

The Impact of Board Diversity on Financial Performance: Firm-Level Evidence in Nigeria

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Abstract

Purpose: The study aims to investigate whether specific dimensions of board diversity enhance firm performance.

Method: Panel data from the period of 2015 and 2022, covering 20 listed firms, were analyzed using both OLS and Fixed Effects techniques. Board diversity variables included the proportion of female directors, board members with PhDs, and foreign directors. Control variables included firm age, leverage, asset size, CSR experience, and board size. Two measures of financial performance were used: return on assets (ROA) and return on equity (ROE).

Results: The results indicate that the female board has a positive but insignificant effect on ROA and a negative, though also insignificant, effect on ROE. PhD board members show a negative effect on ROA and a weak positive effect on ROE. Foreign board members exhibit mixed effects, positively influencing ROE but negatively associated with ROA, with both insignificant. The Fixed Effects results confirm these patterns, with all board diversity variables showing insignificant impacts.

Implications: The findings suggest that while board diversity is a socially valuable governance goal, its financial impact may be limited or context-specific in Nigeria's industrial and commercial sectors. Regulators and policymakers are encouraged to mandate greater transparency in board composition disclosures, allowing stakeholders to better assess the strategic and symbolic value of board diversity.

Novelty: This study contributes to the limited empirical literature on corporate governance in sub-Saharan Africa. It provides robust, model-based evidence on how different dimensions of board composition interact with financial outcomes in the Nigerian context.

Keywords: board diversity; financial performance; corporate governance; stakeholder theory

Abstrak

Tujuan: Penelitian ini bertujuan untuk menyelidiki apakah dimensi spesifik dari keberagaman dewan direksi meningkatkan kinerja perusahaan.

Metode: Data panel dari periode 2015 dan 2022, yang mencakup 20 perusahaan tercatat, dianalisis menggunakan teknik OLS dan Efek Tetap. Variabel keberagaman dewan direksi meliputi proporsi direktur perempuan, anggota dewan dengan gelar Doktor, dan direktur asing. Variabel kontrol meliputi usia perusahaan, leverage, ukuran aset, pengalaman CSR, dan ukuran dewan direksi. Dua ukuran kinerja keuangan digunakan: laba atas aset (ROA) dan laba atas ekuitas (ROE).

Hasil: Hasil menunjukkan bahwa dewan direksi perempuan memiliki efek positif tetapi tidak signifikan terhadap ROA dan efek negatif, meskipun juga tidak

signifikan, terhadap ROE. Anggota dewan dengan gelar Doktor menunjukkan efek negatif terhadap ROA dan efek positif yang lemah terhadap ROE. Anggota dewan direksi asing menunjukkan efek campuran, yang memengaruhi ROE secara positif tetapi berasosiasi negatif dengan ROA, dengan keduanya tidak signifikan. Hasil Efek Tetap mengonfirmasi pola ini, dengan semua variabel keberagaman dewan menunjukkan dampak yang tidak signifikan.

Implikasi: Temuan ini menunjukkan bahwa meskipun keberagaman dewan direksi merupakan tujuan tata kelola yang bernilai sosial, dampak finansialnya mungkin terbatas atau spesifik konteks di sektor industri dan komersial Nigeria. Regulator dan pembuat kebijakan didorong untuk mewajibkan transparansi yang lebih besar dalam pengungkapan komposisi dewan direksi, yang memungkinkan para pemangku kepentingan untuk menilai nilai strategis dan simbolis dari keberagaman dewan direksi dengan lebih baik.

Kebaruan: Studi ini berkontribusi pada literatur empiris yang terbatas tentang tata kelola perusahaan di Afrika Sub-Sahara. Studi ini memberikan bukti yang kuat berbasis model tentang bagaimana berbagai dimensi komposisi dewan direksi berinteraksi dengan hasil keuangan dalam konteks Nigeria.

Kata kunci: keberagaman dewan direksi; kinerja keuangan; tata kelola Perusahaan; teori pemangku kepentingan

INTRODUCTION

The diversity and makeup of the board has become a significant corporate governance concern for investors, managers, and directors of medium-sized and larger companies in recent years (Adams, 2015; Hosny & Elgharbawy, 2021). The distinctions in the makeup and composition of a board of directors within an organization are referred to as board diversity. Board diversity has become a front-line topic in corporate governance discussions. The nexus between a well-diversed board and organizational performance has a long history in existing literatures (Cabeza-García et al., 2017; Khan et al., 2019; Ahmed et al., 2024). Because investors and institutional investors have recommended increasing board diversity, it has garnered public attention and is being discussed continuously in literatures (Gordini & Rancati, 2017). Board diversity empowers firms to make richer decisions because it gives a voice to board peculiarities. Board diversity upholds the independence of the board and improves the quality of decision-making by including the perspectives of underrepresented groups (Cook & Glass et al., 2016; Hosny & Elgharbawy, 2021).

Board diversity is an active attempt to lessen discrimination and advance equality and fairness in public affairs, and it may be supported for ethical, political, environmental, social, or economic reasons (Hosny & Elgharbawy, 2021; Rivas, 2012; Ahmed et al., 2024). With recent attention shifting towards nationality, gender and educational diversities (Gordini & Rancati, 2017; Hosny & Elgharbawy, 2021; Reguera-Alvarado et al., 2015; Ahmed et al., 2024; Harjoto et al., 2019). In the Nigerian context, regulatory bodies such as the Nigerian Securities and Exchange Commission (SEC) and the Financial Reporting Council (FRC) have incorporated board diversity principles into their codes of corporate governance, most notably through the 2018 Nigerian Code of Corporate

Governance, which encourages the inclusion of women and professionals with diverse skillsets in corporate boards (SEC, 2018; Adegbite & Nakpodia, 2020; Jelil *et al.*, 2019). Nonetheless, actual boardroom diversity across Nigeria's firms remains modest, especially in industrial and consumer sectors, where gender and academic diversity are still limited (Abiola & Akinyele, 2023).

Several committees have investigated a series of governance risk and failure cases. These committees submitted reports of their findings with different lapses pointing at governance structures and board composition. Corporate governance structure has been put into focus, and in like manner, more attention has shifted to board composition (Jelil *et al.*, 2019). One of the reasons for Enron's corporate failure was traced to poor governance structure and board composition. This was possible because people charged with governance neglected their agency responsibility, allowing particular employees to profit from the higher shareholder investments. They transferred their liabilities to subsidiaries that they neglect to consolidate, inflating carrying amounts to bolster their balance sheet.

The case of Cadbury Nigeria Plc. serves as a significant example of corporate governance failures in Nigeria, highlighting the challenges of poor governance structures and ineffective board composition. The issue came to light when overstatements in the company's financial accounts were identified, marking a turning point in Nigeria's recognition of corporate governance issues. On September 22, 2006, the Nigerian Securities and Exchange Commission (SEC) raised concerns about several critical aspects of Cadbury Nigeria's operations. Among the problems highlighted were falling profitability, rising leverage ratios, decreasing cash flow, inadequate disclosures, breaches of the corporate governance code, and the use of loans to pay dividends to shareholders, which violated SEC regulations.

The gravity of these governance lapses was further confirmed by an independent audit and a report by the SEC committee, presented during its March 27–28, 2009 meetings. This report revealed that Cadbury Nigeria Plc. had overstated its profits by approximately 13 billion naira between 2003 and September 30, 2006. The case exposed deep-rooted governance weaknesses within the company, underscoring the broader implications of corporate governance failures in the Nigerian business environment. The Cadbury scandal thus became a landmark case, prompting greater attention to corporate governance reforms in Nigeria. In a similar vein, the Central Bank of Nigeria (CBN) identified governance failures as a key factor contributing to the near-collapse of Skye Bank in 2016 and its eventual failure in 2018, as detailed in a press release dated September 21, 2018. Governance lapses at the bank led to the resignation of its chairman and all non-executive directors in 2016. Two years later, another wave of resignations followed, this time involving the bank's

executives. This culminated in the CBN revoking Skye Bank's operating license in 2018 and creating a bridge bank, now known as Polaris Bank.

Skye Bank's governance issues were rooted in poor risk management, particularly its disbursement of risky and non-performing loans, which the bank failed to write off. Instead, these loans were recorded as assets, artificially inflating the bank's stock price without a corresponding increase in actual asset value. This misrepresentation not only contributed to the bank's downfall but also raised broader concerns about the investment climate in Nigeria. Such incidents, if not properly addressed, could further damage investor confidence, portraying Nigeria as a risky environment for investment. This in turn could lead to investor apathy, adversely affecting market capitalization and hindering overall economic growth. Most studies so far in the literature have focused on diversity and financial performance (Conyon & He, 2017; Dezso & Ross, 2012; Darmadi, 2011; Srinidhi et al., 2011; Campbell & Mínguez-Vera, 2008; Reguera-Alvarado, 2015).

This study uses stakeholder theory to examine the impact of board diversity on financial performance. The theory tends to take into consideration peculiarities of minority representation in the boardroom (DeHaas & Spruell, 2015). Emerging evidence increasingly questions the universal validity of stakeholder theory assumptions in diverse institutional settings such as Nigeria. Some studies in emerging markets suggest that increased gender or academic diversity may not immediately translate to enhanced firm performance due to tokenism, lack of empowerment, or prevailing patriarchal norms (Okoyeuzu et al., 2023; Zattoni et al., 2022). These findings challenge the stakeholder theory's optimistic assumptions about inclusivity by showing that diversity does not always yield improved financial outcomes unless matched with enabling institutional frameworks.

This study aims to empirically assess whether gender, nationality, and educational diversity on boards significantly influence financial performance among listed Nigerian firms. Building upon recent studies that link board heterogeneity to firm-level financial and strategic outcomes (Adegbite & Nakpodia, 2020; Ahmed et al., 2024; Abiola & Akinyele, 2023; Lee et al., 2021), this research adopts an evidence-based approach to examine whether board diversity dimensions serve as predictors of firm profitability within Nigeria's evolving corporate governance framework. The findings show that female board representation has an insignificant negative effect on return on equity and return on assets (García-Sánchez et al., 2019). Board members with PhDs show an insignificant positive impact on return on equity and a negative impact on return on assets. We offer that authorities should ensure that more disclosures are made on board characteristics in annual returns. The following is how the other sections are presented: Section 2 is the method; Section 3 presents the result and Section 4 conclusions.

Miller and Triana (2009) conducted an international study on the topic of demographic diversity in boardrooms. They used data from 500 publicly traded Fortune 500 corporations that were in operation between 2002 and 2005. The study makes the assumption that business innovation is positively correlated with both board gender diversity and board racial diversity. The results show that racial and gender diversity on the board have a positive relationship with creativity (measured in R&D spending), which lends credence to the value of diversity concept. Additionally, it demonstrated support for innovation acting as a moderator between company success and board racial diversity.

The relationship between board of director diversity and firm financial performance was also explored by Erhardt (2003), who used data from 127 large US firms to examine financial performance between 1993 and 1998. The study posited that increased demographic diversity among board members improves organizational performance, and fortunately, the results of the study supported the hypothesis that the diversity of the executive board of directors was positively associated with both return on investment and return on assets. In other words, diversity within the board of directors appears to have an impact on overall organizational performance. Srinidhi et al. (2011) analyzed the relationship between female board directors and earnings quality using data from Corporate Library's Board Analyst and US(IRRC) databases between 2001 and 2007. Through probit regression analysis, they found that firms with higher female board participation tend to have better earnings quality. Dezso and Ross (2012) conducted a panel data study on S&P US 1,500 firms over 15 years to assess the impact of female representation in top management on firm performance. Their panel regression results suggested that female representation positively affects firm performance, particularly when a firm's strategy is innovation-focused.

Canyon and He (2017) used information from 3000 US enterprises between 2007 and 2014 to study the relationship between boardroom gender diversity and firm performance. According to the study, high-performing organizations experience a much greater beneficial impact on firm performance from board gender diversity than do low-performing firms. The study's findings, which were based on quantile regression estimates, indicate that gender diversity in the boardroom affects both the conditional mean and the firm performance dispersion. Quantile regression also contributes to the empirical analysis of the effect of board gender diversity on performance.

Another country-specific study in Europe by Campbell and Mínguez-Vera (2008) also joined the debate to investigate Gender Diversity in the Boardroom and Firm Financial Performance in Spanish companies. Using the data provided by data a sample that comprises 68 companies and 408 observations. The study aimed to ascertain the type of link that exists between female board membership and business value by estimating two distinct models. Two-stage least squares

(2SLS) are used for panel data estimation. A positive correlation between gender diversity and company value has been established, while the inverse causal link is not statistically significant. It was also indicated that more gender diversity may lead to economic gains and that investors in Spain do not penalize companies that increase the number of women on their boards.

Reguera-Alvarado et al. (2015) asked further questions of how board gender diversity influences financial performance analyzing data samples of 125 nonfinancial companies listed on the Madrid Stock Exchange for a period between 2005 and 2009 accounting year. Through the application of two-stage instrumental variables (IV) regression, it was found that there is a positive correlation between the number of women on boards and improved economic outcomes. Furthermore, in another country-specific study in Korea. There are a number of other country-specific studies in Africa that found no significant relationship between board diversity and performance (Issa et al., 2021; Othuon et al., 2023; Tornyeva & Wereko 2012; Kang et al., 2019).

Carter et al. (2010) considered gender and ethnic diversity of US boards and board committees and firm financial performance, using data from S and P 500 index for the five-year period between 1998 and 2002. This study hypothesizes no correlation between a company's financial performance and the proportion of women on its board. However, the 3SLS regressions result, points to no meaningful connection between financial performance and the gender and ethnic diversity of the board or key committees. This result is consistent with a country-specific study, in Kenya by (Africa). The study considered the effect of board gender diversity on the performance of commercial banks in Kenya. The result of the stepwise regression model pointed out that board diversity has no effect on the performance of banks in Kenya. There are a number of other country-specific studies in Africa that found no significant relationship between board diversity and performance.

Hypothesis: Board diversity has a significant positive effect on the financial performance of listed industrial and commercial goods firms in Nigeria

Based on the Figure 1 depicts the conceptual diagram illustrating the theoretical framework and estimation model. The conceptual framework visually maps how board diversity dimensions, including gender (FemBoard), international representation (ForBoard), and educational qualifications (PhdBoard), such as the influence firm financial performance (FP) directly and indirectly via CSR expenditures (CSRexp). Control variables such as leverage, firm age, firm size, and board size are integrated to isolate the net effects of board attributes. Moderation pathways (dotted lines) show how CSR mediates or amplifies the performance impact of diverse board traits. The model illustrates that diversity is not just an ethical or representational concern but a strategic

variable affecting organizational value, consistent with stakeholder theory and the corporate governance-performance nexus discussed in recent literature (Terjesen et al., 2020; Buallay, 2020; Younas & Rehman, 2023).

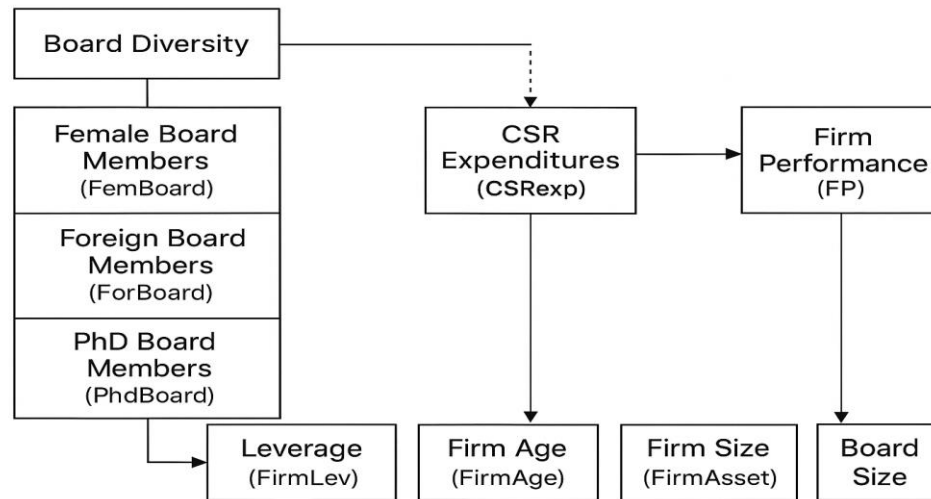


Figure 1: Conceptual diagram illustrating the models relationship
Source: Processed Data (2025)

METHOD

This study uses stakeholder theory in examining theoretically the impact of board diversity on financial performance. Stakeholder theory tends to take into consideration peculiarities of minority representation in the boardroom. The stakeholder theory recommends that the firm should mirror the interests of all stakeholder groups and not just the shareholders or investors. Those stakeholders other than investors add to the creation of significant value to the business. Accordingly, diversity in board composition and characteristics is a way to consider the interests of directors alongside other stakeholder groups that are important to taking decisions that affect CSR and the financial performance of firms. The Pooled regression model estimates can be specified as:

$$FP = \alpha + \beta_1 FemBoard + \beta_2 ForBoard + \beta_3 PhdBoard + \beta_4 CSRexp + \beta_5 FirmLev + \beta_6 BoardSize + \beta_7 FirmAge + \beta_8 FirmAsset + \varepsilon_{it} \quad (1)$$

Where α captures the intercept, which is assumed to be constant over time and across sections. β captures the slope coefficient, while ε_{it} measures the residual component of the series.

The choice of explanatory and control variables is informed by a growing body of empirical literature that explores how board-level heterogeneity affects firm outcomes. For instance, female board representation (FemBoard) has been shown to correlate with long-term firm performance through enhanced decision-making quality and stakeholder engagement (Terjesen et al., 2020). Foreign board

membership (ForBoard) captures international exposure and cognitive diversity, which has been linked to improved innovation and governance effectiveness (Nguyen et al., 2021). PhD qualifications (PhdBoard) reflect intellectual capital, which can shape boardroom strategic direction, although their impact remains mixed (Liu et al., 2022).

The dependent variable (FP) measures firms' financial performance using Return on Assets (ROA) and Return on Equity (ROE). CSRexp measures firms' Corporate Social Responsibility expenditures. FemBoard measures the number of female members on the board, ForBoard the number of foreigners, and PhdBoard the number of board members holding PhDs. FirmLev measures firms' leverage; BoardSize measures the number of directors on the board; FirmAge is the number of years since incorporation; FirmAsset is the natural logarithm of total assets. Interaction terms such as FemBoardm, ForBoardm, and PhdBoardm are included to capture the distinct moderating effects of CSR on the relationship between board diversity dimensions and financial performance.

These control variables are standard in the literature on board diversity and firm performance, helping to address issues of model misspecification and omitted variable bias (Buallay, 2020). Board size (BoardSize) is included, as larger boards are often more diverse and associated with improved firm governance outcomes (Conyon & He 2017). Larger boards allow for a broader range of perspectives, which can translate into better performance. Leverage (FirmLev) is also controlled for, as firms with high financial risk may engage in CSR to legitimize their operations and maintain stakeholder trust (Jitmaneeroj, 2021). Leverage is measured as the ratio of total liabilities to total equity.

FirmAsset, measured as the log of total assets, controls for firm size, which influences both CSR engagement and financial outcomes. Larger firms tend to have more visibility and pressure to behave responsibly (Yousaf & Ahsan, 2022). FirmAge is included because older firms are more established and potentially more invested in long-term stakeholder relationships. This study employs both pooled OLS and fixed-effects (FE) panel regression techniques. The fixed-effects model is particularly useful in controlling for unobserved time-invariant heterogeneity across firms, such as sectoral characteristics or corporate culture, that could bias the estimated relationships. By differencing out firm-specific fixed effects, this approach mitigates the omitted variable bias associated with time-invariant confounders.

The fixed-effects estimator is preferred over random effects when the unobserved effects are correlated with the regressors, as is often the case in corporate governance studies. This study conducted the Hausman specification test and found that the fixed-effects model is more appropriate, suggesting that firm-level unobservables are correlated with board composition and CSR behavior (Younas & Rehman, 2023). Endogeneity concerns are partly addressed

by using lagged independent variables and robust standard errors, which account for potential autocorrelation and heteroskedasticity.

To examine the effect of diversity on firms' financial performance, the study employed the Pooled Least Squares, fixed effects, and random effects methods. The estimator is simply the kind of OLS that is applied to panel data. It is adopted because it seeks to restrict the influence of inalienable stochasticity on the regressand to provide evaluations of relational parameters that represent the information being watched as reliable and accurate. This study relies on twenty (20) listed firms under the consumer and industrial goods categories of the Nigeria Stock Exchange. The choice of these sectors was informed by data availability and moreover, they represent the most sensitive sectors to the economic cycle, as they produce goods that are consumed by households, manufacturing businesses, and construction. Data were drawn from annual audited reports published between the period of 2015 and 2022 (using a panel data language, $N = 20$, $T = 5$) and firms without consistent annual reports were eliminated to support consistency.

RESULTS AND DISCUSSIONS

Discriptive Statistics and Correlations

Table 1 contains a summary report for the descriptive statistics of all variables considered in this study. The average percentage return on asset, which is a measure for the dependent variable is 5.5% (median is 5.1%), where the minimum return on asset stood at -6% and the maximum return on asset is 23.2%. Return on equity in study is used as a measure of dependent variable, it has a percentage average return of 10.5% (median is 10.3%), when the minimum return on equity stood at -22% and maximum return on equity is 40%, which depicts that there is 40% returns for equity holders and at the same time there is a risk percentage of -22% to equity holders. CSR expenditures is another measure of the dependent variable, with an average expenditure of 134 million naira (median is 13.887 million naira), when the minimum CSR expenditures stood at 0.633million naira while the maximum CSR expenditures is 993 million naira. Female representation on the board is a measure for the independent variable.

The average female representation on the board is 2.4% of board members (with a median of 2 persons), where the lowest representation stood at 1 female per board, and the maximum representation was 5 females. Foreign nationals on the board are another measure of the independent variable. The average representation of 4.5 persons per board (with a median of 5 persons), when the least representation stood at 1 foreigner per boardroom, and the maximum representation of 8 persons. PhD holders on the board are also a measure of the independent variable.

Table 1. Descriptive Analysis

Variables	Mean	Median	Maximum	Minimum
ROA	0.055	0.051	0.232	-0.060
ROE	0.105	0.103	0.400	-0.220
FEMBOARD	2.433	2.000	5.000	1.000
FORBOARD	4.533	5.000	8.000	1.000
PHDBOARD	1.300	1.000	3.000	1.000
CSREXP	134.000	13.888	993.000	0.633
FIRMLEV	1.380	1.260	3.710	0.240
BOARDSIZE	13.200	14.000	18.000	7.000
FIRMAGE	53.600	56.500	72.000	14.000
FIRMASSET	197.000	130.000	578.000	2.250

Source: Processed Data (2024)

The Table shows an average of 1.3 people with a PhD on the board (with a median of 1 person), when the minimum is 1 person, and the maximum is 3 PhD holders in a boardroom. Firm leverage is a measure of control variables. The average leverage is 1.38, when the minimum leverage stood at 24% and the maximum is 375% leverage. Board size is a measure of control variables. The average number of board members is 13.2 persons (with a median of 14 persons), when the minimum board size is 7 persons and a maximum of 18 persons. Firm age is a measure of control variables. The average firm age is 53.6 years (with a median of 56.5 years), when the minimum age is 14years and the maximum age is 72 years. The average firm asset is 197 billion naira, when the least firm asset is 2.250 billion naira, and the maximum is 578 billion naira.

Table 2. Correlations

Variables	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
ROA (1)	1.00	0.16	0.03	0.07	0.07	-0.2	-0.03	0.05	-0.26	0.28
ROE (2)	0.16	1.00	0.17	0.03	0.05	0.0	0.72	0.15	0.08	0.01
FEMBOARD (3)	0.03	0.17	1.00	0.29	0.06	0.6	0.21	0.42	0.27	0.42
FORBOARD (4)	0.07	0.03	0.29	1.00	0.25	0.3	0.07	0.77	0.09	0.63
PHDBOARD (5)	0.07	0.05	0.06	0.25	1.00	0.0	0.02	0.41	0.08	0.23
CSREXP (6)	0.20	0.01	0.60	0.38	0.08	1.0	0.13	0.49	0.10	0.73
FIRMLEV (7)	0.03	0.72	0.21	0.07	0.02	0.1	1.00	0.14	0.02	0.15
BOARDSIZE (8)	0.05	0.15	0.42	0.77	0.41	0.4	0.14	1.00	0.10	0.71
FIRMAGE (9)	0.26	0.08	0.27	0.09	0.08	0.1	0.02	0.10	1.00	0.02
FIRMASSET (10)	0.28	0.01	0.42	0.63	0.23	0.7	0.15	0.71	0.02	1.00

Source: Authors (2024)

Table 2 shows that return on assets has a weak positive relationship with return on equity, female on board, foreigner on board, CSR expenditures, board size, and total assets, with correlation coefficients 0.1595, 0.0332, 0.0682, 0.1990, 0.0496, and 0.2782, respectively. This depicts that an increase in return on assets will result in a corresponding increase in return on equity, female on board, foreigner on board, CSR expenditures, board size, total assets, and vice versa. Return on assets has a weak negative relationship with PhD holders on the board, firm's leverage, and firm's age, with correlation coefficients -0.0647, -0.0296, and -0.2575, respectively. This implies that an increase in return on assets will result in a decrease in PhD holders on the board, the firm's leverage, firm's age, and vice versa. The result shows a weak positive relationship between return on equity and CSR expenditures, with a correlation coefficient of 0.0133, which implies that an increase in return on equity will bring about an increase in CSR expenditures and vice versa. Equity has a weak negative relation with female on board, foreigner on board, PhD holders on the board, firm's leverage, board size, firm's age, and total asset with correlation coefficients -0.1703, -0.0309, -0.0530, -0.7215, 0.1537, -0.0816, -0.00958, respectively. This implies that an increase in return on equity result to decrease in female on board, foreigner on board, PhD holders on the board, leverage, board size", firm's age, total asset, and vice versa.

Result of Estimations

Table 3 shows that the model captures the impact of board diversity on financial performance using both return on assets (ROA) and return on equity (ROE) using OLS.

The estimation reveals some interesting details. First, the coefficient representing firm age is -0.00268**, representing that there is a negative significant (**p < 0.05) relationship between firm age and ROA. This may reflect the declining marginal returns associated with aging organizational structures, where bureaucratic rigidity and resistance to change can reduce operational efficiency (Ibrahim & Hanefah, 2021). Similar results have been observed in Malaysia and India, where older firms were found to be less adaptive to dynamic market shifts, leading to declining profitability over time (Nguyen et al., 2021). Second, the coefficient representing firm leverage is -0.0821***, representing that there is a negative significant (***p < 0.01) relationship between firm leverage and ROE. This finding is economically intuitive, as excessive reliance on debt financing increases financial risk and interest burdens, potentially eroding shareholder returns. Comparable studies in emerging markets such as Egypt and Indonesia have shown that high leverage is often associated with inefficient capital structures and earnings volatility.

Table 3. OLS Estimation of Board Diversity and Financial Performance

Variable	ROA	ROE
Forboard	-0.00172 (0.0148)	0.0273 (0.0269)
Femboard	0.00144 (0.0261)	-0.0333 (0.0474)
Phdboard	-0.0289 (0.0504)	0.0148 (0.0914)
Csrexp	0.00211 (0.0161)	0.0338 (0.0291)
Firmage	-0.00268** (0.00121)	-0.00137 (0.00219)
Firmlev	-0.00300 (0.00446)	-0.0821*** (0.00808)
Firmasset	0.0438** (0.0185)	0.0418 (0.0335)
Boardsize	-0.0121 (0.0111)	-0.0452** (0.0202)
Constant	-0.783** (0.328)	-0.843 (0.595)
R-squared	0.177	0.573

Source: Processed Data (2024)

Third, the coefficient representing firm assets is 0.0438**, indicating a positive significant (** $p < 0.05$) relationship between firm assets and ROA. This supports the resource-based view of the firm, which posits that firms with larger asset bases are better equipped to exploit economies of scale and operational efficiencies. Similar evidence was found in South African firms, where larger asset holdings were linked with higher productivity and profitability. Fourth, the coefficient representing board size is -0.0452**, representing a negative significant (** $p < 0.05$) relationship between board size and ROE. This finding supports the argument that overly large boards may hinder swift decision-making and dilute individual accountability. Evidence from EU countries also reveals a nonlinear effect of board size on firm performance, where optimal board effectiveness peaks at a moderate size (Eller et al., 2023). The R-squared values of 0.177 and 0.573 for ROA and ROE respectively, imply that the independent variables cumulatively explain approximately 17.7% and 57.3% of the variation in ROA and ROE.

Table 4 presents the fixed effect regression results. First, the coefficient representing firm age is -0.0504***, indicating a negative significant (*** $p < 0.01$) relationship between firm age and ROA. This stronger coefficient under fixed effects further reinforces the structural inefficiency hypothesis in mature firms, as seen in studies from Turkey and Pakistan, where aged firms underperform due to operational rigidity (García-Sánchez et al., 2021). Second, the coefficients representing firm leverage are -0.0143*** and -0.0839*** for ROA and ROE,

respectively, again confirming the negative significant (**p < 0.01) relationship between financial leverage and performance. These results echo broader international findings that aggressive debt financing strategies typically undermine firm value and constrain reinvestment capacity.

Table 4. Fixed Effect Model of Board Diversity on Financial Performance

Variable	ROA	ROE
Forboard	0.00470 (0.0272)	0.0169 (0.0568)
Femboard	-0.000295 (0.0323)	0.00785 (0.0673)
Phdboard	-0.00682 (0.0578)	-0.0330 (0.120)
Csrexp	-0.0168 (0.0196)	0.0103 (0.0409)
Firmage	-0.0504*** (0.0143)	0.0123 (0.0298)
Firmlev	-0.0143*** (0.00527)	-0.0839*** (0.0110)
Firmasset	0.351*** (0.0678)	-0.103 (0.141)
Boardsize	-0.0236 (0.0183)	0.00907 (0.0381)
Constant	-5.636*** (1.612)	1.926 (3.359)
R-squared	0.306	0.613

Source: Processed Data (2024)

Third, the coefficient representing firm assets is 0.351***, demonstrating a strong positive significant relationship with ROA. This large magnitude suggests a substantial asset utilization efficiency among Nigerian firms, which resonates with findings from Ghanaian and Kenyan studies where asset-rich firms exhibited superior performance metrics under competitive pressures. Table 4 also presents R-squared values of 0.306 for ROA and 0.613 for ROE, showing improved explanatory power under the fixed effects specification, accounting for firm-level heterogeneity.

The first result from the model is not in support of the hypothesis which states that board diversity has a significant positive effect on financial performance. Gender, nationality, and educational diversity have no significant relationship with financial performance. If diversity is measured in terms of the number of female board members and financial performance is measured using ROE, the result shows that female boardroom representation is negatively insignificant to both ROE and ROA. This result is consistent with studies from other developed and developing countries (Reguera-Alvarado et al., 2015), and is further confirmed by recent empirical studies from Morocco and Brazil, which suggest that symbolic gender inclusion - without real authority or influence -

does not impact firm value. This contrasts with more optimistic findings (Coyon & He, 2017; Dezsó & Ross, 2012; Srinidhi et al., 2011), and recent studies from Spain and Vietnam that found a positive link between gender diversity and ROA, particularly when female directors chair key board committees (Nguyen et al., 2020; García-Izquierdo et al., 2019).

The study also examined diversity in terms of foreign nationals represented on the board and their effect on financial performance. Foreign nationality boardroom representation is positively insignificant for ROE and negatively insignificant for ROA. This result aligns with previous studies in both developed and developing countries (Darmadi, 2011), and recent findings from Poland and Saudi Arabia, which show that cultural and institutional dissonance can limit the effectiveness of foreign directors in influencing local market outcomes. Other studies (Anazonwu et al., 2018) report contrasting outcomes, especially in firms with strong internationalization strategies.

Additionally, when diversity is measured in terms of PhD holders on the board, the result shows that having a PhD holder on the board is positively insignificant for ROE and negatively insignificant for ROA. This is consistent with evidence from Tunisia and Sri Lanka which suggest that academic expertise does not necessarily translate into effective strategic governance unless paired with industry-specific experience. The model reveals statistically significant relationships between firm age, firm leverage, firm asset size, and financial performance. Firm age and firm leverage are negatively significant to ROA, while only firm leverage is negatively significant to ROE. Firm assets consistently demonstrate a positive significant relationship with ROA.

Strengthen Disclosure Requirements on Board Composition: The statistically insignificant effect of gender, foreign representation, and educational diversity on financial performance suggests that symbolic diversity may not translate into measurable financial gains in the short term. Regulatory bodies such as the Nigerian SEC should therefore mandate more detailed and standardized disclosures on board demographics, professional experience, and competencies in annual reports. This will enhance transparency and allow stakeholders to assess the qualitative value of board diversity beyond surface-level metrics (Dhaliwal et al., 2012).

Rethink Quota-Based or Tokenistic Approaches: The lack of significant impact from female board representation (Femboard) and PhD-holding directors (Phdboard) implies that quota systems or token appointments may not be enough to improve firm performance. Policymakers should focus instead on ensuring that board diversity is strategically aligned with firm needs, offering training, mentorship, and leadership development programs to make diverse directors more effective contributors.

Promote Competency-Based Board Appointments: Given that firm performance appears to be more significantly influenced by operational characteristics, such as

firm size (positive ROA effect), firm age (negative ROA effect), and leverage (negative ROE effect) than by board demographics, regulators and corporate governance institutions should encourage competency-based selection frameworks for board appointments, ensuring a balance between diversity and value-adding expertise.

Integrate Board Diversity into Broader ESG Metrics: Since CSR experience (Csrexp) has a marginal and inconsistent effect across models, there is an opportunity for Nigerian firms and policymakers to integrate board diversity metrics within broader ESG (Environmental, Social, and Governance) reporting frameworks. Doing so may incentivize firms to internalize diversity as part of long-term strategic sustainability, rather than a compliance exercise.

CONCLUSIONS

The study examines the relationship between board diversity and financial performance, focusing on gender, foreign nationality, and educational background. It finds that female board representation has an insignificant negative effect on return on equity (ROE) and return on assets (ROA), consistent with studies from other countries (Adams & Ferreira, 2009; Reguera-Alvarado et al., 2015) but differing from others (Coyon & He, 2017; Dezso & Ross, 2012). Similarly, foreign board members have an insignificant positive effect on ROE and a negative effect on ROA, in line with previous findings (Darmadi, 2011), though some studies offer contrasting results. Board members with PhDs show an insignificant positive impact on ROE and a negative impact on ROA.

Based on this, the following recommendations were made necessary for policy improvement by regulators such as; Financial Reporting Council of Nigeria and Security and Exchange Commission. The following have been outlined for effective policy actions: First, the authorities should ensure that more disclosures are made on board characteristics in annual returns. Second, the authorities should ensure there is a more specific pronouncement that encourages social cohesion in the Nigerian Code of Governance. Lastly, we suggest that future research should explore how board processes, including inquiry, decision making, and social cohesion, affect performance. Studies can further explore the combined effect of other board characteristics, such as age and financial performance.

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