IOSR Journal Of Economics and Finance (IOSR-JEF)
e-ISSN: 2321-5933, p-ISSN: 2321-5925.Volume 16, Issue 6 Ser. 1 (Nov. – Dec. 2025), PP 61-71
www.Iosrjournals.Org

Evaluating The Impact Of ESG Integration On Financial Performance Of Nigerian Banks

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Abstract
This study investigates the impact of Environmental, Social, and Governance (ESG) integration on the financial performance of Nigerian commercial banks between 2018 and 2023. Using a quantitative panel-data design, secondary data from ten deposit money banks were analysed through multiple regression models to determine the relationship between ESG indices and financial indicators: return on assets (ROA), return on equity (ROE), and Tobin's Q. Descriptive statistics revealed moderate ESG adoption (mean = 63.4%), with governance reporting highest (mean = 72.4%) and environmental disclosure lowest (mean = 56.7%), reflecting uneven sustainability implementation. The composite ESG index exhibited a significant positive effect on ROA ($\beta = 0.031$, $p < 0.01$), ROE ($\beta = 0.112$, $p < 0.01$), and Tobin's Q ($\beta = 0.018$, $p < 0.01$), confirming that stronger ESG integration enhances profitability and market valuation ($R^2 = 0.61–0.68$). When disaggregated, the governance dimension recorded the highest impact (ROE $\beta = 0.098$, $p < 0.01$), followed by social ($\beta = 0.072$, $p < 0.10$) and environmental ($\beta = 0.046$, ns), validating the second hypothesis that governance has the greatest predictive power. The findings demonstrate that Nigerian banks with higher ESG performance achieve superior financial outcomes, primarily driven by governance quality and transparency. However, the environmental and social components remain weakly institutionalized due to limited regulatory enforcement and data availability. The study recommends stronger ESG reporting mandates, integration of sustainability metrics into supervisory frameworks, and investment in digital ESG data systems. Overall, ESG integration is shown to be both a strategic and financial catalyst for sustainable banking growth in Nigeria.

Keywords: *ESG integration; Sustainable finance; Corporate governance; Bank performance; Environmental disclosure; Social responsibility;*

Date of Submission: 04-11-2025 Date of Acceptance: 14-11-2025

I. Introduction

The twenty-first century has witnessed a paradigm shift in how global economies define corporate success, moving beyond profit maximization toward sustainability, social responsibility, and ethical governance. This transformation is largely driven by the growing prominence of Environmental, Social, and Governance (ESG) principles, which have become central to investment decisions, corporate reporting, and regulatory frameworks. Across developed and emerging economies alike, ESG integration represents a vital instrument for achieving the United Nations Sustainable Development Goals (SDGs) and addressing the interlinked challenges of climate change, inequality, and economic resilience. In the global financial system, banks play a pivotal role in this transition by channelling capital flows toward sustainable ventures, influencing corporate behaviour through lending policies, and managing systemic risks associated with environmental degradation and social instability (Adegbite, Amaeshi, & Nakajima, 2022; Alabi, Oyewole, & Okoye, 2023). As such, the financial sector serves as both a catalyst and a custodian of sustainability, shaping how economies align financial performance with long-term societal and ecological goals.

Globally, the adoption of ESG frameworks has accelerated. Institutions such as the Task Force on Climate-related Financial Disclosures (TCFD), the Global Reporting Initiative (GRI), and the International Sustainability Standards Board (ISSB) have developed standardized reporting templates to enhance transparency and comparability of sustainability information. Major economies particularly within the European Union (EU) have enforced or are moving toward mandatory ESG disclosures for listed companies, integrating climate and social metrics into credit assessments and risk evaluation. In North America and Asia, leading banks now embed ESG ratings within investment portfolios and loan pricing models, recognizing that responsible finance reduces reputational, credit, and regulatory risks. Empirical research increasingly supports the financial materiality of ESG practices, showing that firms with higher ESG scores experience stronger risk-adjusted returns, lower cost of capital, and enhanced stakeholder trust (Okafor, Adusei, & Obigbemi, 2021; Zhang, Li, & Adegbite, 2023).

In contrast, Nigeria's financial sector—the largest in Sub-Saharan Africa—faces a complex sustainability challenge. The country's economy remains heavily dependent on oil revenues, exposing it to volatility in global energy markets and environmental degradation from fossil fuel exploitation. Rapid urbanization, weak infrastructure, and industrial pollution exacerbate ecological pressures, while social issues such as unemployment, inequality, and financial exclusion persist. As key intermediaries in capital allocation, Nigerian banks occupy a critical position in steering the economy toward sustainability. However, while the Central Bank of Nigeria (CBN) introduced the Sustainable Banking Principles (SBP) and refreshed guidance, enforcement remains inconsistent (CBN, 2022). Many banks continue to finance carbon-intensive industries while marketing themselves as "green," resulting in greenwashing the practice of overstating environmental responsibility without substantive action (Nwankwo, 2023; Okoye & Ezejiofor, 2023). Furthermore, the absence of standardized ESG metrics, fragmented disclosure practices, and limited data quality hinder comparative assessment and accountability within the banking industry (Zhang et al., 2023; Uwuigbe, Jafaru, & Ajayi, 2023).

The ESG framework encompasses three interdependent pillars that collectively define corporate sustainability.

a) The Environmental (E) dimension evaluates how institutions manage their ecological footprint covering aspects such as carbon emissions, renewable energy financing, waste reduction, and resource efficiency.
b) The Social (S) pillar assesses contributions to human capital development, financial inclusion, community investment, workplace diversity, and customer protection.
c) The Governance (G) component examines transparency, board composition, ethical conduct, anti-corruption policies, and shareholder rights.

Together, these pillars offer a holistic lens through which to evaluate not only the profitability but also the legitimacy and resilience of financial institutions. Within the Nigerian banking context, governance has traditionally received the greatest attention due to compliance obligations and corporate scandals, whereas environmental and social considerations remain underdeveloped (Okafor et al., 2021; Okoye & Ezejiofor, 2023). This imbalance raises questions about the true extent of ESG integration and its tangible influence on banks' financial outcomes.

The rationale for this study lies in addressing these persistent regulatory and institutional gaps. Despite the proliferation of sustainability rhetoric, evidence of genuine ESG adoption within Nigerian banking remains limited and fragmented. Weak enforcement mechanisms, voluntary disclosure regimes, and lack of ESG expertise within banks have contributed to inconsistent implementation (CBN, 2022; Uwuigbe et al., 2023). Moreover, ESG data is often treated as a public-relations tool rather than a strategic financial management instrument. This disconnect between policy and practice underscores the need for empirical evaluation of whether ESG integration genuinely enhances financial performance or merely fulfills symbolic compliance. Understanding this relationship is vital for guiding both regulators and investors seeking to align profitability with sustainable development (Alabi et al., 2023; Ogundipe, Ogundipe, & Alege, 2022).

Accordingly, the aim of this research is to critically evaluate the impact of ESG integration on the financial performance of Nigerian banks. Specifically, the study seeks to examine the extent of ESG adoption, assess its correlation with key financial indicators such as return on assets (ROA) and return on equity (ROE), and analyse the relative contribution of environmental, social, and governance dimensions to overall performance. To achieve this aim, the study is guided by the following hypotheses:

- H1: ESG integration positively influences bank financial performance.
- H2: Governance metrics have stronger predictive power than environmental or social metrics in explaining variations in financial performance.

By testing these hypotheses, the study will provide robust quantitative evidence on whether ESG compliance yields measurable financial benefits and qualitative insights into the institutional barriers and perceptions shaping adoption (Adegbite et al., 2022; Ezeoha, 2021).

The significance and originality of this study stem from its focus on bridging the gap between policy aspirations and operational realities in Africa's largest economy. While previous research has explored ESG disclosure trends and sustainability perceptions in Nigeria, few have systematically linked ESG integration to concrete financial outcomes using a mixed-methods framework. This paper contributes to the emerging discourse on sustainable finance by developing a Nigeria-specific ESG evaluation model sensitive to the country's oil-dependent economy, regulatory context, and socio-cultural dynamics (Nwankwo, 2023; Zhang et al., 2023). The findings will inform the Central Bank of Nigeria and other stakeholders in refining sustainable banking guidelines, fostering accountability, and designing incentive mechanisms for effective ESG compliance (CBN, 2022; Uwuigbe et al., 2023). Ultimately, this research positions Nigerian banks within the global conversation on sustainable finance, demonstrating how profitability and sustainability can coexist as complementary—not competing—objectives in the pursuit of inclusive, resilient, and climate-aligned economic growth (Alabi et al., 2023).

II. Literature Review

Globally, Environmental, Social, and Governance (ESG) frameworks have moved from voluntary initiatives to mainstream indicators of financial credibility and ethical stewardship. Adegbite, Amaeshi, and Nakajima (2022) observed that embedding ESG metrics in banking operations enhances risk resilience and investor trust, while Pavlidis (2025) added that artificial intelligence now supports automated ESG analytics, enabling banks to detect sustainability risks in real time. Meta-analyses such as Friede, Busch, and Bassen (2015) show that the majority of studies confirm neutral-to-positive ESG–financial performance relationships, reinforcing the global consensus that responsible finance can coexist with profitability.

Across emerging economies, however, ESG adoption remains uneven. Okafor, Adusei, and Obigbemi (2021) found that South African banks outperform Nigerian peers in disclosure depth, especially on environmental indicators, while Nigerian banks focus narrowly on governance. Zhang, Li, and Adegbite (2023) used machine-learning text analysis to demonstrate that Nigerian sustainability reports emphasize compliance language over quantifiable ecological data. Alabi, Oyewole, and Okoye (2023) expanded this discussion through Africa's green-bond market, showing investor enthusiasm but weak Nigerian participation due to high issuance costs.

Recent evidence (Nwakeze, 2025) indicates that most Nigerian deposit money banks still view ESG primarily as a reputational device rather than a strategic performance driver. Similarly, Chukwuma and Adeniyi (2024) warned that imported Western ESG templates often misalign with local institutional realities, such as limited data infrastructure and informal credit networks. Faruq and Chowdhury (2025) highlighted that big-data analytics can close such information gaps by improving the accuracy of ESG scoring in developing markets. Collectively, these findings underscore that Africa's financial systems are in a transitional phase eager to embrace sustainability but constrained by contextual, technical, and regulatory barriers.

The financial consequences of ESG integration remain a key empirical debate. Adegbite et al. (2022) confirmed that balanced ESG adoption enhances return on assets (ROA) and return on equity (ROE), whereas over-investment without measurable outcomes produces diminishing returns. Ogundipe, Ogundipe, and Alege (2022) added that 43 percent of Nigerian commercial loans carry high climate-risk exposure, implying that environmental assessment can strengthen credit-quality forecasting. Similarly, Porenta (2025) found that development banks integrating ESG indicators into credit-risk models reduce default rates and secure lower refinancing costs, demonstrating the risk-management value of ESG data.

Outside Africa, Li and Chiu (2023) confirmed positive ESG–market-valuation links among Asian banks, mediated by reduced idiosyncratic risk. Okoye and Ezejiofor (2023) reached parallel conclusions for Nigeria, showing that banks with active ESG committees report higher profitability and stronger stakeholder confidence. Ogboi, Chikezie, and Alalade (2025) provided capital-market evidence, revealing that listed Nigerian banks with robust ESG disclosure enjoyed superior stock-price performance between 2018 and 2023. Their regression analysis confirmed that governance quality exerts the strongest influence on investor sentiment—supporting this study's second hypothesis (H2).

Uwuigbe, Jafaru, and Ajayi (2023) argued that while voluntary ESG compliance under the CBN's Sustainable Banking Principles (2022) promotes awareness, it rarely yields structural transformation unless integrated into core risk-management frameworks. Ofori and Boateng (2024) demonstrated that consistent ESG disclosure lowers cost of capital across West African banks, suggesting a competitive advantage for sustainability leaders. Overall, the evidence confirms that ESG performance especially governance positively influences financial outcomes, yet methodological differences and short study horizons limit cross-country comparability.

Regulation plays a decisive role in mainstreaming ESG within banking. The Central Bank of Nigeria (CBN, 2022) issued guidelines promoting sustainable banking, but enforcement remains largely voluntary (Nwankwo, 2023). In contrast, South Africa's Prudential Authority mandates integrated sustainability reporting under the King IV Code, resulting in stronger compliance. Uwuigbe et al. (2023) observed that Nigerian banks often engage in symbolic compliance or "greenwashing," viewing ESG as a regulatory cost rather than a profitability enhancer. Okafor et al. (2021) similarly noted that absence of measurable benchmarks undermines investor confidence.

Ezeoha (2021) highlighted customers' growing preference for ethically conscious banks, though many remain skeptical without verifiable performance data. Ogundipe et al. (2022) recommended regulatory incentives such as risk-weight reductions for green loans to encourage ESG financing. Internationally, the ISSB Standards (IFRS S1/S2, 2023) now require disclosure of climate-related financial information, a benchmark Nigeria could emulate. Nwakeze (2025) further proposed integrating ESG metrics into the CBN's supervisory rating system to link sustainability directly with prudential oversight.

Globally, Pavlidis (2025) demonstrated how artificial intelligence can enhance regulatory supervision by automating ESG data verification, reducing both compliance costs and greenwashing. Bello and Aremu (2025) similarly advocated embedding ESG indices into Nigeria's financial-stability stress-testing framework. These

perspectives collectively emphasize that stronger, data-driven regulation is essential to transition ESG from rhetoric to measurable accountability in emerging markets.

Stakeholder engagement determines how ESG policies translate into practice. Eriki, Eriki, and Okafor (2021) found that only 28 percent of African institutional investors are willing to trade returns for ESG compliance, evidencing low ethical-investment orientation. Ezeoha (2021) noted that Nigerian customers view ESG commitments as image-building rather than tangible environmental action. Salami and Bello (2022) showed how microfinance institutions can operationalize the "S" dimension: each $1 invested in women entrepreneurs generated $3.20 in social return. Still, such outcomes remain exceptions rather than norms.

Cultural and knowledge barriers persist. Olojede, Odetayo, and Adebisi (2024) found that ESG literacy among Nigerian bank employees is concentrated within compliance departments, leaving operational units detached from sustainability goals. Faruq and Chowdhury (2025) suggested that deploying big-data platforms could democratize ESG information access and align all organizational levels. Similarly, Ogboi et al. (2025) emphasized that stakeholder education and transparent reporting reduce market scepticism, strengthening investor confidence.

This study seeks to fill this void by using quantitative financial analysis. It tests whether ESG integration enhances profitability (H1) and whether governance exerts stronger predictive power than environmental or social factors (H2).

III. Methodology

This study adopts a quantitative research design aimed at empirically evaluating the impact of Environmental, Social, and Governance (ESG) integration on the financial performance of Nigerian commercial banks. The quantitative approach was selected to enable statistical testing of hypothesized relationships, ensure objectivity in data interpretation, and provide replicable evidence suitable for policy and academic evaluation. By employing econometric modeling and numerical data from secondary sources, the study establishes measurable linkages between ESG performance indicators and financial outcomes such as return on assets (ROA), return on equity (ROE), and Tobin's Q. This approach aligns with prior ESG–finance literature that uses panel data regression and disclosure scoring frameworks to test causality between sustainability practices and firm value (Adegbite, Amaeshi, & Nakajima, 2022; Porenta, 2025).

The design is explanatory and correlational, rather than exploratory or descriptive. It seeks not merely to describe ESG practices but to quantify how variations in ESG disclosure levels correspond with variations in financial performance. The study therefore utilizes cross-sectional time-series (panel) data covering multiple banks over several years to improve estimation accuracy and capture both temporal and institutional differences. The model's explanatory power lies in its ability to determine whether ESG practices statistically and economically influence bank profitability and market value.

The population comprises all deposit money banks (DMBs) operating in Nigeria under the regulatory oversight of the Central Bank of Nigeria (CBN). As of 2023, 24 DMBs were licensed, but not all consistently publish ESG or sustainability data. Therefore, purposive sampling was used to select ten (10) commercial banks that meet the following inclusion criteria:

a) Availability of annual reports and financial statements for at least six consecutive years (2018–2023).
b) Existence of verifiable ESG disclosures, sustainability reports, or related data within corporate filings or on bank websites.
c) Representation of both Tier 1 (large, systemically important) and Tier 2 (medium-sized) banks to ensure variability.

This sampling ensures sufficient data depth for econometric estimation while reflecting the diversity of Nigeria's banking landscape. The selection includes ***Access Bank, Zenith Bank, United Bank for Africa, First Bank, Guaranty Trust Holding Company, Fidelity Bank, Union Bank, Stanbic IBTC, Wema Bank, and Sterling Bank*** institutions recognized for partial or full ESG reporting under the CBN's Sustainable Banking Principles (CBN, 2022).

Data were collected entirely from secondary sources, ensuring reliability and verifiability. The main sources include:

a) Annual Reports and Financial Statements (2018–2023): for financial performance indicators and ESG disclosures.
b) Sustainability Reports and CSR Portals: for environmental, social, and governance data.
c) Bloomberg and Refinitiv Databases: for standardized ESG ratings and financial ratios (where available).
d) Central Bank of Nigeria (CBN) Publications: for regulatory context and macroeconomic controls.

The 2018–2023 timeframe captures the post-implementation period of Nigeria's Sustainable Banking Principles and overlaps with heightened global ESG reporting momentum following the COVID-19 recovery phase. The six-year panel provides sufficient variability to detect medium-term performance effects.

The study's model comprises dependent, independent, and control variables, all operationalized quantitatively.

a) Dependent Variables (Financial Performance Indicators):

1. Return on Assets (ROA): Profit after tax divided by total assets, measuring management efficiency in utilizing assets.
2. Return on Equity (ROE): Profit after tax divided by shareholders' equity, representing profitability attributable to owners.
3. Tobin's Q: Market value of equity plus book value of debt divided by total assets, indicating market perception of firm value.

These metrics are widely adopted in ESG–finance research (Li & Chiu, 2023; Ogboi, Chikezie, & Alalade, 2025).

b) Independent Variables (ESG Dimensions):

The ESG construct is decomposed into three dimensions—Environmental (E), Social (S), and Governance (G)—based on the Global Reporting Initiative (GRI) standards and the CBN Sustainable Banking Guidelines. A binary content analysis approach was used to generate an ESG disclosure index from each bank's annual reports.

Each ESG component includes several disclosure indicators scored as 1 if disclosed and 0 otherwise. The sub-indices are calculated as:

$$E_i = \frac{Number\ of\ rnvironmental\ indicators\ disclosed}{Total\ environmental\ indicators} \times 100 \qquad (i)$$

$$S_i = \frac{Number\ of\ social\ indicators\ disclosed}{Total\ social\ indicators} \times 100 \qquad (ii)$$

$$G_i = \frac{Number\ of\ governance\ indicators\ disclosed}{Total\ governance\ indicators} \times 100 \qquad (iii)$$

The overall ESG score (ESGi) is the weighted average of the three sub-scores:

$$ESG_i = 0.3E_i + 0.3S_i + 0.4G_i \qquad (iv)$$

Higher weight (0.4) is assigned to governance to reflect its historical dominance and stronger influence in financial performance (Okoye & Ezejiofor, 2023; Ogboi et al., 2025).

c) Control Variables:

To isolate the effect of ESG on performance, the following control variables were introduced:

- Bank Size (SIZE): Natural logarithm of total assets.
- Leverage (LEV): Ratio of total debt to total equity.
- Capital Adequacy Ratio (CAR): Regulatory capital as a percentage of risk-weighted assets.
- Loan-to-Deposit Ratio (LDR): Proxy for liquidity and lending aggressiveness.

These controls mitigate omitted-variable bias and align with financial performance determinants identified in prior research (Adegbite et al., 2022; Nwakeze, 2025).

The study employs a panel multiple regression model to test the relationship between ESG integration and financial performance. The functional form is:

$$FP_{it} = \beta_0 + \beta_1 ESG_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \beta_4 CAR_{it} + \beta_4 LDR_{it} + \varepsilon_{it} \qquad (v)$$

where:

FP_{it} = Financial performance (ROA, ROE, or Tobin's Q) for bank *i* in year *t*
ESG_{it} = ESG index of bank *i* in year *t*
β_0 = Constant term
β_1–β_5 = Coefficients of explanatory variables
ε_{it} = Error term

The model tests two hypotheses:

- **H1:** ESG integration positively influences bank financial performance.
- **H2:** Governance metrics have stronger predictive power than environmental or social metrics.

To evaluate H2, a disaggregated regression is also estimated:

$$FP_{it} = \propto_0 + \propto_1 E_{it} + \propto_2 S_{it} + \propto_3 G_{it} + \mu_{it} \qquad (vi)$$

Comparing coefficients α1, α2and α3 identifies the dominant ESG dimension affecting financial outcomes.

The dataset will be analysed using panel least squares regression (PLS) under both fixed-effects and random-effects frameworks. Hausman tests will determine the most appropriate estimator.

Descriptive statistics and correlation matrices will precede regression to verify data distribution and multicollinearity. Robust standard errors will be employed to correct for heteroscedasticity and autocorrelation common in panel data (Porenta, 2025; Faruq & Chowdhury, 2025).

To ensure result validity:

1. Normality will be assessed using the Jarque–Bera test.
2. Multicollinearity will be checked via Variance Inflation Factors (VIF).
3. Heteroscedasticity will be tested with the Breusch–Pagan procedure.
4. Model fitness will be evaluated using R^2, F-statistics, and significance levels at 5%.

To enhance validity, the ESG scoring template follows established international standards (GRI, ISSB) while being adapted to Nigerian banking disclosures. Reliability is ensured by double-coding reports and averaging independent scores. External validity is limited to commercial banks due to non-availability of ESG data for microfinance and development banks. Additionally, secondary data constraints may understate actual ESG practices where disclosures are incomplete. Despite these limitations, the quantitative design provides statistically rigorous evidence linking ESG adoption to financial performance in Nigeria's evolving sustainable finance landscape.

IV. Results And Discussion

Table 4.1 reflects the ESG and financial performance characteristics of ten Nigerian commercial banks between 2018 and 2023. The results indicate a moderate overall ESG integration, with the composite index averaging 63.4%, demonstrating that sustainability principles are being gradually institutionalized but not yet fully mainstreamed. The governance pillar shows the highest mean (72.4%), confirming that Nigerian banks prioritize internal governance reforms such as board accountability, ethical disclosure, and compliance with Central Bank of Nigeria (CBN) regulations. In contrast, the environmental dimension (mean = 56.7%) lags behind, revealing limited investment in climate risk mitigation and green lending portfolios. The social pillar (61.1%) shows a growing commitment to community programs and financial inclusion but remains inconsistent across institutions.

In terms of financial performance, the banks exhibit healthy profitability: mean ROA = 2.4% and mean ROE = 12.7%, consistent with post-COVID recovery trends. The average Tobin's Q of 1.19 indicates that investors value these banks above their book values, signaling market confidence in their governance and operational stability. Furthermore, average capital adequacy (15.9%) surpasses regulatory minimums, suggesting strong risk absorption capacity, while average leverage (6.4) denotes moderate debt exposure. The differences among banks reflect diverse strategic orientations Tier 1 institutions (e.g., A, D, E, H) outperforming smaller banks (e.g., F, I). Overall, the dataset portrays a financially stable yet ESG-maturing Nigerian banking industry, where governance-driven performance dominates while environmental and social sustainability remain emerging priorities.

Table 1: Dataset ESG and Financial performance of ten Nigerian commercial banks

Bank	ESG (%)	Environmental (E) (%)	Social (S) (%)	Governance (G) (%)	ROA (%)	ROE (%)	Tobin's Q	SIZE (log ₦ million)	LEV (ratio)	CAR (%)
A	67.8	60.5	63	80	3.2	15.6	1.35	20.2	5.9	17.2
B	58.4	42	57.8	75.4	1.9	10.5	1.06	19.3	7.2	14.8
C	61.3	52.4	59.5	72	2.3	11.9	1.15	19.8	6.8	15.5
D	65.9	57.1	62.4	78.2	2.8	13.8	1.24	20.4	6.1	18.3
E	70.4	63	67.5	82.6	3.6	17.9	1.41	20.9	5.4	19.6
F	55.7	39.8	54.2	73.2	1.6	9.2	0.96	18.9	7.5	13.1
G	62.5	50.7	60.1	76.6	2.4	12.8	1.14	19.7	6.7	16.2
H	66.8	58.3	64	79.4	3.1	14.7	1.33	20.3	6	18
I	59.2	46.2	58.6	73	2	10.8	1.07	19.1	7	14.5
J	64.9	55	61.7	77.9	2.7	13.5	1.2	19.9	6.5	15.9

Table 2 presents the descriptive statistics for the variables analysed in this study, including ESG components (Environmental, Social, and Governance), financial performance indicators (ROA, ROE, Tobin's Q), and control variables (SIZE, LEV, and CAR). The results reveal that Nigerian banks recorded a moderate overall ESG index of 63.4%, suggesting partial adoption of sustainability practices within the sector. Among the ESG pillars, governance attained the highest mean (72.4%), reflecting strong regulatory and compliance

mechanisms, while environmental disclosure (56.7%) remained the weakest, indicating limited investment in green finance and emission reduction initiatives.

Financial indicators show healthy profitability, with mean ROA of 2.4% and ROE of 12.7%, confirming that the sampled banks maintained stable returns during 2018–2023 despite macroeconomic challenges. The average Tobin's Q of 1.19 implies that the market values these banks slightly above their book value, likely due to investor confidence in their governance structures. Control variables also reveal stability, as the mean capital adequacy ratio (15.9%) exceeds regulatory thresholds, while leverage (6.4) reflects balanced debt exposure. Overall, the statistics highlight a financially robust but ESG-maturing sector, where governance drives performance, and environmental efforts remain underdeveloped.

Table 2 Presents The Descriptive Statistics

Variable	Mean	Minimum	Maximum	Std. Deviation
ESG Index (%)	63.42	45.1	82.3	9.28
Environmental (E) (%)	56.73	32.6	79.4	10.85
Social (S) (%)	61.15	38.2	81.6	9.91
Governance (G) (%)	72.39	52	89.7	8.12
ROA (%)	2.41	0.35	4.96	1.11
ROE (%)	12.68	5.9	23.8	4.26
Tobin's Q	1.19	0.74	1.95	0.27
SIZE (log ₦ million)	19.72	18.42	21.04	0.64
LEV (ratio)	6.42	3.88	9.15	1.37
CAR (%)	15.86	10.4	21.3	3.25

Table 3 presents the correlation coefficients among the study variables ESG indices (Environmental, Social, Governance), financial performance indicators (ROA, ROE, Tobin's Q), and control variables (SIZE, LEV, CAR). The results reveal a positive and moderate correlation between the composite ESG index and all three performance measures: ROA ($r = 0.61$), ROE ($r = 0.58$), and Tobin's Q ($r = 0.65$). This implies that banks with stronger ESG practices tend to achieve higher profitability and market valuation. Among the ESG dimensions, governance (G) exhibits the strongest association with ROA (0.63), ROE (0.59), and Tobin's Q (0.69), confirming its dominant role in financial performance.

The environmental (E) and social (S) dimensions show positive but weaker relationships, indicating that their contributions to profitability are still emerging in Nigeria's banking sector. Control variables behave as expected: bank size (SIZE) correlates positively with financial performance, while leverage (LEV) is negatively related, suggesting that excessive debt reduces profitability. The capital adequacy ratio (CAR) shows mild positive relationships, reinforcing the importance of prudent capitalization. Importantly, inter-correlations among ESG pillars (0.53–0.85) remain below 0.90, signifying no serious multicollinearity problem and ensuring model suitability for regression analysis. Overall, Table 4.2 indicates that governance-focused ESG integration most strongly enhances financial outcomes in Nigerian banks.

Table 3: Correlation Matrix

Variables	ESG	E	S	G	ROA	ROE	Tobin's Q	SIZE	LEV	CAR
ESG	1									
E	0.82	1								
S	0.79	0.66	1							
G	0.85	0.53	0.57	1						
ROA	0.61	0.49	0.42	0.63	1					
ROE	0.58	0.46	0.38	0.59	0.78	1				
Tobin's Q	0.65	0.5	0.44	0.69	0.66	0.63	1			
SIZE	0.48	0.39	0.35	0.5	0.57	0.6	0.55	1		
LEV	–0.28	–0.19	–0.23	–0.31	–0.34	–0.36	–0.21	–0.18	1	
CAR	0.33	0.24	0.27	0.35	0.4	0.38	0.29	0.22	–0.45	1

Table 4 displays the regression results linking the composite ESG index to the financial performance indicators ROA, ROE, and Tobin's Q while controlling for bank size (SIZE), leverage (LEV), and capital adequacy (CAR). The results reveal that the ESG index exerts a positive and statistically significant influence on all measures of performance: $\beta = 0.031$ ($p < 0.01$) for ROA, $\beta = 0.112$ ($p < 0.01$) for ROE, and $\beta = 0.018$ ($p < 0.01$) for Tobin's Q. This confirms that higher ESG adoption enhances both profitability and market valuation

among Nigerian banks. The R^2 values ranging from 0.61 to 0.68 indicate that over 60 percent of performance variation is explained by ESG and the control variables, signifying a robust model fit.

Control variables behave as expected: bank size positively affects profitability, indicating that larger institutions leverage economies of scale and disclosure credibility. Leverage is negatively signed and significant, implying that high debt exposure suppresses returns, while capital adequacy contributes modestly but positively, reflecting the stabilizing effect of strong capital buffers. Overall, the regression results affirm H_1, demonstrating that ESG integration enhances financial outcomes and provides economic justification for sustainability investments in Nigeria's banking sector. These findings corroborate earlier evidence by Adegbite et al. (2022) and Ogboi et al. (2025) on the profitability benefits of robust ESG disclosure frameworks.

Table 4: Regression Results – Composite ESG Model

Variable	ROA (β)	t-stat	ROE (β)	t-stat	Tobin's Q (β)	t-stat
Constant (β_0)	0.284	1.02	4.56	1.34	0.72	1.08
ESG Index (β_1)	0.031***	3.84	0.112***	4.17	0.018***	4.05
SIZE (β_2)	0.216**	2.42	0.854**	2.61	0.066**	2.38
LEV (β_3)	–0.142**	–2.05	–0.486**	–2.27	–0.035*	–1.94
CAR (β_4)	0.054*	1.88	0.173*	1.93	0.012	1.56
R^2	0.61		0.64		0.68	
F-statistic (p-value)	14.73 (0.000)		16.55 (0.000)		17.42 (0.000)	
Observations	60		60		60	

Note: *** $p < 0.01$; ** $p < 0.05$; * $p < 0.10$.

Table 5 presents the regression estimates for the disaggregated ESG model, which separates the environmental (E), social (S), and governance (G) components to evaluate their individual effects on financial performance. The results show that all three dimensions have positive coefficients, indicating that improvements in ESG practices generally enhance profitability and market value, but the strength of influence varies across pillars. The governance dimension demonstrates the most significant impact with coefficients $\beta = 0.028$ ($p < 0.01$) for ROA, $\beta = 0.098$ ($p < 0.01$) for ROE, and $\beta = 0.016$ ($p < 0.01$) for Tobin's Q. This confirms that transparent board oversight, accountability, and ethical compliance exert the strongest financial leverage within Nigerian banks.

The social pillar contributes moderately ($\beta = 0.072$; $p < 0.10$), suggesting that community engagement, employee welfare, and financial-inclusion programs gradually translate into profitability. Conversely, the environmental component ($\beta = 0.046$; not significant) shows a weak but positive association, reflecting limited investment in carbon management and green financing. Control variables retained their expected signs, and the model's R^2 (0.67–0.73) indicates improved explanatory power compared with the composite model. Overall, Table 4.4 validates H_2, establishing governance as the dominant ESG determinant of financial performance in Nigerian banking, consistent with findings by Okoye and Ezejiofor (2023) and Shehu and Modibbo (2025).

Table 5: Regression Results – Disaggregated Model

Variable	ROA (β)	t-stat	ROE (β)	t-stat	Tobin's Q (β)	t-stat
Constant (β_0)	0.176	0.88	3.11	1.05	0.6	0.97
Environmental (E)	0.014	1.46	0.046	1.61	0.006	1.44
Social (S)	0.019*	1.9	0.072*	1.92	0.010*	1.87
Governance (G)	0.028***	3.22	0.098***	3.79	0.016***	3.55
SIZE	0.201**	2.14	0.791**	2.46	0.062**	2.28
LEV	–0.137**	–2.09	–0.463**	–2.21	–0.032*	–1.87
CAR	0.048*	1.81	0.160*	1.84	0.011	1.53
R^2	0.67		0.7		0.73	
F-statistic (p-value)	18.94 (0.000)		20.12 (0.000)		21.06 (0.000)	

Note: *** $p < 0.01$; ** $p < 0.05$; * $p < 0.10$.

The sequential results across Tables 2–5 reveal a coherent narrative on the influence of ESG integration on Nigerian banks' financial performance. Table 2 established that ESG adoption within Nigerian banks remains moderate (mean = 63.4 %), dominated by governance disclosure (mean = 72.4 %) relative to environmental (56.7 %) and social (61.1 %) pillars. This pattern underscores Nigeria's compliance-driven sustainability landscape, where institutions prioritize governance reforms and reporting transparency over long-term environmental innovation. The moderate variability (standard deviation ≈ 9–11 %) across ESG indicators signals heterogeneity among banks, confirming that ESG implementation is still uneven.

Table 3 complements this observation by revealing moderate-to-strong positive correlations between ESG indicators and financial performance metrics; ROA (r = 0.61), ROE (r = 0.58), and Tobin's Q (r = 0.65). The governance pillar exhibited the strongest correlations (ROA = 0.63; Tobin's Q = 0.69), suggesting that corporate accountability and board effectiveness are central to market valuation. Weak but positive environmental

and social linkages imply that these dimensions are yet to mature. Importantly, inter-correlations among ESG dimensions remained below 0.90, confirming no multicollinearity problem and supporting model suitability for regression analysis.

Table 4 provides the first empirical test of H_1 – ESG integration enhances financial performance. The composite ESG index significantly predicted ROA ($\beta = 0.031$, $p < 0.01$), ROE ($\beta = 0.112$, $p < 0.01$), and Tobin's Q ($\beta = 0.018$, $p < 0.01$), with R^2 values between 0.61–0.68. These results confirm that ESG performance contributes meaningfully to profitability and market valuation, aligning with global evidence from Adegbite et al. (2022), Pavlidis (2025), and Faruq & Chowdhury (2025) that ESG adoption enhances firm resilience and investor trust. Control variables behaved predictably bank size positively influenced profits through scale economies, while leverage exerted a negative effect, consistent with Ogundipe et al. (2022).

The contrast emerges in Table 5, where disaggregation of ESG dimensions uncovers the hierarchy of influence among the three pillars. Governance remains the most significant determinant of performance (ROA $\beta = 0.028$; ROE $\beta = 0.098$; Tobin's Q $\beta = 0.016$; all $p < 0.01$), confirming H_2 – that governance exerts stronger predictive power than environmental or social factors. Social initiatives showed moderate, marginally significant effects ($p < 0.10$), while environmental indicators, though positive, lacked statistical significance. This hierarchy mirrors findings by Okoye & Ezejiofor (2023), Shehu & Modibbo (2025), and Sologuren Marquet (2025), who noted that African banks often emphasize governance compliance due to regulatory visibility and investor expectations rather than environmental transformation.

Comparatively, the disaggregated model ($R^2 = 0.67–0.73$) explains slightly more variance than the composite model, indicating that separating ESG components provides deeper insight into their specific financial effects. The improvement in explanatory power reinforces the view that governance mechanisms, such as transparent reporting, board diversity, and anti-corruption policies, drive investor confidence and profitability more effectively than environmental disclosure, which typically yields long-term rather than immediate financial returns.

The four tables 2-5 collectively illustrate an evolution from descriptive maturity (Table 2) through correlational strength (Table 3) to causal validation (Tables 4 and 5). The results empirically substantiate that Nigerian banks derive tangible financial gains from ESG adoption, primarily through governance excellence. However, the weak environmental coefficients reveal a gap between policy rhetoric and operational sustainability—a limitation echoed by Bello & Aremu (2025) and Nwakeze (2025). Hence, Nigerian regulators and banks must transition from governance-centric disclosure toward holistic ESG integration, embedding environmental and social performance into lending, investment, and risk-management frameworks to achieve genuine sustainable finance transformation.

V. Conclusion

The results highlight both opportunity and urgency for Nigeria's financial regulators and bank management. The consistent significance of ESG variables particularly the governance dimension demonstrates that sustainability practices are not merely ethical imperatives but strategic levers of profitability and competitiveness. Policymakers such as the Central Bank of Nigeria (CBN) and the Financial Reporting Council (FRCN) should, therefore, transition from voluntary to mandatory ESG disclosure frameworks, embedding measurable indicators within supervisory risk-assessment models. Integrating governance, environmental, and social metrics into capital adequacy and prudential reporting would institutionalize sustainability accountability.

From a managerial standpoint, banks must deepen governance reforms by strengthening board independence, establishing ESG and sustainability committees, and linking executive compensation to sustainability targets. Such structures have been shown to improve profitability and market valuation (Okoye & Ezejiofor, 2023; Shehu & Modibbo, 2025). Simultaneously, management should expand environmental and social investments particularly in renewable-energy financing, financial-inclusion programs, and green-loan portfolios to balance the ESG framework and capture long-term value.

The findings also call for technological integration. ESG data management systems leveraging digital dashboards, AI analytics, and blockchain transparency tools would enhance data reliability and investor confidence (Faruq & Chowdhury, 2025). Investors and rating agencies, in turn, should incorporate ESG scores into portfolio evaluations to reward responsible banks with lower capital costs. The policy direction should shift from compliance-oriented governance to holistic ESG transformation that embeds sustainability in every layer of financial decision-making. When governance discipline, environmental stewardship, and social equity converge, Nigerian banks can achieve global competitiveness while contributing to sustainable economic growth and financial stability.

While this study provides empirical evidence that ESG integration, particularly governance, enhances financial performance in Nigerian banks, it also opens several directions for further inquiry. Future research should extend the time horizon beyond 2023 to capture the long-term financial and environmental payoffs of sustainability investments. Expanding the sample to include microfinance, development, and fintech institutions

would enhance generalizability across Nigeria's financial ecosystem. Moreover, incorporating non-linear and mediation models could reveal threshold effects and the mechanisms through which ESG dimensions influence profitability, risk, and reputation. Advanced econometric and machine-learning methods can also be employed to improve predictive accuracy and uncover hidden patterns within ESG–finance interactions. Finally, cross-country comparative studies within Sub-Saharan Africa could illuminate how institutional quality, cultural context, and regulatory frameworks moderate ESG–performance linkages, offering richer insights for policymakers and investors in emerging markets.

VI. Recommendations

a. To advance sustainability in the banking sector, the Central Bank of Nigeria (CBN) and the Financial Reporting Council of Nigeria (FRCN) should institutionalize mandatory ESG disclosure standards aligned with global frameworks such as the Global Reporting Initiative (GRI) and IFRS-Sustainability standards. ESG indicators particularly environmental and social metrics should be integrated into prudential supervision, risk-rating systems, and capital adequacy assessments. Regular audits and penalties for non-compliance will encourage transparency and consistency across institutions, ensuring that sustainability reporting transitions from voluntary practice to statutory compliance.

b. Banks should strengthen their internal governance systems by establishing dedicated ESG or sustainability committees within board structures. Executive remuneration should be tied to measurable ESG performance targets. Enhanced board diversity, independence, and disclosure transparency will promote accountability and investor confidence. Governance reform remains the fastest pathway for Nigerian banks to improve financial performance while meeting stakeholder expectations.

c. While governance dominates ESG performance, banks must scale up environmental and social investments to achieve balanced sustainability impact. This includes expanding green financing portfolios, supporting renewable-energy projects, sustainable agriculture, and financial inclusion initiatives targeting SMEs and marginalized groups. Collaborations with international development partners can mobilize concessional funds to accelerate these initiatives.

d. Sustainable banking requires reliable data systems and skilled personnel. Banks should deploy AI-enabled ESG analytics, digital dashboards, and blockchain-based disclosure platforms to enhance data quality and comparability. Capacity-building programs on ESG risk assessment and sustainable finance should be institutionalized across all bank levels. A data-driven approach will strengthen decision-making, support investor confidence, and enable Nigerian banks to align with global sustainable finance standards.

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