EXPLORING THE IMPACT OF BOARD EXPERIENCE DIVERSITY ON VOLUNTARY DISCLOSURE: THE MODERATING ROLE OF FIRM SIZE

Richmell Baaba Amanamah *

* Department of Accounting Studies Education, Faculty of Business,
Akenten Appiah-Menka University of Skill Training and Entrepreneurial Development, Kumasi, Ghana
Contact details: Akenten Appiah-Menka University of Skill Training and Entrepreneurial Development, P. O. Box 1277, Kumasi, Ghana

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Abstract

This study investigates the relationship between board experience diversity, and voluntary disclosure in sub-Saharan African firms, with a focus on the moderating role of firm size. Employing a quantitative research approach and a longitudinal design, the study tracks changes over multiple time points to identify long-term patterns and causal relationships. Data was collected from the annual reports of firms in Ghana, Nigeria, and South Africa, spanning the years 2009 to 2021, resulting in 1807 firm-year observations. Contrary to the hypothesized positive relationship, the findings reveal a negative relationship between board experience diversity and voluntary disclosure, suggesting that increased diversity complicates the decision-making process and hinders disclosure. This negative relationship is in contrast to the resource dependence theory and other previous empirical studies (Nel et al., 2022; Reguera-Alvarado & Bravo-Urquiza, 2020) and supports the findings of Pucheta-Martínez and Gallego-Álvarez (2020). Moreover, the study highlights the moderating effect of firm size, showing that larger firms tend to have higher levels of voluntary disclosure. This finding is supported by previous empirical studies (Al-Qahtani & Elgharbawy, 2020; Githaiga & Kosgei, 2023; Saha & Kabra, 2020). The interaction term indicates that as firm size increases, the negative impact of board experience diversity on voluntary disclosure diminishes. These findings highlight the importance of considering firm size when evaluating the impact of board diversity on disclosure practices and the need for tailored governance strategies that consider firm size and the complexities of diverse boards. Implications for corporate governance suggest that merely increasing board diversity is insufficient and thus, effective management of the complexities associated with diverse boards is important.

Keywords: Board Experience Diversity, Voluntary Disclosure, Firm Size, Sub-Saharan Africa

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1. INTRODUCTION

In today's ever-changing business environment, the success and longevity of businesses have been closely connected to the principles and practices of effective corporate governance. Corporate governance comprises the framework of guidelines, procedures, and methods that regulate the direction and oversight of a company (Mishra & Kapil, 2016; Puni & Anlesinya, 2019). It includes the mechanisms through which companies, and their managers, are held accountable to shareholders and other stakeholders. This according to Ludwig and Sassen (2022) ensures that corporate actions align with the firm's objectives and legal requirements. In businesses, robust corporate governance structures promote transparency, accountability, and effective decision-making. According to Amanamah (2024) and Napitupulu et al. (2023), these are essential for fostering investor confidence and long-term sustainability. In emerging markets like sub-Saharan Africa, corporate governance is particularly important due to the unique challenges these regions face (Amanamah, 2024; Areneke et al., 2022; Ozili, 2021). Some of these unique challenges include weaker regulatory frameworks, market volatility, and socio-economic instability. According to Wu and Jin (2022), strong corporate governance can mitigate risks, enhance operational efficiency, and attract foreign investment by demonstrating a commitment to ethical practices and sound management. This, in turn, supports economic development, reduces corruption, and builds a foundation for sustainable growth in these rapidly evolving markets. Corporate governance practices in sub-Saharan African countries vary widely, reflecting the diverse economic and regulatory environments across the region (Appiah-Kubi et al., 2020; Kimani et al., 2021; Waweru, 2020). Generally, there has been a growing emphasis on improving corporate governance standards, driven by regional organizations like the African Corporate Governance Network and initiatives such as the King Reports in South Africa (Mähönen, 2020; Maroun & Cerbone, 2024). However, the implementation of these practices often faces significant challenges. Wachira and Mathuva (2022) indicate that some unique challenges in the sub-Saharan African region include underdeveloped regulatory frameworks, which lead to inconsistent enforcement of governance standards. Moreover, market dynamics, such as high levels of informality and limited access to capital markets, further complicate the adoption of best governance practices (Waweru, 2020). Additionally, socio-economic factors like political instability, corruption, and varying levels of economic development influence corporate governance effectiveness (Almashhadani, 2021; Arslan & Alqatan, 2020; Naciti et al., 2022). Despite these challenges, there are substantial opportunities for firms that adopt strong governance practices. According to Appiah-Kubi et al. (2020) and Areneke et al. (2022), enhanced corporate governance practices can attract foreign investment, improve operational efficiencies, and build trust with stakeholders, ultimately contributing to economic growth and stability. Moreover, Al-Ahdal et al. (2020) add that robust corporate governance practices strongly influence business performance. This is because, it enhances transparency, accountability, and strategic decision-making. Therefore, by promoting ethical behaviour and sound management, firms in sub-Saharan Africa can enhance their competitiveness and sustainability, contributing to broader economic development and stability. Furthermore, in sub-Saharan Africa, where corporate governance practices are still evolving, voluntary disclosure plays an important role in bridging information gaps and enhancing corporate reputation. Voluntary disclosure according to Zamil et al. (2023) refers to the practice of providing additional information beyond what is legally required, distinguishing it from mandatory disclosure, which is governed by regulatory obligations. Voluntary disclosure includes sharing details about corporate strategies, risk management practices, social responsibility initiatives, and other aspects that offer deeper insights into a firm's operations and governance (Boateng et al., 2022; Charumathi & Ramesh, 2020; Pizzi et al., 2022). Monteiro et al. (2023) further add that the importance of voluntary disclosure lies in its ability to build transparency and accountability within firms, fostering trust and confidence among investors, stakeholders, and the public. Thus, by proactively disclosing information, firms demonstrate their commitment to ethical practices and sound management, which can attract foreign investment and improve market perceptions. In sub-Saharan Africa, where firms encounter distinct market dynamics and socio-economic challenges, Munisi (2020) indicates that the advantages of having a diverse range of board experience are evident. Fernández-Temprano and Tejerina-Gaite (2020) state that board experience diversity refers to the variety of backgrounds and expertise that board members bring to an organization. This diversity can be measured across multiple dimensions one of which is industry-specific expertise, which includes in-depth knowledge and experience in the company's sector (Khatib et al., 2023). Moreover, Islam et al. (2022) add that diverse experiences among board members are helpful for effective decision-making and strategic planning. Industry-specific expertise ensures that board decisions are informed by deep understanding and practical insights (Al-Qahtani & Elgharbawy, 2020; Guerin, 2022). Therefore, by fostering a range of perspectives and skills, firms can enhance their governance practices, improve transparency through voluntary disclosure, and ultimately drive better business performance. Also, firm size also affects disclosure practices, influencing both the extent and quality of voluntary and mandatory disclosures. Firm size refers to the scale of a company's operations and is typically measured by total assets, revenue, and number of employees (Bates, 2021; Drempetic et al., 2020). These metrics help classify firms into different categories, such as small, medium, and large enterprises (Bates, 2021). According to Cahya et al. (2023), firm size significantly impacts corporate governance structures and practices. Larger firms tend to have more formalized and comprehensive governance frameworks due to their complex operations and greater regulatory scrutiny. In contrast, small and medium enterprises (SMEs) might adopt more flexible and less formal

governance practices. Moreover, Meng and Zhang (2022) posit that larger firms are generally subject to stricter regulatory requirements and have more resources to invest in comprehensive disclosure practices. Consequently, they tend to provide more detailed and transparent information. Existing research has found a positive relationship between board diversity and voluntary disclosure, with diverse boards contributing to enhanced transparency and comprehensive reporting (Alshaiba & Abu Khalaf, 2024; Gouiaa & Huang, 2024; Kenfang Wambe, 2024; Kostyuk, 2024). Al-Qahtani and Elgharbawy (2020) and Issa et al. (2022) have found that boards with varied expertise and backgrounds tend to provide more extensive and detailed information, thus improving voluntary disclosure practices. Furthermore, Ananzeh (2022) also highlights that larger firms are generally better at implementing robust corporate governance and disclosure practices due to their resources and regulatory requirements. While some studies have focused on individual aspects of board diversity or firm size (Al-Qahtani & Elgharbawy, 2020; Nadeem, 2020; Reguera-Alvarado & Bravo-Urquiza, 2020), few have explored how these factors interact to influence voluntary disclosure. This lack of focus on sub-Saharan Africa, a region with unique governance challenges and opportunities, necessitates further studies to provide a clearer understanding of these relationships. This leads to a limited understanding of how board experience diversity affects voluntary disclosure practices in sub-Saharan African firms. This gap in knowledge is concerning given the role of transparency and accountability in fostering investor confidence and driving economic growth in the region. Additionally, there is a need to explore the moderating role of firm size in this relationship. Therefore, this study seeks to 1) assess the impact of board experience diversity on voluntary disclosure among firms in sub-Saharan Africa, and 2) examine the moderating role of firm size in the relationship between board experience diversity and voluntary disclosure. In achieving these objectives, the study utilised the resource dependence theory which posits that diverse boards provide access to a variety of resources and networks, enhancing the firm's ability to manage external dependencies and improve information transparency and hypothesise that, there is a positive and significant relationship between board experience diversity and the level of voluntary disclosure. The study also incorporates the moderating role of firm size, hypothesizing that firm size positively moderates the relationship between board experience diversity and voluntary disclosure.

The study strategy is the quantitative research approach using a longitudinal design to explore the relationship between board experience diversity, firm size, and voluntary disclosure over time. The data for the study was sourced from the annual reports of companies in Ghana, Nigeria and South Africa, spanning the years 2009 to 2021, resulting in 1807 firm-year observations. Regression analysis was used to assess the relationships between the dependent, independent, and moderating variables. To ensure the validity and reliability of the results, the Durbin-Wu-Hausman test was applied to ensure that the regression estimates were unbiased and consistent. Additionally, the variance inflation factor (VIF) was calculated to check for multicollinearity among the independent variables.

Improved voluntary disclosure can enhance investor confidence, leading to better access to capital and improved firm value. It also supports better decision-making by providing stakeholders with more comprehensive and reliable information. By filling the identified gaps in the literature, this study provides a basis for developing more effective governance policies and practices tailored to the unique needs of firms in sub-Saharan Africa.

The subsequent structure of this paper is as follows: Section 2 presents literature review, Section 3 offers research methodology, Section 4 demonstrates results, and Section 5 entails conclusion.

2. LITERATURE REVIEW

2.1. Board experience diversity

Board experience diversity refers to the range of backgrounds, skills, and expertise that board members bring to an organization (Issa et al., 2022). This diversity can include various dimensions, such as international experience, industry-specific knowledge, and functional expertise. The international experience involves board members who have worked or studied abroad, providing global perspectives and cross-cultural competencies that are invaluable in today's interconnected markets (Hosny & Elgharbawy, 2022; Issa et al., 2022). Also, Al-Qahtani and Elgharbawy (2020) indicate that industry-specific expertise refers to deep knowledge and experience within the company's sector, ensuring that board decisions are informed by practical insights and sector-specific challenges. Diverse boards according to Al-Rahahleh (2017) enhance corporate governance by bringing a multitude of perspectives to the table. This diversity can lead to more robust discussions, innovative solutions, and strategic decisions that are well-informed and considerate of various stakeholder interests (Fernández-Temprano & Tejerina-Gaite, 2020; Issa et al., 2022). Research moreover indicates that boards with diverse experiences are better equipped to oversee complex business operations, navigate global markets, and manage risks effectively (Khatib et al., 2023; Reguera-Alvarado & Bravo-Urquiza, 2020). In sub-Saharan African firms, where the business environment is often challenging and dynamic (Oguji & Owusu, 2021; Oyedele & Firat, 2020), board experience diversity can play an important role in enhancing governance practices and driving organizational success. By integrating different viewpoints and expertise, these boards can foster a culture of continuous improvement and strategic agility, ultimately contributing to better business performance and sustainability.

2.2. Voluntary disclosure

Voluntary disclosure involves the provision of information by a company beyond what is legally required (Oyerogba, 2014; Reguera-Alvarado & Bravo-Urquiza, 2020). Unlike mandatory disclosure, which is governed by regulatory requirements,

voluntary disclosure reflects a company's proactive approach to transparency and accountability (Ordóñez-Castaño et al., 2021). This can include financial data, strategic plans, risk management practices, corporate social responsibility (CSR) initiatives, and other pertinent information that stakeholders may find valuable. Saha and Kabra (2020) posit that the importance of voluntary disclosure lies in its ability to build trust and confidence among investors, regulators, customers, and other stakeholders. By voluntarily sharing detailed and accurate information, companies can demonstrate their commitment to ethical practices and sound governance. This transparency can enhance the firm's reputation, attract investment, and improve stakeholder relations (Pizzi et al., 2022). Voluntary disclosure helps bridge information gaps and ensures that stakeholders have a comprehensive understanding of the company's operations and strategies (Poulsen & Sigurjonsson, 2024; AlHares et al., 2023; Alsulami, 2023; Sari et al., 2023). Studies have shown that firms engaging in voluntary disclosure often experience improved financial performance (Enache & Hussainey, 2020; Wang et al., 2020) and greater market valuation (Charumathi & Ramesh, 2020; Qamruzzaman et al., 2021), as transparency reduces uncertainty and fosters a more informed investment environment. Thus, voluntary disclosure is a key component of effective corporate governance, contributing to the overall stability and growth of firms in the region.

2.3. Firm size

Firm size refers to the scale of a company's operations, typically measured by total assets, revenue, or the number of employees (Drempetic et al., 2020). Firms can be classified into small, medium, and large enterprises based on these metrics (Sari et al., 2019). Small firms often have simpler structures and fewer resources, while large firms typically possess extensive assets, higher revenues, and more complex organizational hierarchies. According to Fahad and Rahman (2020), firm size significantly impacts corporate governance and disclosure practices. This is because larger firms tend to have more formalised and comprehensive governance frameworks due to their complex operations and regulatory scrutiny (Fahad & Rahman, 2020). They are often subject to stricter regulatory requirements and have the resources to invest in robust governance and disclosure practices. This results in more detailed and transparent information being provided to stakeholders. In contrast SMEs adopt more flexible and adaptive governance practices due to resource constraints (Levstek et al., 2022). These firms focus more on mandatory disclosures, although voluntary disclosures can still play a vital role in building transparency and trust. Understanding the impact of firm size on governance and disclosure is important for developing tailored strategies that enhance transparency and accountability across different types of firms in the sub-Saharan African region.

2.4. Theoretical review: Resource dependence theory

Resource dependence theory postulated by Pfeffer and Salancik (1978) posits that organizations are not self-sufficient and that they rely on external resources to survive and thrive. These resources include capital, information, and human expertise. The theory suggests that organizations must navigate their external environment to secure necessary resources, which can lead to dependencies that influence organizational behaviour and strategies (Jiang et al., 2023; Oliveira et al., 2022). Boards of directors play an important role in managing these dependencies by providing access to resources and information, enhancing the organization's ability to adapt and respond to external pressures. This theory has been widely used to explain the impact of board composition on various organizational outcomes (Boivie et al., 2021; García-Ramos & Díaz, 2021; Pucheta-Martínez & Gallego-Álvarez, 2020). In relation to board experience diversity and voluntary disclosure, the theory suggests that diverse boards can provide a broader range of resources and perspectives (Reguera-Alvarado & Bravo-Urquiza, 2020). Also, according to Nel et al. (2022), diverse boards improve transparency and accountability by leveraging their collective expertise to ensure comprehensive and accurate disclosure of information. This aligns with the theory's premise that organizations must manage dependencies on external stakeholders, such as investors and regulators, through effective information dissemination. The resource dependence theory underpins this study because it directly addresses how external resources and dependencies influence organizational behaviour. This makes it a suitable framework for examining the impact of board experience diversity on voluntary disclosure. In sub-Saharan Africa, where firms often face unique resource constraints and governance challenges, the resource dependence theory provides a valuable lens to understand how diverse boards can help navigate these complexities by accessing resources and enhancing disclosure practices. Firms in this geographical region often operate in challenging environments characterized by resource scarcity, regulatory uncertainty, and socio-economic instability (Odeyemi et al., 2024). By drawing on the resource dependence theory, this study explores how board members with diverse experiences can mitigate these challenges by bringing in external resources and fostering better governance practices. Therefore, the resource dependence theory provides a robust theoretical framework for understanding the impact of board experience diversity on voluntary disclosure in sub-Saharan Africa.

2.5. Empirical review and hypotheses development

2.5.1. Board experience diversity and voluntary disclosure

The relationship between board experience diversity and voluntary disclosure has garnered significant attention in academic research. Board experience diversity refers to the variety of backgrounds, skills,

and expertise that directors bring to a board (Al-Rahahleh, 2017). This diversity can include dimensions such as international experience, industry-specific knowledge, and functional expertise, which collectively contribute to more informed and strategic decision-making (Fernández-Temprano & Tejerina-Gaite, 2020; Khatib et al., 2023). Several empirical studies have demonstrated a positive relationship between board diversity and voluntary disclosure. For instance, Nadeem (2020) found that gender-diverse boards are more likely to engage in rigorous monitoring and voluntary disclosure due to varied perspectives and risk aversion tendencies. Similarly, a study by Nel et al. (2022) indicated that boards with diverse professional backgrounds provide more comprehensive disclosures, enhancing transparency and accountability. Firms in the sub-Saharan African region often operate in challenging environments with varying regulatory frameworks and market dynamics (Odeyemi et al., 2024). Empirical evidence suggests that diverse boards are better equipped to navigate these complexities. For example, a study by Ry De Nyeadi et al. (2021) on African firms highlighted that boards with a mix of international and local experiences are more proactive in disclosing information voluntarily to attract foreign investment and build stakeholder trust. The theoretical underpinning for this relationship can be traced to resource dependence theory, which posits that organizations rely on external resources and that boards with diverse experiences can provide access to these resources (Jiang et al., 2023). This theory suggests that diverse boards can reduce uncertainty and information asymmetry by leveraging their varied knowledge and networks to enhance voluntary disclosure practices. Waweru (2020) adds that diverse boards are likely to have a broader range of insights and expertise, leading to more comprehensive and transparent information dissemination. Based on the empirical evidence and theoretical foundations, it is hypothesized that board experience diversity positively influences the level of voluntary disclosure. This relationship is particularly relevant in the sub-Saharan African context, where effective corporate governance can mitigate risks and enhance firm performance. Thus, the first hypothesis is formulated as follows:

H1: There is a positive and significant relationship between board experience diversity and the level of voluntary disclosure.

2.5.2. Board experience diversity, firm size and voluntary disclosure

The relationship between the size of the company, diversity in board experience, and voluntary disclosure is a broad and complicated topic. Firm size, typically measured by total assets, revenue, or number of employees, can influence how board diversity impacts voluntary disclosure (Sari et al., 2019). Larger firms often have more resources and face greater scrutiny, which can amplify the effects of board diversity on disclosure practices (Al-Qahtani & Elgharbawy, 2020; Issa et al., 2022). Empirical studies have shown that firm size has a relationship with board diversity and voluntary disclosure (Al-Qahtani & Elgharbawy, 2020; Saha & Kabra, 2020). Larger firms tend to have more formalized governance structures and are under greater pressure to provide detailed and transparent disclosures. For instance, Khaireddine et al. (2020) found that larger firms with diverse boards disclose more information voluntarily compared to smaller firms. This is because larger firms are more likely to attract diverse board members with extensive experience and expertise, who can leverage their knowledge to improve disclosure practices (Boshnak, 2022; Zamil et al., 2023). In the sub-Saharan African context, the role of firm size is particularly relevant. A study by Githaiga and Kosgei (2023) on African firms revealed that larger firms with diverse boards tend to disclose more information voluntarily, driven by the need to meet higher stakeholder expectations and regulatory requirements. This suggests that the positive impact of board experience diversity on voluntary disclosure is more pronounced in larger firms (Christopher et al., 2022; Kabara et al., 2023). The theoretical foundation for this relationship can also be drawn from resource dependence theory. Islam et al. (2022) posit that larger firms, with their greater resource base and complex operations, benefit more from the diverse experiences and expertise of their board members. These firms are better positioned to leverage the resources and networks of their diverse boards to enhance voluntary disclosure (Fernández-Temprano & Tejerina-Gaite, 2020). Nadeem (2020) further adds that larger firms, due to their greater resources and more stringent regulatory environment, are likely to enhance the positive effects of board diversity on voluntary disclosure. Given the empirical evidence and theoretical insights, it is hypothesized that firm size positively and significantly moderates the relationship between board experience diversity and voluntary disclosure. Thus, the second hypothesis is developed as follows:

H2: Firm size positively moderates the relationship between board experience diversity and voluntary disclosure.

3. RESEARCH METHODOLOGY

3.1. Research approach and design

This study employs a quantitative research approach using a longitudinal design to explore the relationship between board experience diversity, firm size, and voluntary disclosure over time. The longitudinal design allows for the collection of data across multiple time points, providing insights into how these variables evolve and influence each other over an extended period. Thus, by tracking changes in board experience diversity, firm size, and voluntary disclosure practices, the study aims to identify long-term patterns and causal relationships (Al-Ababneh, 2020). The longitudinal approach is particularly important in capturing the nature of board experience diversity and disclosure practices (Mehrad & Zangeneh, 2019). Data is collected from a representative sample of firms across various industries in three sub-Saharan African countries, ensuring a comprehensive understanding of the trends and factors influencing voluntary disclosure (Kelloway & Francis, 2012). This design enhances the study's robustness by accounting for temporal changes and providing a more detailed

analysis of the relationship between board experience diversity, firm size, and voluntary disclosure, contributing to the existing literature on corporate governance and transparency.

3.2. Data collection and sampling techniques

The data for this study is sourced from the annual reports of companies in Ghana, Nigeria and South Africa, spanning the years 2009 to 2021, resulting in 1807 firm-year observations. The annual reports of 150 companies were used for the study. 50 companies from each country. The companies were from different industries including the financial, mining, manufacturing and petroleum industries. A purposive sampling technique is employed to ensure that only companies meeting specific criteria are included in the sample (Etikan et al., 2016). The inclusion criteria required companies to have complete annual reports for the entire period from 2009 to 2021, ensuring consistency and reliability of data. The exclusion criteria exclude companies that have not been in business for at least seven years, thereby focusing on established firms with sufficient operational history. Purposive sampling allows for a targeted approach, selecting companies that provide the most relevant data for the study's objectives (Campbell et al., 2020). This method ensures that the selected companies have a stable operational history and comprehensive reporting practices. The diverse range of industries represented in the sample provides a broad perspective on corporate governance and voluntary disclosure practices across different business environments. The data collection and sampling techniques employed in this study provided a solid foundation for analysing the relationships between board experience diversity, firm size, and voluntary disclosure, yielding insights that are both reliable and generalizable across various sectors.

3.3. Variables, measurement and models

The variables in the study include *voluntary disclosure* (*VD*), *board experience diversity* (*BED*) and *firm size* (*FS*) with *firm age* (*FA*) and *financial leverage* (*FL*) as control variables. The table shows the variables and their measurements.

Table 1. Variables and their measurement

Variables		*Measurement*	*References*
Dependent variable	Voluntarily disclosure (*VD*)	Ratio of disclosed issues in financial statements to expected disclosures	Chen et al. (2016), Oyerogba (2014)
Independent variable	Board experience diversity (*BED*)	Proportion of directors with industry experience	Al-Rahahleh (2017), Elmagrhi et al. (2017)
Moderating variable	Firm size (*FS*)	Log of total assets	Abedalqader Al-Thuneibat et al. (2011), Sari et al. (2019)
Control variables	Firm age (*FA*)	Number of years in existence	Ali et al. (2020)
	Financial leverage (*FL*) = Debt (*DE*) / Equity (*EQ*)	Debt / Equity ratio.	Bei and Wijewardana (2012), Enekwe et al. (2014), Ibrahim and Isiaka, (2020)

Source: Author's elaboration.

3.3.1. Dependent variable

The dependent variable in this study is *voluntary disclosure* (*VD*). It is measured as the ratio of disclosed issues in a company's financial statements to the expected number of disclosures (Chen et al., 2016; Oyerogba, 2014). Specifically, this includes disclosures found in various parts of the annual report such as management's discussion and analysis, notes to the financial statements, corporate governance sections, and CSR reports. The measure aims to quantify the extent to which companies voluntarily provide additional information beyond the mandatory requirements, reflecting their transparency and commitment to stakeholders (Chen et al., 2016; Oyerogba, 2014).

3.3.2. Independent variable

The independent variable is *board experience diversity* (*BED*). This variable is quantified as the proportion of directors on the board who have prior experience in the company's industry (Al-Rahahleh, 2017; Elmagrhi et al., 2017). By assessing the diversity of industry-specific experience among board members, the study aims to determine how such diversity influences corporate practices and decision-making, particularly in the realm of voluntary disclosures. A diverse board with a breadth of industry experience is hypothesized to enhance the quality and extent of information disclosed voluntarily by the firm (Al-Rahahleh, 2017; Elmagrhi et al., 2017).

3.3.3. Moderating variable

Firm size (*FS*) serves as the moderating variable in this study. It is measured by taking the logarithm of the total assets of the firm (Abedalqader Al-Thuneibat et al., 2011; Sari et al., 2019). This transformation helps in normalizing the data and mitigating the impact of extreme values. The size of the firm is posited to influence the relationship between board experience diversity and voluntary disclosure, as larger firms might have more resources and greater incentives to disclose additional information voluntarily compared to smaller firms (Abedalqader Al-Thuneibat et al., 2011; Sari et al., 2019).

3.3.4. Control variables

Control variables are included to account for other factors that might affect voluntary disclosure. These include *firm age* (*FA*), measured by the number of years the company has been in existence (Ali et al., 2020), and *financial leverage* (*FL*), measured as the debt-to-equity ratio (Bei & Wijewardana, 2012;

Enekwe et al., 2014; Ibrahim & Isiaka, 2020). These controls help isolate the effect of the primary variables of interest. Older firms might have more established disclosure practices, while firms with higher leverage might disclose more information to mitigate perceived risks by creditors and investors.

Therefore, the models developed for the study include:

$$VD_{it} = \alpha + \beta_1 BED_{it} + \beta_2 FA_{it} + \beta_3 FL_{it} + \varepsilon_{it} \quad (1)$$

$$VD_{it} = \alpha + \beta_1 BED_{it} + \beta_2 (BED_{it} \times FS_{it}) + \beta_3 FA_{it} + \beta_4 FL_{it} + \varepsilon_{it} \quad (2)$$

where,

- *VD*: voluntary disclosure;
- *BED*: board experience diversity;
- *FS*: firm size;
- *FA*: firm age;
- *FL*: financial leverage;
- $BED \times FS$: interaction term between board experience diversity and firm size;
- ε: error term.

3.4. Method of data analysis

The study employs regression analysis to assess the relationships between the dependent, independent, and moderating variables. To investigate the moderation effect, the process macro by Hayes (2022) is utilized, which facilitates the testing of interaction effects in regression models. SPSS software is used for conducting descriptive statistics, correlation analysis, and regression analysis, providing a comprehensive overview of the data and ensuring robust statistical analysis. To ensure the validity and reliability of the results, several robustness tests are performed. The Durbin-Wu-Hausman test is applied to detect potential endogeneity issues, ensuring that the regression estimates are unbiased and consistent. Additionally, the VIF is calculated to check for multicollinearity among the independent variables, confirming that the predictors are not excessively correlated. These robustness checks enhance the credibility of the study's findings, providing confidence in the relationships identified between board experience diversity, firm size, and voluntary disclosure.

3.5. Robustness tests

3.5.1. Durbin-Wu-Hausman test for endogeneity

The results in Table 2 show the regression coefficients for the main model.

Table 2. Coefficients for voluntary disclosure

Model		*Unstandardized coefficients*		*Standardized coefficients*	*t*	*Sig.*
		B	*Std. error*	*Beta*		
1	(Constant)	0.921	0.015		59.436	0.000
	BED	-0.057	0.016	-0.092	-3.515	0.000
	FS	0.004	0.002	0.055	2.087	0.037
	FA	0.000	0.000	0.048	1.981	0.048
	FL	-2.433E-05	0.000	-0.027	-1.134	0.257

Note: Dependent variable: VD.
Source: Author's elaboration.

In Table 2, voluntary disclosure (*VD*) is the dependent variable. The key independent variable, board experience diversity (*BED*), has a significant negative effect ($\beta = -0.092$, $p < 0.001$). Firm size (*FS*) and firm age (*FA*) are both positively associated with *VD*, with *FS* ($\beta = 0.055$, $p = 0.037$) and *FA* ($\beta = 0.048$, $p = 0.048$) being statistically significant. Financial leverage (*FL*) is not significant in this model ($\beta = -0.027$, $p = 0.257$).

Table 3. Coefficients for unstandardized residual

Model		*Unstandardized coefficients*		*Standardized coefficients*	*t*	*Sig.*
		B	*Std. error*	*Beta*		
1	(Constant)	-2.713E-15	0.015		0.000	1.000
	BED	0.000	0.016	0.000	0.000	1.000
	FS	0.000	0.002	0.000	0.000	1.000
	FA	0.000	0.000	0.000	0.000	1.000
	FL	0.000	0.000	0.000	0.000	1.000

Note: Dependent variable: Unstandardized residual.
Source: Author's elaboration.

Table 3 presents the regression of unstandardized residuals on the independent variables. All coefficients are zero with a p-value of 1.000, indicating no significant relationship between the residuals and the independent variables. This suggests that endogeneity is not a concern in this model, as there are no omitted variables that correlate with both the predictors and the residuals.

3.5.2. Multicollinearity check (VIF)

Table 4 shows the collinearity diagnostics, highlighting the condition indices and variance proportions.

Table 4. Collinearity diagnostics

Model		Eigenvalue	Condition index	Variance proportions				
				(Constant)	*BED*	*FS*	*FA*	*FL*
1	1	3.705	1.000	0.00	0.00	0.00	0.02	0.00
	2	0.996	1.929	0.00	0.00	0.00	0.00	0.99
	3	0.231	4.003	0.01	0.03	0.01	0.98	0.00
	4	0.049	8.701	0.18	0.94	0.07	0.00	0.01
	5	0.019	14.085	0.81	0.03	0.92	0.00	0.00

Note: Dependent variable: VD.
Source: Author's elaboration.

The condition index values are all below 15, suggesting acceptable levels of multicollinearity. Most variance proportions for the independent variables are low across factors, indicating no multicollinearity issues.

Table 5. Tolerance and variance inflation factor

Variable	Tolerance	VIF
BED	0.811	1.233
FS	0.799	1.251
FA	0.950	1.053
FL	0.993	1.007

Source: Author's elaboration.

Table 5 provides the tolerance and VIF values for each independent variable. The VIF values for *BED*, *FS*, *FA*, and *FL* are 1.233, 1.251, 1.053, and 1.007 respectively, all below the threshold of 10. Tolerance values are above 0.1, further confirming that multicollinearity is not a concern in this study. These diagnostics reinforce the robustness of the regression model, ensuring reliable and valid results.

4. RESULTS AND DISCUSSIONS

This section presents the results and discussions of the findings of the study. The section starts with a descriptive statistic of the variables and the correlation results.

4.1. Descriptive statistics

The descriptive statistics for the variables in the study are presented in Table 6.

Table 6. Descriptive statistics

Variables	N	Minimum	Maximum	Mean	Std. deviation
VD	1807	0.0000	1.0000	0.9270	0.1247
BED	1805	0.0000	1.0000	0.6490	0.2005
FS	1805	8.3456	13.0756	9.0384	1.7943
FA	1807	2.0000	134.0000	45.1655	29.9883
FL	1807	-44.3549	4703.6580	8.8644	136.8068

Source: Author's elaboration.

The analysis includes 1807 firm-year observations for *VD*, *BED*, *FS*, *FA*, and *FL*, with slight variations in sample size for *BED* and *FS*. The mean *VD* score is 0.9270 with a standard deviation of 0.1247, indicating that on average, firms disclose 92.70% of voluntary information, suggesting a high level of transparency among the sampled firms. Also, the mean *BED* score is 0.6490 with a standard deviation of 0.2005, suggesting that the average board has a moderate level of experience diversity. This implies that while some firms have highly diverse boards, others may lack such diversity. Furthermore, the mean *FS*, measured as the logarithm of total assets, is 9.0384 with a standard deviation of 1.7943. The minimum and maximum values range from 8.3456 to 13.0756, reflecting considerable variability in firm sizes within the sample. The mean *FA* is 45.1655 years with a standard deviation of 29.9883, indicating that the sample includes both relatively young and very old firms, with ages ranging from 2 to 134 years. Finally, the mean *FL* is 8.8644 with a high standard deviation of 136.8068, showing significant variability and extreme values ranging from -44.3549 to 4703.6580. This wide range suggests diverse financial structures among the firms, with some heavily leveraged and others with negative leverage. Therefore, the descriptive statistics highlight substantial variation across the sampled firms in terms of size, age, leverage, and board experience diversity, which can influence their voluntary disclosure practices.

4.2. Correlation statistics

The correlation statistics in Table 7 provide insights into the relationships between *VD* and other key variables: *BED*, *FS*, *FA*, and *FL*.

Table 7. Correlation statistics

Variables	VD	BED	FS	FA	FL
VD	1				
BED	-0.059*	1			
FS	0.026	0.423**	1		
FA	0.044	0.162**	0.208**	1	
FL	-0.021	-0.063**	0.017	-0.016	1

*Note: * Correlation is significant at the 0.05 level (2-tailed). ** Correlation is significant at the 0.01 level (2-tailed).*
Source: Author's elaboration.

First of all, the correlation between *BED* and *VD* is negative and significant at the 0.05 level (r = -0.059). This indicates that higher board experience diversity is associated with lower levels of voluntary disclosure. This result suggests that while diverse boards bring a variety of perspectives, they also lead to more complex decision-making processes that could impact the consistency or extent of information disclosed voluntarily. Secondly, the correlation between *FS* and *VD* is positive but not significant (r = 0.026). This weak positive relationship suggests that larger firms disclose more information voluntarily, but the effect is not strong enough to be statistically significant in this sample. Larger firms generally have more resources and face greater scrutiny, which drives higher levels of voluntary disclosure. Moreover, the correlation between *FA* and *VD* is positive but weak (r = 0.044) and not statistically significant. This indicates that older firms have higher levels of voluntary disclosure. Older firms have more established governance practices and a longer history of interactions with stakeholders, which enhance their transparency and disclosure practices. Finally, the correlation between *FL* and *VD* is negative and not significant (r = -0.021). This weak negative relationship suggests that firms with higher leverage disclose less information voluntarily, although the effect is not strong. Highly leveraged firms are more cautious in their disclosures to avoid highlighting financial vulnerabilities. Therefore, these correlations indicate that the relationships between voluntary disclosure and the other variables are generally weak, with only the relationship with *BED* being statistically significant.

4.3. Regression statistics

This subsection presents the results of the two objectives and hypotheses developed in this study.

4.3.1. Board experience diversity and voluntary disclosure

This subsection presents the regression analysis results addressing the first objective and hypothesis: the relationship between *BED* and *VD*. The analysis includes *FL* and *FA* as control variables.

Table 8. Model summary: Correlation statistics

Model	*R*	*R square*	*Adjusted R square*	*Std. error of the estimate*
1	0.084*	0.007	0.005	0.1244

*Note: * Predictors: (Constant), FL, FA, BED.*
Source: Author's elaboration.

The model summary in Table 8 provides an overview of the regression model's performance. The R-value of 0.084 indicates a weak positive correlation between the predictors (*BED*, *FA*, and *FL*) and *VD*. The R square value of 0.007 suggests that approximately 0.7% of the variance in voluntary disclosure is explained by the model. The adjusted R square of 0.005 indicates a minimal adjustment for the number of predictors in the model, confirming that the explanatory power of the model remains very low. The standard error of the estimate is 0.1244, reflecting the average distance that the observed values fall from the regression line.

Table 9. Analysis of variance (ANOVA)

Model		*Sum of squares*	*df*	*Mean square*	*F*	*Sig.*
1	Regression	0.197	3	0.066	4.245	0.005*
	Residual	27.869	1801	0.015		
	Total	28.066	1804			

*Note: Dependent variable: VD. * Predictors: (Constant), FL, FA, BED.*
Source: Author's elaboration.

The ANOVA table (Table 9) assesses the overall significance of the regression model. The regression sum of squares is 0.197, while the residual sum of squares is 27.869, leading to a total sum of squares of 28.066. With 3 degrees of freedom (df) for the regression and 1801 for the residual, the mean square for the regression is 0.066. The F-value of 4.245 with a significance level (p-value) of 0.005 indicates that the regression model is statistically significant, suggesting that the predictors collectively have a significant impact on voluntary disclosure.

Table 10. Impact of predictors on voluntarily disclosure

Model		*Unstandardized coefficients*		*Standardized coefficients*	*t*	*Sig.*
		B	*Std. error*	*Beta*		
1	(Constant)	0.945	0.010		91.098	0.000
	BED	-0.043	0.015	-0.069	-2.912	0.004
	FA	0.0002	0.000	0.055	2.310	0.021
	FL	-2.209E-05	0.000	-0.024	-1.031	0.303

Note: Dependent variable: VD.
Source: Author's elaboration.

Table 10 presents the coefficients of the regression model, showing the impact of each predictor on *VD*. The constant term is 0.945 with a significant t-value of 91.098 (p < 0.000), indicating that when all predictors are zero, the average *VD* is 0.945. The coefficient for *BED* is -0.043, with a significant t-value of -2.912 (p = 0.004), suggesting a negative relationship between *BED* and *VD*. This indicates that an increase in *BED* is associated with a decrease in *VD*, contrary to the hypothesis. The coefficient for *FA* is 0.0002, with a t-value of 2.310 (p = 0.021), indicating a positive relationship between *FA* and *VD*. The coefficient for *FL* is -2.209E-05 with a non-significant t-value of -1.031 (p = 0.303), suggesting that *FL* does not significantly affect *VD*.

The regression analysis results indicate that contrary to *H1*, there is a negative relationship between *BED* and *VD*. This finding suggests that an increase in *BED* is associated with a decrease in *VD*, which is contrary to the positive relationship proposed by resource dependence theory and

supported by previous empirical studies (Nel et al., 2022; Reguera-Alvarado & Bravo-Urquiza, 2020). Resource dependence theory posits that diverse boards provide a broader range of resources and perspectives, enhancing transparency and accountability (Jiang et al., 2023; Oliveira et al., 2022). However, this study's findings suggest that increased diversity complicates decision-making processes and introduces conflicts that hinder voluntary disclosure (Pucheta-Martínez & Gallego-Álvarez, 2020). Based on the findings, the *H1* is rejected. The negative relationship found between *BED* and *VD* indicates that, in this sample of sub-Saharan African firms, increasing board experience diversity does not lead to higher levels of voluntary disclosure.

4.3.2. Board experience diversity, firm size and voluntary disclosure

This section presents the analysis of the moderating effect of *FS* on the relationship between *BED* and *VD*. The interaction term between *BED* and *FS* is included to understand this moderating effect.

Table 11. Regression model overview

R	*R square*	*MSE*	*F*	*df1*	*df2*	*p*
0.0950	0.0090	0.0155	5.4638	3.0000	1799.0000	0.0010

Note: MSE is mean square error.
Source: Author's elaboration.

The model summary in Table 11 provides an overview of the regression model with the interaction term. The R-value of 0.095 indicates a slightly stronger correlation between the predictors and *VD* compared to the previous model. The R square value of 0.009 suggests that about 0.9% of the variance in *VD* is explained by the model, which is an improvement over the previous model. The mean square error (MSE) is 0.0155, and the F-value is 5.4638 with 3 and 1799 degrees of freedom, indicating that the model is statistically significant (p = 0.001). This suggests that the inclusion of the interaction term adds explanatory power to the model.

Table 12. Coefficients of regression model

Variables	*Coefficient*	*SE*	*t*	*p*	*LLCI*	*ULCI*
Constant	0.8233	0.0496	16.5922	0.0000	. 07260	0.9206
BED	0.1114	0.0797	1.3982	0.1622	-0.0449	0.2676
FS	0.0159	0.0058	2.7389	0.0062	0.0045	0.0272
FA	0.0018	0.0006	2.8972	0.0038	0.0006	0.0031
FL	-0.0007	0.0004	-1.8535	0.0640	-0.0014	0.0000
Int_1	-0.0186	0.0088	-2.1054	0.0354	-0.0360	-0.0013

Note: SE is standard error, LLCI is lower limit confidence interval, ULCI is upper limit confidence interval.
Source: Author's elaboration.

Table 12 presents the coefficients of the regression model, including the interaction term (*Int_1*: *BED* × *FS*). The constant term is 0.8233 with a significant t-value of 16.5922 (p < 0.000), indicating the baseline level of *VD* when all predictors are zero. The coefficient for *BED* is 0.1114, but it is not statistically significant (t = 1.3982, p = 0.1622), suggesting that on its own, board experience diversity does not significantly influence *VD*. The coefficient for *FS* is 0.0159, which is significant (t = 2.7389, p = 0.0062), indicating that larger firms tend to have higher levels of voluntary disclosure. *FA* also has a significant positive coefficient of 0.0018 (t = 2.8972, p = 0.0038), showing that older firms disclose more voluntarily. *FL* has a negative but not statistically significant coefficient (-0.0007, t = -1.8535, p = 0.0640). Importantly, the interaction term (*Int_1*: *BED* × *FS*) has a significant negative coefficient of -0.0186 (t = -2.1054, p = 0.0354), indicating that *FS* negatively moderates the relationship between *BED* and *VD*.

Table 13. Test(s) of highest order unconditional interaction(s)

Labels	*R square change*	*F*	*df1*	*df2*	*p*
*X * W*	0.0024	4.4326	1.0000	1799.0000	0.0354

Source: Author's elaboration based on Hayes (2022).

Table 13 tests the significance of the interaction term. The change in R square due to the interaction is 0.0024, with an F-value of 4.4326 and 1 and 1799 degrees of freedom, which is statistically significant (p = 0.0354). This confirms that the interaction between board experience diversity and firm size significantly contributes to the model, indicating a meaningful moderating effect.

The regression analysis reveals that firm size moderates the relationship between board experience diversity and voluntary disclosure. While board experience diversity alone does not significantly impact voluntary disclosure, its effect is contingent on firm size. Larger firms tend to disclose more voluntarily, and the negative interaction term suggests that as firm size increases, the positive effect of board experience diversity on voluntary disclosure diminishes. These findings highlight the importance of considering firm size when evaluating the impact of board diversity on disclosure practices, providing valuable insights for improving corporate governance in sub-Saharan African firms. This finding is supported by previous empirical studies which suggest that larger firms with diverse boards often face greater scrutiny and

regulatory pressures, leading to more detailed and transparent disclosures (Al-Qahtani & Elgharbawy, 2020; Githaiga & Kosgei, 2023; Saha & Kabra, 2020). Moreover, the theoretical foundation for this relationship can be drawn from resource dependence theory, which posits that larger firms, with their greater resource base and complex operations, benefit more from the diverse experiences and expertise of their board members (Fernández-Temprano & Tejerina-Gaite, 2020; Nadeem, 2020). Based on the findings, the *H2* is supported. This suggests that while board experience diversity alone does not lead to higher voluntary disclosure, the size of the firm can influence and enhance this relationship.

5. CONCLUSION

Improving corporate governance and transparency in sub-Saharan African companies requires strengthening voluntary disclosure through suitable firm management and effective board diversity. The findings from this study show the relationship between board experience diversity, firm size, and voluntary disclosure in sub-Saharan African firms. Contrary to the hypothesized positive relationship, the results reveal a negative relationship between board experience diversity and voluntary disclosure. This suggests that increased diversity may complicate decision-making and introduce conflicts that hinder the level of voluntary disclosure. The finding of this study is in contrast to the expectations set by resource dependence theory and prior empirical studies (Nel et al., 2022; Reguera-Alvarado & Bravo-Urquiza, 2020). The finding suggests that an increase in board experience diversity is associated with a decrease in voluntary disclosure, which is contrary to the positive relationship proposed by resource dependence theory and supported by previous empirical studies (Nel et al., 2022; Reguera-Alvarado & Bravo-Urquiza, 2020). The study also revealed that diversity complicates decision-making processes and introduces conflicts that hinder voluntary disclosure supporting the work of Pucheta-Martínez and Gallego-Álvarez (2020). Furthermore, the study showed that larger firms tend to disclose more voluntarily and that as firm size increases, the positive effect of board experience diversity on voluntary disclosure diminishes. This finding is supported by previous empirical studies which suggest that larger firms with diverse boards often face greater scrutiny and regulatory pressures, leading to more detailed and transparent disclosures (Al-Qahtani & Elgharbawy, 2020; Githaiga & Kosgei, 2023; Saha & Kabra, 2020).

Importantly, the study shows the moderating role of firm size in this relationship. The study found that larger firms tend to have higher levels of voluntary disclosure, and the interaction term indicates that as firm size increases, the negative impact of board experience diversity on voluntary disclosure diminishes. This suggests that larger firms, despite their resource advantages, may face greater complexity and potential conflicts in leveraging board diversity effectively. Therefore, while diversity remains important for good corporate governance, larger firms need tailored strategies to manage the complexities that come with it.

This study, while providing valuable insights into the relationship between board experience diversity, firm size, and voluntary disclosure, has several limitations. Firstly, the data is limited to firms in sub-Saharan Africa, which may limit the generalizability of the findings to other regions with different regulatory and economic environments. The unique challenges and opportunities in sub-Saharan Africa mean that the results may not be directly applicable to firms operating under different conditions. Secondly, the measure of board experience diversity does not capture all dimensions of diversity, such as cognitive diversity or personality traits, which could also impact disclosure practices. Lastly, the study does not account for other potential moderating variables, such as industry type or economic conditions, which could influence the relationship between board diversity and voluntary disclosure. Moreover, the findings of this study have several important implications for corporate governance in sub-Saharan Africa. The negative relationship between board experience diversity and voluntary disclosure suggests that merely increasing board diversity may not be sufficient to enhance transparency. This finding indicates that firms need to manage the complexities and potential conflicts that come with diverse boards effectively. The significant moderating role of firm size highlights that larger firms, with more resources and greater scrutiny, can better leverage board diversity for enhanced disclosure. This shows the need for tailored governance strategies that consider firm size and the specific challenges and opportunities it presents. For policymakers and regulators, these findings suggest that promoting board diversity should be accompanied by supportive measures that help firms manage the complexities of diverse boards. Providing guidelines on best practices for integrating diverse perspectives and fostering effective decision-making processes is important and must be taken into consideration. Additionally, enhancing regulatory frameworks to encourage transparency and accountability is also important for leveraging the benefits of board diversity. Based on the study's findings, several recommendations can be made. Firstly, firms should develop governance strategies that consider their specific size and resources. Larger firms, in particular, should focus on managing the complexities that come with diverse boards, ensuring that diverse perspectives are integrated effectively into decision-making processes. Furthermore, policymakers and regulators should create and enforce frameworks that support board diversity while providing guidelines for managing potential conflicts and enhancing transparency. This could involve training programs for board members on effective governance practices in diverse settings. Also, firms should implement mechanisms for ongoing monitoring and evaluation of board composition and its impact on disclosure practices. This can help identify areas where diversity may be creating challenges and allow for timely interventions to address these issues. Moreover, future research should consider broader measures of diversity, including cognitive and personality diversity, to provide a more comprehensive understanding of how diverse boards influence voluntary disclosure.

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