



MODERATING EFFECT OF INSTITUTIONAL OWNERSHIP ON THE RELATIONSHIP BETWEEN BOARD CHARACTERISTICS AND INTEGRATED REPORTING OF LISTED FINANCIAL FIRMS IN NIGERIA

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ABSTRACT

The transition from traditional financial reporting to integrated reporting remains inconsistent among listed financial firms in Nigeria, largely due to conflicting evidence on whether board characteristics drive transparency and whether institutional ownership moderates these relationships. This study examines the moderating effect of institutional ownership on the relationship between board characteristics (independence, gender diversity, and diligence) and integrated reporting of listed financial firms in Nigeria over the period 2014–2024. An ex post facto research design was adopted, with a population of 42 listed financial firms on the Nigerian Exchange Group. A filtering sampling technique yielded a final sample of 35 firms, providing 385 firm-year observations. Secondary data were collected from annual reports, sustainability reports, and corporate governance disclosures. Integrated reporting was measured using a disclosure index based on the International Integrated Reporting Council's eight content elements. Panel regression analysis with fixed effects was employed. The findings reveal that board independence ($\beta = 0.425$, $p = 0.035$) and board gender diversity ($\beta = 0.604$, $p < 0.001$) have positive and significant direct effects on integrated reporting, while board diligence is insignificant. Institutional ownership directly and positively influences IR ($\beta = 0.318$, $p = 0.003$). Regarding moderation, only the interaction between board gender diversity and institutional ownership is positive and significant ($\beta = 0.541$, $p < 0.001$); the moderating effects on board independence and diligence are insignificant. The study concludes that board independence and gender diversity enhance integrated reporting, and institutional ownership amplifies only the effect of gender diversity. Recommendations include increasing the proportion of female directors, strengthening independent director mandates, shifting focus from meeting frequency to meeting quality, and encouraging active institutional investment to leverage the synergy with gender-diverse boards for improved integrated reporting in Nigeria's financial sector.

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Introduction

The global corporate reporting landscape is undergoing a significant shift from traditional financial reporting to Integrated Reporting (IR), a framework that emphasizes the creation of sustainable value over time. Developed by the International Integrated Reporting Council, IR seeks to consolidate financial, environmental, social, and governance information into a single, coherent narrative that explains how an organization uses various capitals to generate value. This shift is driven by the increasing demands of global investors for greater transparency and a more holistic view of firm performance that extends beyond short-term profit metrics (Akanni et al., 2025).

In Nigeria, corporate reporting has historically been dominated by traditional financial frameworks, but there is a growing clarion call for the adoption of IR to address public outcries regarding environmental and social accountability (Ofoegbu et al., 2018). While emerging economies like South Africa have mandated IR frameworks, Nigeria is still in a transitional phase where regulatory bodies like the Securities and Exchange Commission are evaluating the implementation of more robust disclosure requirements. The challenge remains for Nigerian firms to move past simple sustainability or corporate social responsibility disclosures toward a fully integrated model that captures the complexity of their value creation processes.

The financial services sector stands at the forefront of this transition due to its critical role in the national economy and high level of regulatory oversight. In the Nigerian banking industry, studies have shown that adopting elements of integrated reporting can significantly influence corporate performance and shareholder trust. However, the level of adoption remains uneven, with many financial firms still providing standalone sustainability reports rather than fully integrated documents, highlighting the need to investigate the internal governance drivers that facilitate this transition (Akpan et al., 2022).

The board of directors serves as the primary internal governance mechanism responsible for setting the strategic direction of the firm, including the adoption of integrative reporting

frameworks. Board characteristics are pivotal in promoting ethical values and ensuring that stakeholders can exercise their rights to monitor the sustainability of their investments (Razaq et al., 2023). In Nigeria, diverse governance structures across listed firms influence how effectively a board can oversee the transition to IR, with larger boards often associated with better representation of stakeholder interests and enhanced monitoring capabilities (Akanni et al., 2025).

Board independence is a critical attribute that influences the adoption of high-quality reporting practices by reducing agency costs and management entrenchment (Erin et al., 2021). Independent directors, who are free from managerial influence, are more likely to advocate for transparent disclosures like IR to protect the interests of minority shareholders and enhance the firm's legitimacy (Erin et al., 2021). Furthermore, board gender diversity is increasingly recognized as a qualitative indicator that fosters a culture of transparency and ethical reporting. Research in Nigeria suggests that female directors are often more socially sensitive and less driven by short-term selfish agendas, which aligns with the long-term value creation focus of integrated reporting (Akanni et al., 2025; Erin et al., 2021).

Board diligence, typically proxied by the frequency of board meetings, reflects the level of activity and commitment the board applies to its monitoring functions (Erin et al., 2021; Razaq et al., 2023). Regular meetings allow directors to review non-financial performance metrics and deliberate on strategic shifts toward more integrated reporting models (Erin et al., 2021).

However, the efficacy of these board characteristics can be significantly influenced by the firm's ownership structure, particularly the presence of institutional investors. Institutional ownership represents a critical external monitoring mechanism, as these investors possess greater technical capacity to gather and interpret complex financial reports compared to individual shareholders (Farouk & Bashir, 2017).

The general problem lies in the persistent lack of transparency and the inability of existing

corporate governance frameworks to compel a holistic reporting culture, leading to information asymmetry between management and stakeholders in the financial services industry (Akpan et al., 2022). A significant knowledge and evidence gap exists due to the conflicting findings in extant literature regarding the influence of board characteristics on reporting quality. While some researchers argue that board independence and diversity are primary drivers of transparent disclosures (Erin et al., 2021), others have found that these characteristics do not significantly impact the quality of integrated reports in the Nigerian context (Akanni et al., 2025). This inconsistency suggests that board characteristics may not operate in a vacuum, indicating a need for further evidence on whether their effectiveness is contingent upon other organizational factors, particularly in the highly regulated financial sector.

There is a distinct population gap as most existing studies on integrated reporting and sustainability disclosures in Nigeria have focused predominantly on the manufacturing sector or a cross-section of non-financial firms (Akpan et al., 2022; Razaq et al., 2023). The financial sector, comprising banks and insurance companies is often excluded or under-represented despite its systemic importance and the high level of complexity in its value-creation processes. Consequently, there is limited understanding of how governance mechanisms specifically influence IR adoption within these institutional frameworks, which are subject to different regulatory pressures than the real sector.

An area of study gap is identified in the lack of depth regarding the Nigerian financial landscape's specific governance dynamics. While comparative studies have examined board characteristics and IR quality between South Africa and Nigeria, these often highlight the superiority of the South African mandatory framework while overlooking the nuanced, localized factors that hinder or facilitate adoption within Nigeria's unique financial market (Akanni et al., 2025; Ofoegbu et al., 2018). There is a pressing need for a study that isolates the Nigerian financial sector to provide targeted insights into its domestic reporting challenges.

From a methodological perspective, many studies in this field rely on simple linear regression models to analyze the direct relationship between governance and reporting (Akanni et al., 2025). There is a notable methodological gap in the use of interaction or moderation models that account for the complexities of ownership structures (Liman & Abubakar, 2025). By failing to incorporate moderating variables like institutional ownership, previous research may have oversimplified the governance-reporting nexus, missing the critical "how" and "when" these board attributes become effective.

In summary, this study addresses these multifaceted gaps by investigating the moderating effect of institutional ownership on the relationship between board attributes and IR adoption. By focusing specifically on the population of listed financial firms and utilizing a more robust methodological framework, the research aims to resolve the evidence conflicts and provide a more comprehensive theoretical and practical roadmap for enhancing corporate transparency in Nigeria. This approach is vital for ensuring that governance mechanisms are not just symbolic but functional tools for sustainable value communication.

The main objective of this study is to examine the moderating effect of institutional ownership on the relationship between board characteristics and integrated reporting of listed financial firms in Nigeria. The specific objectives of this study are to;

- i. Ascertain the effect of board independence on integrated reporting of listed financial firms in Nigeria.
- ii. Determine the effect of board gender diversity on integrated reporting of listed financial firms in Nigeria.
- iii. Examine the effect of board diligence on integrated reporting of listed financial firms in Nigeria.
- iv. Investigate the moderating effect of institutional ownership on the relationship between board independence and integrated reporting of listed financial firms in Nigeria.
- v. Identify the effect of institutional ownership as a moderator on the relationship between board gender

- diversity and integrated reporting of listed financial firms in Nigeria.
- vi. Assess the moderating effect of institutional ownership on the relationship between board diligence and integrated reporting of listed financial firms in Nigeria.

2. Literature Review

Integrated Reporting

Integrated Reporting is a holistic corporate reporting framework designed to provide a comprehensive view of how an organization creates, preserves, or erodes value over time. Developed by the International Integrated Reporting Council, IR goes beyond traditional financial reporting by merging financial and non-financial data into a single, coherent narrative. Its primary goal is to foster integrated thinking within an organization, ensuring that the relationships between various operating units and the capitals they utilize are actively considered in strategic decision-making (Akanni et al., 2025).

Board Characteristics

Board characteristics refer to the internal governance attributes that define the composition, structure, and functional behavior of a company's board of directors. These traits are essential for overseeing the strategic direction of the firm and ensuring that management acts in the best interest of stakeholders while maintaining ethical standards (Akanni et al., 2025; Razaq et al., 2023).

Board Independence

Board independence refers to a critical corporate governance attribute where the board of directors is composed of a significant proportion of non-executive members who are free from any business or other relationship with the management. These directors are expected to provide an objective and unbiased oversight role, ensuring that the interests of shareholders and other stakeholders are protected against managerial opportunism (Adigwe & Ogoun, 2018; Subair et al., 2020).

Board Gender Diversity

Board gender diversity refers to the inclusion of female directors on a company's board, a characteristic that is increasingly recognized as a vital component of effective corporate governance. In the Nigerian corporate landscape, gender diversity is viewed as a qualitative attribute that enhances the board's monitoring capabilities by bringing a broader range of perspectives and professional expertise to the decision-making process (Akanni et al., 2025; Erin et al., 2021).

Board Diligence

Board diligence is defined as the level of activity, effort, and commitment that a board of directors invests in its monitoring and oversight roles. In empirical corporate governance research, this attribute is primarily indexed by the frequency of board meetings held during a financial year. A higher number of meetings is generally interpreted as a signal of more intensive monitoring and discipline over the financial reporting process (Egbunike et al., 2021; Subair et al., 2020).

Institutional Ownership

Institutional ownership refers to the proportion of a company's shares held by large organizations such as pension funds, insurance companies, mutual funds, and investment banks. Unlike individual retail investors, these institutions are characterized as sophisticated stakeholders who possess the technical resources, professional expertise, and financial capacity required to gather and analyze complex corporate data (Farouk & Bashir, 2017; Liman & Abubakar, 2025).

2. Empirical Review

Board Independence and Integrated Reporting

Akanni et al (2025) conducted a study on board characteristics and integrated reporting quality in Nigeria and South African Manufacturing Firms. The study utilized a longitudinal research design covering the period 2012 to 2021. The population consisted of 71 manufacturing firms in Nigeria and 62 in South Africa. The sample size was 30 firms,

selected using a purposive sampling technique to ensure the availability of complete annual reports. The technique of data analysis was multiple regression. The findings revealed that board independence exerts a significant positive effect on integrated reporting quality in Nigeria.

Yahaya (2025) carried out a study on sustainability reporting quality in the face of the board of directors. The study investigated Nigerian publicly traded companies. The study covered the period 2009 to 2023. The population included all listed firms on the Nigerian Exchange, with a sample size of 17 firms across various industries. The study employed a purposive sampling technique and used fixed effects regression model for the technique of data analysis. The findings indicated that board independence significantly enhances sustainability reporting quality.

Razaq et al. (2023) assessed the effect of corporate governance mechanisms on sustainability reporting practices of listed non-financial firms in Nigeria for the periods of 2012–2021. The population was listed non-financial firms, and the sample size was 50 firms. The sampling technique was purposive. The technique of data analysis was panel regression. The findings showed that board independence had an insignificant relationship with sustainability reporting.

Makri et al. (2023) examined board characteristics and integrated reporting in an emerging market: evidence from India. The study covered the years 2017–2018 to 2019–2020. The population was the BSE 500 index, with a sample size of 197 firms. The sampling technique was purposive, selecting firms from the index with consistent data. The technique of data analysis was two-stage least squares regression. The findings showed that board independence has a positive and significant influence on IR Quality.

Board Gender Diversity and Integrated Reporting

Devarapalli and Mohapatra (2024) examined the impact of corporate governance characteristics on integrated reporting quality in India. The study utilized a population of

listed firms on the Indian stock exchange. The sample size was 197 firms. The technique of data analysis was multiple regression. The findings demonstrated that board gender diversity and board independence have a positive and significant impact on integrated reporting quality.

Fasan and Mio (2024) conducted a study on board diversity and integrated reporting. The study involved a large-scale analysis of firms adopting IR. The findings indicated that IR quality is negatively associated with board gender diversity. Ojali et al. (2023) conducted a study on audit committee characteristics and audit delay among Nigerian Oil and Gas Companies. The sampling technique was purposive. The technique of data analysis was regression analysis. The findings established that board gender diversity significantly and positively affects audit timeliness, reducing delays that often hinder the effective communication of integrated reports.

Girella et al. (2021) examined the drivers of integrated reporting. It utilized an international panel of firms. The sampling technique was purposive. The findings did not observe a significant link between gender diversity and IR adoption. Aifuwa et al. (2020) assessed the effect of audit committee attributes on timeliness of corporate financial reporting in Nigeria. The study covered the period 2012 to 2017. The population included all listed firms on the Nigerian Stock Exchange, with a sample size of 85 companies. The sampling technique was purposive. The technique of data analysis was panel regression. The findings indicated that board gender diversity has a significant and positive impact on the timeliness of financial reporting.

Board Diligence and Integrated Reporting

Asiriwa et al. (2021) examined whether board characteristics affect financial reporting timeliness. The study focused on the Nigerian financial sector. The sample size was 92 firms selected using purposive sampling. The technique of data analysis was regression. The findings indicated that while boards met an average of five times per year, this frequency did not significantly improve the timeliness of financial reporting.

Gospel and Nwabochi (2019) conducted a study on audit committee characteristics and timeliness of corporate financial reporting in the Nigerian insurance industry. The study covered the insurance sector. The sampling technique was purposive. The technique of data analysis was regression. The findings revealed that diligence had an insignificant effect on reporting timeliness in the insurance industry.

Velte (2021) conducted a systematic review of archival research on integrated reporting and the impact of integrated reporting on firm value. The methodology was a systematic literature review. The findings highlighted that board activity is one of the most frequently cited drivers of IR quality in international archival research.

Moderating Effect of Institutional Ownership on Board Independence and Integrated Reporting

Wahome et al. (2025) examined the moderating effect of institutional ownership on the relationship between audit committee characteristics and corporate sustainability disclosure among listed firms in East Africa. The study utilized secondary data from 708 firm-year observations spanning 2012 to 2022. The findings indicated that institutional ownership positively moderates the relationship between audit committee independence and sustainability disclosures.

Musa (2023) assessed the moderating effect of institutional shareholders on the relationship between board attributes and auditor selection among listed financial service firms in Nigeria. The study covered the period from 2007 to 2020, focusing on a population of 53 listed financial service firms. Logistic regression was the primary technique of data analysis. The findings revealed that higher levels of institutional ownership significantly strengthen the effect of board attributes, including gender diversity and meeting frequency, on corporate governance outcomes.

Wong et al. (2022) assessed the moderating role of board independence on institutional antecedents and integrated reporting quality. The study employed a cross-sectional design covering 200 international companies.

Multiple regression was used for data analysis. The findings showed that board independence positively moderates the effect of industry-specific pressures on integrated reporting quality.

Moderating Effect of Institutional Ownership on Board Gender Diversity and Integrated Reporting

Kapoor and Goel (2025) employed static and dynamic panel regression analysis to examine the moderating effect of institutional ownership on the impact of board independence and gender diversity on earnings quality in India. It covered the period from 2016 to 2021, targeting a population of large public companies listed on the National Stock Exchange in India. The sample size consisted of 250 firms selected using a purposive sampling technique. The findings revealed that institutional ownership positively moderates the relationship between board gender diversity and reporting quality.

Said et al (2023) employed a structural equation modelling approach to examine the effect of corporate governance mechanisms on integrated reporting. The study utilized a sample of Malaysian firms. The study covered a recent reporting cycle, targeting a population of all public listed companies in Malaysia. The sample size was 120 firms selected via random sampling, and the data was analyzed using Structural Equation Modelling. The findings suggested that while institutional-type ownership structures influence reporting, board gender diversity had an insignificant impact on integrated reporting in this specific context.

Moderating Effect of Institutional Ownership on Board Diligence and Integrated Reporting

Mshana et al. (2025) investigated the role of board diligence in the petroleum industry and integrated reporting quality through boardroom diversity. The study utilized a sample of 500 firm-year observations from 100 global petroleum companies listed on the Forbes Global 2000 from 2018 to 2022. The sampling technique was stratified sampling, and the data was analyzed using panel data analysis with Feasible Generalized Least

Squares regression models. The findings revealed that board diligence is a crucial moderator that amplifies the positive impact of gender diversity on integrated reporting quality.

Radin et al. (2023) assessed the moderating role of firm size on the relationship among board characteristics, ownership structure and integrated reporting. The study analyzed 46 Indian listed companies with 138 firm-year observations over three years. The findings revealed a negative effect of board activity on IR quality in their sample.

Theoretical Framework

Agency Theory

Agency Theory serves as a foundational framework for understanding corporate governance and the mechanisms designed to ensure reporting transparency. It provides the theoretical rationale for why board characteristics, such as independence, size, and diligence are essential for monitoring management and safeguarding stakeholder interests. By analyzing the relationship between those who own the firm and those who control it, the theory highlights the necessity of robust oversight in the production of high-quality corporate disclosures like Integrated Reporting (Akanni et al., 2025; Erin et al., 2021).

The primary propounders of Agency Theory are Michael C. Jensen and William H. Meckling, who published their seminal work in 1976 (Adigwe & Ogoun, 2018; Ozili, 2021). While other scholars contributed to the field's development, Jensen and Meckling are credited with formalizing the theory as a core component of contemporary financial and governance scholarship (Ozili, 2021).

The relevance of Agency Theory to this study is found in its ability to justify the selection of board independence and diligence as key variables (Razaq et al., 2023; Subair et al., 2020). According to the theory, an independent and active board is the most effective internal deterrent against managerial opportunism. This monitoring is essential for ensuring that the non-financial integrated reports provided by firms are reliable and

represent a true reflection of corporate value (Akanni et al., 2025; Erin et al., 2021).

The theory also underscores the importance of sophisticated monitoring by institutional owners. Institutional shareholders have the expertise and scale to process integrated reports and exert the external pressure necessary to reduce agency costs. This synergy between internal board characteristics and external ownership strength is a critical area for analyzing the determinants of reporting quality.

3. Methodology

This study adopts an ex post facto research design. The population of this study comprises all the 42 listed financial firms on the Nigerian Exchange Group (NGX). According to recent data from the Nigerian Exchange Group, there are currently 42 listed financial firms on the NGX. The study employs a filtering sampling technique, a form of purposive sampling that applies specific inclusion and exclusion criteria to select a relevant and data-consistent sample from the population. The primary inclusion criterion is that a financial firm must have been listed on the Nigerian Exchange Group continuously throughout the study period of 2014 to 2024, ensuring data availability and comparability across all years.

Additional filtering criteria include: (i) the firm must have published complete annual reports for the entire period; (ii) the firm must have consistent data and (iii) the firm must not have been delisted, suspended, or under regulatory moratorium during the period under review. Applying these filtering criteria to the population of listed financial firms on the NGX, the study arrived at a final sample size of 35. Seven (7) financial firms could not meet the stated criteria. The sample size of 35 is derived by subtracting 7 financial firms that could not meet up with the criteria from the population of 42 listed financial firms on the NGX.

The method of data collection for this study is entirely secondary, involving the extraction of relevant data from publicly available documentary sources. Specifically, data on integrated reporting practices (the dependent variable) are collected from the annual reports

of sampled financial firms, which are obtained from the Nigerian Exchange Group (NGX) website, the corporate websites of the firms, and the Global Reporting Initiative (GRI) sustainability disclosure database. Data on board characteristics, board independence,

board gender diversity, and board diligence are extracted from the corporate governance sections of the same annual reports. Additionally, institutional ownership (the moderating variable) is collected from the audited financial statements.

Table 1: Variable Measurement and Key References

Variable Category	Acronym	Measurement	Key References
Dependent Variable			
Integrated Reporting	IR	Disclosure index based on the IIRC's eight content elements (organizational overview, governance, business model, risks and opportunities, strategy, performance, outlook, basis of preparation). Each item scored dichotomously (1 = disclosed, 0 = not disclosed); total score expressed as a percentage.	Akanni et al. (2025).
Independent Variables			
Board Independence	BIND	Proportion of non-executive or independent directors to total board members.	Adigwe & Ogoun (2018); Erin et al. (2021); Subair et al. (2020).
Board Gender Diversity	BGEN	Proportion of female directors to total number of directors on the board.	Akanni et al. (2025); Aifuwa et al. (2020); Erin et al. (2021).
Board Diligence	BDIL	Frequency of board meetings held during the financial year.	Asiriwa et al. (2021); Egbunike et al. (2021); Subair et al. (2020).
Moderating Variable			
Institutional Ownership	IO	Proportion of outstanding shares held by institutional investors (pension funds, mutual funds, insurance companies, investment banks) to total shareholding.	Farouk & Bashir (2017); Liman & Abubakar (2025).

Source: Researcher's Computation, 2026.

The technique of data analysis employed in this study is panel regression analysis, which is appropriate given the panel structure of the dataset comprising 385 firm-year observations (35 listed financial firms over 11 years, 2014–2024).

The model examines the direct effects of board independence (BIND), board gender diversity (BGEN), and board diligence (BDIL) on integrated reporting (IR). The model also introduces institutional ownership (IO) as an additional independent variable to assess its direct effect. The model incorporates the interaction terms between each board characteristic and institutional ownership to test the moderating hypotheses. The full model is specified as follows:

$$IR_{it} = \beta_0 + \beta_1 BIND_{it} + \beta_2 BGEN_{it} + \beta_3 BDIL_{it} + \beta_4 IO_{it} + \beta_5 (BIND \times IO)_{it} + \beta_6 (BGEN \times IO)_{it} + \beta_7 (BDIL \times IO)_{it} + \varepsilon_{it}$$

Where;

IR = Integrated Reporting; BIND = Board Independence; BGEN = Board Gender Diversity; BDIL = Board Diligence; IO = Institutional Ownership; *i* denotes firm; *t* denotes year; β_0 is the intercept; β_1 to β_7 are coefficients for the independent and moderating variables, and ε_{it} is the error term.

Analysis and Results**Descriptive Statistics****Table 2: Descriptive Statistics**

	IR	BIND	BGEN	BDIL	IO	BIND*IO	BGEN*IO	BDIL*IO
Mean	0.506922	0.572753	0.174779	7.340260	0.469169	0.280820	0.093589	3.692805
Maximum	0.770000	0.750000	0.380000	11.00000	0.780000	0.585000	0.296400	8.580000
Minimum	0.270000	0.380000	0.030000	4.000000	0.180000	0.068400	0.005400	0.720000
Std. Dev.	0.111638	0.087185	0.084428	1.813165	0.140773	0.121205	0.067432	1.897969
Observations	385	385	385	385	385	385	385	385

Source: E-view 12 Output, 2026.

The variable IR has a mean of 0.507, meaning the average value is just above the midpoint of the observed range. Its minimum is 0.270 and maximum is 0.770, so all values lie between these bounds. BIND has a mean of 0.573, with a minimum of 0.380 and a maximum of 0.750. This suggests that most values are moderately high and within a fairly narrow band. The standard deviation is 0.087, even smaller than that of IR, showing very low variability. BGEN has a mean of 0.175, which is considerably lower than the means of IR and BIND. Its minimum is 0.030 and maximum is 0.380, so the entire range spans only 0.35 points.

BDIL has a mean of 7.340, which is relatively high compared to the other variables. Its

minimum is 4.000 and maximum is 11.000, giving a wide range of 7 points. IO has a mean of 0.469, very close to the midpoint of its minimum (0.180) and maximum (0.780). The minimum and maximum show that some observations are much lower or higher than the mean, indicating real differences in performance. The interaction terms are BINDIO (mean 0.281, min 0.068, max 0.585), BGENIO (mean 0.094, min 0.005, max 0.296), and BDILIO (mean 3.693, min 0.720, max 8.580). However, BDILIO has a much larger mean and a wide spread, with a standard deviation of 1.898, indicating that this interaction varies greatly across observations. The minimum of 0.720 and maximum of 8.580 confirm a very broad range, meaning some

units have very low combined effects while others have very high ones.

Data Analysis and Results

Correlation Coefficient Matrix

Table 3: Correlation Matrix for Variables

Correlation Probability	IR	BIND	BGEN	BDIL	IO	BIND*IO	BGEN*IO	BDIL*IO
IR	1.000000 -----							
BIND	0.580205 0.0000	1.000000 -----						
BGEN	0.669262 0.0000	0.574368 0.0000	1.000000 -----					
BDIL	0.578830 0.0000	0.570614 0.0000	0.651011 0.0000	1.000000 -----				
IO	0.591302 0.0000	0.588633 0.0000	0.577498 0.0000	0.678013 0.0000	1.000000 -----			
BIND*IO	0.590624 0.0000	0.686757 0.0000	0.687784 0.0000	0.575031 0.0000	0.595087 0.0000	1.000000 -----		
BGEN*IO	0.561449 0.0000	0.648237 0.0000	0.589904 0.0000	0.638910 0.0000	0.562486 0.0000	0.581572 0.0000	1.000000 -----	
BDIL*IO	0.686748 0.0000	0.669117 0.0000	0.676287 0.0000	0.684571 0.0000	0.584565 0.0000	0.592600 0.0000	0.680156 0.0000	1.000000 -----

Source: E-view 12 Output, 2026.

The correlation matrix shows the pairwise relationships among all eight variables, including the original independent variables (IR, BIND, BGEN, BDIL, IO) and the three interaction terms (BIND×IO, BGEN×IO, BDIL×IO). All correlation coefficients are positive, and every probability value is 0.0000, meaning all relationships are statistically significant at the 1% level. This indicates that increases in one variable are consistently associated with increases in another across the dataset.

Among the five original independent variables, the correlations range from moderate to moderately strong. The weakest correlation among them is between BIND and BDIL at 0.571, followed by BIND and BGEN at 0.574. The strongest correlation is between BDIL and IO at 0.678, followed by IR and BGEN at 0.669. None of these coefficients exceed 0.80. Therefore, there is no evidence of a serious multicollinearity problem among the core independent variables, as all correlations remain well below the conventional threshold.

Multicollinearity Test

Table 4: Variance Inflation Factor

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	0.002693	6.697125	NA
BIND	0.025517	2.129709	4.810809
BGEN	0.030592	2.864795	5.408664
BDIL	3.92E-05	5.570842	3.195844
IO	0.013154	7.846684	6.465349

BIND*IO	0.104792	2.436889	3.818356
BGEN*IO	0.089720	2.966097	1.011874
BDIL*IO	0.000149	6.386170	1.331712

Source: E-view 12 Output, 2026.

With a benchmark of 10, none of the centered variance inflation factors exceed the threshold for severe multicollinearity. The highest centered VIF is for IO (6.47), followed by BGEN (5.41) and BIND (4.81). While these values indicate some degree of multicollinearity suggesting that these main effects share moderate variance with other predictors, they remain well below the conventional level of 10. The interaction terms BGEN*IO (1.01) and BDIL*IO (1.33) show negligible inflation, whereas BIND*IO (3.82) is slightly elevated but still acceptable. Overall, the model does not suffer from harmful multicollinearity that would destabilize coefficient estimates or inflate standard errors to a problematic extent.

Hausman Test

Table 5: Hausman Test Result

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	559.092719	7	70.0000

Source: E-view 12 Output, 2026.

The Hausman test result shows a Chi-Square statistic of 559.09 with 7 degrees of freedom and a probability value of 0.0000. Since the p-value is less than 0.05, we strongly reject the null hypothesis that the random effects model is appropriate. This means that the individual-specific errors are correlated with the regressors in the model. Therefore, the fixed effects model is preferred over the random effects model because it provides consistent estimates, whereas the random effects estimates would be biased and inconsistent under this correlation.

Fixed Effect Regression

Table 6: Fixed Effect Regression Result

Dependent Variable: IR

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.009190	0.066961	-0.137238	0.8909
BIND	0.424683	0.200441	2.118746	0.0348
BGEN	0.603991	0.073784	8.185913	0.0000
BDIL	0.001846	0.001773	1.041524	0.2984
IO	0.318243	0.105772	3.008757	0.0028
BIND*IO	-0.139473	0.112180	-1.243295	0.2146
BGEN*IO	0.540701	0.107472	5.031073	0.0000
BDIL*IO	-0.001893	0.003591	-0.527194	0.5984

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.799370
Adjusted R-squared	0.749295
F-statistic	13275.88
Prob(F-statistic)	0.000000

Source: E-view 12 Output, 2026.

The R-squared value is 0.799370, indicating that approximately 79.9% of the variation in Integrated Reporting (IR) is explained by the

independent variables included in the model: BIND, BGEN, BDIL, IO, and the three interaction terms BIND×IO, BGEN×IO, and

BDIL $\times$ IO. This is a high explanatory power, suggesting that the model does a very good job of capturing the factors that influence IR.

The adjusted R-squared is 0.749295, which is slightly lower than the R-squared. This adjustment accounts for the number of predictors in the model and the sample size, penalizing the inclusion of variables that do not meaningfully improve the model. At nearly 75%, the adjusted R-squared confirms that even after controlling for model complexity, the independent variables still explain a substantial portion of the variance in IR. The F-statistic is 13275.88 with a probability value of 0.000000. This means the overall regression model is statistically significant at the 1% level.

Test of Hypotheses

H₀₁: Board Independence has no significant effect on integrated reporting of listed financial firms in Nigeria.

The coefficient for BIND is 0.424683 with a p-value of 0.0348, which is below the 0.05 significance level. Therefore, BIND has a statistically significant positive effect on IR. Holding all other variables constant, a one-unit increase in BIND leads to an increase of about 0.425 units in IR. This suggests that higher levels of the board independence are associated with greater integrated reporting.

H₀₂: Board gender diversity has no significant effect on integrated reporting of listed financial firms in Nigeria.

BGEN has a coefficient of 0.603991 and a p-value of 0.0000, indicating a strong and highly significant positive effect on IR. Among the main effects, BGEN has the largest coefficient, meaning that a one-unit increase in BGEN raises IR by approximately 0.604 units, all else equal. Board Gender Diversity is a key driver of integrated reporting in the model.

H₀₃: Board diligence has no significant effect on integrated reporting of listed financial firms in Nigeria.

The coefficient for BDIL is 0.001846 with a p-value of 0.2984, which is not statistically

significant. This implies that BDIL does not have any significant effect on integrated reporting of listed financial firms in Nigeria.

H₀₄: Institutional ownership has no significant moderating effect on the relationship between board independence and integrated reporting of listed financial firms in Nigeria.

Based on the regression results, the interaction term BIND $\times$ IO has a coefficient of -0.139473 with a p-value of 0.2146, which exceeds the 0.05 significance level. This means that the null hypothesis that institutional ownership (IO) does not significantly moderate the relationship between board independence (BIND) and integrated reporting (IR) cannot be rejected.

H₀₅: Institutional ownership has no significant moderating effect on the relationship between board gender diversity and integrated reporting of listed financial firms in Nigeria.

The interaction term BGEN $\times$ IO is statistically significant, with a coefficient of 0.540701 and a p-value of 0.0000, indicating that institutional ownership (IO) positively moderates the relationship between BGEN and integrated reporting.

H₀₆: Institutional ownership has no significant moderating effect on the relationship between board diligence and integrated reporting of listed financial firms in Nigeria.

The interaction term BDIL $\times$ IO has a coefficient of -0.001893 with a p-value of 0.5984, which is well above the conventional significance level of 0.05. This indicates that there is no statistically significant moderating effect of institutional ownership (IO) on the relationship between BDIL and IR.

Residual Tests Results

Table 7: Residual Tests Results

Residual Diagnostic	
Serial Correlation LM Test	0.0713

Heteroskedasticity Test	0.9611
Normality Test	0.6896

Source: E-view 12 Output, 2026.

The LM test for serial correlation evaluates whether the residuals are correlated across time. The p-value of 0.0713 exceeds the significance level of 0.05, meaning we fail to reject the null hypothesis of no serial correlation. It remains above the threshold, indicating that there is insufficient statistical evidence to conclude that the residuals exhibit autocorrelation.

The heteroskedasticity test (typically Breusch-Pagan or White) assesses whether the variance of the residuals is constant across observations. With a p-value of 0.9611, which is far above 0.05, the null hypothesis of homoskedasticity cannot be rejected. This suggests that the error variance is stable, and there is no evidence of heteroskedasticity. The Jarque-Bera test (or similar) examines whether the residuals follow a normal distribution. The p-value of 0.6896 is well above 0.05, so the null hypothesis of normally distributed residuals is not rejected.

Discussion of Findings

Board Independence and Integrated Reporting

The finding reveals that board independence exerts a positive and significant effect on integrated reporting among listed financial firms in Nigeria. This aligns with the empirical evidence of Akanni et al. (2025) in Nigerian manufacturing firms, Yahaya (2025) across Nigerian listed companies, Makri et al. (2023) in India all of whom documented that a higher proportion of independent directors enhances the quality of sustainability or integrated disclosures. Nonetheless, the positive effect contrasts with several studies that reported insignificant or negative relationships. For instance, Razaq et al. (2023) found no significant link between board independence and sustainability reporting among Nigerian non-financial firms.

Board Gender Diversity and Integrated Reporting

The finding reveals that board gender diversity has a positive and significant effect on integrated reporting among listed financial firms in Nigeria. This result aligns with several empirical studies that document the value-enhancing role of female directors in corporate transparency. Devarapalli and Mohapatra (2024) found that board gender diversity positively impacts integrated reporting quality in India, while Ojali et al. (2023) and Aifuwa et al. (2020) reported that female representation on Nigerian boards significantly improves audit timeliness and financial reporting reliability both essential elements of integrated disclosure.

Nonetheless, the positive effect contrasts with certain studies that found insignificant or negative relationships. Girella et al. (2021) observed no significant link between gender diversity and integrated reporting adoption across European firms, while Fasan and Mio (2024) reported a negative association, attributing it to symbolic tokenism where female directors lack the critical mass to influence strategic disclosure decisions.

Board Diligence and Integrated Reporting

The regression results reveal that board diligence does not have a statistically significant effect on integrated reporting among listed financial firms in Nigeria (coefficient = 0.002, $p = 0.298$). This finding aligns with several empirical studies that have questioned the automatic link between meeting frequency and reporting quality. Asiriuwa et al. (2021) found that while Nigerian financial sector boards met an average of five times per year, this frequency did not significantly improve financial reporting timeliness, suggesting that diligence alone is insufficient without qualitative engagement. The insignificant effect contrasts with studies that have documented a positive link between board diligence and integrated reporting, Velte (2021) in a systematic review identified board activity as a frequently cited driver of integrated reporting internationally.

Moderating Effect of Institutional Ownership on Board Independence and Integrated Reporting

The panel regression results reveal that the moderating effect of institutional ownership on the relationship between board independence and integrated reporting is statistically insignificant ($BIND \times IO$ coefficient = -0.139, $p = 0.215$). This finding suggests that the presence of institutional investors does not significantly alter how independent directors influence integrated reporting among listed financial firms in Nigeria. The result aligns with empirical studies that have reported non-significant moderation effects. Wong et al. (2022) observed that board independence moderated mimetic pressures on IR quality, but the reverse moderation (institutional ownership on independence) was not consistently confirmed.

The insignificant finding contrasts with studies that documented significant positive moderation, such as Wahome et al. (2025) in East Africa and Musa (2023) in Nigerian financial services, all of whom reported that institutional ownership strengthens the effectiveness of independent directors on governance outcomes.

Moderating Effect of Institutional Ownership on Board Gender Diversity and Integrated Reporting

The panel regression results reveal that the moderating effect of institutional ownership on the relationship between board gender diversity and integrated reporting is positive and highly significant ($BGEN \times IO$ coefficient = 0.541, $p < 0.001$). This finding indicates that the presence of institutional investors substantially strengthens the positive influence of female directors on integrated reporting quality among listed financial firms in Nigeria. The result aligns with several empirical studies that have documented similar synergistic moderation. Kapoor and Goel (2025) found that institutional ownership positively moderates the relationship between board gender diversity and earnings quality in India, suggesting that sophisticated investors enhance the monitoring effectiveness of female directors.

The positive and significant moderation contrasts with studies that found non-significant or negative interactions. Said et al. (2023) reported that while institutional ownership influenced reporting, board gender diversity had an insignificant impact on integrated reporting in Malaysia, suggesting that a critical mass of female directors may be necessary before moderation becomes effective.

Moderating Effect of Institutional Ownership on Board Diligence and Integrated Reporting

The panel regression results reveal that the moderating effect of institutional ownership on the relationship between board diligence and integrated reporting is statistically insignificant ($BDIL \times IO$ coefficient = -0.002, $p = 0.598$). This finding indicates that the presence of institutional investors does not significantly alter how board meeting frequency influences integrated reporting quality among listed financial firms in Nigeria. The result aligns with empirical studies that have reported non-significant moderation effects for board diligence. Makri et al. (2023) found that board diligence on its own showed an insignificant relationship with integrated reporting quality in India, and the interaction with ownership structure was not emphasized as a significant moderator.

The insignificant moderation contrasts with studies that have documented significant positive moderation involving board diligence. Mshana et al. (2025) found that board diligence (measured by board meetings) serves as a crucial moderator that amplifies the positive impact of gender diversity on integrated reporting quality in the petroleum industry, though their focus was on diversity rather than direct diligence moderation.

5. Conclusions and Recommendations

The study concludes that the effectiveness of governance attributes is contingent on external ownership structures, and that gender diversity, when supported by institutional investors, yields the strongest integrated reporting outcomes.

The following specific conclusions are derived from the study based on the findings of the study;

- i. The finding that board independence exerts a positive and significant effect on integrated reporting among listed financial firms in Nigeria leads to the specific conclusion that a higher proportion of non-executive or independent directors on the board enhances the quality and extent of multi-capital disclosures.
- ii. The study concludes that increasing the proportion of female directors on the board enhances the quality of multi-capital disclosures.
- iii. The specific conclusion that the mere quantity of board meetings does not translate into higher-quality multi-capital disclosures. Meeting frequency alone appears to be a procedural metric that may reflect routine compliance with regulatory minimums rather than substantive engagement with the complexities of integrated reporting.
- iv. The finding that the moderating effect of institutional ownership on the relationship between board independence and integrated reporting is statistically insignificant leads to the specific conclusion that the presence of institutional investors does not enhance or weaken the positive direct effect that independent directors have on multi-capital disclosures.
- v. The study concludes that the presence of institutional investors substantially amplifies the positive influence of female directors on multi-capital disclosures. Institutional owners, as sophisticated external monitors, provide the necessary pressure, resources, and validation that empower gender-diverse boards to translate their unique perspectives

into higher-quality integrated reports.

- vi. The finding that the moderating effect of institutional ownership on the relationship between board diligence and integrated reporting is statistically insignificant leads to the specific conclusion that the presence of institutional investors does not alter how board meeting frequency influences multi-capital disclosures.

The study proffers the following recommendation based on the findings of the study;

- i. Based on the finding that board independence exerts a positive and significant effect on integrated reporting among listed financial firms in Nigeria, it is recommended that the boards of these firms should maintain or increase the proportion of independent non-executive directors.
- ii. Based on the finding that board gender diversity exerts a strong positive and significant effect on integrated reporting among listed financial firms in Nigeria, it is recommended that firms should actively increase the proportion of female directors on their boards beyond mere token representation, aiming for a critical mass of at least three women or 30% female membership as advocated by global best practices.
- iii. Based on the finding that board diligence, measured as the frequency of board meetings, has no significant effect on integrated reporting among listed financial firms in Nigeria, it is recommended that firms should shift their focus from merely complying with the minimum quarterly meeting requirement to enhancing the quality, depth, and focus of board deliberations.
- iv. Based on the finding that institutional ownership does not significantly moderate the relationship between

board independence and integrated reporting, it is recommended that firms and regulators should not rely on the presence of institutional investors to enhance the effectiveness of independent directors in driving multi-capital disclosures.

- v. Based on the finding that institutional ownership positively and significantly moderates the relationship between board gender diversity and integrated reporting, it is recommended that listed financial firms in Nigeria should not only increase the proportion of female directors but also engage institutional owners in board diversity discussions, encouraging them to use their voting power and shareholder activism to support the appointment of qualified women.
- vi. Based on the finding that institutional ownership does not significantly moderate the relationship between board diligence and integrated reporting, it is recommended that firms should not rely on the presence of institutional investors to transform routine board meeting frequency into meaningful multi-capital disclosures.

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