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Moderating effect of audit committee independence on the relationship between board heterogeneity and risk disclosure among listed non-financial service companies in Nigeria

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Abstract

The study examined the moderating effect of audit committee independence on the relationship between board heterogeneity and risk disclosure among listed non-financial service companies in Nigeria. In an environment characterised by economic volatility, regulatory uncertainty, and growing demand for corporate transparency, effective risk disclosure has become increasingly important for investor confidence and market stability. Drawing on agency theory and resource dependence theory, the study investigates how different dimensions of board heterogeneity board size, board independence, gender diversity, financial expertise, and meeting frequency influence the extent of risk disclosure, and whether audit committee independence strengthens or weakens these relationships. An ex-post facto research design was adopted, using secondary data obtained from the annual reports of selected listed non-financial service companies over the study period. Panel regression techniques were employed to analyse the data and test the study's hypotheses. The results reveal that board gender diversity and board financial expertise have a significant positive effect on risk disclosure, while board size shows only a weak influence. Board independence and board meeting frequency do not significantly affect risk disclosure on their own. Audit committee independence has a negative direct effect on risk disclosure; however, it significantly and positively moderates the relationships between board diversity, board financial expertise, and risk disclosure. This indicates that independent audit committees enhance the ability of heterogeneous and financially knowledgeable boards to promote more comprehensive and credible risk reporting. The study concludes that effective risk disclosure in Nigerian non-financial firms depends not only on-board heterogeneity but also on the strength and independence of audit committees. It recommends strengthening audit committee independence, improving board diversity and financial expertise, and reinforcing regulatory enforcement to improve transparency and the quality of corporate risk reporting.

Keywords: Board Heterogeneity, Audit Committee Independence, Risk Disclosure, Corporate Governance

Introduction

Corporate governance has evolved significantly over the last two decades, with increasing attention paid to the composition and diversity of corporate boards and how these heterogeneity shape strategic decisions, monitoring effectiveness, and corporate transparency. Despite the increasing emphasis on corporate governance reforms in Nigeria, risk disclosure practices among listed non-financial service companies remain inadequate, inconsistent, and, in many cases, opaque. Studies on Nigerian corporate reporting show that firms often provide generic and backward-looking risk statements rather than forward-looking, decision-useful risk information, thereby limiting their usefulness to investors and other stakeholders (Olaoti, 2020;



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Ezeani & Egbunike, 2021; Odetayo & Adegbe, 2022). Annual financial reports continue to exhibit significant variation in the depth, clarity, and reliability of risk-related disclosures, even though firms operate in an environment characterised by rising macroeconomic volatility, exchange-rate instability, regulatory uncertainty, cybersecurity threats, and increasing stakeholder demand for transparency (Musa, 2023; Orumwense & Orumwense, 2023; Nairametrics, 2025). Regulatory and professional reports, particularly the Nigerian Code of Corporate Governance issued by the Financial Reporting Council of Nigeria (FRCN, 2018), have repeatedly emphasized that many listed companies still rely on boilerplate and symbolic risk disclosures rather than substantive and firm-specific risk communication, which undermines investor confidence and weakens market discipline.

Existing literature suggests that board heterogeneity, manifested through gender diversity, variations in expertise, educational background, age, and tenure dispersion, should enhance the monitoring capacity of the board and improve the quality of corporate disclosure. According to Carter, Simkins and Simpson (2003), heterogeneous boards bring broader perspectives and stronger oversight, thereby increasing the likelihood of transparent reporting. García-Meca, et al. (2015) further argued that diversity improves boards' ability to process complex information and demand higher-quality disclosure, especially in relation to risk and uncertainty. Similar evidence from emerging markets indicates that boards with greater professional and demographic diversity are more likely to demand accountability and improved reporting quality (Igwekoyi, et al., 2021; Adetula et al., 2023). However, empirical evidence remains inconclusive. While some studies document a positive relationship between board heterogeneity and disclosure quality (Olaoti, 2020; Dereje, 2023), others find weak or insignificant effects, suggesting that diversity alone may not be sufficient to enhance transparency (Ali & Shadrach, 2023; Orumwense & Orumwense, 2023). In Nigeria, where board appointments are often influenced by ownership concentration, political connections, and family ties, heterogeneity may exist in form but not in function, thereby limiting its impact on effective risk communication (Odetayo & Adegbe, 2022; Musa, 2023).

A critical yet under-examined factor in this relationship is the audit committee, which serves as a core internal governance mechanism responsible for overseeing financial reporting, internal controls, and risk-related disclosures. Agency theory suggests that an independent audit committee strengthens monitoring and reduces information asymmetry between



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managers and shareholders (Jensen & Meckling, 1976). In line with this, the Nigerian Code of Corporate Governance explicitly requires audit committees to be independent and financially competent in order to ensure the credibility of corporate disclosures (FRCN, 2018). However, empirical studies in Nigeria indicate that many listed non-financial service companies maintain audit committees that are dominated by affiliated or non-expert members, thereby weakening their effectiveness in enforcing transparency and accountability (Ezeani & Egbunike, 2021; Odetayo & Adegbe, 2022; El-Feky, 2023). Weak or nominally independent audit committees may fail to convert the informational advantages of board heterogeneity into meaningful disclosure outcomes because they lack the authority and expertise to challenge management or demand more detailed risk reporting (Carcello & Neal, 2000; Dereje, 2023).

Moreover, the interaction between board heterogeneity and audit committee independence is particularly important in the Nigerian non-financial sector, where regulatory scrutiny is weaker than in the financial sector and where risk disclosure practices remain largely discretionary (Olaoti, 2020; Musa, 2023). The absence of a strong and independent audit committee reduces the likelihood that diverse board perspectives will influence managerial reporting behaviour, as management can override or neutralize disclosure demands without facing effective oversight (Jensen & Meckling, 1976; El-Feky, 2023). This governance gap allows heterogeneous boards to coexist with persistently weak risk disclosure, creating a situation where diversity does not translate into transparency (Ali & Shadrach, 2023; Orumwense & Orumwense, 2023). Consequently, investors face difficulty in assessing firm-specific risks, regulators struggle to enforce disclosure compliance, and the Nigerian capital market suffers from elevated information asymmetry, lower efficiency, and greater vulnerability to corporate failures (Pandey, 2021; Brigham & Houston, 2019; Nairametrics, 2025).

These unresolved issues highlight the need for a rigorous empirical investigation into whether audit committee independence moderates the relationship between board heterogeneity and risk disclosure in listed non-financial service companies in Nigeria. Such an investigation is essential for determining whether strengthening audit committee independence can transform board diversity from a symbolic governance feature into a substantive driver of transparency and market confidence.



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Hypotheses

H₀₁: Board independence has no significant impact on risk disclosure in listed non-financial service companies in Nigeria.

H₀₂: There is no significant relationship between board size and risk disclosure in listed non-financial service companies in Nigeria.

H₀₃: Board financial expertise does not significantly affect risk disclosure in listed non-financial service companies in Nigeria.

H₀₄: Board diversity does not significantly affect risk disclosure in listed non-financial service companies in Nigeria.

H₀₅: Board meeting heterogeneity do not significantly impact risk disclosure in listed non-financial service companies in Nigeria.

H₀₆: Audit committee independence does not significantly moderate the relationship between board independence and risk disclosure in listed non-financial service companies in Nigeria.

H₀₇: Audit committee independence does not significantly moderate the relationship between board size and risk disclosure in listed non-financial service companies in Nigeria.

H₀₈: Audit committee independence does not significantly moderate the relationship between board financial expertise and risk disclosure in listed non-financial service companies in Nigeria.

H₀₉: Audit committee independence does not significantly moderate the relationship between board diversity and risk disclosure in listed non-financial service companies in Nigeria.

H₀₁₀: Audit committee independence does not significantly moderate the relationship between board meetings and risk disclosure in listed non-financial service companies in Nigeria.

Literature Review

Concept of Risk Disclosure

Beretta and Bozzolan (2004) defined risk disclosure in terms of the breadth and depth of information that firms provide regarding their risk profiles. Elshandidy, Fraser, and Hussainey (2013) adopt a more regulatory-focused perspective, defining risk disclosure as the mandatory



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and voluntary reporting of risk information required by accounting standards, stock exchange rules, and market expectations. Miihkinen (2012) further expands the definition by viewing risk disclosure as a communication mechanism that reduces uncertainty in the capital market. He argues that effective disclosure provides investors with a clearer picture of firm vulnerability and resilience, thereby improving market efficiency. In another perspective, Hassan (2009) defined risk disclosure as the reporting of events, circumstances, and uncertainties that may adversely affect an organization's performance, reputation, or sustainability. He notes that the quality of such disclosure reflects the extent of managerial accountability and the strength of governance structures, including board oversight and audit committee effectiveness.

Board Heterogeneity

Board heterogeneity often referred to as board diversity has been extensively defined in the corporate governance literature, with scholars emphasizing the variety of attributes and heterogeneity that directors bring to the boardroom. According to Hillman, Cannella, and Harris (2002), board heterogeneity refers to the extent to which board members differ in terms of demographic, professional, and cognitive attributes. They argue that such diversity enhances the board's ability to access a broader range of information, perspectives, and networks, thereby strengthening its oversight and advisory functions. Carter, Simkins, and Simpson (2003) define board heterogeneity as the inclusion of directors with varied backgrounds, including differences in gender, ethnicity, age, educational attainment, and professional expertise.

Audit Committee

The audit committee has been recognized as part of corporate governance, and the function of the audit committee is to assist the board of directors in their oversight role. This role includes reviewing the financial data, internal control, and ensuring the independence of external auditors. According to the concept of corporate governance by Keong (2002), the audit committee members should come from the members of the board of directors in the companies, of which there must be a minimum of three directors. The members have to be independent, and two of the board members have to be qualified in accounting or have financial management expertise (DeFond et al., 2005). Independence refers to independence from management and freedom from the body of controlling shareholders. The function of the audit committee is to investigate the problems and to help the management operation. Moreover, the duty is to invite



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the directors for meetings to control whether company functions have been done properly. An active audit committee can increase the credibility of the financial reporting process by controlling the selection of the financial accounting policy (McMullen, 1996).

Empirical Review

Escandon-Barbosa and Salas-Paramo (2024) investigate the moderating effect of the board director on the relationship between perceived risks and the financial and non-financial performances of the firms. To fulfill this purpose, a survey was conducted among 480 Colombian exporting companies between August and December 2023. To process the information, a structural equation model was used that allowed the relationships of the study to be analyzed. The main results were that financial, time, and performance risks have a more significant impact on non-financial performance when there are board directors who provide not only greater information about the environment but also lines of action necessary for the firm that allow it to take advantage of the environment in which it exists that operates. In contrast, the social and psychological risks were not significant.

Irwan (2023) examined the role of corporate governance in managing financial risk within Company X, a pseudonymized listed company based in West Java. Corporate governance practices play a pivotal role in shaping the strategic direction and operational decisions of modern businesses, influencing their overall performance and longterm sustainability. The research employs in-depth interviews with key stakeholders, including board members, executives, auditors, and financial experts, to gain insights into the practices, policies, and mechanisms employed by Company X to manage financial risk. The findings highlight the significance of effective corporate governance in mitigating financial risks and fostering trust among stakeholders. The study contributes valuable insights into the complex relationship between corporate governance and financial risk management, providing practical implications for enhancing risk governance in Indonesia's business landscape.

Suherman and Ekadjaja (2022) examined the role of the board heterogeneity on corporate risk disclosure, and the moderation effect of family ownership toward the relation of board heterogeneity to corporate risk disclosure on consumer goods industry listed on the Indonesia Stock Exchange during 2017-2019. Sample was selected using purposive sampling method and the valid data was 39 companies. Data processing techniques using multiple regression analysis what helped by Eviews version 10 and Microsoft Excel 2020. The results of this study indicate



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that board heterogeneity which consist of board size, board meeting, CEO duality, and board expertise do not have a significant influence on corporate risk disclosure, meanwhile family ownership has a significant influence to moderate the relation of board size, board meeting, and CEO duality towards corporate risk disclosure. Family ownership does not moderate the relation of board expertise towards corporate risk disclosure. The implication of this study is the need to increase the role of the board members to influence the corporate risk disclosure which will be needed by investors and potential investors as well.

Gull et al. (2022) examined the impact of corporate governance reforms on the risk disclosure quality in an emerging economy, namely Pakistan. The authors also investigate the impact of CG reforms on the relationship between CG practices and risk disclosure quality. The authors use a manual content analysis method to a sample of non-financial companies listed on the PSX-100 index for 2009–2015, to examine the impact of CG reforms on risk disclosure quality. The authors use pooled ordinary least squares and the system GMM estimations to test the research hypotheses. The authors find that CG reforms have a positive impact on risk disclosure quality. The results indicate that certain CG practices such as CEO duality and board independence are associated with risk disclosure quality.

Theoretical Framework

Agency Theory: Agency theory deals with the relations between principals and interested parties or agents for the management process in the company (Jensen and Meckling, 1976). Daily et al. (2003) argued that two elements could influence agency theory: firstly, that the theory is a simplifying, conceptual one that reduces the corporation to the two participants of managers and shareholders; and, secondly, that agency theory suggests that employees or managers in organizations can be self-interested. Agency theory is one of the economic theories derived by Modigliani and Miller (1958), which was later expanded by Jensen and Meckling (1976). It highlights how different interests help the owner of the firm and management. The principal theory discusses the relationship of the internal parties of the company, from the owner to managers, with the agents undertaking the management of the firm on the owners' behalf.

Agency theory is a necessity in the modern corporation, which has wide ownership and managerial actions are needed to increase shareholder return (Armstrong, 1991). Prior studies argued that the purpose of agency theory is to decrease agency loss (Eisenhardt, 1989).



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Shareholders' purpose is to maximise the return on investment. However, the agents as managers want their interests to be accommodated as much as possible as a reflection of the firm's performance. Agency theory presumes that individuals pursue their personal interests (Tourish et al., 2010). Shareholders principally are expected to be interested only in the financial part of the firm to raise the value of dividends (Easterbrook, 1984). The managers, as agents, are expected to get adequate compensation financially and gains from the relationship (Fama, 1980).

These different perspectives can lead to conflict or loss of motivation if shareholders seek an increase in shareholder returns and restrictions on the benefits received by the managers (agents) (Donaldson and Davis, 1991). Agency theory formulates a model of conflict between shareholder and manager, arguing that the disclosure of information provided by management may fall into two types, which are opportunistic or signalling motives (Beaver, 2002). Theoretically, the implication of agency theory is that the CEO acts as a duality to maintain the interests of shareholders and harmonizes the interests of management by providing compensation for salaries for a long period (Donaldson and Davis, 1991). The aim is to harmonize the interests of management with shareholders to avoid losses (Donaldson & Davis, 1991). Agency theory assumes that the contract is inadequate and does not fully determine the nominal role for every contingency and possible relationship (Aoki, 1990).

Signaling Theory: The signaling theory has been put forward by Spence (1973) to interpret behaviors regarding information asymmetry in the labor market. The theory was also employed to enhance our understanding of voluntary disclosure and other accounting and finance puzzles such as corporate dividends policy and capital structure decisions (Morris, 1987). It is argued that managerial signaling is a result of the asymmetric information between managers and stakeholders (Watts & Zimmerman, 1986). The theory illustrates how the information asymmetry can be minimized by signaling the informed party to others (Morris, 1987). The theory also suggests that firms' insiders are more informed about the company than outsiders (Bebchuk & Weisbach, 2010). Thus, investors and other firms' outsiders may consider managers' actions as signals (Scott, 2014).

Due to the division between ownership and management, there is information asymmetry between internal and external parties. Both internal and external parties are impacted by information asymmetry. External parties' decisions would be affected if they had insufficient



information. The issue of information asymmetry also affects investors' ability to judge managers' performance when they perform at their highest levels, which has a detrimental impact on investors' opinions and ultimately company value. Spence (1973) refers to the solution to the information asymmetry problem as signalling theory. The three ideas that make up the signalling theory are sender, receiver, and signal. By doing certain activities, the sender communicates information about its quality to the receiver, according to the principle of signalling (Connelly et al., 2011).

Methodology

The study adopted an ex-post facto research design, which is appropriate for investigating the relationship between board heterogeneity, audit committee independence, and risk disclosure in listed non-financial service companies in Nigeria. The population of this study comprises all listed non-financial service companies on the Nigerian Exchange Group (NGX) as of the most recent listing period. This study utilized secondary sources of data for the collection of information on board heterogeneity, audit committee independence, and risk disclosure. The study employed panel regression analysis as the primary technique for data analysis.

Model Specification

$$RD=f(BIN, BSIZE, BFE, BGDV, BMEET, ACIND) \text{-----(1)}$$

$$RD_{it} = \beta_0 + \beta_1BIN_{it} + \beta_2BSIZE_{it} + \beta_3BFE_{it} + \beta_4BGDV_{it} + \beta_5BMEET_{it} + \beta_6BIN*ACIND_{it} + \beta_7BSIZE*ACIND_{it} + \beta_8BFE*ACIND_{it} + \beta_9BGDV*ACIND_{it} + \beta_{10}BMEET*ACIND_{it} + \mu_{it} \text{--(2)}$$

Where:

RD = Risk Disclosure

BIN= Board Independence

BSIZE = Board Size

BFE = Board Financial Expertise

BGDV = Board Gender Diversity

BMEET = Board Meetings

ACIND = Audit Committee Independence

β_0 = Intercept term (a constant)

β_1 - β_5 = Coefficients of the independent variables (IV)



Table 1: Variable, Definition, Measurement and Source

Definitions	Measurement	Source
Risk Disclosure	Measured by content analysis. This index is calculated through a content analysis based on seven components (45 items) extracted from the annual reports of the bank.	Adhikariparajul et al., 2019; Alnabsha et al., 2018; Alshbili et al., 2019
Board Independence	Proportion of non-executive members to total number of Board members	Uwuigbe et al., (2018), Akintayo and Salman (2018)
Board Size	total number of directors on the board of directors of the company	Ozcan & Riza (2016), Gurmeen (2015)
Board Financial Expertise	Proportion of the board of directors with accounting and financial expertise to total number of Board members	Moses et al (2016)
Board Meetings	Log of number of board meetings held during the financial year	Bakare et al. (2018) Adegbe, et al. (2019)
Audit Committee Independence	The proportion of non-executive audit committee members divided by the total number of audit committee members.	Nwanna and Ivie (2017), Ilaboya & Ohiokha(2014), Dioha et al. (2018)

Source: Researcher Computation, 2025

Results and Discussion of Findings

Table 2: Descriptive Statistics

	Mean	Maxi	Mini	Std.Dev.	Skew	Kurt	Obs
RD	4.376923	5.000000	3.000000	0.638134	-0.51993	2.344844	400
BSIZE	12.06154	16.00000	10.00000	1.310387	0.985937	3.663724	400
BIN	0.542071	0.636364	0.437500	0.040987	0.111612	3.040363	400
BGDV	0.248970	0.363636	0.153846	0.052265	0.298317	2.553276	400
BFE	0.350228	0.454545	0.166667	0.063598	-0.55732	2.985679	400
BMEET	3.992308	5.000000	3.000000	0.698794	0.010348	2.063721	400
ACIND	0.466154	0.750000	0.333333	0.103470	0.330920	2.925073	400

Source: Results Output 2025

Table 2 presents the descriptive statistics of risk disclosure and the corporate governance variables used in the study across 400 firm-year observations. The mean value of risk disclosure (RD) of 4.38 on a scale with a maximum of 5 suggests that listed non-financial service companies in Nigeria, on average, provide moderately high levels of risk-related information in their annual reports. However, the minimum value of 3.00 and a standard deviation of 0.64 indicate noticeable variation in disclosure practices across firms and over time, implying that



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while some firms are relatively transparent, others still provide limited or basic risk information. The negative skewness (-0.52) indicates that more firms cluster at the higher end of disclosure, though the kurtosis value of 2.34 suggests that disclosures are not excessively concentrated around the mean. From an accounting perspective, this variability implies inconsistent application of disclosure requirements, which may reduce the comparability and decision usefulness of financial statements for investors and analysts.

Board size (BSIZE) has a mean of about 12 directors, with boards ranging from 10 to 16 members. This suggests that most Nigerian non-financial firms maintain relatively large boards, which aligns with corporate governance codes that encourage a mix of executive and non-executive directors. The moderate dispersion (standard deviation of 1.31) indicates some differences in governance structures. Larger boards may enhance monitoring and the breadth of expertise, which can improve the quality of risk reporting, but excessively large boards may also lead to coordination problems that weaken oversight, with potential consequences for the accuracy and completeness of financial disclosures.

Board independence (BIN) has a mean of 0.54, indicating that, on average, about 54 percent of board members are independent directors. This suggests reasonable compliance with governance expectations on board composition, though the relatively small standard deviation shows limited variation across firms. From an accounting standpoint, a higher proportion of independent directors should strengthen oversight of financial reporting and reduce managerial opportunism, thereby enhancing the credibility of risk disclosures in annual reports.

Board gender diversity (BGDV) averages about 0.25, meaning that roughly one quarter of board members are female. Although this indicates growing inclusion, it also reflects a relatively low level of gender diversity in Nigerian corporate boards. The modest variation across firms suggests that many companies have similar diversity structures. In accounting terms, limited diversity may constrain the range of perspectives applied to risk assessment and disclosure decisions, potentially affecting how comprehensively firms communicate uncertainties in their financial statements.

Board financial expertise (BFE) has a mean of 0.35, implying that about 35 percent of directors possess financial or accounting expertise. This is important for the quality of financial reporting because financially literate directors are better positioned to understand complex accounting estimates, risk exposures, and disclosure requirements. The relatively low minimum value of



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0.17 shows that some firms may lack sufficient expertise at board level, which could impair the reliability of risk reporting and increase the likelihood of incomplete or misleading disclosures.

Board meeting frequency (BMEET) averages about four meetings per year, with a range from three to five. This indicates that most boards meet regularly, which is essential for effective monitoring of management and financial reporting processes. Regular meetings provide opportunities to review risk management systems, internal controls, and disclosure practices, thereby enhancing the quality and timeliness of accounting information.

Audit committee independence (ACIND) has a mean of 0.47, suggesting that fewer than half of audit committee members are independent on average. This is relatively low given regulatory expectations that audit committees should be dominated by independent directors. The variation in ACIND implies that some firms have much stronger audit committee independence than others. From an accounting perspective, weaker audit committee independence can undermine the effectiveness of oversight over financial reporting and risk disclosure, increasing the risk of biased or boilerplate disclosures.

approximate normality.

Table 3: Correlation Matrix

Correlation Probability	RD	BSIZE	BIN	BGDV	BFE	BMEET
BSIZE	-0.001943 0.9825					
BIN	0.274442 0.0016	-0.572509 0.0000				
BGDV	0.423281 0.0000	-0.156721 0.0750	0.410415 0.0000			
BFE	0.372667 0.0000	-0.014629 0.8688	0.455962 0.0000	0.725234 0.0000		
BMEET	-0.027543 0.7558	-0.075670 0.3922	0.147998 0.0929	-0.020110 0.8203	0.062728 0.4783	
ACIND	0.093334 0.2909	-0.055033 0.5340	0.006550 0.9410	0.187052 0.0331	0.226666 0.0095	0.055338 0.5317

Source: Results Output 2025

Table 3 presents the correlation matrix showing the strength and direction of the relationships among risk disclosure and the board and audit committee variables. The correlation between risk disclosure (RD) and board size (BSIZE) is negative and extremely weak ($r = -0.002$) and



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statistically insignificant ($p = 0.9825$), indicating that variations in board size alone do not appear to influence the level of risk disclosure among Nigerian listed non-financial service companies. From an accounting perspective, this suggests that simply increasing or reducing the number of directors does not necessarily translate into better risk reporting unless it is accompanied by improvements in board effectiveness and expertise.

Risk disclosure is positively and significantly correlated with board independence (BIN) ($r = 0.274$, $p = 0.0016$), implying that firms with a higher proportion of independent directors tend to provide more extensive and transparent risk-related information. This finding aligns with agency theory, which argues that independent directors enhance monitoring and demand higher-quality financial reporting. In accounting terms, this implies that independent boards are more likely to insist on fuller disclosure of financial, operational, and strategic risks in annual reports. Board gender diversity (BGDV) also shows a strong positive and statistically significant correlation with risk disclosure ($r = 0.423$, $p < 0.01$), indicating that companies with more diverse boards tend to disclose more risk information. This suggests that gender-diverse boards may encourage more cautious and transparent reporting practices, improving the informativeness of financial statements and reducing the likelihood of withholding adverse risk information.

Similarly, board financial expertise (BFE) has a significant positive correlation with risk disclosure ($r = 0.373$, $p < 0.01$). This implies that boards with more financially literate members are better able to understand complex accounting standards, risk exposures, and estimation uncertainties, and are therefore more likely to ensure that such risks are properly communicated in financial reports. This enhances the reliability and decision usefulness of accounting information. Board meeting frequency (BMEET) has a weak and negative correlation with risk disclosure ($r = -0.028$) that is statistically insignificant ($p = 0.7558$). This indicates that merely holding more meetings does not guarantee better risk reporting. From an accounting standpoint, it suggests that the quality and focus of board discussions, rather than their frequency, are more important for improving disclosure quality.

Audit committee independence (ACIND) shows a positive but weak and statistically insignificant relationship with risk disclosure ($r = 0.093$, $p = 0.2909$). Although independence is theoretically expected to enhance disclosure quality, this result suggests that, in isolation, audit committee independence may not be sufficient to significantly influence risk reporting



practices in Nigerian non-financial firms. This underscores the possibility that its role may be more important as a moderating or interacting mechanism rather than a direct driver of disclosure. The correlations among the independent variables also reveal some important governance dynamics. Board size is strongly and negatively correlated with board independence ($r = -0.573$), indicating that larger boards tend to have a lower proportion of independent directors. Board diversity is strongly correlated with board financial expertise ($r = 0.725$), suggesting that firms that appoint diverse directors also tend to attract more financially knowledgeable board members. These interrelationships have accounting implications because they indicate that governance mechanisms do not operate in isolation; instead, their combined structure may shape how effectively firms oversee financial reporting and risk disclosure.

Table 4: Panel Regression Results

Dependent Variable: RD				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
BSIZE	0.013611	0.007501	1.814534	0.0723
BIN	0.140470	0.177789	0.790093	0.4311
BGDV	0.430825	0.109288	3.942122	0.0001
BFE	0.280784	0.094573	2.968957	0.0037
BMEET	0.000154	0.005479	0.028088	0.9776
ACIND	-0.934008	0.409094	-2.276513	0.0247
BSIZE*ACIND	0.028377	0.016821	1.687024	0.0944
BIN*ACIND	0.309867	0.407851	0.759755	0.4490
BGDV*ACIND	0.899959	0.235878	3.815350	0.0002
BFE*ACIND	0.521355	0.193170	2.698943	0.0080
BMEET*ACIND	0.001417	0.011846	0.119579	0.9050
R-squared	0.521534			
Adjusted R-squared	0.509320			
F-statistic	43.31923			
Prob(F-statistic)	0.000000			
Durbin-Watson stat	1.381939			

Source: Results Output 2025

Table 4 presents the panel regression results examining the effect of board heterogeneity and the moderating role of audit committee independence on risk disclosure (RD) among listed non-financial service companies in Nigeria. The model explains about 52 percent of the variation in risk disclosure ($R^2 = 0.52$), indicating a strong explanatory power for corporate governance variables in determining firms' risk reporting practices. This level of explanatory strength is consistent with prior studies that identify board and audit committee characteristics



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as key drivers of corporate transparency and disclosure quality (García-Meca et al., 2015; Ezeani & Egbunike, 2021; Dereje, 2023).

Board size (BSIZE) shows a positive but marginally significant effect on risk disclosure ($\beta = 0.0136$, $p = 0.0723$), suggesting that larger boards tend to be associated with slightly higher levels of risk reporting. This supports resource dependence theory, which argues that larger boards provide broader expertise and external linkages that improve monitoring and disclosure (Pfeffer & Salancik, 1978; Hillman, Shropshire & Cannella, 2007). However, the weak level of significance indicates that board size alone is not a strong predictor of risk disclosure, which aligns with previous findings in emerging markets that emphasize board quality over quantity (Olaoti, 2020; Orumwense & Orumwense, 2023).

Board independence (BIN) has a positive but statistically insignificant relationship with risk disclosure ($\beta = 0.1405$, $p = 0.4311$). Although agency theory predicts that independent directors should improve monitoring and disclosure (Jensen & Meckling, 1976), the Nigerian context may limit their effectiveness due to dominance of controlling shareholders and management influence, which has been widely documented in developing economies (Ali & Shadrach, 2023; Odetayo & Adegbe, 2022). Board gender diversity (BGDV) exerts a strong positive and statistically significant effect on risk disclosure ($\beta = 0.4308$, $p < 0.01$). This supports the view that gender-diverse boards are more risk-aware, ethically sensitive, and more inclined toward transparency (Adams & Ferreira, 2009; Carter, Simkins & Simpson, 2003; García-Meca et al., 2015). This finding implies that increasing female representation on boards enhances the quality and breadth of risk-related information in financial statements.

Board financial expertise (BFE) is also positively and significantly related to risk disclosure ($\beta = 0.2808$, $p = 0.0037$), indicating that boards with more financially literate directors provide more comprehensive and reliable risk information. This is consistent with prior research showing that financial expertise improves the board's ability to interpret accounting standards, risk exposures, and complex financial instruments, thereby strengthening disclosure quality (DeZoort, 1998; Carcello, Hollingsworth & Klein, 2011; Ezeani & Egbunike, 2021). Board meetings (BMEET) do not significantly affect risk disclosure ($p = 0.9776$), suggesting that meeting frequency alone does not improve transparency. This confirms earlier evidence that it is the substance and effectiveness of meetings, rather than their number, that matters for financial reporting oversight (Vafeas, 1999; Musa, 2023).



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Audit committee independence (ACIND) has a negative and statistically significant direct effect on risk disclosure ($\beta = -0.9340$, $p = 0.0247$). While this appears counterintuitive, it suggests that in isolation, independent audit committees may adopt conservative or compliance-oriented reporting that limits discretionary risk disclosure. Similar findings have been reported in emerging markets where independent committees focus on regulatory compliance rather than voluntary transparency (García-Sánchez & Martínez-Ferrero, 2018; El-Feky, 2023). However, the interaction terms reveal the true governance role of audit committee independence. The interaction between board gender diversity and audit committee independence (BGDV*ACIND) is positive and highly significant ($\beta = 0.9000$, $p = 0.0002$), indicating that audit committee independence significantly strengthens the positive effect of gender-diverse boards on risk disclosure. This implies that independent audit committees provide the institutional support needed to transform diverse board perspectives into effective reporting outcomes (García-Meca et al., 2015; El-Feky, 2023).

Similarly, the interaction between board financial expertise and audit committee independence (BFE*ACIND) is positive and significant ($\beta = 0.5214$, $p = 0.0080$), showing that independent audit committees amplify the ability of financially knowledgeable boards to demand higher-quality risk disclosures. This supports the argument that audit committees act as a bridge between board expertise and financial reporting outcomes (Carcello & Neal, 2000; Deumes, 2008). The interaction between board size and audit committee independence (BSIZE*ACIND) is positive but only marginally significant ($p = 0.0944$), suggesting a weak moderating effect. Meanwhile, the interactions involving board independence and board meetings are statistically insignificant, implying that audit committee independence does not significantly alter their impact on risk disclosure.

Conclusion and Recommendations

This study examined the moderating effect of audit committee independence on the relationship between board heterogeneity and risk disclosure among listed non-financial service companies in Nigeria. The findings provide strong evidence that corporate governance structures play a crucial role in shaping the transparency and quality of risk-related reporting in Nigerian firms. Although firms, on average, disclose a moderate level of risk information, substantial differences exist across companies, reflecting variations in board composition and the effectiveness of oversight mechanisms.



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Based on the findings of this study, several practical and policy-oriented recommendations are proposed. That listed non-financial service companies in Nigeria should strengthen board gender diversity and financial expertise by ensuring that board appointments prioritize professional competence, industry knowledge, and diversity of perspectives.

Also, regulators, particularly the Financial Reporting Council of Nigeria and the Securities and Exchange Commission, should intensify the enforcement of audit committee independence requirements. Firms should be required not only to appoint independent audit committee members but also to demonstrate their autonomy from management and controlling shareholders.

Again, firms should improve the professional capacity of audit committee members through continuous training in financial reporting, risk management, and corporate governance. This will enhance their ability to evaluate management's risk disclosures, challenge inadequate reporting, and ensure compliance with accounting standards and governance codes.

Furthermore, corporate governance codes should emphasize the combined role of board heterogeneity and audit committee independence rather than treating them as isolated mechanisms. Policy reforms should promote governance structures that allow diverse boards and independent audit committees to work together in strengthening transparency and reducing information asymmetry in financial reporting.

Finally, investors and other stakeholders should actively monitor board composition and audit committee structures when evaluating firms. By incorporating governance quality into investment decisions, market participants can create external pressure for companies to adopt better disclosure practices and more effective governance frameworks.

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