

Sustainability Costs, Audit Tenure and Financial Performance of Deposit Money Banks in Nigeria

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ABSTRACT

This study examined the effect of sustainability costs and audit tenure on the financial performance of deposit money banks (DMBs) in Nigeria. Deposit money banks occupy the centre of Nigeria's financial architecture, yet the two decisions through which they increasingly manage cost and governance pressure, namely how much to commit to sustainability-related expenditure and how long to retain the same external auditor, remain empirically contested. Most existing Nigerian studies proxy sustainability by disclosure indices constructed through content analysis, capturing what banks report rather than what they actually spend, and the audit tenure evidence for Nigerian banks is directionally contradictory. Specifically, the study investigated the effect of sustainability costs on financial performance, assessed the effect of audit tenure on financial performance, and ascertained the joint effect of sustainability costs and audit tenure on the financial performance of deposit money banks in Nigeria.

The study was anchored on the Stakeholder Theory and adopted an ex-post facto research design using a quantitative panel-data approach. Secondary data were obtained from the audited annual reports and financial statements of twelve purposively selected deposit money banks for the period 2014 to 2025, yielding 143 bank-year observations. Sustainability cost was measured through employee social welfare cost (ESWC) and environmental maintenance cost (EVMC) and combined into a composite sustainability cost (SUC) measure, while audit tenure (AUT) was measured as the number of consecutive years the same external audit firm held the engagement. Financial performance was measured using return on assets (ROA), return on equity (ROE) and net interest margin (NIM), with bank size, leverage and bank age as control variables. Following correlation, cross-sectional dependence and Im-Pesaran-Shin panel unit root tests, the three models were estimated using Panel Generalized Least Squares and tested at the 5% level of significance.

Employee social welfare cost had a positive and statistically significant effect on ROA, ROE and NIM ($\beta = 0.008, 0.003$ and 0.005 respectively, $p < 0.01$), and environmental maintenance cost exerted its strongest effect on ROA ($\beta = 0.152, p < 0.01$), with the model jointly significant across all three measures (Wald $\chi^2 = 429.43, 165.94$ and $940.29, p < 0.01$). Audit tenure had a positive and significant effect on ROA, ROE and NIM ($\beta = 0.003, 0.008$ and 0.0005 respectively, $p < 0.01$; Wald $\chi^2 = 9616.06, 2168.37$ and $675.94, p < 0.01$), its largest standalone effect being on ROE. In the joint model, composite sustainability cost ($\beta = 0.005, 0.004$ and 0.004) consistently exceeded audit tenure ($\beta = 0.003, 0.0007$ and 0.0005) across all three performance measures, with the models remaining jointly significant (Wald $\chi^2 = 1888.87, 427.04$ and $1599.91, p < 0.01$). Bank size was consistently positive and leverage consistently negative. Consequently, all three null hypotheses were rejected.

The study concludes that sustainability spending functions as a value-adding investment rather than a cost drag on profitability, that the knowledge effect of accumulated auditor familiarity outweighs the

independence-impairment concern within the regulatory tenure ceiling, and that the operational expenditure channel carries greater weight than the governance oversight channel in driving reported performance. The study recommends that deposit money banks sustain and institutionalise employee welfare and environmental maintenance spending within their core operating budgets rather than treating such spending as discretionary, that bank boards and audit committees avoid premature changes of external audit firm and manage engagements within the tenure limits set by the Central Bank of Nigeria, and that banks moderate their reliance on debt financing given its consistently negative effect on performance.

Keywords: Sustainability cost, employee social welfare cost, environmental maintenance cost, audit tenure, financial performance, deposit money banks.

INTRODUCTION

Deposit money banks (DMBs) constitute the engine room of financial intermediation in Nigeria, linking savers to borrowers and mobilizing resources for the real economy. Because Nigerian capital markets remain comparatively shallow, the profitability of these institutions bears not only on their own shareholders but on the stability and development of the wider economy (Ogbuji & Lawal, 2024; Yahaya, 2026). Financial performance in the sector is conventionally assessed through return on assets, return on equity and net interest margin, and strong performance on these measures reinforces depositor confidence and supports investment and growth. Sustaining such performance has, however, become progressively more difficult amid macroeconomic volatility, shifting regulatory expectations and heightened operational risk (Akingbade, 2025).

Two decisions increasingly shape how banks respond to that pressure. The first is sustainability-related expenditure, that is, the resources a bank commits to environmentally responsible, socially responsible and economically viable operations (Iyoha et al., 2025). Nigerian DMBs now incur costs across environmental management, community development projects, employee welfare programmes and compliance with the Central Bank of Nigeria's Sustainable Banking Principles of 2012, and the trend in such spending has been upward, driven by regulatory guidelines, international expectations and competitive pressure. Whether these outlays translate into measurable financial gain, or instead divert resources that would otherwise be deployed to profit-generating activity, remains unsettled (Ofuonye et al., 2025; Mirza et al., 2026).

The second is audit tenure, the length of the professional relationship between a bank and its external auditor. The optimum tenure is contested worldwide because it weighs the benefit of auditor familiarity with a client's systems and risk profile against the risk that over-familiarity dulls professional scepticism. Nigeria's experience gives the question particular weight: the banking crisis of 2008 to 2009 revealed that banks holding clean audit opinions had concealed substantial misreporting and risk (Ugoani & Ibeenwo, 2022), prompting the Central Bank of Nigeria and the Financial Reporting Council of Nigeria to introduce mandatory audit firm rotation. Compliance with these requirements has nonetheless been uneven, and the performance consequences of tenure length remain under-examined (Elumilade et al., 2024).

The empirical problem this study addresses arises from three unresolved issues. First, evidence on the sustainability-performance relationship is inconsistent: some studies find that sustainability practices improve profitability through enhanced stakeholder trust and operational efficiency (Rahi et al., 2022; Khan & Vismara, 2025), while others treat such expenditure as a short-term burden on earnings. Second, most Nigerian studies measure sustainability through disclosure indices rather than actual expenditure, so what is captured is the quality of reporting rather than the depth of practical commitment. Third, sustainability cost and audit tenure have rarely been examined within a single model, leaving the interaction between an operational, cost-based mechanism and a governance-based, oversight mechanism largely unexplored in the Nigerian banking context. It is against this backdrop that this study investigates the individual and joint effects of sustainability costs and audit tenure on the financial performance of deposit money banks in Nigeria over the period 2014 to 2025, a window that captures the practical operation of both the Sustainable Banking Principles and mandatory audit rotation.

Research Questions

1. What is the effect of sustainability costs on the financial performance of deposit money banks in Nigeria?
2. To what extent does audit tenure influence the financial performance of deposit money banks in Nigeria?
3. What is the combined effect of sustainability costs and audit tenure on the financial performance of deposit money banks in Nigeria?

Objectives of the Study

The broad objective of this study is to examine the effect of sustainability costs and audit tenure on the financial performance of deposit money banks in Nigeria. The specific objectives are to:

1. investigate the effect of sustainability costs on the financial performance of deposit money banks in Nigeria;
2. assess the effect of audit tenure on the financial performance of deposit money banks in Nigeria; and
3. ascertain the joint effect of sustainability costs and audit tenure on the financial performance of deposit money banks in Nigeria.

Research Hypotheses

H01: Sustainability costs have no significant effect on the financial performance of deposit money banks in Nigeria.

H02: Audit tenure has no significant effect on the financial performance of deposit money banks in Nigeria.

H03: Sustainability costs and audit tenure do not jointly have a significant effect on the financial performance of deposit money banks in Nigeria.

LITERATURE REVIEW

Conceptual Review

Sustainability Cost. Sustainability cost refers to expenditure incurred by an organisation in pursuit of environmentally responsible, socially responsible and economically viable operations (Iyoha et al., 2025). In this study it is examined through two observable components drawn from the notes to the audited financial statements, namely employee social welfare cost and environmental maintenance cost, and is combined into a single composite measure for the joint model. Unlike disclosure indices, both components are recorded amounts and are therefore objective and verifiable.

Employee Social Welfare Cost. Employee social welfare cost denotes expenditure on staff training, benefits and workplace wellbeing programmes disclosed in the staff cost note of the financial statements. It represents the social dimension of sustainability spending and is scaled by total assets in this study to permit comparison across banks of differing size.

Environmental Maintenance Cost. Environmental maintenance cost denotes expenditure on environmental management, maintenance and related compliance activity. It represents the environmental dimension of sustainability spending and is likewise scaled by total assets.

Audit Tenure. Audit tenure is the number of consecutive years an external audit firm has audited a given client. Two competing perspectives dominate the literature. The knowledge-effect view holds that extended tenure builds client-specific expertise that improves audit and accounting quality, while the independence-impairment view holds that long engagement fosters familiarity that erodes professional scepticism. Nigerian regulation has taken the latter concern seriously enough to cap engagement length at ten years for banks.

Financial Performance. Financial performance refers to the extent to which a bank converts its resources into earnings over a given period. In this study it is measured through return on assets, which captures the efficiency of asset deployment; return on equity, which captures returns to shareholders and reflects the amplifying effect of leverage; and net interest margin, which captures the core intermediation spread between interest earned and interest paid.

THEORETICAL FRAMEWORK

Several theories inform the relationship between sustainability expenditure, audit arrangements and firm performance. Stakeholder Theory, formulated by Freeman (1984), holds that the short- and long-term survival of a firm depends on its capacity to satisfy a broad constituency of employees, customers, communities, regulators and creditors rather than shareholders alone. Legitimacy Theory, developed from the work of Dowling and Pfeffer (1975) and Suchman (1995), treats organisations as operating under an implicit social contract and casts sustainability spending and credible audit arrangements as legitimacy-maintenance strategies through which firms secure continuing societal licence to operate (Akintoye & Kassim, 2022). Agency Theory, introduced by Jensen and Meckling (1976), frames the external audit as a monitoring mechanism that constrains managerial opportunism and reduces agency cost, supplying the channel through which audit tenure reaches performance. Signalling Theory, first advanced by Spence (1973), explains why firms voluntarily bear sustainability costs and maintain stable audit relationships even where the immediate accounting effect is a charge against profit, since both act as credible signals of managerial quality to investors and regulators. The Resource-Based View, associated with Barney (1991), treats a well-trained workforce and a credible reporting infrastructure as resources capable of generating sustained competitive advantage.

This study is anchored on the Stakeholder Theory because it provides the most direct explanation of why expenditure that appears in the income statement as a cost may nonetheless enhance rather than erode financial performance. Where a bank commits resources to the welfare of its employees and to the responsible management of its environmental footprint, it invests in the loyalty, productivity, reputation and regulatory goodwill from which future cash flows are drawn, so that the expenditure is properly understood as an investment in the relationships on which the bank's performance depends. The theory also accommodates audit tenure, since the external auditor serves a constituency of depositors, investors and regulators whose confidence in reported earnings is itself a determinant of a bank's funding cost and continuing viability. Korolo and Korolo (2024), applying a comparable stakeholder logic, found human resource cost positively and significantly related to the performance of Nigerian listed deposit money banks, while Tomomewo et al. (2022) reached similar conclusions for sustainability reporting. The theory therefore supplies both the normative lens and the empirical grounding for this study's examination of how sustainability expenditure and audit arrangements shape bank performance.

EMPIRICAL REVIEW

Sustainability Cost and Financial Performance. Tomomewo et al. (2022) found that sustainability reporting had a positive and significant effect on the financial performance of deposit money banks listed on the Nigerian Exchange, and Korolo and Korolo (2024) reported a comparable result for human resource cost among listed Nigerian DMBs. Babajide and Oyedokun (2021) likewise found sustainability reporting positively associated with the performance of Nigerian deposit money banks, while Mbonu and Amahalu (2022) found corporate social responsibility cost positively related to performance. Internationally, Gutiérrez-Ponce and Wibowo (2023) documented a favourable sustainability-performance relationship

among Indonesian banks, and Rahi et al. (2022) reported similar findings for the Nordic financial industry. Evidence from non-financial sectors is more mixed: Enekwe et al. (2023) and Salihu et al. (2025) reported variable effects of environmental cost on the performance of Nigerian oil and gas firms, and Khan and Vismara's (2025) meta-analysis found the environmental-financial performance association positive but sensitive to measurement choice. Most of these studies rely on disclosure-based measures, underscoring the need for examination using actual recorded expenditure.

Audit Tenure and Financial Performance. Kamarudin et al. (2022), using cross-country evidence, found that longer auditor tenure is associated with higher accounting quality as auditors accumulate client-specific expertise, consistent with the knowledge-effect view. Almustapha and Salim (2025) found audit tenure and independence positively related to the financial performance of cement companies in Nigeria. The Nigerian banking evidence is less settled: Ufi et al. (2025) found audit tenure positive but statistically insignificant for the return on assets of Nigerian banks, while Ogundele et al. (2025) found a negative and significant effect in examining tenure as a moderator of the audit fee-performance relationship. Studies of audit quality more broadly, including Alliu et al. (2023) and Jeroh and Ozegbe (2022), report audit attributes significantly related to the performance of Nigerian firms. The divergence in these findings suggests that the direction and strength of the tenure-performance relationship remains sensitive to sample composition, study period and model specification.

Joint Effect of Sustainability Cost and Audit Tenure. Few studies have examined operational cost and governance mechanisms within a single model. Ezegbe and Jeroh (2022) found that audit quality attributes, taken jointly, exerted a significant influence on the return on assets of quoted Nigerian companies, and Otekunrin et al. (2024) reached a similar conclusion for corporate governance and the performance of Nigerian deposit money banks. Madueke et al. (2025) found corporate governance mechanisms significantly related to DMB performance in Nigeria. These studies collectively support the position that cost-related and governance-related determinants of performance are more powerfully explanatory when assessed together than when each is considered in isolation, but none has combined expenditure-based sustainability measures with audit tenure for Nigerian deposit money banks.

Overall, the reviewed studies confirm that sustainability expenditure and audit arrangements each bear on bank performance, but most Nigerian studies proxy sustainability through disclosure rather than spending, the audit tenure evidence for Nigerian banks is contradictory and rarely extends beyond return on assets, and no study has examined expenditure-based sustainability cost alongside audit tenure in a single panel specification over a period that includes the practical operation of mandatory audit rotation. This study addresses that gap using audited financial statement data drawn directly from Nigerian deposit money banks.

METHODOLOGY

This study adopted an ex-post facto research design, relying on secondary data obtained from the audited annual reports and financial statements of deposit money banks in Nigeria, using a quantitative panel-data approach that combines cross-sectional and time-series observations. The design was appropriate because the sustainability expenditure, audit engagements and financial results under investigation had already occurred and been reported before the commencement of the study, leaving the researcher no capacity to control, randomise or otherwise influence the variables, while the panel structure allowed the study to capture both differences across banks and changes within each bank over time (Kuwa & Modibbo, 2025; Onaolapo et al., 2025).

The population comprised all twenty-four deposit money banks licensed by the Central Bank of Nigeria to carry on commercial banking business, spanning banks with international, national and regional authorisation. A purposive sampling technique was applied because not every bank in the population maintained a consistent corporate identity, complete audited annual reports or continuous public listing throughout the study period. Banks were excluded where they did not exist as a continuous legal entity for the full period, where annual reports were incomplete or inaccessible for part of the period, or where the bank ceased to be publicly listed during the period, since such gaps would have compromised the reliability

of the estimation. Applying these criteria yielded a final sample of twelve deposit money banks observed annually over the twelve-year period from 2014 to 2025, generating 143 bank-year observations. The sampled banks are presented in Table 1.

Table 1: Sampled Deposit Money Banks in Nigeria (N = 12)

S/N	Name of Bank	Tier/Category
1	Access Holdings Plc	Tier 1 (International)
2	Zenith Bank Plc	Tier 1 (International)
3	Guaranty Trust Holding Company Plc (GTCO)	Tier 1 (International)
4	United Bank for Africa Plc (UBA)	Tier 1 (International)
5	First Bank of Nigeria Holdings Plc	Tier 1 (International)
6	Ecobank Transnational Incorporated (Nigeria)	Tier 1 (International)
7	Stanbic IBTC Holdings Plc	Tier 1 (International)
8	FCMB Group Plc	Tier 2 (National)
9	Fidelity Bank Plc	Tier 2 (National)
10	Union Bank of Nigeria Plc	Tier 2 (National)
11	Sterling Financial Holdings Company Plc	Tier 2 (National)
12	Wema Bank Plc	Tier 2 (National)

Source: Authors' compilation based on selection criteria, 2026.

Data were drawn from the statements of profit or loss and other comprehensive income, statements of financial position and the notes to the financial statements of the sampled banks, from which employee welfare and environmental maintenance expenditure were extracted, and from the independent auditor's report, from which audit tenure was determined. Reliance on audited, regulator-standardised disclosures supports both the reliability of the data and comparability across banks, since all sampled institutions report under a common regulatory and reporting framework. The measurement of each variable is set out in Table 2.

Table 2: Variable Identification and Measurement

Variable	Symbol	Type	Measurement
Return on Assets	ROA	Dependent	Net income / total assets
Return on Equity	ROE	Dependent	Net income / shareholders' equity

Net Interest Margin	NIM	Dependent	(Interest income – interest expense) / average earning assets
Employee Social Welfare Cost	ESWC	Independent	Employee welfare/benefits expenditure scaled by total assets
Environmental Maintenance Cost	EVMC	Independent	Environmental maintenance expenditure scaled by total assets
Sustainability Cost	SUC	Independent	Composite of ESWC and EVMC
Audit Tenure	AUT	Independent	Consecutive years the same audit firm has audited the bank
Bank Size	BSZ	Control	Natural log of total assets
Leverage	LEV	Control	Total liabilities / total assets
Bank Age	BA	Control	Years since incorporation

Source: Authors' compilation from literature, 2026.

Data were analysed using both descriptive and inferential statistics. Descriptive statistics summarised the distribution and behaviour of the variables, while pre-estimation diagnostics comprised correlation analysis to assess association and screen for multicollinearity, cross-sectional dependence tests using the Breusch-Pagan LM, Pesaran scaled LM, bias-corrected scaled LM and Pesaran CD statistics, and the Im-Pesaran-Shin panel unit root test conducted at level and, where necessary, at first difference. Cross-sectional dependence was expected a priori, since Nigerian deposit money banks operate within a common macroeconomic environment, are subject to the same directives of the Central Bank of Nigeria and are exposed to shared monetary and exchange rate shocks. The three models were then estimated using Panel Generalized Least Squares (PGLS), which is appropriate here because it accommodates the cross-sectional dependence and heteroscedasticity revealed by the diagnostics and delivers efficient estimates where ordinary least squares would understate standard errors. Joint significance was assessed using the Wald chi-square statistic, and all hypotheses were tested at the 5% level of significance.

Model Specification

Model I: $FNP = \beta_0 + \beta_1ESWC + \beta_2EVMC + \beta_3BSZ + \beta_4BA + \beta_5LEV + \varepsilon$ (1)

Model II: $FNP = \beta_0 + \beta_1AUT + \beta_2BSZ + \beta_3BA + \beta_4LEV + \varepsilon$ (2)

Model III: $FNP = \beta_0 + \beta_1SUC + \beta_2AUT + \beta_3BSZ + \beta_4BA + \beta_5LEV + \varepsilon$ (3)

Where: FNP = Financial Performance, estimated separately for ROA, ROE and NIM; ESWC = Employee Social Welfare Cost; EVMC = Environmental Maintenance Cost; SUC = Sustainability Cost (composite); AUT = Audit Tenure; BSZ = Bank Size; BA = Bank Age; LEV = Leverage; β_0 = constant; β_1 to β_5 = coefficients of the explanatory variables; ε = error term. Model I was adapted with modification from Kuwa and Modibbo (2025) and Model II from Onaolapo et al. (2025). A priori, sustainability cost, audit tenure, bank size and bank age were expected to carry positive signs and leverage a negative sign.

RESULTS AND DISCUSSION

Descriptive Statistics

Table 3 presents the descriptive statistics of the variables employed in the study.

Table 3: Descriptive Statistics (N = 143)

Statistic	ROA	ROE	NIM	ESWC	EVMC	AUT	BSZ	LEV	BA
Mean	1.924	20.740	6.642	0.796	0.308	5.175	6.916	3.418	47.112
Median	1.450	20.300	6.550	0.580	0.000	5.000	5.860	3.612	34.000
Maximum	6.420	48.200	11.450	7.100	1.000	10.000	191.210	4.680	131.000
Minimum	-0.086	4.800	3.880	0.000	0.000	1.000	-0.670	1.220	8.000
Std. Dev.	1.600	10.761	1.709	0.881	0.463	2.925	16.054	0.908	29.910
Skewness	0.788	0.351	0.215	3.327	0.833	0.107	10.683	-1.089	1.430
Kurtosis	2.786	2.140	2.416	22.140	1.694	1.754	123.185	3.482	4.371
Jarque-Bera	15.062	7.345	3.137	2446.474	26.707	9.520	88783.920	29.665	59.964
Probability	0.001	0.025	0.208	0.000	0.000	0.009	0.000	0.000	0.000

Source: Authors' computation, 2026.

Return on assets averaged 1.924 per cent with a minimum of -0.086 per cent, indicating that while most banks converted their asset base into profit reasonably well, a few bank-years recorded outright losses relative to total assets. Return on equity averaged 20.740 per cent within a range of 4.800 to 48.200 per cent, the wide dispersion reflecting the amplifying effect of financial leverage characteristic of banking institutions. Net interest margin averaged 6.642 per cent with a comparatively narrow spread, consistent with lending and deposit rates being shaped by broadly similar market and regulatory conditions across banks.

Employee social welfare cost recorded a mean of 0.796 against a standard deviation of 0.881, a dispersion exceeding the mean itself, indicating substantial inconsistency in welfare spending intensity across bank-years, with some banks recording no measurable welfare cost in particular years. Environmental maintenance cost averaged 0.308 within a 0 to 1 range, clustering near the lower bound and indicating that environmental maintenance expenditure remains the exception rather than the norm among the sampled banks.

Audit tenure averaged 5.175 years with a maximum of exactly ten years, consistent with the mandatory audit firm rotation ceiling applicable to Nigerian banks, and the wide spread around a mid-range mean shows that the sampled banks were distributed across the full length of the permissible engagement cycle rather than concentrated at either extreme.

Bank size displayed extreme dispersion, with a standard deviation of 16.054 against a mean of 6.916, reflecting the pronounced size asymmetry of the Nigerian banking sector and counselling caution in interpreting size effects. Leverage, by contrast, recorded a modest spread around a mean of 3.418, indicating fairly uniform capital structure practices among deposit-funded institutions.

Pre-Estimation Tests

Correlation analysis showed employee social welfare cost positively and significantly associated with all three performance measures ($r = 0.307, 0.282$ and 0.292 for ROA, ROE and NIM respectively, $p < 0.01$), suggesting that welfare spending coincides with improved productivity and operational efficiency rather than simply eroding profit. Environmental maintenance cost was significantly associated with ROA ($r = 0.246, p < 0.01$) but not with ROE ($r = 0.065$) or NIM ($r = 0.035$).

Audit tenure showed a strong positive association with ROA ($r = 0.872, p < 0.01$), while its associations with ROE ($r = 0.037$) and NIM ($r = -0.052$) were statistically indistinguishable from zero. Among the control variables, leverage was positively and significantly correlated with all three measures ($r = 0.266, 0.459$ and $0.506, p < 0.01$) and bank age significantly with net interest margin alone ($r = 0.394, p < 0.01$). All pairwise correlations among the explanatory variables remained well below the 0.80 threshold, indicating that multicollinearity was unlikely to distort the estimates.

The cross-sectional dependence tests returned Breusch-Pagan LM, Pesaran scaled LM and bias-corrected scaled LM statistics that rejected the null hypothesis of no cross-sectional dependence at the 1 per cent level for every variable, confirming the expected interdependence among banks operating under common macroeconomic and regulatory conditions and justifying the use of an estimator robust to it.

The Im-Pesaran-Shin panel unit root test returned a mixed order of integration: net interest margin, leverage and bank age were stationary at level and therefore integrated of order zero, while return on assets, return on equity, employee social welfare cost, environmental maintenance cost, audit tenure and bank size were non-stationary at level but became stationary after first differencing and are therefore integrated of order one. No variable was integrated of order two or higher, which rules out spurious regression arising from higher-order non-stationarity and supports the estimation approach adopted.

Test of Hypotheses

Hypothesis One: H01 — Sustainability costs have no significant effect on the financial performance of deposit money banks in Nigeria.

Variable	ROA	ROE	NIM
ESWC	0.008***	0.003***	0.005***
	(0.000)	(0.000)	(0.000)
EVMC	0.152***	0.006***	0.003**
	(0.000)	(0.000)	(0.020)
BSZ	0.0009***	0.0003***	0.008***
	(0.000)	(0.000)	(0.000)
LEV	-0.029***	-0.007***	-0.011***
	(0.000)	(0.000)	(0.000)
BA	0.284***	0.025	0.0003

	(0.000)	(0.165)	(0.960)
Wald χ^2	429.43***	165.94***	940.29***
Prob.	(0.000)	(0.000)	(0.000)

Source: Authors' computation, 2026. p-values in parentheses. *** and ** denote significance at 1% and 5% respectively.

Employee social welfare cost raised return on assets, return on equity and net interest margin by 0.008, 0.003 and 0.005 respectively, significant at the 1 per cent level across all three measures. The effect was strongest on return on assets, consistent with welfare spending acting first on staff productivity and operational efficiency, the channel that feeds most directly into how efficiently the asset base is deployed, while its influence on the equity-based and interest-based measures is comparatively diluted. Environmental maintenance cost was likewise positive and significant across all three measures, and markedly larger for return on assets (0.152) than for return on equity (0.006) or net interest margin (0.003), suggesting that environmental maintenance spending translates into materially more efficient asset use, plausibly through reduced compliance cost, reputational benefit or avoided regulatory penalty. The regressions are jointly significant (Wald $\chi^2 = 429.43, 165.94$ and $940.29, p < 0.01$). The null hypothesis is therefore rejected: sustainability costs have a positive and statistically significant effect on the financial performance of deposit money banks in Nigeria.

Hypothesis Two: H02 — Audit tenure has no significant effect on the financial performance of deposit money banks in Nigeria.

Variable	ROA	ROE	NIM
AUT	0.003***	0.008***	0.0005***
	(0.000)	(0.000)	(0.000)
BSZ	0.0008***	0.002***	0.003***
	(0.000)	(0.000)	(0.000)
LEV	-0.048***	-0.027***	-0.014***
	(0.000)	(0.000)	(0.000)
BA	0.213***	0.045	0.001
	(0.000)	(0.165)	(0.875)
Wald χ^2	9616.06***	2168.37***	675.94***
Prob.	(0.000)	(0.000)	(0.000)

Source: Authors' computation, 2026. p-values in parentheses. *** denotes significance at 1%.

A one-year increase in audit tenure raised return on assets, return on equity and net interest margin by 0.003, 0.008 and 0.0005 respectively, significant at the 1 per cent level across all three measures. The effect was strongest on return on equity, which follows from the mechanism at work: a longer-standing auditor-client relationship builds deeper familiarity with a bank's internal controls and risk exposures, improving the perceived reliability of financial reporting and, through it, investor confidence and the cost of equity capital, the channel that bears most directly on the return available to shareholders. The regressions are jointly significant (Wald $\chi^2 = 9616.06, 2168.37$ and $675.94, p < 0.01$). The null hypothesis is therefore rejected: audit tenure has a positive and statistically significant effect on the financial performance of deposit money banks in Nigeria.

Hypothesis Three: H03 — Sustainability costs and audit tenure do not jointly have a significant effect on the financial performance of deposit money banks in Nigeria.

Variable	ROA	ROE	NIM
SUC	0.005***	0.004***	0.004***
	(0.000)	(0.000)	(0.000)
AUT	0.003***	0.0007***	0.0005***
	(0.000)	(0.000)	(0.000)
BSZ	0.009***	0.0003***	0.005***
	(0.000)	(0.000)	(0.000)
LEV	−0.037***	−0.008***	−0.013***
	(0.000)	(0.000)	(0.000)
BA	0.278***	0.029	0.002
	(0.000)	(0.197)	(0.429)
Wald χ^2	1888.87***	427.04***	1599.91***
Prob.	(0.000)	(0.000)	(0.000)

Source: Authors' computation, 2026. p-values in parentheses. *** denotes significance at 1%.

Both variables of interest remained positive and significant at the 1 per cent level across all three performance measures. Composite sustainability cost raised return on assets, return on equity and net interest margin by 0.005, 0.004 and 0.004 respectively, while audit tenure raised them by 0.003, 0.0007 and 0.0005. Sustainability cost therefore dominated audit tenure on every measure, with the gap widest for return on equity and net interest margin. Bank size remained positive and significant throughout, consistent with larger banks benefiting from economies of scale, while leverage remained negative and significant, indicating that a heavier debt burden compresses returns and margins. Bank age was significant for return on assets only. The regressions are jointly significant (Wald $\chi^2 = 1888.87, 427.04$ and $1599.91, p < 0.01$). The null hypothesis is therefore rejected: sustainability costs and audit tenure jointly have a significant effect on the financial performance of deposit money banks in Nigeria.

DISCUSSION OF FINDINGS

The finding that sustainability cost positively and significantly predicts financial performance across all three measures is consistent with Tomomewo et al. (2022) and Korolo and Korolo (2024), both of whom found sustainability-related reporting and employee welfare expenditure positively and significantly related to the financial performance of Nigerian deposit money banks, and with Gutiérrez-Ponce and Wibowo (2023) and Rahi et al. (2022) internationally. The result supports Stakeholder Theory and the Resource-Based View: resources committed to employees and to environmental stewardship return to the bank through productivity, efficiency and reduced risk exposure rather than simply consuming profit. That the effect is strongest on return on assets is instructive, since the operational channel through which welfare and environmental spending work bears most directly on asset utilisation, which is why the asset-based measure registers the largest response.

The finding that audit tenure positively and significantly predicts financial performance is consistent with the knowledge-effect argument documented by Kamarudin et al. (2022), who found longer auditor tenure associated with higher accounting quality as auditors accumulate client-specific expertise, and with Almustapha and Salim (2025) for Nigerian cement companies. Within the ten-year ceiling observed in the data, accumulated auditor familiarity appears to strengthen oversight and reporting reliability, consistent with Agency Theory's account of audit as a monitoring mechanism. This positive and significant result is not uniformly replicated in the Nigerian banking literature: Ufi et al. (2025) found audit tenure positive but statistically insignificant for bank return on assets, while Ogundele et al. (2025) found a negative and significant effect. The divergence suggests that the strength and direction of the tenure-performance relationship in the Nigerian banking sector remains sensitive to sample composition, study period and model specification, and the present evidence should therefore be read as supporting the knowledge effect within a regulated tenure ceiling rather than as an argument against rotation limits as such.

The finding that sustainability cost exerts a stronger effect than audit tenure across all three measures has a clear accounting rationale. Sustainability cost represents direct operational expenditure, on staff welfare and environmental maintenance, that acts on productivity, efficiency and risk exposure in ways that flow comparatively quickly into revenue generation and cost containment, and therefore into reported profit and margins. Audit tenure, by contrast, affects performance only indirectly, through the quality and reliability of financial reporting and the resulting reduction in information asymmetry with investors and regulators; this is a governance and monitoring channel rather than an operational one, and its influence on realised profitability is transmitted more gradually, through investor confidence and the cost of capital, rather than through a direct effect on revenue or expenses. The joint significance of the two variables corroborates Ezegbe and Jeroh (2022) and Otekunrin et al. (2024), who found that cost-related and governance-related determinants of performance are more powerfully explanatory when assessed together than in isolation.

With respect to the control variables, the positive and significant size effect is consistent with economies of scale, a broader asset base and greater institutional capacity among larger banks, though the extreme dispersion recorded for bank size counsels some caution in interpretation. The consistently negative leverage effect indicates that the interest expense burden associated with debt-heavy capital structures outweighs any amplifying benefit to shareholder returns, contrary to the financial leverage effect suggested by the correlation analysis but consistent with the *a priori* expectation. Bank age supported asset-based performance without extending reliably to shareholder returns or interest margin, suggesting that institutional maturity aids operational efficiency without guaranteeing superior returns across every dimension of performance.

CONCLUSION AND RECOMMENDATIONS

Conclusion

This study concludes that the financial performance of deposit money banks in Nigeria is shaped jointly by an operational expenditure channel and a governance oversight channel that operate through distinct

mechanisms rather than as a single undifferentiated influence. Sustainability cost, proxied by employee social welfare cost and environmental maintenance cost, exerts a positive effect on performance, confirming that resources devoted to staff welfare and environmentally responsible practice function as value-adding investments rather than as costs that simply erode profitability. Audit tenure likewise exerts a positive effect, consistent with the view that a sustained relationship between a bank and its external auditor builds the institutional familiarity that strengthens financial oversight and the reliability of reported earnings, and supporting the knowledge-effect perspective over the concern that long tenure erodes auditor independence within the existing regulatory ceiling. Of the two, sustainability cost is the more influential, underscoring the greater weight that direct operational investment carries relative to governance mechanisms in driving reported profitability. Bank management and regulators should therefore not treat sustainability spending and audit arrangements as competing claims on attention, but should recognise that the operational and governance dimensions of bank management combine to shape financial outcomes, and that financial performance cannot be fully understood or effectively managed without close attention to the non-financial and governance dimensions of banking operations alongside the purely financial ones.

Recommendations

1. Deposit money banks should sustain and, where possible, increase their investment in employee welfare, including staff training, benefits and workplace wellbeing programmes, given that employee social welfare cost was found to significantly raise profitability, shareholder returns and interest margins.
2. Deposit money banks should institutionalise environmental maintenance spending as a core part of their operating budget rather than treating it as a discretionary expense, given its positive and significant contribution to financial performance, particularly to the efficiency with which the asset base is deployed.
3. Bank boards and audit committees should avoid unnecessary or premature changes of their external audit firm and should instead manage audit engagements within the regulatory tenure limits set by the Central Bank of Nigeria, so as to preserve the benefits of accumulated auditor knowledge and familiarity with bank operations.
4. Bank management should pursue sustainability spending and stable audit relationships as complementary rather than competing priorities, and should reflect both within a single integrated performance-improvement policy rather than in separate operational and governance workstreams.
5. Bank management should moderate their reliance on debt in their capital structure and adopt more prudent leverage policies, since leverage was found to exert a consistently negative and significant effect on all three measures of financial performance.
6. Bank management should pursue deliberate growth strategies, including asset expansion, diversification and, where appropriate, mergers or acquisitions, in order to capture the scale advantages that larger banks were found to enjoy in financial performance.
7. Regulators, particularly the Central Bank of Nigeria and the Financial Reporting Council of Nigeria, should direct supervisory attention to sustainability expenditure and not merely to sustainability disclosure, since it is recorded spending rather than reported commitment that was found to carry a measurable relationship with bank performance, and should calibrate audit rotation policy so as to preserve accumulated auditor knowledge while safeguarding independence.

LIMITATIONS AND SUGGESTIONS FOR FURTHER RESEARCH

The study was limited to twelve deposit money banks, having excluded smaller and less actively traded institutions on grounds of data availability, and a wider sample would improve the generalisability of the

findings across the full spectrum of the Nigerian banking industry. The reliance on quantitative secondary data also omits qualitative dimensions such as risk culture and governance quality that may condition the relationships identified. Future research should extend the sample, undertake comparative analysis against other West African or emerging-market banking systems and between subgroups within Nigeria, such as banks that have undergone holding company restructuring against those that have not, formally test for structural breaks around the introduction of mandatory audit rotation, and extend the inquiry to other sectors such as manufacturing, oil and gas, consumer goods, insurance and telecommunications, where environmental exposures, labour intensities and audit relationships differ meaningfully from those in banking.

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