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Board Characteristics And Sustainability Reporting In Banks: Evidence From Indonesia And Zimbabwe

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Abstract

This study examines the effect of board characteristics on sustainability reporting in the banking sector, focusing on Indonesia and Zimbabwe as contrasting regulatory environments. Using panel data from 2020 to 2024 and a fixed-effects model with Driscoll Kraay standard errors, this study addresses heteroskedasticity, autocorrelation, and cross-sectional dependence. The findings show that female directors have a positive effect on sustainability reporting, while board size and board independence do not have a significant impact. Board meeting frequency is found to have a negative effect, indicating that governance effectiveness is determined by the quality rather than the intensity of monitoring. In addition, firm size, leverage, and profitability positively influence sustainability disclosure. These findings extend agency theory by demonstrating that governance mechanisms are context-dependent and may not function effectively when implemented solely as formal structures. In emerging markets, sustainability reporting is shaped more by substantive governance practices and institutional pressures than by structural board characteristics. Practically, the results suggest that regulators and financial institutions should focus on strengthening board diversity and improving governance quality rather than merely complying with formal requirements. This study provides comparative evidence and contributes to the understanding of sustainability reporting dynamics in emerging market contexts.

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Keywords: Board Characteristics; Sustainability Reporting; Corporate Governance; Banking Sector; Emerging Markets.

INTRODUCTION

The global banking sector has undergone a substantial transformation from a primary focus on financial performance toward the integration of Environmental, Social, and Governance (ESG) principles(Brogi & Lagasio, 2025a). This shift is driven not only by regulatory requirements but also by increasing expectations from stakeholders, including institutional investors, regulators, and society, regarding transparency and accountability (Brogi & Lagasio, 2025b; Buallay & Hamdan, 2022; Park & Kim, 2020). In this context, sustainability reporting has become an important mechanism for communicating corporate responsibility and enhancing the credibility of financial institutions (Darteh & Fiorani, 2025).

Although sustainability reporting has been mandated, only around 60–70% of banks provide comprehensive disclosure, while the remaining 30–40% still report partially. In Indonesia, sustainability reporting has been mandated through OJK Regulation No. 51/POJK.03/2017, requiring financial institutions to disclose sustainability-related information. However, the extent and quality of disclosure differ significantly across banks (Brogi & Lagasio, 2025a; Buallay & Hamdan, 2022). Some institutions provide comprehensive sustainability reports aligned with international standards such as GRI, while others still present limited disclosure within annual reports(Anyigbah et al., 2023; Mahmood, 2018).

This condition indicates that although regulatory compliance exists, the depth of disclosure is not uniform (Khalaf, 2024a). In other words, while a proportion of banks has achieved relatively high transparency, another proportion still provides partial or minimal disclosure (Abang'a & Tauringana, 2024). This imbalance may lead to persistent information asymmetry and reduce stakeholder confidence in sustainability practices(Brogi & Lagasio, 2025a; Darteh & Fiorani, 2025). A similar pattern is observed in other emerging economies, where sustainability reporting practices are influenced by institutional maturity and regulatory enforcement(Anyigbah et al., 2023; Khalaf, 2024b).

In Zimbabwe, sustainability reporting has historically been voluntary and less standardized, with regulatory strengthening only emerging in recent years. As a result, many banks still demonstrate limited disclosure practices(Anyigbah et al., 2023; Khalaf, 2024b). These conditions highlight that regulatory pressure alone does not guarantee consistent reporting behavior, and internal governance mechanisms may play a critical role in determining disclosure

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quality (Pratama et al., 2022; Pratama & Innayah, 2021; Darteh & Fiorani, 2025).

Agency theory explains that conflicts between principals and agents arise due to differences in interests and information asymmetry (Jensen & Meckling, 1976). In the banking sector, this issue becomes more pronounced due to the complexity of financial operations and the reliance on public trust(Fama et al., 1983; Mahmood, 2018). Increasing transparency through sustainability reporting can reduce these conflicts by strengthening monitoring and accountability(Brogi & Lagasio, 2025b; Mahmood, 2018). The board of directors serves as the main internal governance mechanism responsible for overseeing management and ensuring the quality of disclosure (Buallay & Hamdan, 2022; Fama et al., 1983).

Board characteristics are frequently associated with the effectiveness of this monitoring function. A larger board may enhance oversight capacity by providing diverse expertise and perspectives(Brogi & Lagasio, 2025b; Khalaf, 2024a). Independent directors are expected to strengthen objectivity and reduce managerial opportunism (Fama et al., 1983). Gender diversity, particularly the presence of female directors, is often linked to stronger ethical awareness and stakeholder orientation (Buallay & Hamdan, 2022; Romero & Ruiz-blanco, 2014). In addition, the frequency of board meetings reflects the intensity of monitoring and involvement in strategic decision-making(Anyigbah et al., 2023; Irshad et al., 2020).

However, empirical findings on the relationship between board characteristics and sustainability reporting remain inconclusive. Several studies report positive and significant effects of board size and independence on disclosure practices(Brogi & Lagasio, 2025b; Buallay & Hamdan, 2022), while others find weak or insignificant relationships depending on institutional settings (Alta, 2024; Abang'a & Tauringana, 2024). Similarly, evidence on gender diversity and board meetings shows mixed results, suggesting that governance mechanisms do not operate uniformly across contexts (Anyigbah et al., 2023).

Most prior studies have focused on developed economies or non-financial sectors and often adopt a single-country approach(Darteh & Fiorani, 2025). Comparative studies examining the banking sector across different regulatory environments in developing countries remain limited (Anyigbah et al., 2023; Khalaf, 2024c). This limitation is important because governance effectiveness is closely linked to regulatory frameworks and institutional pressures(Khalaf, 2024a).Indonesia and Zimbabwe represent contrasting regulatory environments. Indonesia applies a mandatory approach to sustainability reporting, creating formal pressure for compliance. Zimbabwe reflects an evolving regulatory system where sustainability disclosure practices are still developing. These differences provide an opportunity to examine how board

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characteristics function under varying levels of regulatory pressure (Darteh & Fiorani, 2025).

Based on these issues, three main research gaps can be identified. First, empirical evidence on the relationship between board characteristics and sustainability reporting remains inconsistent across studies (Alta, 2024; Buallay & Hamdan, 2022); Abang'a & Tauringana, 2024). Second, comparative research across developing countries, particularly in the banking sector, is still limited (Anyigbah et al., 2023; Darteh & Fiorani, 2025). Third, there is limited understanding of how governance mechanisms operate under different levels of regulatory pressure(Brogi & Lagasio, 2025b; Khalaf, 2024b).

This study examines the effect of board size, board independence, female directors, and board meeting frequency on sustainability reporting in the banking sector in Indonesia and Zimbabwe during the period 2020–2024, while controlling for firm size, leverage, and profitability. This study contributes by providing comparative evidence across institutional contexts and by highlighting the role of governance mechanisms in reducing information asymmetry and improving transparency in emerging markets. Therefore, examining board characteristics in different regulatory contexts becomes essential to understand how governance mechanisms shape sustainability reporting.

Agency theory explains that conflicts of interest arise between managers (agents) and owners or stakeholders (principals) due to information asymmetry(Jensen & Meckling, 1976). Managers possess more information than external parties, creating the potential for opportunistic behavior when monitoring mechanisms are weak. In the banking sector, this issue becomes more complex because banks manage public funds and operate under strict regulatory environments(Fama et al., 1983). These conditions increase the need for transparency and effective monitoring.

Sustainability reporting can be viewed as a governance mechanism that enhances transparency and reduces information asymmetry(Brogi & Lagasio, 2025b; Mahmood, 2018). Through the disclosure of environmental and social information, firms signal accountability and strengthen institutional legitimacy. The effectiveness of such disclosure, however, depends on the quality of internal governance, particularly the board of directors. Board characteristics such as size, independence, gender diversity, and meeting frequency reflect the board's monitoring capacity and are therefore expected to influence sustainability reporting.

Agency theory assumes that larger boards have the potential to provide more diverse expertise, experience, and resources thereby increasing the effectiveness of oversight of management(Fama et al., 1983; Jensen & Meckling, 1976). This increase in monitoring capacity is

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expected to limit opportunistic behavior and encourage wider disclosure of information, including sustainability reporting. Previous research has found a positive relationship between board size and sustainability reporting. (Buallay & Hamdan, 2022) and(Brogi & Lagasio, 2025a), show that companies with larger boards tend to have higher levels of sustainability disclosure. Similar evidence is also found in the context of developing countries(Anyigbah et al., 2023; Khalaf, 2024c). Based on theoretical arguments and the dominance of supporting empirical findings, this study expects a positive relationship between board size and sustainability reporting.

H1: Board size has a positive effect on sustainability reporting.

Board independence is an important indicator of the effectiveness of board supervision. In agency theory, independent directors are seen as having a higher level of objectivity because they are not directly involved in the company's operational management(Fama et al., 1983). The presence of independent directors strengthens the monitoring function, reduces management dominance, and improves the quality of supervision of disclosure policies. Sustainability reporting explains that independent directors are expected to encourage broader transparency as part of efforts to reduce information asymmetry and strengthen institutional accountability(Mahmood, 2018) . A number of studies have found that the proportion of independent directors has a positive effect on sustainability disclosure(Anyigbah et al., 2023; Oyerogba et al., 2024).

H2: Board independence has a positive effect on sustainability reporting.

Gender diversity, particularly the existence of female directors reflects the diversity of the board that can improve the quality of supervision. Agency theory believes that gender diversity enriches the board's perspective, improves the quality of discussions, and strengthens the monitoring function of management (Jensen & Meckling, 1976). More diverse boards tend to be more critical and more sensitive to ethical and reputational issues, including sustainability disclosures. Empirical evidence suggests that the presence of women on boards is often associated with higher levels of sustainability reporting(Buallay & Hamdan, 2022; Romero & Ruiz-blanco, 2014). Research in various developing countries has also found a positive relationship between gender diversity and sustainability disclosure (Cicchiello et al., 2025; Mohtar et al., 2025). Based on theoretical arguments and the majority of empirical evidence, this study expects that the existence of female directors will increase sustainability reporting.

H3: Female directors have a positive effect on sustainability reporting.

Board meeting frequency reflects the intensity of monitoring and board involvement in strategic decision-making. Boards that meet more frequently are expected to exercise stronger oversight and improve disclosure practices(Anyigbah et al., 2023; Irshad et al., 2020). Some

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studies confirm a positive relationship between meeting frequency and sustainability reporting(Khalaf, 2024a). However, other studies argue that frequent meetings do not necessarily improve effectiveness if they are routine or administrative (Hasan et al., 2022; Rahman, 2020). Despite these inconsistencies, higher monitoring intensity is theoretically expected to enhance transparency.

H4: Board meeting frequency has a positive effect on sustainability reporting.

Based on agency theory and prior empirical findings, this study proposes that board characteristics play a role in shaping sustainability reporting practices in the banking sector. The conceptual framework of this study is presented in Figure 1.

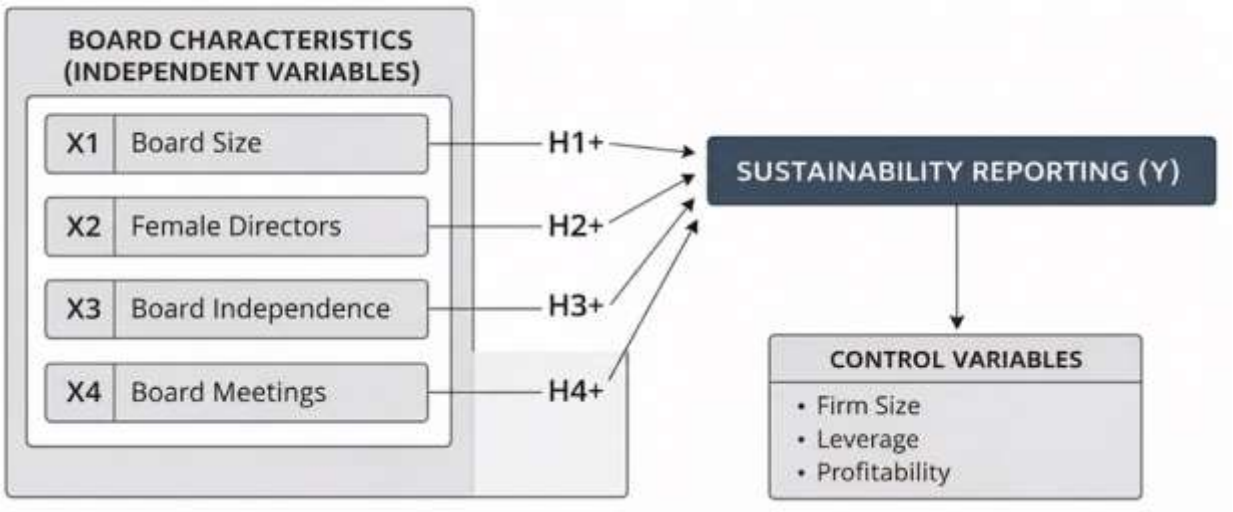


Figure 1. Conceptual Framework

Source: Research Data 2026

The conceptual framework presented in Figure 1 illustrates the relationship between board characteristics and sustainability reporting, grounded in Agency Theory, which suggests that effective board governance mechanisms help reduce information asymmetry and enhance corporate transparency(Jensen & Meckling, 1976). The model identifies board size (X_1), female directors (X_2), board independence (X_3), and board meetings (X_4) as the key independent variables representing board characteristics that may influence sustainability disclosure. It hypothesizes a positive relationship (H_1–H_4) between these board attributes and sustainability reporting (Y**)**, implying that larger, more gender-diverse, more independent, and more active boards are likely to encourage greater transparency and sustainability disclosure. To ensure the robustness of the

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analysis, the framework also incorporates control variables, namely firm size, leverage, and profitability, which may affect the extent of sustainability reporting.

METHODS

This study employs a quantitative research design using panel data analysis to examine the effect of board characteristics on sustainability reporting in the banking sector. The panel data approach allows the analysis to capture both cross-sectional and time-series variations, thereby providing more efficient estimates and controlling for unobserved heterogeneity across firms. The sample consists of banking companies in Indonesia and Zimbabwe during the period 2020–2024. These countries were selected to represent different regulatory environments, where Indonesia applies a mandatory sustainability reporting regime, while Zimbabwe reflects a developing regulatory framework. Data were collected from annual reports and sustainability reports published by each bank. The final sample includes firms that consistently disclose the required variables during the observation period. The sample includes 30 main banks listed on the Indonesia Stock Exchange (IDX) and 11 banks listed on the Zimbabwe Stock Exchange (ZSE), giving a total of 41 banks. Over the five-year period (2020–2024), this results in 205 firm-year observations (41 banks × 5 years).

Table 1. Sample Distribution by Country

Country	Stock Exchange	Sample criteria	No of Banks
Indonesia	Indonesia stock exchange (IDX)	Main banks listed on IDX	30
Zimbabwe	Zimbabwe stock exchange (ZSE)	Listed Banks on ZSE	11
Total			41

The measurement of variables used in this study are presented in Table 2. The measurements are adapted from prior studies in corporate governance and sustainability reporting literature to ensure consistency and comparability. Sustainability reporting is measured using the Global Reporting Initiative (GRI) index, as it is the most widely adopted international framework for sustainability disclosure and ensures comparability across firms and countries. The use of control variables such as firm size, leverage, and profitability is based on prior literature, which highlights their role in influencing disclosure practices and reducing omitted variable bias

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Table 2. Variable Measurement

Variable	Measurement	References
Dependent Variable		
Sustainability Reporting (SR)	Disclosure index based on GSI	(Brogi & Lagasio, 2025b; Mahmood, 2018)
Independent Variables		
Board Size (BODZ)	Total number of board members	(Fama et al., 1983)
Board Independence (BODID)	Proportion of independent directors	(Mahmood, 2018)
Female Directors (FD)	Proportion of female directors	(Buallay & Hamdan, 2022)
Board Meetings (BODM)	Number of meetings per year	(Anyigbah et al., 2023)
Control Variables		
Firm Size (SIZE)	Natural log of total assets	(Brogi & Lagasio, 2025b)
Leverage (LEV)	Total debt / total assets	(Anyigbah et al., 2023)
Profitability (ROA)	Net income / total assets	(Mahmood, 2018)

The measurements of all variables used in this study are presented in Table 2. Panel data regression is used to estimate the model. The selection of the appropriate model is based on the Hausman test, which indicates that the fixed effects model is more suitable for this study. This suggests that firm-specific effects are correlated with the explanatory variables. Further diagnostic tests indicate the presence of heteroskedasticity and potential autocorrelation. Therefore, the model is estimated using fixed effects with Driscoll–Kraay standard errors to address heteroskedasticity, autocorrelation, and cross-sectional dependence.

The empirical model is specified as follows:

$$SR_it = \beta_0 + \beta_1 BODZ_it + \beta_2 BODID_it + \beta_3 FD_it + \beta_4 BODM_it + \beta_5 SIZE_it + \beta_6 LEV_it + \beta_7 ROA_it + \varepsilon_it$$

where:

1. i indicates the bank entity
2. t indicates the time period
3. ϵit is an error term

The selection of estimation models (Fixed Effects or Random Effects) is determined based on the results of the Hausman test to ensure the consistency of the estimator.

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DATA ANALYSIS TECHNIQUES

The analysis was carried out using Stata software with a panel data regression approach. The stages of analysis include:

1. Estimation of the pooled Ordinary Least Squares (OLS) model as a baseline.
2. Chow test to compare the pooled OLS model and the Fixed Effects model.
3. Hausman test to determine the appropriate model between Fixed Effects and Random Effects ((Hausman, 1978)
4. Diagnostic tests, including heteroskedasticity and autocorrelation tests, to assess violations of classical assumptions.
5. Given the presence of heteroskedasticity, the final estimation employs the Fixed Effects model with Driscoll–Kraay standard errors to obtain robust and reliable results.
6. t-test to examine whether there is a significant difference in sustainability reporting practices between banks in Indonesia and Zimbabwe.

RESULTS AND DISCUSSION

Descriptive Statistics

Table 3. Descriptive Statistics

Variabel	Obs	Mean	Std. Dev.	Min	Max
SustainabilityScore	205	0.8377	0.1253	0.4737	1.000
Numberofboard	205	8.5073	2.5698	3	16
femaledir	205	0.2372	0.1162	0	0.6667
independentdirectors	205	0.4526	0.1439	0.125	0.8571
board meetings	205	9.3610	2.8810	3	16
size	205	21.9473	2.3889	14.0969	26.0438
leverage	205	5.1929	8.9668	0.0116	102.1813
ROA	205	0.0432	0.1061	-0.8539	0.6246

Source: Research Data 2026

Based on a total of 205 firm-year observations, the summary statistics for the variables under investigation are reported in Table 3.. The mean sustainability reporting score of 0.8377 indicates relatively high disclosure. This aligns with regulatory requirements in Indonesia (OJK No. 51/POJK.03/2017) and the adoption of GRI-based reporting. However, the minimum value of 0.4737 shows uneven disclosure, suggesting that in weaker regulatory environments such as

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Zimbabwe, sustainability reporting remains less consistent. This indicates that regulation, rather than governance alone, drives disclosure.

Board size averages 8.51 members, with notable variation. This reflects differences in governance structures that may affect monitoring effectiveness. Larger boards may enhance oversight of sustainability issues, but excessive size may reduce efficiency, implying a trade-off in governance effectiveness. Female board representation is low (mean = 0.237), with some banks having no female directors. This suggests limited diversity, which may reduce stakeholder-oriented decision-making and weaken attention to sustainability issues. Board independence has a mean of 0.453, indicating moderate oversight. While independence is expected to improve transparency, variation suggests that its effectiveness depends on institutional strength, which differs between Indonesia and Zimbabwe. The average number of board meetings is 9.36, indicating active engagement. However, differences in frequency suggest that meeting intensity alone does not guarantee better sustainability reporting without effective oversight.

The mean firm size of 21.9473 suggests that larger banking institutions maintain higher rates of sustainability disclosure, fueled by their elevated public visibility and more rigorous regulatory demands. Leverage (mean = 5.1929) shows high dispersion, suggesting varying levels of financial risk. Higher leverage may increase firms' incentives to disclose sustainability information to reduce information asymmetry and reassure stakeholders, although financially constrained firms may still prioritize stability over disclosure.

The reported mean ROA of 0.0432, which encompasses negative figures, highlights the inconsistent financial health observed across the banking sector. High-performing institutions typically possess a superior resource base, allowing them to fund sustainability programs and comprehensive disclosure efforts more effectively, weaker performance may constrain such efforts. This creates a potential trade-off, where firms with lower profitability may reduce disclosure due to limited resources, while more profitable firms may use sustainability reporting strategically to signal strength and enhance reputation.

Correlation Analysis

Table 4. Correlation Matrix

	SR	*BODZ*	*FD*	*BODID*	*BODM*	*SIZE*	*LEV*	*ROA*
SR	1.000							
BODZ	0.4076	1.000						
FD	0.1776	0.0064	1.000					

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	SR	*BODZ*	*FD*	*BODID*	*BODM*	*SIZE*	*LEV*	*ROA*
BODID	0.1970	0.1147	0.1970	1.000				
BODM	-0.1386	-0.2513	-0.0609	-0.4060	1.000			
SIZE	0.3528	0.1118	0.1664	-0.2714	0.3318	1.000		
LEV	0.0784	-0.0690	0.0492	-0.0929	0.1561	0.1305	1.000	
ROA	0.0878	0.1912	0.0814	0.2023	-0.2212	-0.0099	-0.1149	1.000

Source: Research Data 2026

Table 4 presents the correlation matrix among the variables. The results indicate that sustainability reporting is positively correlated with board size (0.4076), female directors (0.1776), and board independence (0.1970), suggesting that governance characteristics may enhance disclosure practices. In contrast, board meetings show a negative correlation (-0.1386), indicating a potential inverse relationship.

Importantly, the correlation coefficients among independent variables are relatively low, indicating the absence of severe multicollinearity. According to (Gujarati and Porter, 2009),low correlation among explanatory variables suggests that multicollinearity is unlikely to bias regression estimates.While correlation analysis provides initial insights into relationships among variables, it does not imply causality. Therefore, further analysis using panel regression is required to establish causal relationships.

Table 5. Hausman Test

Test	chi-square	prob > chi^2	decision
Hausman	10.06	0.1854	Random Effects preferred

Source: Research Data 2026

Table 5 shows the results of the Hausman test used to find the right panel data model. The test gives a probability value of 0.1854, which is above the 5% significance level. This means the Random Effects model is preferred. It suggests that unobserved individual effects are not systematically related to the explanatory variables, making the estimator consistent and efficient.

Table 6. Diagnostic Test Results

test	statistic	p-value	conclusion
Heteroskedasticity	Chi^2 = 154458.13	0.0000	Heteroskedasticity present

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Autocorrelation	F = 1.335	0.2648	No autocorrelation

Source: Research Data 2026

As presented in Table 6, the results indicate the presence of heteroskedasticity (p-value = 0.0000), suggesting that the variance of the error terms is not constant across observations. This condition may affect the reliability of standard errors and statistical inference.In contrast, no evidence of autocorrelation is found (p-value = 0.2648), indicating that the residuals are independently distributed over time.Given the presence of heteroskedasticity, robust standard errors are employed to ensure more reliable estimation results.

Model Selection and Diagnostic Tests

The Hausman test was conducted to determine the appropriate panel data model. The result shows a probability value of 0.1854, indicating that the Random Effects model is preferred under classical assumptions. However, this conclusion is valid only when classical regression assumptions are satisfied. Further diagnostic tests reveal violations of these assumptions. The Modified Wald test indicates the presence of heteroskedasticity (p = 0.000), while the Wooldridge test shows no evidence of autocorrelation (p = 0.2648).

Given the presence of heteroskedasticity and potential cross-sectional dependence, the Random Effects estimator may produce inefficient and biased standard errors. Therefore, to obtain robust and reliable estimates, this study adopts the Fixed Effects model with Driscoll–Kraay standard errors, which is more appropriate for panel data characterized by such issues.

Regression Results

Table 7. Regression results using Driscoll-Kraay standard Erors

Variable	*Coef*	*p-value*	*Result*
Board Size	0.0045	0.424	Not supported
Female Directors	0.2479	0.000	Supported
Board Independence	0.0609	0.120	Not supported
Board Meetings	-0.0042	0.000	Not supported (negative)
Size	0.0122	0.004	Supported
Leverage	0.0043	0.046	Supported
ROA	0.8366	0.000	Supported
Model Statistics			

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Within R^2	0.0825		
F-statistic	37.32		
Prob > F	0.0000		
Rho (ρ)	0.7394		

Source: Research Data 2026

The regression results using the Fixed Effects model with Driscoll–Kraay standard errors are presented in Table 7. The model demonstrates statistical significance, as indicated by the F-statistic (Prob > F = 0.0000), suggesting that the independent variables jointly influence sustainability reporting. The within R^2 value of 0.0825 indicates that approximately 8.25% of the variation in sustainability reporting is explained by the variables included in the model. Although the explanatory power appears relatively low, this is acceptable in governance-related studies, particularly in emerging market contexts where institutional and external factors also play a significant role.

The results of Hypothesis 1 (H1) indicate that board size does not have a statistically significant effect on sustainability reporting (β = 0.0045; p > 0.05). This finding suggests that increasing the number of board members does not necessarily enhance disclosure practices. From the perspective of Agency Theory, larger boards are expected to improve monitoring through diverse expertise and perspectives (Jensen & Meckling, 1976). However, the insignificant result may indicate the presence of coordination challenges, slower decision-making, and reduced efficiency within larger boards. This finding is consistent with studies such as (Alta, 2024) and (Abang'a & Tauringana ,2024), which argue that board size alone does not guarantee effective governance. Therefore, H1 is not supported.

Similarly the results of Hypothesis 2 (H2) show that board independence does not have a significant effect on sustainability reporting (β = 0.0609; p > 0.05). Although Agency Theory emphasizes the role of independent directors in enhancing monitoring and reducing managerial opportunism, the findings suggest that independence may be more symbolic than substantive in this context. This may occur when independent directors lack sufficient authority, expertise, or active involvement in decision-making processes. This result aligns with prior studies such as (Alta, 2024; Sary & Limbong, 2025), which report weak effects of board independence in emerging markets. Therefore, H2 is not supported.

In contrast, the results of Hypothesis 3 (H3) reveal that female directors have a positive and statistically significant effect on sustainability reporting (β = 0.2479; p < 0.01). This finding indicates that gender diversity plays an important role in enhancing transparency and disclosure

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practices. From an Agency Theory perspective, diverse boards improve monitoring effectiveness by introducing varied perspectives, reducing groupthink, and increasing sensitivity to ethical and stakeholder-related issues(Jensen & Meckling, 1976). This result is consistent with prior studies such as (Buallay & Hamdan, 2022; Romero & Ruiz-blanco, 2014), which find that gender diversity is positively associated with ESG disclosure. Therefore, H3 is supported.

The results of Hypothesis 4 (H4) indicate that board meeting frequency has a negative and statistically significant effect on sustainability reporting ($\beta = -0.0042$; $p < 0.01$). This finding contradicts the theoretical expectation that more frequent meetings enhance monitoring and governance effectiveness. Instead, it suggests that a higher frequency of meetings may reflect inefficiencies, reactive decision-making, or excessive administrative focus rather than effective oversight. This interpretation is supported by studies such as(Hasan et al., 2022; Rahman, 2020) which argue that the quality of meetings is more important than their frequency. Therefore, H4 is not supported, as the direction of the relationship is opposite to the hypothesis.

Regarding the control variables, firm size shows a positive and significant effect on sustainability reporting ($\beta = 0.0122$; $p < 0.01$), indicating that larger firms tend to disclose more sustainability information due to greater public scrutiny and stakeholder pressure. Leverage also has a positive and significant effect ($\beta = 0.0043$; $p < 0.05$), suggesting that highly leveraged firms provide more disclosure to reduce information asymmetry and satisfy creditors. Similarly, profitability (ROA) exhibits a strong positive and significant effect ($\beta = 0.8366$; $p < 0.01$), implying that financially stronger firms have greater capacity to invest in sustainability initiatives and reporting practices.

Overall, the findings highlight that not all board characteristics function effectively as governance mechanisms in enhancing sustainability reporting. While structural attributes such as board size and independence do not show significant influence, gender diversity emerges as a key determinant of disclosure practices. In addition, the negative effect of board meetings suggests that governance effectiveness is driven more by the quality of oversight rather than the intensity of formal activities. These results reinforce the argument that governance mechanisms are context-dependent and that substantive practices play a more critical role than formal structures in emerging market environments.

DISCUSSION

The results reveal that only gender diversity shows a consistent positive effect, while other board characteristics fail to demonstrate significant influence, highlighting the limited

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effectiveness of structural governance mechanisms. The relatively high average level of sustainability reporting (mean = 0.8377) suggests that disclosure practices are largely driven by regulatory pressure, particularly in Indonesia where sustainability reporting is more formalized. This indicates that firms may engage in compliance-based disclosure rather than purely voluntary transparency, consistent with legitimacy theory(Dowling, 1975; Suchman, 1995). However, the substantial variation in disclosure levels (minimum = 0.4737) indicates that governance mechanisms do not operate uniformly across firms, reinforcing the argument that institutional and firm-specific factors play a critical role in shaping sustainability reporting practices(Chebbi, 2022; Echobu et al., 2025; Razaq & Omole, 2023). The findings of this study provide a nuanced understanding of how board characteristics influence sustainability reporting in the banking sector, particularly within emerging market contexts. Grounded in agency theory, the board of directors is expected to serve as a monitoring mechanism that mitigates information asymmetry and aligns managerial actions with stakeholder interests(Fama et al., 1983; Jensen & Meckling, 1976). Sustainability reporting, in this regard, functions as a transparency tool that reflects the effectiveness of governance in reducing opportunistic behavior and enhancing accountability (Brogi & Lagasio, 2025b; Mahmood, 2018). However, the results of this study suggest that the effectiveness of board characteristics is not uniform and depends on the substantive quality of governance rather than merely its structural attributes.

From a theoretical perspective, larger boards are often associated with greater diversity of expertise and stronger monitoring capacity(Fama et al., 1983). Prior studies have also reported a positive relationship between board size and sustainability reporting(Brogi & Lagasio, 2025b; Buallay & Hamdan, 2022; Chebbi, 2022; Razaq & Omole, 2023). However, the insignificant findings in this study indicate that the expected monitoring benefits may be offset by coordination problems, slower decision-making, and reduced efficiency in larger boards.The descriptive statistics reveal substantial variation in board size (ranging from 3 to 16 members), which may explain these insignificant results. Both excessively large boards and very small boards can reduce governance effectiveness due to coordination inefficiencies or weak monitoring capacity. This finding aligns with studies that highlight the limitations of board size in enhancing governance effectiveness (Abang'a & Tauringana, 2024;(Alta, 2024; Ikpor et al., 2024). Thus, board size alone does not guarantee improved transparency, particularly in emerging markets where governance practices may not be fully optimized.

Similarly, board independence does not show a significant influence on sustainability reporting. Agency theory emphasizes that independent directors play a critical role in ensuring

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objective monitoring and reducing managerial opportunism(Fama et al., 1983; Jensen & Meckling, 1976). Empirical evidence has often supported this argument, showing that independent boards enhance disclosure quality(Chebbi, 2022; Mahmood, 2018; Oyerogba et al., 2024). However, the findings of this study suggest that independence may be more formal than substantive in emerging market contexts.

The variation in independence levels observed in the descriptive statistics further supports this interpretation. Although the average level of independence is moderate (mean = 0.4526), indicating that independent directors do not dominate board composition, the wide range (0.125 to 0.8571) suggests substantial inconsistency across firms. This implies that in some firms, low independence may weaken monitoring due to managerial dominance, while in others, high independence may not necessarily translate into effective oversight if independent directors lack real influence or active engagement.This result is consistent with studies that report weak or insignificant effects of board independence in developing economies(Alta, 2024; Sary & Limbong, 2025), while contrasting with findings from more developed regulatory environments(Anyigbah et al., 2023) .These mixed results indicate that the effectiveness of independence depends on institutional quality and enforcement mechanisms rather than its mere existence.

In contrast, female directors are found to have a positive and statistically significant effect on sustainability reporting. Interestingly, this effect emerges despite the relatively low representation of female directors (mean = 0.237), suggesting that even limited gender diversity can meaningfully enhance governance quality.

This finding supports the argument that gender diversity enhances board effectiveness by introducing diverse perspectives, improving ethical sensitivity, and strengthening stakeholder orientation (Buallay & Hamdan, 2022; Cicchiello et al., 2025; García-sánchez et al., 2018; Habiba Al-Shaer, 2016; Romero & Ruiz-blanco, 2014). From the perspective of agency theory, diversity within the board improves monitoring quality by reducing groupthink and increasing critical evaluation of managerial decisions. Prior studies consistently show that female representation is associated with higher levels of ESG disclosure and transparency. The results of this study reinforce these findings and suggest that gender diversity functions as a substantive governance mechanism rather than a symbolic one, particularly in emerging markets.

Interestingly, board meeting frequency has a negative and significant effect on sustainability reporting, contrary to theoretical expectations. From an agency perspective, more frequent board meetings are expected to strengthen monitoring by increasing oversight of managerial actions and reducing information asymmetry(Fama et al., 1983; Jensen & Meckling,

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1976). In this regard, (Irshad et al., 2020) argue that frequent board meetings improve governance by enhancing directors' ability to monitor management and address emerging issues. However, the findings indicate that higher meeting frequency does not necessarily lead to better disclosure practices.

The descriptive statistics show a relatively high average number of board meetings (approximately 9 per year), suggesting that increased monitoring intensity may reflect reactive governance rather than effective strategic oversight. Instead of indicating strong governance, frequent meetings may signal underlying problems requiring repeated attention. This implies that meetings are held in response to issues rather than as part of proactive decision-making.This interpretation is supported by prior studies which emphasize that the effectiveness of board meetings depends on their quality rather than their frequency(Hasan et al., 2022; Lewa et al., 2024; Rahman, 2020). Consequently, excessive meetings may indicate inefficiencies, coordination problems, or administrative burdens that do not translate into improved sustainability reporting.

Furthermore, the control variables provide additional insights into the determinants of sustainability reporting. Firm size, leverage, and profitability are all positively associated with sustainability disclosure. Larger firms tend to face greater public scrutiny and stakeholder pressure, which encourages more comprehensive reporting(Brogi & Lagasio, 2025b; D & Auwal, 2020; Wang, 2017).

Leverage also shows a positive effect, and its high dispersion in the descriptive statistics indicates varying levels of financial pressure across firms. This variation is important, as firms with higher debt levels face greater scrutiny from creditors and stronger pressure to justify their financial position. As a result, more leveraged firms tend to increase sustainability disclosure to reduce information asymmetry and signal transparency, thereby explaining the observed positive relationship(Anyigbah et al., 2023; Carolina, 2021; Yohana & Suhendah, 2023)

Profitability (ROA) is positively associated with sustainability reporting, although the presence of negative values suggests heterogeneous financial conditions. This implies that while profitable firms have greater capacity to invest in sustainability initiatives, less profitable firms may adopt different disclosure strategies either increasing transparency to regain stakeholder trust or limiting disclosure to conceal weak performance(Darteh & Fiorani, 2025; Kulsum et al., 2025).

Overall, the findings of this study provide important implications for the literature on corporate governance and sustainability reporting. First, the results confirm the inconsistency identified in prior studies by demonstrating that board characteristics do not operate uniformly

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across institutional contexts. Second, this study addresses the limited comparative evidence in emerging markets by examining two countries with different regulatory environments, namely Indonesia and Zimbabwe. Third, the findings reveal that governance effectiveness is contingent upon both institutional pressure and the substantive implementation of governance practices. Most importantly, this study advances the literature by distinguishing between formal governance mechanisms and substantive governance practices. While prior research has largely focused on structural attributes such as board size and independence, this study shows that these factors alone are insufficient to enhance sustainability reporting. Instead, governance effectiveness in emerging markets is driven by factors that reflect actual engagement and decision-making quality, such as gender diversity and financial capacity. This perspective extends agency theory by demonstrating that monitoring mechanisms are context-dependent and may not function effectively when implemented only as formal structures.

In line with the research gaps identified in the introduction, this study confirms that the relationship between board characteristics and sustainability reporting is influenced by institutional and regulatory differences. The comparative setting between Indonesia and Zimbabwe provides evidence that governance mechanisms are shaped by regulatory enforcement and organizational context. Therefore, the novelty of this study lies in its ability to explain why prior findings are inconsistent and to highlight that sustainability reporting is not merely a function of board structure, but a result of the interaction between governance quality and institutional environment.

Additional Explanation for Countries Comparison

Table 8. Comparative Analysis of Sustainability Reporting Between Indonesia and Zimbabwe

Variable	Country	Group Code	Observations	Mean	Standard Error	Standard Deviation	95% Confidence Interval
Sustainability Reporting Score	Zimbabwe	0	16	0.931	0.021	0.083	0887-0.975
	Indonesia	1	84	0.840	0.012	0.107	0.816-0.863
	Combined		100	0.854	0.011	0.109	0.833-0.876

Source: Research Data 2026

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To further strengthen the comparative dimension of this study, an independent sample t-test was conducted to examine whether there is a significant difference in sustainability reporting practices between banks in Indonesia and Zimbabwe. The test compared the mean Sustainability Score between the two countries, where group 1 represents Indonesia and group 0 represents Zimbabwe.

The results show that Zimbabwean banks recorded a higher average sustainability reporting score (Mean = 0.931) compared to Indonesian banks (Mean = 0.840). The mean difference between the two groups was 0.0913. The t-test result indicates that this difference is statistically significant at the 1% level (t = 3.2166; p = 0.0018), suggesting that sustainability reporting practices differ significantly between the two countries.

The finding implies that banks in Zimbabwe demonstrate relatively stronger sustainability disclosure practices during the study period compared to banks in Indonesia. One possible explanation is that Zimbabwean banks may face stronger stakeholder pressure to enhance transparency and legitimacy in response to economic instability and institutional challenges. Under such conditions, sustainability reporting can serve as a strategic tool for building public trust, attracting investors, and strengthening corporate reputation.

In contrast, although Indonesia has developed sustainability reporting regulations and ESG-related initiatives, the lower average sustainability score suggests that implementation among banks may still vary considerably. Some firms may comply primarily to satisfy regulatory expectations rather than integrating sustainability practices substantively into corporate governance and strategic decision-making.

This comparative evidence supports the argument that sustainability reporting is highly context-dependent and influenced by institutional, economic, and governance environments. The results further reinforce the study's theoretical perspective that formal governance structures alone are insufficient to explain sustainability reporting quality. Instead, differences in institutional pressure, stakeholder expectations, and governance effectiveness across countries play an important role in shaping disclosure practices.The t-test findings strengthen the comparative contribution of this study by empirically demonstrating that sustainability reporting practices significantly differ between Indonesia and Zimbabwe, thereby highlighting the importance of country-specific governance and institutional contexts in emerging markets.

CONCLUSION

This study examines the role of board characteristics in influencing sustainability reporting

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within the banking sector in emerging markets, specifically Indonesia and Zimbabwe. The findings demonstrate that not all governance mechanisms function effectively in enhancing disclosure practices. While gender diversity, as reflected by the presence of female directors, significantly improves sustainability reporting, structural governance attributes such as board size and board independence do not show a meaningful impact. In addition, the negative effect of board meeting frequency indicates that governance effectiveness is not determined by the intensity of formal activities, but rather by the quality of engagement and decision-making processes.These results provide important theoretical implications by extending agency theory. While agency theory emphasizes the role of monitoring mechanisms in reducing information asymmetry, this study shows that such mechanisms are context-dependent and may not function effectively when implemented merely as formal structures. In emerging markets, where institutional environments and regulatory enforcement vary, governance effectiveness is shaped more by substantive practices such as diversity and active engagement than by structural board characteristics alone.

From a practical perspective, the findings suggest that regulators and financial institutions should shift their focus from formal compliance toward improving the quality of governance processes. Encouraging board diversity, particularly gender representation, and strengthening substantive board engagement may be more effective in enhancing sustainability reporting than increasing board size or meeting frequency. In addition, the significant role of firm size, leverage, and profitability indicates that financial capacity and stakeholder pressure remain key drivers of transparency, highlighting the importance of both internal and external governance forces.

This study also contributes to the literature by addressing three key gaps identified in prior research. First, it provides empirical clarification of the inconsistent relationship between board characteristics and sustainability reporting. Second, it offers comparative evidence across different regulatory environments in emerging markets. Third, it demonstrates that governance mechanisms operate differently depending on institutional context, thereby advancing the understanding of how sustainability reporting is shaped in developing economies.

Despite these contributions, this study has several limitations. The sample is limited to two countries and a specific sector, which may restrict the generalizability of the findings. Future research is encouraged to expand the scope to other regions and industries, as well as to incorporate additional governance variables and institutional dimensions to provide a more comprehensive understanding of sustainability reporting dynamics.

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