







“Factors affecting sustainability reporting in Indonesia: The moderating role of external assurance”

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FACTORS AFFECTING SUSTAINABILITY REPORTING IN INDONESIA: THE MODERATING ROLE OF EXTERNAL ASSURANCE

Abstract

The increasing demand for environmental and social impact information has made the sustainability report a crucial instrument for building stakeholder trust in corporate conduct in this era. This study aims to provide empirical findings on the impact of corporate governance mechanisms, such as independent commissioners, institutional ownership, and gender diversity, on the disclosure of sustainability reports with external assurance as a moderating variable. The study is quantitative research that employs Hayes's moderation model bootstrapping technique. It covers 867 observations of non-financial companies listed on the Indonesia Stock Exchange over the period 2018 to 2023. Results show that independent commissioners ($p < 0.01$) and gender diversity ($p < 0.05$) positively and significantly affect sustainability report disclosure. Conversely, institutional ownership had no significant impact ($p > 0.05$). For the moderating effect, the interaction terms of external assurance and independent commissioners, and external assurance and institutional ownership are negatively significant ($p < 0.05$), indicating that external assurance weakens the relations in these cases. The interaction between external assurance and gender diversity was negative but insignificant for sustainability reporting ($p > 0.05$). This study concludes by examining whether the role of third-party assurance or internal governance mechanisms can positively affect the quality of reporting. The results suggest that third-party assurance, when used to enhance internal governance mechanisms, does not optimally improve the quality of reporting. The latter result reveals that third-party guarantees for non-financial firms have not amplified the effects of corporate governance mechanisms on the quality of sustainability reports.

Keywords

commissioners, ownership, gender, sustainability, reporting

JEL Classification

G18, G32, M41

INTRODUCTION

To meet a company's sustainability accountability, preparing a sustainability report is necessary. Sustainability reports can also provide companies with insights into how to improve their environmental and social performance. Sustainability report preparation is compulsory in Indonesia under the Office of the Financial Services Authority (OJK) regulation, so that by 2024, all listed companies (873 issuers) will have issued sustainability reports. While we see a high rate of corporate adherence to sustainability reporting, the quality of the reports remains lacking. Indonesia is ranked 78th among 167 countries, with a score of 69.43, in the Sustainable Development Report. The investigation is prompted by the urgency posed by the low quality of companies' sustainability reports; therefore, the quality of corporate sustainability reporting needs to be examined. Prior research has examined the impact of non-executive directors, institutional shareholders, and gender diversity on sustainability reporting. The findings of this research indicate that effective corporate governance may lead to high-

er-quality sustainability reports. Institutional ownership and independent commissioners are also variable, which leads to higher-quality sustainability reports. The number of independent board members serves as a more powerful monitoring device, leading to better managerial decisions and higher long-run shareholder value (Bawai & Kusumadewi, 2021). In Indonesia, every public company is required to have at least 2 directors under OJK Regulation No. 33 of 2014, and at least 30% of the directors must be independent. They are there to provide impartial oversight, safeguard shareholders and the company, enable good corporate governance, evaluate strategy, monitor the board of directors' performance, and manage any conflicts of interest. Institutional ownership refers to the percentage of a company's stock held by institutions, such as mutual funds, pension funds, insurance companies, investment firms, private foundations, endowments, or other large entities that pool money from multiple individual investors (Kenton, 2025). Large institutional block ownership may serve as an active monitor (Thanatawee, 2023) to improve the quality of sustainability reports. Women's Gender diversity is one of the determinants of healthy corporate governance, which aligns the interests of the company with those of shareholders, managers, stakeholders, and the general public. Women's presence brings diverse views, opinions, perspectives, skills and competencies, leadership styles, experiences, and relations with the outside world, thereby increasing the organization's capacity to make better decisions in non-financial matters (Nicolò et al., 2022).

Prior studies have examined the effects of corporate governance structures (independent commissioners, institutional ownership, and gender diversity) on sustainability reporting, although several gaps remain. First, existing studies mainly focus on the direct relationship between corporate governance (board members) and sustainability reporting, thereby ignoring potential moderators that may moderate this relationship (Erben Yavuz et al., 2024; Erin & Ackers, 2024; Nicolò et al., 2022; Oyerogba et al., 2024). Second, Study on the direct effect of corporate governance structure on sustainability reporting with the role of external assurance as a moderating variable is still scarcely conducted. Indonesian regulations mandate that the sustainability report be subject to external assurance to evaluate the quality of the information it contains. Data from the Financial Services Authority (OJK) indicate that in 2023, only about 29% of companies had availed of such external assurance services. The influence of external assurance has not been attested in sustainability quality, although there are regulations on supplementary. Third, most previous studies were conducted in developed markets; thus, there is scant research on emerging markets such as Indonesia. The Indonesian Stock Exchange operates under different market dynamics and regulations than developed stock markets, which could affect the relationship between corporate governance structure and sustainability report quality. The research is expected to contribute to the literature in this area, by investigating the effect of corporate governance structure, e.g., independent commissioners, institutional ownership and gender diversity, on the quality of sustainability reports moderated by external assurance in non-financial firms listed in IDX for the period 2018–2023 to fill in the gap of existing studies with respect to the above stakeholders.

1. LITERATURE REVIEW AND HYPOTHESES

Changes in the global business paradigm have shifted firms' goals from maximizing shareholder value to broader accountability to all stakeholders affected by their operations. This trend has created a pressing need for openness in sustainability reporting. This study draws on stakeholder, signaling, and legitimacy theories. The success of an organization is considered a function of its stakeholders, according to stakeholder theory (Freeman, 1994). The opacity of sustainability reporting en-

hances corporate legitimacy and firm survival (Calabrese & Manello, 2021). Independent directors, institutional ownership, and gender diversity, when combined, serve as a monitoring device to press management to be proximate to stakeholders. Signal theory (Spence, 1973) posits that there are two parties with asymmetric information, one is internal and the other is external. According to this theory, companies must also transmit credible signals to reduce uncertainty and increase trust among stakeholders. This research provides evidence that sustainability reporting signals the corporation's commitment to sustainability and

good corporate governance. Two other proxies used are gender diversity on boards of directors and external assurance, which suggest that firms are working to address economic, social, and governance matters in a transparent and accountable manner. Conversely, legitimacy theory (Dowling & Pfeffer, 1975) argues that organizations need to adapt their norms and values to the demands of their stakeholders. A firm's legitimacy is important; without it, its trustworthiness and ability to access sustainable resources in the external environment may be questioned. Opacity in sustainability reporting can also be used by companies to maintain their legitimacy, i.e., to signal to their publics that they are well-functioning.

Economic, environmental, and social development are fundamental to corporate sustainability (Lonkani, 2018). The United Nations Brundtland Commission in 1987 defined sustainable development as development that "meets the needs of the present without compromising the ability of future generations to meet their own needs". POJK Number 51/POJK.03/2017 is the regulation that requires every issuer or listed company in Indonesia to issue a Sustainability Report. As the TBL principle states (Elkington, 1998), profit, people, and planet should be the focus of every company. According to the TBL concept, firm performance should be evaluated in terms of social, environmental, and financial performance. According to TBL theory, rather than a single bottom line, businesses should consider three: profit, people, and the planet (Kenton, 2025).

The governance structure plays a pivotal role in facilitating better sustainability reporting (Tjahjadi et al., 2021). The implementation of governance has also proven to have a positive effect on stakeholders' trust and, indirectly, on the sustainability report (Erin et al., 2022; Hussain et al., 2018; Li et al., 2023; Rashid & Kabir, 2025). Good governance is indispensable for sustainable practice (Oyerogba et al., 2024; Yuwono & Ellitan, 2024). Corporate governance also serves as an internal control system for the company's image and its relations with stakeholders.

Independent commissioners contribute to higher-quality sustainability reports (Amatullah et al., 2025). Prior studies have suggested that the

presence of independent boards of commissioners influences the quality of sustainability reports (Erben Yavuz et al., 2024; Erin et al., 2022; Kordsachia et al., 2022; Kumar, 2024) and sustainable business performance in economic, social, and environmental terms (Nguyen et al., 2021). They embody the spirit of transparency and accountability, as advocated by social and environmental responsibility. Strict monitoring compels management to disclose more complete, accurate, and useful sustainability information, making the resulting sustainability reports more informative, in the sense that they are not only a formality but a commitment to a sustainable way of doing business. One of the crucial responsibilities of an Independent Commissioner is to oversee the company's business and operations.

Among the Independent Commissioner's vital duties is oversight of the company's business activities and operations. This monitoring role will reduce the agency problem, and thus the degree of firms' appointment of independent commissioners to monitor and supervise governance, internal control, and risk management will also be lower (Fuji et al., 2016). The independent commissioners are good, as they can make corporate decision-making more transparent and accountable, thereby improving the company's performance. They bring knowledge, expertise, and experience.

This is in line with the results of the research conducted by Bawai and Kusumadewi (2021) and Kamaliah (2020), which indicate that an independent commissioner positively influences firm value. Institutional ownership can also serve to professionally monitor management actions, and the monitoring institution is a more knowledgeable and capable monitor (Jensen & Meckling, 1976). Investors, particularly institutional investors, have a significant influence on sustainability reporting. Public companies on the Indonesian stock exchange face the burden of proof not only before regulators but also before their shareholders, who are demanding greater ESG transparency. As capital markets become increasingly global, sustainability reporting is becoming mandatory for Indonesian firms. Institutional investors are savvy and will want to assess the quality of the sustainability reporting. Businesses that fail to meet those expectations risk losing investment.

This phenomenon will make shareholders more environmentally conscious, driven by stakeholder demand. As owners through their equity stake in a company, institutions are driven by both financial and social returns. Dyck et al. (2017) report that shareholders care about firms' environmental and social (E&S) performance more when they hail from countries with a strong public consensus that E&S matters and when institutional investors walk the talk: the effect on corporate environmental and social performance. Dyck et al. (2017) is one among them. Research findings from Dyck et al. (2017) also showed substantial (85%) effects in particular firms where institutional investors own the same shares, which seems to give them an influential voice in shaping the company's policy direction, for instance, environmental sustainability.

Amatullah et al. (2025) argue that gender diversity is a relevant internal factor that can enhance the quality of the sustainability report. Gender diversity was also positively associated with sustainability reporting in previous research (Gulzar et al., 2019; Orazalin, 2019). Women have different personalities, education, and experience compared to men (Liao et al., 2015), leading to better decision-making (Pucheta-Martínez & Gallego-Álvarez, 2019). This is an empirical study of 366 large companies in Asia and Africa. The adoption of sustainability reporting is significantly and positively associated with a higher representation of women in management hierarchies. The study contributes to the field of sustainability in emerging markets. The results of this study support a body of literature, e.g., Al-Shaer and Zaman (2016) and Suttipun (2021), suggesting that gender diversity positively affects the quality of sustainability reporting and ESG information.

This study investigates external assurance as a moderator of the relationship between corporate independent commissioners, institutional ownership, gender diversity, and the Sustainability Report. Prior literature has also documented third-party guarantees that can verify the contents of sustainability reports and enhance stakeholders' trust in the firm's information (Boiral & Heras-Saizarbitoria, 2020; Manning et al., 2019). Hsueh (2018) suggested that external assurance helps bridge the credibility gap in sustainability reports. The provision of assurance was also

found to improve the credibility of sustainability reports and to mitigate the influence of internal control mechanisms, such as CG structure, independent commissioners, institutional ownership, and board diversity, on report quality (Boiral & Heras-Saizarbitoria, 2020).

The authors report that board gender diversity is positively associated with the quality of sustainability reports (Erin et al., 2022). Further research found that external assurance improves the quality of sustainability reports through enhanced corporate governance. The results are consistent with those of Elaigwu et al. (2024). 'Bigger boards are more conducive to high-quality sustainability disclosures, including those verified by external professionals' (Erin & Ackers, 2024). The financial expertise of the board members of the sustainability committee is positively associated with higher-quality sustainability disclosures when they are externally validated. This suggests that self-regulation alone is insufficient to enhance the quality of sustainability reporting. To support regulators' efforts to build stakeholder trust, external validation is needed.

By combining stakeholder, signaling, and legitimacy theories, sustainability disclosure can be a strategic instrument to protect reputation and organizational legitimacy. Prior studies have shown that independent commissioners, institutional ownership, and gender diversity positively affect the quality of sustainability reports. Independent commissioner supervision and gender diversity improve the decision-making process on EGS issues.

This study investigates the impact of independent commissioners, institutional ownership, and gender diversity on the quality of sustainability reports and the moderating effect of external assurance.

Based on the framework in the previous section, the following hypotheses were formulated:

- H1: Independent commissioners influence sustainability reporting.*
- H2: Institutional ownership influences sustainability reporting.*

- H3: *Gender diversity influences sustainability reporting.*
- H4: *EA moderates the effect of independent commissioners on the sustainability report.*
- H5: *The quality of the sustainability report is increasingly influenced by EA and institutional ownership.*
- H6: *EA moderates the effect of gender diversity on sustainability sustainability report.*

2. METHODS

This study investigates the association between corporate governance structure and the quality of sustainability reports, with the intervening effect of external assurance, in non-financial firms listed on the Indonesian stock exchange for the period 2018–2023. Information on the corporate governance structure and external assurance was obtained from the annual reports of companies available on the Indonesia Stock Exchange website (www.idx.co.id). Sustainability reporting information was obtained from ticmi.co.id and a company's website. The data used for this research have been uploaded to the repository (Zenodo) (Ratnawati et al., 2026), so that it can be accessed via the link <https://zenodo.org/records/18476735>. The sample comprised 407 companies with 2442 observations. The sampling method applied was purposive sampling based on the following criteria, as presented in Table 1.

Table 1. Research sample description

Sample Selection Process	Number of Observations
Non-financial companies listed on the IDX from 2018 to 2023	2442
Non-financial companies that did not publish a Sustainability Report	(798)
Companies that published a Sustainability Report using standards other than GRI	(479)
Other research data are not available	(298)
Total Observations	867

The sustainability report is evaluated using the GRI standard indicators for economic, environmental, and social matters, totaling 123 indicators

(Sahetapy, 2023). Content analysis is employed in this study to evaluate the sustainability report. A rating from 0 to 4 was applied to each disclosure item (a scoring system based on Elaigwu et al. (2024) with slight modifications). Score 0: When the item is not disclosed. Score 1 = item covers qualitative or general information. Score 2 = When the item is quantified. Score 3 = If it is quantitatively and qualitatively disclosed. Score 4 = if the item discloses quantitatively, qualitatively, and additional comparative information over several years. This equation was used to calculate the following quantities:

$$SR_j = \frac{\sum_{t=1}^{n_j} X_{ij}}{n_j}, \quad (1)$$

where SR_j is a company's SR, X_{ij} is the number of items a company discloses, and n_j is the maximum score a disclosure can receive.

In terms of reporting quality, we consider the presence or absence of external assurance, as represented by an assurance letter issued by a third-party assurance provider, such as a public accounting firm. External assurance was measured using a dummy variable (Elaigwu et al., 2024; Erin & Ackers, 2024). The score is 1 if the thrust report is externally assured, and 0 otherwise.

Three mechanisms were used to measure corporate governance structure: independent commissioners, institutional ownership, and gender diversity. The independent commissioner was calculated as the number of independent commissioners (Kurnia et al., 2025). Institutional ownership was calculated as the ratio of institutional holdings to outstanding shares. Gender diversity was defined as the proportion of women among the total number of company commissioners (Kurnia et al., 2025).

Mishra and Kapil's (2018) formula was used to calculate the control variables. Leverage was defined as total liabilities divided by total shareholder equity. Firm size was defined as the logarithm of the company's total assets. The firm age is the difference, in years, between the year the present study was conducted and the year of establishment. The measurement and source of data for each variable are presented in Table 2.

Table 2. Summary of variables

Variable	Label	Measure Description	Source
Dependent Variable			
Sustainability Report	SR	Assign a score of 0 to 4 to each disclosure. Score 0 = Item is not disclosed. Score 1 = Item is disclosed qualitatively. Score 2 = Item is disclosed quantitatively. Score 3 = Item is disclosed quantitatively & qualitatively. Score 4 = Item is disclosed quantitatively, qualitatively, and supplemented with comparative data for several years	ticmi.co.id & company websites
Independent Variables			
Commissioners Independent	IndComs	Number of independent commissioners of the company	Indonesian website www.idx.co.id
Institutional Ownership	InsOwn	Dividing the amount of institutional shareholding by the number of outstanding shares	Indonesian website www.idx.co.id
Gender Diversity	GD	The number of women divided by the total number of company commissioners	Indonesian website www.idx.co.id
Moderating Variable			
External Assurance	EA	The presence or absence of an assurance letter issued by a guarantee-providing institution	Indonesian website www.idx.co.id
Control Variables			
Firm Size	Size	The total assets of the company	Indonesian website www.idx.co.id
Firm Age	Age	The difference between the year in which the present study was conducted and the year of establishment of the company	Indonesian website www.idx.co.id
Leverage	Lev	Total liabilities by total shareholder equity	Indonesian website www.idx.co.id

In this study, SPSS, along with the bootstrap Macro by Hayes (2022), was used to investigate the direct effects of the independent commissioner, institutional ownership, and gender diversity on sustainability reporting. Then a test was performed to determine the moderating effects of external assurance on the relationships among independent commissioners, institutional ownership, and gender diversity on sustainability report Quality. The direct and moderator effects are tested by Hayes PROCESS (model 1). The equations are as follows:

$$SR_{it} = a + \beta_1 IndComs_{it} + \beta_2 Size_{it} + \beta_3 Age_{it} + \beta_4 Lev_{it} + e_{it}, \quad (1)$$

$$SR_{it} = a + \beta_1 InsOwn_{it} + \beta_2 Size_{it} + \beta_3 Age_{it} + \beta_4 Lev_{it} + e_{it}, \quad (2)$$

$$SR_{it} = a + \beta_1 GD_{it} + \beta_2 Size_{it} + \beta_3 Age_{it} + \beta_4 Lev_{it} + e_{it}, \quad (3)$$

$$SR_{it} = a + \beta_1 IndComs_{it} + \beta_2 EA_{it} + \beta_3 IndComs_{it} \cdot EA_{it} + \beta_4 Size_{it} + \beta_5 Age_{it} + \beta_6 Lev_{it} + e_{it}, \quad (4)$$

$$SR_{it} = a + \beta_1 InsOwn_{it} + \beta_2 EA_{it} + \beta_3 InsOwn_{it} \cdot EA_{it} + \beta_4 Size_{it} + \beta_5 Age_{it} + \beta_6 Lev_{it} + e_{it}, \quad (5)$$

$$SR_{it} = a + \beta_1 GD_{it} + \beta_2 EA_{it} + \beta_3 GDs_{it} \cdot EA_{it} + \beta_4 Size_{it} + \beta_5 Age_{it} + \beta_6 Lev_{it} + e_{it}, \quad (6)$$

where SR_{it} denotes the SR of company i in year t , EA_{it} signifies the EA of company i in year t , $IndCom_{it}$ represents the number of independent commissioners i in year t , $InsOwn_{it}$ represents the ratio of institutional ownership i in year t , GD_{it} is the gender diversity of company i in year t , $Size_{it}$ denotes the size of company i in year t , Age_{it} represents the age of company i in year t , Lev_{it} signifies the leverage of company i in year t , e_{it} is the error of company i in year t , a is constant, and β is coefficient.

This research conducted a robustness check to verify the credibility of the results from the primary test. The robustness test assessed the impact of each independent variable across the three SR dimensions (economic, environmental, and social).

3. RESULTS

Table 3 presents a descriptive analysis of the data. The average SR across the 867 observations analyzed was about 43.9 percent, and the series' standard deviation was 7.7 percent. This means the SR average can deviate from its expectation by about 7.7 percent. The independent commissioner's mean was 3.221, and the standard deviation was 0.624. The average institutional ownership ratio is 57.367, with a standard deviation of 24.406. Gender diversity (GD) on the board of commissioners has a mean of 0.17 and a standard deviation of 0.149. The mean EA score was 0.141 (SD = 0.348). The size control variable had a mean of 26.602 and a standard deviation of 3.773. The mean and SD of Lev, which represent leverage, were 1.127 and 1.298, respectively. For firm age, the mean and standard deviation were 35.22 and 19.405, respectively.

Table 3. Descriptive statistics of variables (n = 867)

Variable	Min	Max	Mean	SD
SR	0.167	0.612	0.439	0.077
IndComs	2	4	3.221	0.624
InsOwn	13.001	100	57.367	24.406
GD	0	0.500	0.17	0.149
EA	0	1	0.141	0.348
Size	17.365	33.731	26.602	3.773
Lev	0	8.469	1.127	1.298
Age	2	122	35.22	19.405

Table 4 presents the correlation results for the variables SR, CG structure (independent commissioners, institutional ownership), gender diversity, external assurance, and control variables. As shown in the table, SR is positively associated with independent commissioners at the 10% level. The association between the sustainability report and

Table 4. Correlation matrix for the variables

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) SR	1.000										
(2) IndComs	0.141*	1.000									
(3) InsOwn	0.014	-0.035	1.000								
(4) EA	0.015	0.032	0.070*	-0.021	-0.037	1.000					
(5) GD	0.033	-0.193*	-0.040	0.015	0.036	-0.054	0.053	1.000			
(6) Size	-0.202*	0.051	0.060	-0.048	-0.063	0.119*	0.036	-0.020	1.000		
(7) Lev	-0.037	-0.037	0.054	-0.018	-0.016	0.150*	-0.090*	0.019	0.036	1.000	
(8) Age	-0.134*	0.098*	0.024	0.043	-0.011	0.252*	0.087*	-0.016	0.169*	0.055	1.000

Note: *** p < 0.01, ** p < 0.05, * p < 0.1.

institutional ownership was not significant. It was also found that there was no significant relationship between sustainability reports and external assurance, or between gender diversity among commissioners and external assurance. The highest correlation, 0.252, was between external assurance and company age, suggesting multicollinearity was not a concern among the independent variables. Therefore, the data were considered amenable to further analysis and were deemed highly trustworthy.

As shown in Table 5, the CG composition had different impacts on SR disclosure among non-financial firms listed on the IDX. The result reveals that the independent board of commissioners has a positive and significant coefficient of 0.0232, indicating that the more independent the board, the higher the sustainability quality. Gender diversity is positively and significantly associated (coefficient = 0.075), suggesting that greater representation of women on the board of commissioners improves the quality of sustainability reports. Institutional ownership has a positive, but insignificant, effect ($\beta = 0.0002$), suggesting that the quality of sustainability reports is not affected by institutional ownership. The interaction between external assurance and independent commissioners negatively affects SR quality, with a coefficient of -0.0219. It suggests that the impact of independent commissioners on SR quality is weakened by external assurance moderation. The interaction between external assurance and institutional ownership negatively affects SR quality, with a coefficient of -0.0008. This means that external assurance moderation tempers the effect of institutional ownership on SR quality. In addition, the interaction term between external assurance and gender diversity is not significant for SR quality (-0.0064).

Table 5. The results of the hypothesis test using Hayes's PROCESS macro

No.	Descriptions	Hypothesis	Coeff	p	Decisions
1	IndComs →SR	H1	0.0232***	0.0000	Accepted
2	InsOwn →SR	H2	0.0002	0.1180	Not Accepted
3	GD →SR	H3	0.075**	0.0285	Accepted
4	EA x IndComs →SR	H4	-0.0219**	0.0492	Accepted
5	EA x InsOwn →SR	H5	-0.0008**	0.0156	Accepted
6	EA x GD →SR	H6	-0.0064	0.4830	Not Accepted
7	Lev →SR		-0.0021	0.2927	
8	Size →SR		-0.0039***	0.0000	
9	Age →SR		-0.0005***	0.0006	

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Sample Size: 867.

Table 6. Robustness test – H1 and H4 (n = 867)

	Economic		Environmental		Social	
	Coeff	P	Coeff	P	Coeff	p
Constant	0.2853	0.0000	0.4455	0.0000	0.5929	0.0000
IndComs	0.0223***	0.0000	0.0246***	0.0001	0.0227***	0.0023
EA	0.0787**	0.0240	0.0887*	0.0967	0.0891	0.1520
Int_1	-0.0249**	0.0176	-0.0284*	0.0769	-0.0162	0.3854
Lev	-0.0034*	0.0666	-0.0024	0.4073	-0.0010	0.7532
Size	-0.0014**	0.0320	-0.0001	0.8936	-0.0073***	0.0000
Age	-0.0001	0.6466	-0.0005***	0.0063	-0.0007***	0.0022
R-Square	0.0429	–	0.0268	–	0.0730	–
F	6.4211	–	3.9430	–	11.2920	–

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Tables 6-8 show the results of robustness analyses that retested the effects of each independent variable on the three subsections of the sustainability report (economic, environmental, and social).

As shown in Table 6, independent commissioners dominated the SRs across all aspects, i.e., the economic, environmental, and social. This result supports that of the primary analysis. The robustness checks indicate that, with EA correcting for

independent commissioners, a positive moderation effect on the quality of SR in the economic dimension of the SR was observed, but not in the environmental and social dimensions.

The results from Table 7 reveal that institutional ownership has a significant effect on the economic and environmental dimensions, but not on the social dimension. The involvement of external assurance in institutional ownership and the social

Table 7. Robustness test – H2 and H5 (n = 867)

	Economic		Environmental		Social	
	Coeff	P	Coeff	P	Coeff	p
Constant	0.3469	0.0000	0.5065	0.0000	0.6590	0.0000
InsOwn	0.0002**	0.0404	0.0004**	0.0184	0.0000	0.9140
EA	-0.0018	0.9286	0.0145	0.6274	0.1214***	0.0005
Int_1	0.0000	0.9524	-0.0003	0.4882	-0.0014 ***	0.0090
Lev	-0.0036*	0.0551	-0.0025	0.3754	-0.0006	0.8636
Size	-0.0015**	0.0190	-0.0003	0.7448	-0.0073***	0.0000
Age	0.0000	0.9279	-0.0005**	0.0150	-0.0006 ***	0.0065
R-Square	0.0162	–	0.0162	–	0.0710	–
F	2.3662	–	2.3531	–	10.9612	–

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 8. Robustness test – H3 and H6 (n = 867)

	Economic		Environmental		Social	
	Coeff	P	Coeff	p	Coeff	p
Constant	0.3590	0.0000	0.5196	0.0000	0.6514	0.0000
GD	0.0017**	0.5896	0.0054	0.2680	0.0126	0.0263
EA	-0.0035	0.7386	-0.0006	0.9717	0.0488**	0.0077
Int_1	0.0015	0.8643	0.0024	0.8536	-0.0123	0.4172
Lev	-0.0034*	0.0688	-0.0024	0.3917	-0.0013	0.6924
Size	-0.0015**	0.0254	-0.0002	0.8408	-0.0073***	0.0000
Age	0.0000	0.9253	-0.0005**	0.0133	-0.0007***	0.0044
R-Square	0.0164	–	0.1060	–	0.0682	–
F	1.6233	–	1.6277	–	10.4919	–

Note: *** p < 0.01, ** p < 0.05, * p < 0.1.

strand is significant, whereas neither the economic nor the environmental strand is significant.

Table 8 shows that gender diversity on the board was not significantly related to economic or environmental, but was significantly positively related to social.” The results of the robustness tests indicate that, in the presence of external assurance, the moderated variable, gender diversity, is not significant in influencing the quality of SR across the economic, environmental, and social dimensions.

4. DISCUSSION

Testing of the first hypothesis revealed that an independent commissioner positively and significantly influenced the disclosure of sustainability reports (p-value < 0.001). Non-executive directors are integral to the company’s corporate governance framework, acting as a lever in decision-making and in monitoring the company.

Improving corporate governance efficiency enhances the quality of sustainability disclosures by mitigating information asymmetry. This aligns with the tenets of stakeholder theory (Freeman, 1994), which posit that nonmanagement-affiliated directors serve as external monitors that may lead to more objective reporting of nonfinancial information to stakeholders. These findings align with those of Erin et al. (2022), Erin and Ackers (2024), and Oyerogba et al. (2024). The economic, environmental, and social subsample results also demonstrate a specific and considerable contribution of independent commissioners to the robustness check. The independent directors represent the ideal of impartial, detached monitoring that

promotes transparency, accountability, and ethical behavior in corporate governance. They make sure the company is looking beyond just making money (the economic part) to how it is affecting the environment and society, too.

The findings of the test of the second hypothesis suggest that institutional ownership has no impact on SR (p>0.05). The insignificance may be due to investors’ greater preference for financial reporting over sustainability reporting. This is at odds with stakeholder theorizing and reflects established ownership structures prevalent in Indonesia, where ETS practices are yet to be mainstreamed as key issues in investment decision-making. This is also in distinction from the legitimacy view, which holds that corporate governance mechanisms will incentivize sustainability disclosure to gain legitimacy. The results of this study are comparable with the findings of Permatasari and Yanto (2022), where institutional ownership did not significantly affect the quality of the sustainability report. That suggests that while institutional ownership may improve management monitoring, institutional investors do not necessarily care about sustainability issues, the authors write.

Robustness examination findings suggest that institutional ownership affects the economic and environmental dimensions, but not the social dimension. This can be attributed to Indonesia’s national orientation, which placed greater emphasis on the economy and environment rather than social aspects (Utami et al., 2024). Institutional investors, in turn, are demanding even more quality improvements in the sustainability reporting of these two areas.

The results of the third hypothesis test indicate that gender diversity on the corporate board has a positive impact on SR ($p < 0.05$). From a target-theoretic viewpoint, gender-diverse boards are thought to bring more diverse perspectives and, consequently, to lead more companies to focus on social and environmental matters. This viewpoint is echoed by stakeholder theory (Freeman, 1994), which holds that firms owe a duty of care not only to shareholders but also to other stakeholders. These findings are consistent with studies by Cicchiello et al. (2021), Erin and Ackers (2024), Girón et al. (2021), and Githaiga and Kosgei (2023) that show that gender diversity improves the quality of SR. The results of robust tests indicate that the proportion of female directors on the board has no effect on economic or environmental performance, but has a significant positive effect on social performance. This suggested that the presence of women on the board of commissioners was more relevant to social disclosure than to economic and environmental disclosure. These findings suggest that in countries with high levels of patriarchal culture, the place of women or other non-dominant gender groups is generally confined within specific fields, mainly those dealing with social affairs. Social conditions foster cultural patterns that expect male dominance in economic and political decision-making. Women are better qualified for social affairs, welfare, and human relations. Women are also stereotypically linked with “social” constructs such as compassion, nurturing, and concern for social problems (health, education, equality, etc.).

The empirical results for H4 indicate a negative interaction between external assurance and the effect of independent commissioners on sustainability report quality ($p < 0.05$). This implies that the existence of a third-party guarantor may weaken the independent commission’s monitoring role, with the verification function viewed as having been delegated to the external auditor. In the context of signaling theory (Spence, 1973), firms hire external auditors to signal increased credibility of their reports. However, once this signal is accepted as credible by all relevant stakeholders, the importance of internal signals, i.e., monitoring by the board of commissioners, declines, thereby weakening its effects on sustainability report quality. From the robustness test, we observe that the interaction term

between independent commissioners and external assurance has a statistically significant negative impact on the economic segment and a relatively mild negative impact on the environmental segment. This interaction does not affect the social segment. This result implies that external assurance appears to undermine the substitutes argument for an independent commissioner in enhancing sustainability disclosure, especially in the economic setting. Instead, their impact on the environment and social sectors is more modest or non-existent.

The findings for the fifth hypothesis indicate that external assurance negatively moderates the association between institutional ownership and sustainability report quality (p -value < 0.05). This finding runs counter to the logic of signaling theory (Spence, 1973), which holds that the presence of external assurance in a sustainability report signals a company’s dedication to sustainability. This will also motivate institutional investors to be more positive in response to verified disclosures. However, parallel robustness tests reveal a significant difference in the social segment between the economic and environmental segments, but not with respect to the interaction term between institutional ownership and external assurance; that is, the results differ substantially. Stakeholder theory (Freeman, 1994) holds that firms must serve the interests of multiple groups, including shareholders, employees, communities, the environment, and the government. When institutional ownership is high and dominated by short-term profit-seeking investors, the company’s priorities shift away from social concerns toward economic ones. External assurance, which is expected to enhance social disclosure, becomes a symbolic tool to satisfy the formal requirement without improving social information. So, social disclosure quality actually worsens as firms focus more on issues of economic significance to institutional investors.

The findings do not support the sixth hypothesis that external assurance moderates the relationship between gender diversity and sustainability report quality (p -value > 0.05). Gender diversity positively affects the adoption of sustainability reporting and increases the likelihood of external assurance. However, the extent of women’s contributions on the board and the quality of sustainability reporting both remain unchanged with ex-

ternal assurance in place. The robustness results, which suggest that when EA moderates gender diversity, SR quality fails to significantly affect SR quality across economic, environmental, and social components, further break down. The findings are not supported by Kravchuk et al. (2024) and, consistent with this, suggest that gender diversity, specialized knowledge of ESG and SR disclosures are positively and significantly related, and that SR needs to be externally verified (Erin et al., 2022). Moreover, company age and size sig-

nificantly influence SR quality, according to the findings, suggesting that older and larger firms have lower SR quality. Larger, older firms are more likely to conform to formal reporting standards. However, their established reputations are sufficient to ensure legitimacy, so they adhere to established reporting formats that are less sensitive to ESG pressures (Permatasari & Yanto, 2022). In addition, leverage is not a significant determinant of SR quality, suggesting that a firm's debt level is not an indicator of SR quality.

CONCLUSION

This study aims to investigate the direct effects of independent commissioners, institutional ownership, and gender diversity on sustainability report disclosure quality and the moderating effect of external assurance. Results show that the number of independent commissioners and gender diversity have a positive influence on the quality of SR. However, institutional ownership does not significantly affect SR quality. Independent commissioners and SR quality are negatively moderated by external assurance. External assurance has been shown to moderate the relationship between institutional ownership and SR quality negatively. Gender diversity does not moderate the relationship with sustainability report quality.

This study is relevant to both theory and practice. From a theoretical perspective, this study contributes to related studies in Indonesia on the direct effect of corporate governance structure on the quality of demand reports and the moderating effect of external assurance on this relationship. In practice, the findings of this study suggest that external assurance for companies in Indonesia has not become a necessity. This is evidenced by the fact that many firms have yet to engage external assurance services, as shown in the descriptive statistics. As a result, the infrequent use of external assurance still marginally attenuates the effect of independent commissioners on the informativeness of sustainability reports. External assurance attenuates the effect of institutional ownership on the quality of sustainability reports. On the other hand, external assurance does not moderate the relationship between gender diversity and the quality of sustainability reports.

The low number of female commissioners in this study is a limitation that affected the results. Using multiple measures rather than a single measure of gender diversity would yield different results; future research should employ an alternative measure, such as the Blau Index, to obtain them. Another limitation is the small number of external assurance providers, which undermines the findings. This study was limited to non-financial companies on the IDX, so it does not reflect conditions in other emerging markets. Future studies may also broaden the sample to include firms from other ASEAN countries and examine whether the findings hold, especially regarding external guarantees, since very few Indonesian firms have them.

AUTHOR CONTRIBUTIONS

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