Impact of Female Chief Executive Officers (CEOS) on the Financial Performance of Nigerian Banks: Exploring the Lehman Sisters Hypothesis

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Abstract: *This study investigates the Lehman Sisters Hypothesis by examining whether female CEOs influence bank performance differently from male CEOs in Nigeria. Adopting an ex post facto research design, the study used purposive sampling to select four commercial banks that experienced both male-led (2017–2020) and female-led (2021–2024) leadership. Secondary financial data was obtained from annual reports of the affected banks and analyzed using descriptive statistics, correlation and panel regression with fixed effects. Performance was assessed through Return on Assets (ROA), Return on Equity (ROE) and Earnings per Share (EPS), with bank size as a control variable. Results show that male-led banks reported slightly higher ROA, reflecting greater asset utilization, while female-led banks achieved stronger ROE and significantly higher EPS, suggesting superior shareholder value creation. Regression analysis confirmed CEO gender as a significant determinant of financial performance, with bank size moderating negatively under male leadership but positively under female leadership. The findings indicate that CEO gender matters for Nigerian banks, with female leadership more strongly associated with shareholder-focused performance, offering partial support for the Lehman Sisters Hypothesis. The study recommends greater support for female CEOs in asset productivity strategies, targeted policies to strengthen shareholder returns and deliberate promotion of gender diversity in executive leadership to sustain earnings growth.*

Keywords: Lehman sisters' hypothesis, CEO gender, financial performance, ROA, ROE, EPS.

INTRODUCTION

The global financial crisis of 2007 - 2009 prompted critical reflections on the roles, behaviours, and decision-making approaches of corporate leaders, particularly those at the helm of financial institutions. Among the notable scholarly and public discourses that emerged during and after the crisis was the "Lehman Sisters Hypothesis." This hypothesis, popularised by scholars and thought leaders such as Katrin Bennhold and former IMF chief Christine Lagarde, suggests that if Lehman Brothers had been "Lehman Sisters," the financial crisis might have been averted or at least mitigated. Several world economic leaders have publicly suggested that the male-dominated leadership of the banking industry might have contributed to the collapse of Lehman Brothers and called for greater female representation in top executive roles within banking system, based on the perception that women, being generally more risk-averse, might have avoided the reckless decisions that contributed to the crisis (Hoang & Wu, 2024).

Globally, firms are increasingly appointing more women to their boardrooms in response to growing societal expectations and regulatory pressures (Mohamad & Rahman, 2022). According to the World Economic Forum (2022), women held an average of 36.9% of leadership positions across various industry sectors in 2022. Goryunova and Madsen (2024) quoting earlier work by Madsen et al. emphasized that organizations that include women on boards and in top leadership roles often experience significant advantages, such as improved financial performance, a more positive organizational climate, heightened corporate social responsibility and reputation, better talent utilization, enhanced innovation and collective intelligence.

Although progress has been made in various sectors, women continue to represent only a small fraction of top executive positions in corporations globally. According to Collazos and Botero (2024), women still lag behind men in advancing through the organization's hierarchy and getting top leadership positions primarily within large firms, as also discussed by Catalyst (2017). Deloitte (2022) reported that, as of 2021, women held only 6.7% of board chair positions globally, with just 5% serving as CEOs and 15.7% occupying the role of chief financial officer (CFO). While many developed economies have made significant strides in female representation in corporate boardrooms and executive positions, developing economies like Nigeria are still grappling with gender gaps in corporate leadership.

Nevertheless, there has been a remarkable development in the Nigerian banking sector which was historically dominated by men as a number of commercial banks have, over the past decade, appointed women as chief executive officers. Out of the country's 25 major banks, the number of female chief executive officers has grown from just one in 2019 to ten in 2024 - accounting for 36% of the industry's top leadership (Aro-Lambo & Bello, 2024). Nigeria's 36% representation of female CEOs places it among the top countries in Africa, with some reports highlighting the nation as a continental leader in the number of women heading banks (Naija Feminist Media, 2025).

However, it still remains unclear whether these appointments translate into measurable improvements or changes in organizational performance. Where female CEOs are appointed, public discourse often centers on whether they can deliver financial performance at par with, or superior to, their male predecessors. There remains a paucity of empirical research evaluating whether female leadership has yielded measurable improvements in financial performance compared to male leadership within the same institutional contexts (Tran, Minh, & Wang, 2021). Furthermore, existing literature on the Lehman Sisters Hypothesis is largely Western-centric and rarely focuses on developing economies like Nigeria. The specific impact of female CEOs on banks' profitability, liquidity and capital efficiency - especially in institutions that have experienced leadership under both genders - has not been adequately studied. This gap raises an important empirical question: Do female CEOs actually outperform, underperform, or perform at par with their male counterparts in Nigerian banks?

Given the strategic importance of leadership in determining firm outcomes, and the ongoing discourse about gender equity and corporate performance, this research would contribute to filling an important gap in Nigerian banking literature. By focusing on banks that have experienced both male and female leadership within the study period, this research design offered a natural comparative lens to test the Lehman Sisters Hypothesis within the Nigerian context. Building on the Lehman Sisters Hypothesis, this study would empirically investigate the financial performance of Nigerian banks under female CEOs compared to their male predecessors or successors over a 10-year period (2015–2024). Using performance indicators such as Returns on Assets (ROA), Return on Equity (ROE) and Earnings per Share (EPS), the research would ascertain whether any observable performance differences exist between male-led and female-led periods in Nigerian banks that have had both genders serve as CEO. Additionally, the study will include bank size, measured by total assets, as a control variable to ensure that performance differences are not simply the result of differences in institutional scale or market dominance.

Beyond academia, the study would provide actionable insights for boards, shareholders and recruiters on the strategic value of gender diversity in executive roles. Its findings could inform more inclusive leadership appointment practices and succession planning processes. Public institutions such as the Central Bank of Nigeria, the Bankers' Committee and the Ministry of Women Affairs might also draw on the results to formulate or refine gender-inclusive policies. In contributing to the global diversity, equity and inclusion (DEI) agenda, the research would challenge prevailing gender biases and offered empirical justification for greater female representation at the top. Its longitudinal, intra-bank comparative design further strengthened causal inference and set a methodological benchmark for future studies in leadership and financial performance.

LITERATURE REVIEW

Conceptual Review

This study investigated the impact of female CEOs on the financial performance of Nigerian banks, drawing from both theoretical insights and empirical evidence. Financial performance refers to the extent to which a company achieves its financial objectives, reflecting efficiency, profitability, risk management and shareholder value (Pandey, 2021). Financial performance refers to how well a company utilises its assets to generate revenues and profits. As noted by Jensen and Meckling, financial performance measures how well a company uses its resources in generating profit thus making it a vital tool to several stakeholders in a firm (as cited in Omale, Abdullahi, & Adediran, 2021). Financial performance is often measured using various indicators to assess how well a company utilizes its assets to generate profits and how the market values the firm (Abubakar & Yahaya, 2024). This study measured financial performance in terms of profitability and adopted Returns on Assets (ROA), Return on Equity (ROE) and Earnings per Share (EPS) for this purpose. These variables are internationally recognized and have been used in previous studies with or without other variables (e.g. Hoang, Vu, & Nguyen, 2021; Tran et al., 2021; Luh & Kusi, 2023; Abubakar & Yahaya, 2024; Bruder et al., 2025).

Return on assets measures how efficiently a bank utilizes its total assets to generate net income (Abubakar & Yahaya, 2024). It is particularly important in the banking sector where assets (such as loans and investments) are the primary revenue-generating instruments. Return on assets (ROA) is used as a measure of a company's financial performance, showing how effectively a company generates earnings from its total assets (Bouteska & Mili, 2022; Rahman & Mohamad, 2022; Sabila et al., 2023; Luh & Kusi, 2023; Oyidih, 2023; Jamil et al., 2024; Krishnan, 2024; Abubakar & Yahaya, 2024; Odeur, 2025; Bruder et al., 2025). A high return on assets (ROA) signifies that a company is effectively generating profit from its asset base, indicating efficient asset utilization and a low ROA may reflect poor financial performance or inefficient use of the company's assets (Abubakar & Yahaya, 2024).

Return on equity reflects how efficiently a company deploys the funds invested by its shareholders to produce earnings (Rahman & Mohamad, 2022; Bouteska & Mili, 2022; Krishnan, 2024; Odeur, 2025; Bruder et al., 2025). A higher ROE indicates that a company is efficient in utilizing its equity to generate profits while a lower ROE may suggest inefficient use of equity, poor management decisions, higher risk and lower growth potential. It is particularly relevant in leadership-centered research like this study, as it provides insight into the CEO's ability to maximise shareholder value.

Earnings per share represents the portion of a company's profit allocated to each outstanding share of common stock, thereby serving as a measure of profitability per unit of shareholder investment. (Rahman & Mohamad, 2022; Onyeka-Iheme, 2023). Earnings per share (EPS) is a financial indicator that signifies the portion of profit that is attributable to each ordinary share. A higher EPS suggests that the company is generating substantial profit for each outstanding share, which is an

encouraging sign. Conversely, a lower EPS may indicate that a company is not generating sufficient profits per share, potentially indicating inefficiencies. Female CEOs, who may emphasize long-term profitability and prudent fiscal management, could contribute to sustained or enhanced EPS over time

A female CEO is a woman holding the highest-ranking executive role within an organisation, charged with setting corporate strategy, managing resources and ensuring profitability. The role of female CEOs is examined within the context of the Lehman Sisters Hypothesis, which argues that female leaders tend to exhibit more ethical, conservative and risk-averse behaviours in corporate governance (Hoang & Wu, 2024). These behavioural traits are theorised to foster better long-term financial outcomes, especially in sectors where risk management is critical, such as banking. Female CEOs, therefore, are posited to bring a different style of leadership characterized by greater risk management, compliance, ethical standards, more collaborative and participatory leadership styles, long-term strategic thinking rather than short-term gains which can lead to better governance and fewer corporate scandals. (Hoang & Wu, 2024; Abubakar & Yahaya, 2024).

Additionally, the literature acknowledged that bank size - measured by total asset - significantly affects financial performance (Jamil, Nur, & Sianturi, 2024; Abubakar & Yahaya, 2024). Larger banks tend to benefit from economies of scale, diversified income streams and robust risk management systems, while smaller banks may enjoy operational agility but face higher vulnerability to external shocks. Therefore, controlling for bank size is critical to accurately attributing performance differences to CEO gender rather than structural or institutional advantages.

Conceptual Framework
This framework shows the relationship between the independent variable (Gender of CEO) and the dependent variable (financial performance indicators), incorporating control factor (bank size). The assumption is that the gender of the CEO influences financial performance in measurable ways.
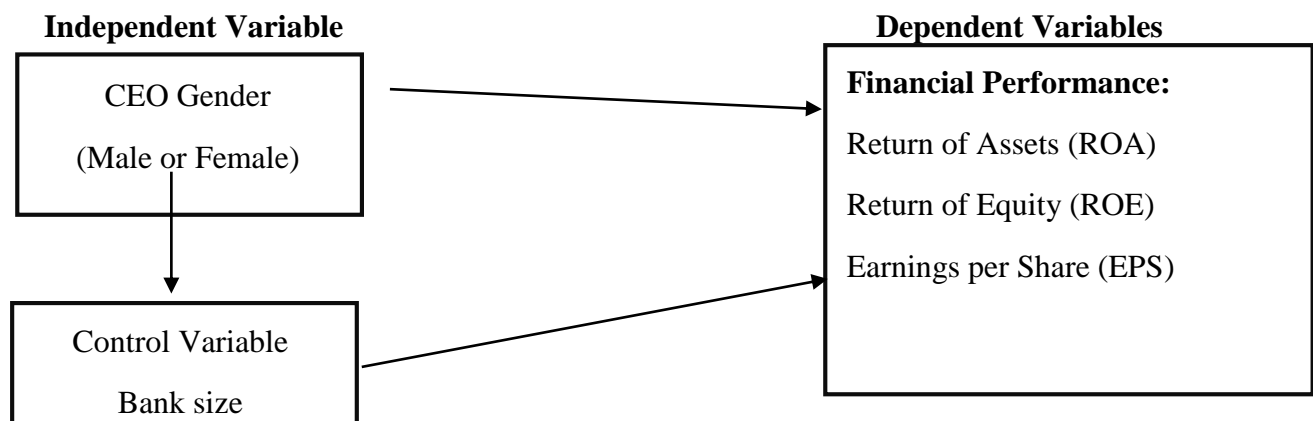
Figure 2.1: Conceptual Framework

Theoretical Review

Several theories such as Upper Echelons Theory, Gender Role Theory, Risk Aversion Theory, Resource-Based View (RBV) inform the relationship between gender and financial performance in organisational contexts. The theoretical foundation for this study is based on the Upper Echelons Theory, developed by Hambrick and Mason (1984), which assets that the strategic choices and performance outcomes of organizations are significantly influenced by the background characteristics of top executives. These characteristics include demographics such as age, education, functional background, and importantly, gender. (Abubakar & Yahaya, 2024). Several previous studies on the effects of CEO characteristics on company performance have used this theory. According to this theory, a female CEO, influenced by her unique personal, educational, or experiential background, may adopt leadership styles, decision-making approaches and strategic priorities that differ from her male counterparts. Women bring different leadership styles and approaches, such as collaborative and risk-averse decision-making, which may lead to improved financial performance (Abubakar & Yahaya, 2024). According to the Lehman Sisters Hypothesis, women leaders tend to be more risk-averse, prudent and ethically sensitive, potentially leading to better financial performance or fewer financial crises. By comparing financial performance under male and female CEOs within the same banks, this study would test whether gender influences outcomes, in line with upper echelons theory

Empirical Review

Several empirical studies have attempted to investigate whether a CEO gender affects organizational outcomes. This dilemma is even more important in the banking sector, which has historically been dominated by men in leadership roles. In Nigeria, Omale et al. (2021) assessed gender diversity's effect on the financial performance of quoted deposit money banks. Analyzing nine sampled banks quoted on the Nigerian Stock Exchange and testing the hypotheses using a robust random effects regression model after conducting the necessary diagnostic tests, their results revealed a significant positive effect of both board gender diversity and CEO gender on ROA.

Across Asia, evidence remains nuanced. Shukla et al. (2021) examined 29 Indian banks listed on the National Stock Exchange (NSE) 500 index between 2009 to 2016 using panel data regression models to determine the impact of female directors on the risk and return performance of the banks. They found that female directors significantly enhanced ROA, although no significant effects were observed on risk indicators like equity beta and non-performing loans (NPLs). Hoang et al. (2021) conducted a study using data from 20 Vietnamese commercial banks covering the period 2013 to 2019 to investigate the impact of leadership gender - specifically CEOs, members of the Management Team (MT) and Board of Directors (BOD) - on bank profitability and stability. The study's findings indicate that banks led by female CEOs generally exhibit higher profitability and greater financial stability compared to those led by their male counterparts.

Pena, Suherman, and Dalimunthe (2021) investigated the impact of female executives on the performance of banking firms listed on the Indonesia Stock Exchange between 2010 and 2019. The study focused on women in executive positions, measured specifically by the presence of a female CEO, as the independent variable. Bank performance, the dependent variable, was assessed using return on assets (ROA) and return on equity (ROE). Data were sourced from the annual reports of listed banks, and a purposive sampling technique was employed. The analysis utilized an unbalanced panel data set, applying the random effect model. Findings revealed that the presence of a female CEO had a significant positive effect on ROE, but no significant effect on ROA.

A wider Latin American perspective is provided by Baselga-Pascual and Vähämaa (2021), who analyzed 91 banks across 10 countries between 2000 and 2017 to determine the link between female top executives and bank performance and risk in Latin America. They reported that while female-led banks showed lower Z-scores, indicating higher risk, they were also more profitable than male-led counterparts. On the other hand, In Western Europe, Tran, Pham, and Wang (2021) used a large sample of 310 listed financial institutions from 21 Western European countries and advanced econometric models (two stage approach least square {2SLS} and generalized method of moments {GMM}) to investigate the impact of female leadership on firm performance. They found that the presence of women in executive roles negatively impacted both accounting and market-based performance.

Rahman and Mohamad (2022) studied the effect of the existence of women on boards (WOB) on the financial performance of Malaysian banks using four accounting-based measures, i.e., ROA, ROE, ROIC and EPS. Their sample included 90 bank-year observations, which span the years 2013 through 2021. Using panel data regression analysis, the study documented the insignificant impact of the existence of WOB on bank financial performance, implying that the mere presence of WOB did not improve the financial performance of Malaysian banks. From an ASEAN regional lens, Bouteska and Mili (2022) analyzed 75 banks from ten ASEAN countries covering the period 2002 - 2018 to determine the impact of the presence of women on the board of directors and in executive positions on the risk and profitability of the banks. Their findings support the duality of the gender effect: female executives improved profitability (ROA and ROE) and market to book ratios but were associated with higher capital risk (i.e., Z-score and capital ratio).

Sabila, Dalimunthe, and Shadiq (2023) examined the impact of female CEOs on the performance of banking companies listed on the Indonesia Stock Exchange during the period 2010 to 2018. The study used CEO gender - specifically the presence of a female CEO - as the independent variable, while company performance was measured using return on assets (ROA) and capital adequacy ratio (CAR) as dependent variables. Data were obtained from the financial statements of listed banking firms and a purposive sampling technique was employed. The analysis was conducted using panel data with a fixed effect model approach. The findings revealed that CEO gender has a significant effect on both ROA and CAR.

Oyidih (2023) studied 13 deposit money banks listed on the Nigerian Stock Exchange between 2010 to 2021 to ascertain the effect of gender diversity on the financial performance of the banks. He tested the hypotheses using robust random effect regression model. He found out that gender diversity significantly and positively influenced the financial performance of the Nigerian listed banks. They advocated for more female board representation and the appointment of more female CEOs to enhance financial performance.

Huang et al. (2024) explored the impact of gender diversity on bank boards and risk management in China, using panel data from 83 banks between 2006 and 2019. However, the study found that a higher proportion of female board members significantly reduced bank risk, largely due to their risk-averse nature and increased focus on oversight through more frequent board meetings. Notably, the presence of at least three female directors (a critical mass) amplified this effect. Female executive directors were identified as the primary contributors to the improved risk outcomes. Overall, the study highlights the important role of gender-diverse leadership in strengthening financial stability, especially in emerging markets. Ben & Ayadi. (2025) investigated the effect of board gender diversity on the performance 180 firms in Saudi Arabia using return on assets, return on equity, return on invested capital and Tobin's Q as financial indicators. They found a consistent positive relationship between the presence of women on boards and improved financial performance although only 20% of boards had female directors.

The evidence from Europe further includes Bruder et al. (2025), who examined the 100 largest firms in the Czech Republic to assess the correlation between female board representation and firm performance, measured by return on assets (ROA) and return on equity (ROE). Using multiple regression models, the study found a consistent positive correlation between the proportion of women on company boards and both ROA and ROE, despite the ongoing underrepresentation of women in board positions. On the other hand, Hernández-Nicolás, Martín-Ugedo, and Minguez-Vera (2022) analyzed a sample of 8,492 Spanish construction companies to examine the impact of female CEOs on firm performance and capital structure. Using a three-stage least squares (3SLS) methodology to address endogeneity concerns, the study found that firms led by female CEOs tend to have lower levels of debt, regardless of debt maturity. However, the results also revealed that companies managed by women were less profitable.

In Nigeria's hospitality sector, Aifuwa and Gideon (2022) investigated the influence of CEO gender and educational background on the financial performance of hotels in Nigeria. The study focused on three hotels listed on the Nigerian Stock Exchange between 2017 and 2020 and employed Ordinary Least Squares (OLS) regression to analyze the relationships among the variables. The findings revealed that CEO gender had no significant effect on hotel financial performance. However, CEO educational background showed a positive and significant impact. Finally, Odeur (2025) explored the impact of female representation at both board and executive levels on the financial performance of listed Belgian companies. Using ordinary least squares (OLS) regression, the study assessed performance through ROA, ROE, EBITDA, and Tobin's Q. Gender diversity was measured by the proportion of women on boards and the presence of a female

CEO. The findings revealed that having a female CEO was a strong and consistent predictor of improved performance, especially in Tobin's Q and EBITDA, with marginal significance in ROA and ROE. These results affirm the strategic and operational value added by women in executive roles.

Together, these studies show that female leadership can positively or negatively impact various financial metrics, although the strength and direction of these effects vary by region, control variables, industry and institutional maturity. This justifies a focused investigation of Nigerian banks where both male and female CEOs have held leadership over a ten-year period, using profitability performance metrics (ROA, ROE and EPS) and controlling for bank size to evaluate the validity of the Lehman Sisters Hypothesis in the Nigerian banking sector.

Existing studies are predominantly concentrated in developed countries, with little attention paid to how female CEOs influence organizational outcomes in Sub-Saharan Africa's banking sector. This study identified and addressed several critical gaps: a geographical gap, due to the Western-centric nature of current literature; a methodological gap, with few longitudinal, intra-firm studies comparing male and female CEOs; and a conceptual gap, as much of the literature emphasizes board-level diversity rather than CEO leadership, which holds greater strategic influence. Additionally, the study addressed a control variable gap by incorporating bank size (total assets) to enhance model accuracy and a theoretical gap by empirically testing the Lehman Sisters Hypothesis using real-world data from Nigerian banks over a ten-year period.

Given the foregoing theoretical discussions and the majority of empirical evidence, the following hypotheses are formulated to test the impact of CEO gender on various dimensions of financial performance in Nigerian commercial banks:

HO_1: There is no significant difference in return on assets between male-led and female-led periods in commercial banks.

HO_2: There is no significant difference in return on equity between male-led and female-led periods in commercial banks.

HO_3: There is no significant difference in earnings per share between male-led and female-led periods in commercial banks.

HO_6: Bank size does not significantly moderate the relationship between CEO gender and financial performance.

METHODOLOGY

This study adopted an ex-post facto research design, appropriate for analyzing historical data without manipulating variables. A quantitative comparative approach was employed, using a within-subject longitudinal design to examine the same commercial banks across two leadership periods—under male and female CEOs. The population comprised all commercial banks in

Nigeria that operated during 2017–2024. Commercial banks were selected because of their central role in the Nigerian financial system and their statutory requirement to publish audited financial statements, which ensures availability, consistency and reliability of financial data. As of 31 July 2025, a total of 26 commercial banks were licensed and operating in Nigeria (CBN, 2024). The sample was determined through purposive sampling. Only banks that had both male and female CEOs for at least four consecutive years each within 2017–2024 were included. This ensured valid within-bank comparisons. Out of the ten banks that transitioned between male and female leadership, only four met the criteria. The study relied on secondary data obtained from published annual reports and audited financial statements of the sampled banks. Data were analyzed using EViews**,** incorporating a range of analytical techniques, viz: descriptive statistics, correlation matrices and panel data regression analysis. Robustness tests included the Hausman test (to determine fixed vs. random effects), Variance Inflation Factor (VIF) (for multicollinearity) and the Breusch-Pagan test (for heteroscedasticity).

Measurement of Variables

This study employed a multidimensional set of variables, systematically categorized into dependent, independent and control variables. The selection and measurement of each variable were guided by established empirical literature and its proven relevance within the context of the banking sector. The operational definitions and measurement approaches for each variable are presented below.

Table 1: Measurement of Variables

Variable	Acronym	Type	Measurement	Justification/Source
Return on Assets	ROA	Dependent	Net Profit / Total Assets	Measures a firm's efficiency in utilizing assets to generate profits (Bouteska & Mili, 2022; Rahman & Mohamad, 2022; Sabila et al., 2023; Oyidih, 2023; Jamil et al., 2024; Luh & Kusi, 2023; Krishnan, 2024; Abubakar & Yahaya, 2024; Odeur, 2025; Bruder et al., 2025),
Return on Equity	ROE	Dependent	Net Profit / Shareholders' Equity	Measures a firm's efficiency in utilizing shareholders' equity to generate profits. (Rahman & Mohamad, 2022; Bouteska & Mili, 2022;, Krishnan, 2024, Odeur, 2025; Bruder et al., 2025)
Earnings per Share	EPS	Dependent	(Net Profit – Preference Dividends) / Number of Outstanding Shares	Indicates the portion of profit that is attributable to each ordinary share (Rahman & Mohamad, 2022)

Variable	Acronym	Type	Measurement	Justification/Source
CEO Gender	CEO Gen	Independent	Binary variable: 1 = Female CEO, 0 = Male CEO	Measures CEO gender effect (Bouteska & Mili, 2022; Sabila et al., 2023; Jamil et al., 2024)
Bank Size	BS	Control	Natural Logarithm of Total Assets	Scale or magnitude of a bank's operations (Rahman & Mohamad, 2022; Aifuwa & Gideon, 2022; Sabila et al., 2023; Jamil et al., 2024)

Regression Model Specification
Following prior empirical studies (Omale et al., 2021; Shukla et al., 2021; Rahman & Mohamad, 2022; Jamil et al., 2023; Bahaa et al., 2023; Oyidih, 2023; Nur & Sianturi, 2024), the panel regression model is specified as:

$FP_{it} = \alpha + \beta_1 CEO\ Gender_{it} + \beta_2 Bank\ Size_{it} + \varepsilon_{it}$
Where:
- FP_{it} = Financial performance of bank i at time t, (measured by ROA, ROE, EPS)
- $CEO\ Gender_{it}$ = A dummy variable representing CEO gender for bank i at time t (1 = Female CEO, 0 = Male CEO)
- $BankSize_{it}$ = Total assets of bank i at time t (used as a proxy for size)
- α = Constant term
- β_1, β_2 = Coefficients to be estimated
- ε_{it} = Error term

The model was estimated independently for ROA, ROE, and EPS. Bank size was included as a control variable because larger banks may perform better due to economies of scale, product diversification, and resource advantages, regardless of CEO gender.

RESULTS AND DISCUSSIONS

This study assessed the relationship between CEO gender and the financial performance of Nigerian commercial banks over two distinct leadership phases: male-led (2017–2020) and female-led (2021–2024). Financial performance was measured using return on assets (ROA), return on equity (ROE) and earnings per share (EPS), with total assets included as a control variable.

Descriptive Statistics
Tables 2.1 and 2.2 present the descriptive statistics for the study variables across the two leadership periods. For the male-led period (2017–2020), the average return on assets (ROA) was 2.93, while return on equity (ROE) and earnings per share (EPS) averaged 20.33 and 5.22 respectively. The

dispersion of the data indicates moderate variability, with standard deviations of 2.11 for ROA, 12.04 for ROE and 5.20 for EPS. The asset base recorded a mean of ₦3.21 billion, but with a substantial spread as reflected in its high standard deviation. These results suggest that during this period, banks maintained relatively stable profitability and shareholder returns, though EPS growth remained moderate. In the female-led period (2021–2024), the average ROA declined slightly to 2.66. However, ROE increased to 22.69 and EPS more than doubled to 10.77, reflecting stronger shareholder value creation. Variability in EPS was wider, with a standard deviation of 13.33 compared to 5.20 in the male-led period. The asset base was also larger on average, at ₦5.16 billion, indicating that banks expanded in size during this period, with greater variation across institutions.

Table 2:1 Descriptive Statistics (Male-Lead Period 2017-2020)

	ROA____	ROE____	EPS__N_	ASSETS
Mean	2.930625	20.33375	5.224375	3.21E+09
Median	2.695000	18.44000	3.460000	1.69E+09
Maximum	6.130000	36.32000	15.09000	2.06E+10
Minimum	0.100000	4.560000	0.310000	5.96E+08
Std. Dev.	2.110063	12.04205	5.203629	4.80E+09
Skewness	0.158027	0.075586	0.605624	3.222271
Kurtosis	1.383150	1.226544	1.925576	12.26677
Jarque-Bera	1.809395	2.111999	1.747673	84.93673
Probability	0.404664	0.347845	0.417347	0.000000
Sum	46.89000	325.3400	83.59000	5.14E+10
Sum Sq. Dev.	66.78549	2175.164	406.1664	3.45E+20
Observations	16	16	16	16

Source: Author's Computation, 2025

Table 2.2: Descriptive Statistics (Female-Lead Period 2017-2020)

	ROA____	ROE____	EPS__N_	ASSETS
Mean	2.659375	22.69000	10.77000	5.16E+09
Median	2.190000	21.24500	6.045000	4.21E+09
Maximum	6.880000	56.77000	48.02000	1.48E+10
Minimum	0.700000	8.100000	0.790000	1.05E+09
Std. Dev.	1.932185	12.58847	13.32896	3.60E+09
Skewness	1.085966	1.235422	1.811055	1.230247
Kurtosis	2.956316	4.421938	5.282414	4.178365
Jarque-Bera	3.146134	5.417988	12.21940	4.961719
Probability	0.207408	0.066604	0.002221	0.083671
Sum	42.55000	363.0400	172.3200	8.26E+10
Sum Sq. Dev.	56.00009	2377.043	2664.917	1.94E+20
Observations	16	16	16	16

Source: Author's Computation, 2025

Correlation Matrix

Tables 2.3 and 2.4 present the correlation matrices, showing the strength and direction of the linear relationships among the study variables. For the male-led period (2017–2020), ROA and ROE

exhibit a very strong positive correlation of 0.955, indicating that higher asset profitability was closely associated with increased equity returns. ROA also shows a strong positive relationship with EPS at 0.774, while ROE and EPS are even more strongly correlated at 0.898. By contrast, firm size (measured by total assets) is negatively related to all three performance indicators, although the relationships are weak. This suggests that, during the male-led era, larger asset bases did not necessarily translate into higher profitability or shareholder value. In the female-led period (2021–2024), the dynamics shifted slightly. ROA retained strong positive associations with both ROE (0.882) and EPS (0.889), while ROE and EPS continued to demonstrate a very strong correlation at 0.936. Unlike the male-led period, however, assets displayed positive correlations with performance indicators, most notably with ROA (0.541). This indicates that, under female leadership, larger bank size was more strongly aligned with improved profitability and shareholder returns. Overall, the results reveal consistent, strong correlations among ROA, ROE and EPS across both leadership phases, suggesting that profitability measures moved in tandem regardless of CEO gender. The key distinction lies in the role of bank size, which weakened performance relationships during the male-led period but strengthened them during the female-led period.

Table 2.3: Correlation Matrix (Male-Lead Period 2017-2020)

	ROA____	ROE____	EPS__N_	ASSETS
ROA____	1.000000	0.955164	0.774232	-0.274365
ROE____	0.955164	1.000000	0.897661	-0.226147
EPS__N_	0.774232	0.897661	1.000000	-0.251248
ASSETS	-0.274365	-0.226147	-0.251248	1.000000

Source: Author's Computation, 2025

Table 2.4: Correlation Matrix (Female-Lead Period 2021-2024)

	ROA____	ROE____	EPS__N_	ASSETS
ROA____	1.000000	0.882309	0.889079	0.540831
ROE____	0.882309	1.000000	0.935878	0.266920
EPS__N_	0.889079	0.935878	1.000000	0.272414
ASSETS	0.540831	0.266920	0.272414	1.000000

Source: Author's Computation, 2025

Panel Regression Analysis
To further investigate the influence of the independent variable (CEO gender) on the dependent variables (financial performance indicators), while controlling for bank size, the study employed a panel regression approach. The Hausman specification test confirmed that the fixed effects model was more appropriate than the random effects model. Accordingly, the hypotheses were tested using the fixed effects regression framework.

HO$_1$: There is no significant difference in return on assets between male-led and female-led periods in commercial banks.

The results (Tables 2.5 and 2.6) led to the rejection of HO_1. During the male-led period (2017–2020), CEO gender exhibited a negative coefficient (–5.15E-11) with a statistically significant probability value of 0.0017. In contrast, during the female-led period (2021–2024), CEO gender showed a positive coefficient (3.69E-10) with a probability value of 0.0020. Both results fall well below the 5% significance threshold, indicating that CEO gender significantly influences ROA in both periods. Importantly, the stronger positive coefficient during the female-led period suggests that female leadership is associated with a more favourable impact on ROA compared to male leadership.

Table 2.5: Panel Least Squares - ROA (Male-Lead Period 2017-2020)

Dependent Variable: ROA____
Method: Panel Least Squares
Date: 08/23/25   Time: 15:57
Sample: 2017 2024
Periods included: 4
Cross-sections included: 4
Total panel (balanced) observations: 16

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CEO (gender)	-5.15E-11	3.39E-11	-1.516190	0.0017
C	3.096015	0.178696	17.32563	0.0000

	Effects Specification			
Cross-section fixed (dummy variables)				

R-squared	0.947207	Mean dependent var		2.930625
Adjusted R-squared	0.928009	S.D. dependent var		2.110063
S.E. of regression	0.566154	Akaike info criterion		1.950404
Sum squared resid	3.525830	Schwarz criterion		2.191838
Log likelihood	-10.60323	Hannan-Quinn criter.		1.962768
F-statistic	49.33989	Durbin-Watson stat		1.853377
Prob(F-statistic)	0.000001			

Source: Author's Computation, 2025

Table 2.6: Panel Least Squares - ROA (Female-Lead Period 2017-2020))

Dependent Variable: ROA____
Method: Panel Least Squares
Date: 08/23/25   Time: 16:02
Sample: 2021 2024
Periods included: 4
Cross-sections included: 4
Total panel (balanced) observations: 16

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CEO (gender)	3.69E-10	1.28E-10	2.877207	0.0020
C	0.753332	0.724965	1.039128	0.3210

	Effects Specification			

Cross-section fixed (dummy variables)

R-squared	0.727459	Mean dependent var	2.659375
Adjusted R-squared	0.628353	S.D. dependent var	1.932185
S.E. of regression	1.177915	Akaike info criterion	3.415676
Sum squared resid	15.26233	Schwarz criterion	3.657110
Log likelihood	-22.32541	Hannan-Quinn criter.	3.428040
F-statistic	7.340218	Durbin-Watson stat	2.548362
Prob(F-statistic)	0.003926		

HO_2: There is no significant difference in return on equity between male-led and female-led periods in commercial banks.

The null hypothesis HO_2 was rejected based on the panel least squares results presented in Tables 2.7 and 2.8. For the male-led period (2017–2020), CEO gender was positively associated with ROE (coefficient = 5.09E-11, p = 0.0032). Similarly, for the female-led period (2021–2024), CEO gender recorded a positive coefficient (2.29E-09, p = 0.0048). Both results are statistically significant at the 5% level, but the stronger magnitude observed in the female-led period indicates that CEO gender has a more pronounced positive effect on ROE when banks are under female leadership.

Table 2.7: Panel Least Squares - ROE (Male-Lead Period 2017-2020)

Dependent Variable: ROE____
Method: Panel Least Squares
Date: 08/23/25   Time: 15:59
Sample: 2017 2020
Periods included: 4
Cross-sections included: 4
Total panel (balanced) observations: 16

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CEO (gender)	5.09E-11	1.75E-10	0.291379	0.0032
C	20.17030	0.918907	21.95032	0.0000
Effects Specification				
Cross-section fixed (dummy variables)				
R-squared	0.957137	Mean dependent var		20.33375
Adjusted R-squared	0.941550	S.D. dependent var		12.04205
S.E. of regression	2.911334	Akaike info criterion		5.225407
Sum squared resid	93.23453	Schwarz criterion		5.466840
Log likelihood	-36.80325	Hannan-Quinn criter.		5.237770
F-statistic	61.40756	Durbin-Watson stat		1.990902
Prob(F-statistic)	0.000000			

Source: Author's Computation, 2025

Table 2.8: Panel Least Squares - ROE (Female-Lead Period 2017-2020)

Dependent Variable: ROE____
Method: Panel Least Squares
Date: 08/23/25   Time: 16:03
Sample: 2021 2024
Periods included: 4
Cross-sections included: 4
Total panel (balanced) observations: 16

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CEO (gender)	2.29E-09	1.02E-09	2.238701	0.0048
C	10.85492	5.785366	1.876272	0.0874
Effects Specification				
Cross-section fixed (dummy variables)				
R-squared	0.591106	Mean dependent var		22.69000
Adjusted R-squared	0.442417	S.D. dependent var		12.58847
S.E. of regression	9.399995	Akaike info criterion		7.569602
Sum squared resid	971.9591	Schwarz criterion		7.811036
Log likelihood	-55.55682	Hannan-Quinn criter.		7.581965
F-statistic	3.975456	Durbin-Watson stat		1.984038
Prob(F-statistic)	0.001071			

Source: Author's Computation, 2025

HO$_3$: There is no significant difference in earnings per share between male-led and female-led periods in commercial banks.

The regression results (Tables 2.9 and 2.10) led to the rejection of HO$_3$. In the male-led period (2017–2020), CEO gender had a positive coefficient (2.39E-11, p = 0.0032), confirming a significant effect on EPS. Likewise, in the female-led period (2021–2024), CEO gender remained positive (2.60E-09) and significant (p = 0.0309). The relatively higher coefficient magnitude in the female-led period demonstrates that female leadership exerts a stronger positive influence on EPS compared to male leadership.

Table 2.9: Panel Least Squares - EPS (Male-Lead Period 2017-2020)
Dependent Variable: EPS__N_
Method: Panel Least Squares
Date: 08/23/25   Time: 16:00
Sample: 2017 2020
Periods included: 4
Cross-sections included: 4
Total panel (balanced) observations: 16

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CEO (gender)	2.39E-11	6.11E-11	0.391159	0.0032
C	5.147527	0.321839	15.99412	0.0000

Effects Specification				

Cross-section fixed (dummy variables)

R-squared	0.971842	Mean dependent var		5.224375
Adjusted R-squared	0.961602	S.D. dependent var		5.203629
S.E. of regression	1.019668	Akaike info criterion		3.127137
Sum squared resid	11.43694	Schwarz criterion		3.368571
Log likelihood	-20.01710	Hannan-Quinn criter.		3.139500
F-statistic	94.91226	Durbin-Watson stat		1.063537
Prob(F-statistic)	0.000000			

Source: Author's Computation, 2025

Table 2.10: Panel Least Squares – EPS (Female-Lead Period 2017-2020)

Dependent Variable: EPS__N_
Method: Panel Least Squares
Date: 08/23/25   Time: 16:04
Sample: 2021 2024
Periods included: 4
Cross-sections included: 4
Total panel (balanced) observations: 16

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CEO (gender)	2.60E-09	1.05E-09	2.474790	0.0309
C	-2.649968	5.934290	-0.446552	0.6639

Effects Specification				

Cross-section fixed (dummy variables)

R-squared	0.616257	Mean dependent var		10.77000
Adjusted R-squared	0.476714	S.D. dependent var		13.32896
S.E. of regression	9.641965	Akaike info criterion		7.620433
Sum squared resid	1022.642	Schwarz criterion		7.861867
Log likelihood	-55.96347	Hannan-Quinn criter.		7.632797
F-statistic	4.416260	Durbin-Watson stat		1.634983
Prob(F-statistic)	0.022627			

HO$_4$: **Bank size does not significantly moderate the relationship between CEO gender and financial performance.**

Findings from Tables 2.11 and 2.12 provided grounds to reject HO$_4$. In the male-led period (2017–2020), CEO gender had a significant positive effect on financial performance (coefficient = 0.166536, p = 0.0005), while bank size exerted a significant negative influence (coefficient = –5.88E-11, p = 0.0094). This implies that larger banks weakened the effect of CEO gender on performance during male leadership. Conversely, in the female-led period (2021–2024), CEO gender remained significant (coefficient = 0.063948, p = 0.0004), and bank size showed a significant positive moderating effect (coefficient = 8.34E-11, p = 0.0002). This indicates that larger bank size enhanced the relationship between CEO gender and financial performance when banks were led by females.

Table 2.11: Panel Least Squares - Assets (Male-Lead Period 2017-2020)

Dependent Variable: ROA____ ROE____ EPS____
Method: Panel Least Squares
Date: 08/23/25   Time: 08:32
Sample: 2017 2020
Periods included: 4
Cross-sections included: 4
Total panel (balanced) observations: 16

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CEO (gender)____	0.166536	0.031693	5.254607	0.0005
ASSETS	-5.88E-11	1.79E-11	-3.289847	0.0094
C	-0.027507	0.894220	-0.030761	0.9761

Source: Author's Computation, 2025

Table 2.12: Panel Least Squares - Assets (Female-Lead Period 2017-2020)

Dependent Variable: ROA____ ROE____ EPS____
Method: Panel Least Squares
Date: 08/23/25   Time: 08:28
Sample: 2021 2024
Periods included: 4
Cross-sections included: 4
Total panel (balanced) observations: 16

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CEO (gender)	0.063948	0.033223	1.924846	0.0004
ASSETS	8.34E-11	7.12E-11	1.172339	0.0002
C	0.201102	0.542533	0.370673	0.7195

Source: Author's Computation, 2025

In summary, the panel regression results demonstrate that CEO gender significantly influences financial performance across all measures (ROA, ROE and EPS). Moreover, bank size moderates this relationship differently across leadership periods—dampening it during male-led regimes while amplifying it during female-led regimes.

DISCUSSION OF FINDINGS

The descriptive analysis revealed clear gender-related differences in performance outcomes. On average, banks under male leadership reported higher ROA, indicating greater efficiency in converting assets into profits. By contrast, female-led banks outperformed in ROE and EPS, suggesting that women CEOs contributed more significantly to shareholder value creation. This result is in agreement with Hoang et al. (2021) and Baselga-Pascual and Vähämaa (2021), who observed that banks led by female CEOs generally exhibit higher profitability and greater financial stability compared to those led by their male counterparts. It also agrees with Pena et al. (2021) who revealed that the presence of a female CEO had a significant positive effect on ROE but

differs from Tran et al. (2021), who observed that the presence of women in executive roles negatively impacted both accounting and market-based performance. Furthermore, the female-led period exhibited wider variability in EPS, suggesting more dynamic but also more volatile earnings growth. Thus, the shift from male to female CEOs was associated with improved shareholder profitability, even though overall asset efficiency was slightly higher under male leadership. This finding is consistent with Bouteska and Mili (2022), who observed that female executives improved profitability (ROA and ROE) and market to book ratios. It also aligns with the Upper Echelons Theory (Hambrick & Mason, 1984), which posits that executive characteristics—such as gender—shape strategic choices and performance outcomes.

Correlation analysis highlighted distinct leadership effects on the relationship between bank size and performance. During male-led periods, profitability indicators were strongly associated with each other, but bank size showed negative correlations with ROA, ROE and EPS. This suggests that scale expansion under male leadership was not efficiently translated into profitability. During female-led periods, profitability indicators were also strongly associated with each other. Similarly, bank size correlated positively with profitability, particularly ROA, implying that female CEOs were more effective in leveraging organizational resources to drive performance. This resonates with Jamil et al. (2023) and Nur and Sianturi (2024), who found that female executives often adopt resource-optimization strategies, leading to stronger efficiency outcomes. Nevertheless, in terms of direct financial performance, the male-led period outperformed in ROA, while in terms of ROE and EPS, the female-led period showed greater strength. However, Odeur's (2025) findings revealed that having a female CEO was a strong and consistent predictor of improved performance, but he observed marginal significance in ROA and ROE.

Panel regression results further highlighted these differences. For the male-led period, CEO leadership had a strong, positive and statistically significant effect on all three financial performance indicators, while asset size negatively influenced outcomes. Conversely, under female leadership, the direct impact of CEO gender was weaker and statistically insignificant, but bank size emerged as a significant positive driver of ROA, ROE and EPS, suggesting that while male leadership exerted a direct impact on profitability, female leadership operated more indirectly, enhancing organizational systems and efficiency. This aligns with the Lehman Sisters Hypothesis, which argues that women in executive roles adopt more prudent, risk-averse and efficiency-driven management styles (Shukla et al., 2021; Oyidih, 2023; Ben & Ayadi, 2025).

Overall, the findings indicate that gender differences in leadership do not translate into a simple superiority of one gender over the other. Rather, they reflect distinct strategic orientations: male CEOs appear to deliver higher asset-driven efficiency in the short run, while female CEOs excel in enhancing shareholder value and leveraging organizational scale for sustainable growth (Bruder et al. 2025). These results are consistent with the propositions of Upper Echelons Theory and offer partial support for the "Lehman Sisters Hypothesis," which suggests that female leaders adopt more prudent, sustainability-oriented approaches to corporate performance. However, Hernández-Nicolás et al. (2022) claimed that companies managed by women were less profitable.

CONCLUSION AND RECOMMENDATIONS

This study set out to examine the impact of CEO gender on the financial performance of Nigerian commercial banks, with a specific focus on return on assets (ROA), return on equity (ROE), and earnings per share (EPS) across two leadership phases. The findings are summarized in line with the three hypotheses as follows:

CEO Gender and Return on Assets (ROA)**:** The analysis revealed that male-led banks recorded a slightly higher average ROA compared to female-led banks, indicating stronger efficiency in asset utilization. However, the difference was not substantial, suggesting that while gender influences asset profitability, both male and female CEOs are capable of achieving competitive returns from asset deployment.

CEO Gender and Return on Equity (ROE)**:** Results showed that female-led banks outperformed male-led banks in terms of ROE, highlighting greater effectiveness in generating shareholder returns. This finding supports the proposition that female leadership emphasizes prudent resource allocation and sustainable value creation, aligning with aspects of the Lehman Sisters Hypothesis. CEO Gender and Earnings per Share (EPS)**:** The study found a marked difference in EPS between the two leadership periods, with female-led banks more than doubling average EPS compared to male-led banks. This suggests that female CEOs were more effective in driving earnings growth and enhancing shareholder wealth.

In conclusion, the study establishes that CEO gender significantly influences financial performance in Nigerian banks, but the effects vary across performance dimensions: male CEOs demonstrated stronger asset-based efficiency (ROA), whereas female CEOs delivered superior shareholder-focused outcomes (ROE and EPS).
Based on the findings, the following recommendations are proposed:

1. Enhancing Asset Utilization (ROA)
    Since male-led banks showed slightly higher efficiency in generating ROA, female-led banks can adopt strategies that strengthen asset productivity. Regulators and boards should provide female CEOs with greater access to advanced risk management tools and technological innovations that improve asset deployment. This will help close the small efficiency gap in ROA while maintaining their strengths in other areas.
2. Strengthening Shareholder Returns (ROE)
    Female-led banks demonstrated superior performance in ROE, indicating their strength in maximizing shareholder value. Boards should therefore encourage policies that support more women in executive leadership, particularly in roles tied to capital management and resource allocation. Incentive structures should also reward sustainable equity growth strategies, reinforcing practices that have proven effective under female leadership.

3. Maximizing Earnings Growth (EPS)
   Given that EPS more than doubled under female leadership, banks should integrate female executives more deliberately into decision-making positions that directly influence profitability and earnings distribution. Policymakers, investors, and shareholders should also recognize this trend and actively promote gender diversity at the top, as it aligns with stronger earnings performance and long-term wealth creation.

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