and income metrics. Overall, while some relationships are strong and intuitive, particularly among total loans, recoveries, provisions, and income, the weak linkage with ROE raises questions about equity base variations, extreme values, or data quality issues in ROE measurement.

Table 3 Hausman Test (Correlated Random Effects - Hausman Test)

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	1.670588	3	0.6435

Source: Researcher computation using EViews 27

To determine whether to use a Fixed Effects (FE) or Random Effects (RE) model using the Hausman test, we interpret the p-value (Prob.) as follows:

Hausman Test Interpretation:

- Null Hypothesis (H_0): random effects model is appropriate (i.e., no significant difference between RE and FE estimators).
- Alternative Hypothesis (H_1): fixed effects model is appropriate (i.e., RE estimator is biased and inconsistent).

Given the output of Chi-Sq. statistic: 1.670588, degrees of freedom: 3 and p-value (Prob.): 0.6435 showing that the p-value = 0.6435 is greater than 0.05, we fail to reject the null hypothesis suggesting that there is no significant difference between the Fixed and Random effects estimators, so the more efficient Random Effects model should be used.

Table 4, Test for Stationarity of Data

Variables	Levin, Lin & Chu t*	Im, Pesaran and Shin W-	ADF Fisher Chi- square	PP Fisher Chi- square	Result
ROE	-5017.95 (prob: 0.000)	-1823.43 (prob: 0.000)	552.967 (prob: 0.000)	549.045 (prob: 0.000)	Stationary at Levels
LNREC	-7.0745 (prob: 0.000)	-6.6337 (prob: 0.000)	66.3768 (prob: 0.000)	60.4798 (prob: 0.000)	Stationary at Levels
LNWRITEOFF	-2.65081 (prob: 0.000)	-3.96801 (prob: 0.000)	47.1024 (prob: 0.000)	55.5475 (prob: 0.004)	Stationary at Levels
LNPROVISIONS	-5.8142 (prob: 0.000)	-3.9009 (prob: 0.000)	39.8158 (prob: 0.000)	27.1256 (prob: 0.0185)	Stationary at Levels
LNNPLS	-4.32288 (prob: 0.000)	-4.60053 (prob: 0.000)	47.6356 (prob: 0.000)	20.2198 (prob: 0.1234)	Stationary at Levels

Since all variables in table 4 are integrated at order (0), cointegration is not necessary hence we proceed to estimate a long run model of OLS random effect.

Table 5 Panel Regression Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6.070079	0.710460	8.543865	0.0000
LNREC	0.106180	0.052979	2.004165	0.0470
LNWRITEOFF	0.145148	0.046435	3.125842	0.0022
LNPROVISIONS	0.418692	0.067709	6.183690	0.0000
R-squared	0.427208	Mean dependent var		12.84449
Adjusted R-squared	0.414573	S.D. dependent var		3.305438
S.E. of regression	2.529096	Akaike info criterion		4.721756
Sum squared resid	869.9005	Schwarz criterion		4.805803
Log likelihood	-326.5229	Hannan-Quinn criter.		4.755910
F-statistic	33.81122	Durbin-Watson stat		0.803160
Prob(F-statistic)	0.000000			

The table 5 above showed the panel least squares regression output provides insights into the determinants of net income (LNNI) among the sampled institutions over the period 2004 to 2023. The explanatory variables include the natural logarithms of loan recoveries (LNREC), loans write-offs (LNWRITEOFF), and loan loss provisions (LNPROVISIONS) of banks in Nigeria. The model, estimated using 140 balanced observations across 7 cross-sections, reveals that all independent variables are statistically significant in explaining changes in net income.

Specifically, the coefficient of LNREC is 0.106, with a p-value of 0.0470, indicating that a 1% increase in loan recoveries is associated with a 0.106% increase in net income, holding other factors constant. This aligns with expectations, as recoveries improve asset quality and earnings. Interestingly, the coefficient for LNWRITEOFF is 0.145 with a p-value of 0.0022, suggesting that an increase in write-offs is positively associated with net income. Although counterintuitive at first glance, this result may reflect strategic loan write-offs to clean up balance sheets or comply with regulatory standards, thereby enhancing financial stability and reported performance. LNPROVISIONS also shows a strong positive relationship with net income (coefficient = 0.419, p-value = 0.0000), which could be indicative of forward-looking provisioning practices under IFRS 9 or the use of provisions as a tool for income smoothing by management.

The model's explanatory power is moderate, with an R-squared value of 0.4272 and an adjusted R-squared of 0.4146, implying that approximately 42.7% of the variation in net income is explained by the model. The F-statistic (33.81) and its associated p-value (0.0000) indicate that the overall regression model is statistically

significant. However, a notable concern is the Durbin-Watson statistic of 0.803, which is substantially below the threshold for detecting no autocorrelation (typically around 2). This low value suggests the presence of positive serial correlation in the residuals, which could bias standard error estimates and invalidate inference tests.

In light of the autocorrelation issue, it is recommended to re-estimate the model using robust standard errors, such as White period or HAC (Newey-West) corrections, to ensure reliable hypothesis testing. Furthermore, since the model was estimated using panel least squares, it would be appropriate to consider panel-specific modeling techniques such as Fixed Effects or Random Effects, especially if individual heterogeneity exists across cross-sections. A Hausman test can help determine the more appropriate specification. Overall, the results provide important insights but should be interpreted with caution until serial correlation and potential heteroskedasticity are addressed.

4.1 Test of Hypothesis: we restate the hypothesis for the study as follows:

- Ho1 : Credit recoveries do not have a significant impact on the financial performance of banks
- Ho2 : Loan write-offs do not significantly affect the financial performance of Nigerian banks.
- Ho3 : Provisioning practices do not significantly influence the financial of Nigerian banks.

Hypotheses	t-Statistic	p-value
Credit recoveries do not have a significant impact on the financial performance of Nigerian banks.	2.00	0.0470
Loan write-offs do not significantly affect the financial performance of Nigerian banks.	3.13	0.0022
Provisioning practices do not significantly influence the financial of Nigerian banks.	6.18	0.0000

DISCUSSION OF FINDINGS

Our finding supports that an increase in loan recoveries generally translates to an increase in banks' net income, and this is because effective loan recovery reduces non-performing loans (NPLs), which are loans that are not generating income and typically require banks to set aside loan loss provisions that reduce profitability. When banks recover more loans, they improve their liquidity and profitability by increasing interest and principal repayments, which positively affects their net income.

According to Kayumba (2024) in a study of I&M Bank in Rwanda, loan recovery strategies have a strong positive effect on bank profitability, liquidity, and reduction of

non-performing loans. The respondents in the study by Kayumba (2024), strongly agreed that effective loan recovery contributes significantly to increased profitability and improved financial performance. Again, studies like Aketch and Musoke (2021), Widyatmoko et al., (2023) confirmed that banks primarily earn revenue from interest charged on loans and Non-performing loans diminish future profitability by reducing the ability to earn interest income and increasing loan loss provisions, hence, recovering loans directly reduces these losses and supports profitability. These findings highlight the importance of effective loan management and recovery strategies in maintaining bank profitability while managing potential risks associated with loan growth.

Theoretical Implications of the Findings

The study's empirical results align closely with the three theoretical strands underpinning the work:

Innes's (1913) credit theory holds that money is generated through the extension and repayment of credit rather than existing as a physical commodity, with the value of credit resting on the debtor's obligation to pay and the creditor's right to receive payment. The significant positive effect of loan recoveries on net income ($\beta = 0.106$, $p = 0.047$) empirically reinforces this logic: when the debtor's obligation is fulfilled and credit is "unwound" through repayment, the value originally created through lending is realized as income for the bank. Recoveries, in this sense, complete the credit cycle the theory describes—turning an outstanding claim back into liquid, income-generating value.

Psychological Theory of Credit Recovery attributes repayment behavior to borrower psychology (trust, perceived fairness, and the lender-borrower relationship), rather than financial capacity alone. While the study did not directly measure behavioral variables, the significant and positive contribution of recoveries to net income indirectly validates the theory's practical relevance: successful recovery outcomes depend on borrowers' willingness to engage and repay, which is shaped by how banks frame and communicate collection efforts. The finding lends indirect support to the theory's core claim that recovery success is not purely mechanical but is influenced by relational and behavioral dynamics between banks and defaulting customers.

Credit Rationing Theory (Stiglitz & Weiss, 1981) explains how information asymmetry between lenders and borrowers leads banks to restrict credit rather than simply raise interest rates, since riskier borrowers are more likely to accept higher rates and subsequently default. The study's findings on provisioning ($\beta = 0.419$, $p = 0.000$) and write-offs ($\beta = 0.145$, $p = 0.002$) reflect banks' practical responses to this asymmetry: unable to fully verify borrower risk *ex ante*, banks compensate *ex post* through provisioning for expected losses and writing off loans that prove unrecoverable. The

strong positive relationship between provisioning and net income suggests that Nigerian banks are pricing and managing this informational risk effectively, consistent with Stiglitz and Weiss's prediction that prudent risk-adjusted lending behavior, rather than blanket rate increases, is the rational response to imperfect information. Similarly, the positive write-off effect suggests banks are using write-offs as a rationing-consistent strategy to cleanse portfolios of loans whose risk was mispriced at origination, thereby protecting overall portfolio quality and profitability.

Evaluating together, the findings suggest that Nigerian banks' recovery, provisioning, and write-off practices operate in ways consistent with all three theoretical perspectives, validating credit as a value-creating mechanism contingent on repayment (credit theory of money), acknowledging the behavioral dimension of repayment (psychological theory), and confirming rational, risk-adjusted responses to information asymmetry (credit rationing theory).

CONCLUSION

This study examined the impact of credit recoveries on the performance of Nigerian banks using panel data covering the period from 2004 to 2023. Drawing on regression analysis and a set of robust diagnostic tests, the findings provide valuable insights into the role of credit recovery, loan write-offs, and provisioning practices in shaping bank profitability.

The results indicate that credit recoveries significantly and positively influence bank performance, reinforcing the importance of effective recovery strategies in sustaining income and reducing credit risk. Furthermore, the unexpected but statistically significant positive relationship between loan write-offs and net income suggests that Nigerian banks may be strategically managing their loan portfolios by writing off irrecoverable debts to improve the quality of their balance sheets. Additionally, the strong positive effect of loan loss provisions on net income may reflect compliance with forward-looking regulatory standards like IFRS 9, as well as potential income-smoothing practices.

Taken together, the findings underscore the critical role of credit risk management—particularly recoveries, write-offs, and provisioning policies—in enhancing the financial performance and stability of banks in Nigeria. It is therefore recommended that banks continue to strengthen their recovery mechanisms and maintain prudent provisioning policies to support long-term profitability and resilience in the face of credit risks.

An additional dimension worth exploring is the impact of digital recovery technologies and fintech innovations on credit recovery performance in Nigerian banks. Over the last decade, the rise of digital platforms, AI-powered credit monitoring tools, and automated debt collection systems has significantly transformed how banks engage with delinquent borrowers. However, many existing studies have not sufficiently

examined how these innovations contribute to faster recoveries, reduced recovery costs, and improved customer experience during the collection process. Incorporating this technological perspective would provide a broader understanding of how modern recovery infrastructure—not just traditional loan write-offs or provisions—can influence profitability. As such, future research could assess how the adoption of digital recovery tools and customer-centric recovery approaches affect the efficiency and success rate of credit recovery efforts across various types of banks in Nigeria.

RECOMMENDATIONS

1. Given the positive and significant impact of recoveries on bank performance, Nigerian banks should invest in more robust and proactive loan recovery strategies. This includes enhanced credit monitoring systems, dedicated recovery units, and the use of data analytics to track and recover delinquent loans more effectively.
2. Since loan write-offs were found to have a surprising but positive effect on bank performance, banks should adopt strategic and transparent write-off policies that help sanitize their loan books without undermining credit discipline. Regulatory support may also be needed to create clearer guidelines on acceptable write-off practices.
3. The strong positive association between loan loss provisions and net income highlights the importance of adopting forward-looking provisioning standards. Banks should continue aligning with IFRS 9, using expected credit loss models, and regularly updating risk assessment tools to maintain provisioning adequacy.

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