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The Association Between Corporate Governance and Environmental Sustainability Reporting GRI

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ABSTRACT

This study aims to analyze the association between corporate governance and environmental environmental sustainability reporting based on the Global Reporting Initiative (GRI) standard. In the modern business era, environmental sustainability reportingis not only a form of corporate accountability to the environment, but also an indicator of transparency and corporate responsibility. This study uses a quantitative approach with secondary data from annual reports and sustainability of public companies listed on the Indonesia Stock Exchange. Governance variables are measured through ownership structure and board composition, while GRI reporting is analyzed based on the environmental disclosure index. The results showed that corporate governance has a significant positive association with the level of disclosure of environmental environmental sustainability reporting. The findings reinforce the view that good governance practices can encourage companies to be more responsible for the environmental impacts of their operations. This research provides implications for regulators, investors, and corporate management in encouraging integration between effective governance practices and transparent and accountable environmental sustainability reporting.

KEYWORDS Governance Company, Environmental Sustainability Reporting, Environment, Global Reporting Initiative, GRI

INTRODUCTION

Up until now, affluent nations like Australia, the UK, Canada, the US, and other European countries have been the main focus of research on the connection between corporate governance (CG) and environmental sustainability reporting (ESR) (Ortiz-de-Mandojana et al., 2016; Perrault & Clark, 2016; Delgado-Márquez et al., 2016). Environmental sustainability reports serve as a crucial tool to enhance transparency and communicate a company's environmental strategies and actions to stakeholders (Perrault & Clark, 2016; Comyns, 2016; Chang et al., 2017). Additionally, businesses need to handle environmental issues if they want to stay competitive and improve their image (Lu et al., 2015; de Villiers et al., 2011). De Villiers et al. (2011) identified two key factors behind recent improvements in environmental sustainability performance: first, firms that engage in sustainable environmental practices are more likely to experience economic gains; second, such reporting enhances organizational legitimacy internally and externally through adherence to standards like the Global Reporting Initiative (GRI) and ISO 26000. According to the triple bottom line theory, legislators, managers, and academics are putting more and more pressure on businesses to disclose environmental sustainability (Elkington, 1998).

Environmental sustainability reporting addresses stakeholder demands for information on the economic, environmental, and social impacts of a company's operations (Mion & Adaui, 2020). It also helps alleviate stakeholders' concerns regarding sustainability when companies disclose relevant performance data (Mion & Adaui, 2020). Given the business sector's growing

exposure to climate-related risks such as global warming, the development and implementation of robust and innovative corporate governance frameworks are vital for addressing environmental challenges. A strong organizational structure is crucial across all areas, and thus, corporate governance is fundamentally tied to maintaining public trust.

The methods and procedures that direct, oversee, and manage business operations in accordance with stakeholder interests are referred to as corporate governance. Wahyudin and Solikhah (2017) assert that good corporate governance improves a business's reputation and fosters investor confidence. It is crucial in striking a balance between social obligations and commercial objectives, bringing shareholders' interests into line with those of the larger community (Lee et al., 2016; Giannarakis et al., 2019). Five fundamental principles—fairness, accountability, responsibility, transparency, and independence—are necessary for effective governance and serve as the cornerstones of reliable sustainability reporting (Burak et al., 2017). Companies must improve their corporate governance procedures in order to reduce agency issues brought on by disputes between management and shareholders (Naciti, 2019; Schäuble, 2019). How successfully stakeholder interests are maintained during decision-making is greatly influenced by governance elements including ownership distribution and board composition (Ashfaq & Rui, 2019).

Given the continuous difficulties in managing the environment, including forest fires, environmental deterioration, and increasing greenhouse gas emissions, this study on sustainability is very pertinent to Indonesia. These problems demonstrate how urgently corporate management must assume active accountability. Furthermore, developing nations like Indonesia have received less attention in the majority of research on environmental sustainability reporting, which has been conducted in industrialized countries. Prior research in these areas has mostly concentrated on worldwide comparisons, disclosure levels, factors impacting disclosure, and the connection between sustainability reporting and profitability (Boiral & Henri, 2017; García-Sánchez et al., 2019; Jian WZ et al., 2017). Nevertheless, only few have looked at the caliber of reports on environmental sustainability (Mion & Adaui, 2020; Moses et al., 2020).

According to the Central Statistics Agency (BPS) Export Commodity Analysis from 2017–2021, the mining sector plays a significant role in boosting national revenue (Sulaksono, 2015). Yet, mining activities also give rise to various environmental issues (Mononen et al., 2022). Many mining companies in Indonesia fail to take adequate responsibility for the environmental and social impacts of their operations. This industry's overexploitation frequently results in major environmental harm, such as deforestation, the loss of wildlife habitats, chemical and mining waste-induced groundwater and surface water pollution, dust pollution, toxic gas emissions like carbon monoxide and sulfur dioxide, and social tensions between mining companies and impacted communities. Additionally, mining-related climate change has become a pressing global concern (Irama, 2020). Numerous businesses in this industry have a bad environmental record as well, as seen by their noncompliance with environmental rules and poor waste management (Ardan, 2022). Revocation of business licenses or a decline in legitimacy and public trust may follow from these infractions.

Indonesian companies are increasingly aligning with global trends in environmental sustainability reporting due to international market pressures. In addition, Indonesia has set up a number of accounting and corporate governance guidelines pertaining to sustainability reporting. One such rule, found in Annex II of Financial Services Authority Regulation No. 51/POJK.03/2017, requires public enterprises, issuers, and financial institutions to adopt sustainable finance practices.

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a. Problem Formulation

Even though Indonesia is dealing with major environmental problems like deforestation, forest fires, and rising greenhouse gas emissions, there is a research gap in developing countries like Indonesia because the majority of the current research on the relationship between ESR and CG has been done in developed countries. These difficulties highlight how urgently Indonesian businesses must implement successful sustainability plans.

Effective corporate governance (CG) is essential for raising the caliber of quality, credibility, and transparency of sustainability reporting. However, many Indonesian companies are still in the early stages of aligning with global standards for environmental sustainability reporting. This indicates that integrating sound corporate governance into sustainability reporting practices remains a significant challenge. Although Indonesia has introduced regulatory frameworks, such as Financial Services Authority Regulation No. 51/POJK.03/2017, which addresses ESR, there is a need to assess how effectively these regulations have influenced the quality and impact of CSR.

This study aims to address the question of how ESR and CG which include ownership structure and board composition relate to one another. Based on this inquiry, the primary goal of this research is to investigate empirically how corporate governance elements and environmental sustainability reporting methods relate to one another in Indonesia.

The benefits of this research are expected to contribute to various parties. For academics, this research expands academic insights related to CG practices and ESR, especially in the context of developing countries such as Indonesia, which are still minimally studied compared to developed countries. This research also enriches the understanding of how local factors in corporate governance affect environmental sustainability reporting. For practitioners, the findings of this study can serve as a reference to optimize corporate governance structures and practices, especially in the aspects of IO, IC, MO, and the involvement of female directors, in order to improve transparency and accountability of environmental reporting. Meanwhile, for regulators, the results of this study can serve as material for evaluating the effectiveness of policies that have been implemented, such as POJK 51/POJK 03/2017, and assist in identifying regulatory aspects that need to be strengthened in order to optimize the implementation of environmental sustainability reporting at the company level.

RESEARCH METHOD

This study employed a causal-comparative research methodology. The goal of causal-comparative research is to learn more about the factors that contribute to the development of particular correlations between variables. This study utilizes secondary data, which includes quantitative information gathered from www.idx.com and the companies' official websites. The annual reports of mining companies listed on IDX for the years 2019–2023 comprise the data analyzed in this study.

Dependent Variable

a. Environmental Sustainability Reporting

According to Yaya et al. (2018), the GRI Index serves as the foundation for the disclosure indicators and emphasizes a number of disclosure components, including economic, environmental, human rights, labor practices, society, and product responsibility. This study's dependent variable is quantified using GRI index, which has 35 elements that are especially relevant to disclosures about environmental sustainability. One of the most popular environmental sustainability reporting standards in the world is GRI (Yaya et al., 2018). Comparing companies on a global scale to local norms is made easier by the usage of the GRI framework. Undisclosed items receive a score of 0, while each disclosed GRI

item receives a score of 1. The Environmental Sustainability Disclosure Index (ESDI) is calculated using the following formula:

$$ESR = \frac{n}{K}$$

a. ESR = Environmental Sustainability Reporting
b. n = Number of ESR disclosure items fulfilled
c. k = sum of all environment-related GRI disclosure items (35 *item*)

Independent Variable

a. Institutional Owsnership (IO)

IO is the ownership of shares by organizations or institutions that look after other people's money (Dasgupta et al., 2020). The statistic used to measure IOis the proportion of shares held by the institution in relation to the total number of outstanding shares. The formula for calculating IO is as follows:

$$\frac{\text{Number of institutional shareholdings x 100\%}}{\text{Number of shares outstanding}}$$

b. Managerial Ownership (MO)

By bringing managers' and shareholders' interests into alignment, management's ownership of shares can help minimize conflicts of interest, according to the convergence of interests hypothesis (Jensen and Mackling, 1976; Jensen, 1993). The ratio of each board member's shares to the total number of shares outstanding is known as managerial ownership, and it indicates the level of accountability and ownership held by the company's management (Falade et al., 2021). The percentage of outstanding shares can be used to calculate the managerial ownership structure.

$$\frac{\text{Total share ownership by managerial x 100\%}}{\text{Number of shares outstanding}}$$

c. Independent Commissioner (IC)

IC have an essential part in putting corporate governance into practice. They are in charge of managing the company and making sure that its decisions reflect the interests of its shareholders. IC can also help to improve reporting on environmental sustainability. The relationship between the degree of disclosure in sustainability reports and the existence of IC has been the subject of several studies. According to several of these studies' findings, there is a positive correlation between the number of IC and the dissemination of sustainability information by businesses (Purnama, 2021).

$$\frac{\text{Number of Independent Commissioners x 100\%}}{\text{Total number of directors}}$$

d. Female director

Several recent studies empirically show that the presence of women in the board of directors can increase the level of disclosure of Environmental Sustainability Reporting by companies (Javaid Lone et al., 2016; Shaukat et al., 2016; Arayssi et al., 2016; Velte, 2016).

$$\frac{\text{Number of female directors x 100\%}}{\text{Total number of directors}}$$

Variable Control

There are two control variables in this study, namely company size and leverage.

a. Company Size (Size)

One of the factors frequently cited to explain differences in the disclosures made in yearly financial reports is the size of the company. Larger businesses typically reveal more information than smaller ones. Furthermore, there are greater political dangers for big businesses. The size of a company is usually based on its total assets, which are often expressed as the natural logarithm of total assets. A company's size can be classified using a variety of criteria, such as total assets, log size, and stock market value (Ardi & Yulianto, 2020). Therefore, the size of the company and its financial success can be used to determine its size.

b. Leverage

The leverage ratio is a metric used to assess how much of a business is financed by debt, claims Cashmere (2016). Leverage, on the other hand, is defined by Fahmi (2015) as the utilization of funding sources with fixed costs with the goal of increasing profits through fixed costs in order to improve shareholder profits. Increasing shareholder income is typically the goal of considerations while using fixed expenses. According to Al-Ahdal et al. (2020), in order to keep stakeholders' trust, businesses with large debt loads typically disclose more environmental information.

RESULTS AND DISCUSSION

Description of Research Objects

The secondary panel data used in this study was gathered from mining company reports and IDX official website throughout a five-year period (N), namely from 2019 to 2023. Data from publications, journals, earlier studies, and other pertinent sources is referred to as secondary data. On the other hand, panel data combines time series with cross-sectional data.

Environmental Sustainability Reporting, Institutional Ownership, Managerial Ownership, Independent Commissioner, and Women's Board (both Board of Directors and Board of Commissioners) are among the variables considered in this study. Leverage and the company's size are employed as control variables.

With the use of Stata 18 as a statistical test tool and Microsoft Excel for data tabulation, the quantitative analysis approach was employed in this study. The obtained data will undergo a methodical analysis to generate pertinent knowledge and bolster the goals of the study.

Research Results

a. Descriptive Statistics Test

An overview of the independent variables examined in this study was obtained by descriptive statistical analysis. Each variable's mean, maximum value (max), minimum value (min), and standard deviation are among the statistical metrics employed in this research. The following findings are derived from the experiments that were conducted:

Table 1.

Variable	Obs	Mean	Std. Dev.	Min	Max
PKL	235	0.2290213	0.0910545	0.07	0.80
KI	235	0.495234	0.2440371	0.02	0.98
KM	235	0.2064681	0.2273516	0.01	0.97
KomIn	235	0.2231064	0.1184269	0.09	0.94
DP_BOC	235	0.1361277	0.2587096	0.00	1.00
DP_BOD	235	0.1237872	0.1844573	0.00	0.67
Size	235	1.401191	1.451763	0.12	7.36
Lev	235	0.5142979	0.2733752	0.11	1.80

Based on the information in the table above, it can be explained as follows:

1) The dependent variable, Environmental Sustainability Reporting (ESR), has an average value of 0.23, with a maximum value of 0.80 and a minimum value of 0.07.
2) The independent variable Institutional Ownership (KI) shows an average result of 0.50, with a maximum value of 0.98 and a minimum value of 0.02.
3) Managerial Ownership (KM) has an average of 0.21, a maximum value of 0.97, and a minimum value of 0.01.
4) Independent Commissioner (KomIn) shows an average of 0.22, a maximum value of 0.94, and a minimum value of 0.09.
5) The Women's Council (DP) consists of two parts:
   DP_BOC has an average of 0.14, a maximum value of 1.00, and a minimum value of 0.00.
   DP_BOD has an average of 0.12, a maximum value of 0.67, and a minimum value of 0.00.
6) The control variable Company Size (Size) has an average of 1.40, a maximum value of 7.36, and a minimum value of 0.12.
7) The Leverage control variable shows an average value of 0.51, with a maximum value of 1.80 and a minimum value of 0.11.

Classical Assumption Test

a. Normality Test

Finding out if the residual model is regularly distributed is the goal of the normality test. The Skewness and Kurtosis exam might be used for this exam. If the probability value is less than or equal to 0.05, the residuals are considered to be regularly distributed. The following are the findings of this study's normalcy test, which was based on the Skewness and Kurtosis Test.

Table 2.

Variable	Obs	Pr(skewness)	Pr(kurtosis)	Adj chi²(2)	Prob > chi²
PKL	235	0.2027	0.3587	2.49	0.2884

It is known from the preceding image that a probability value of 0.2884 was attained. The probability value of 0.2884 indicates that the study's residuals are normally distributed because it is more than 0.05.

b. Autocorrelation Test

The Wooldridge test was used in this study to test for autocorrelation. H_0 is rejected if the p-value < 0.05, indicating that the model contains evidence of autocorrelation. The following are the findings of this study's autocorrelation test.

Table 3.

Uji	Nilai
Hipotesis Nol (H_0)	Tidak ada autokorelasi orde pertama
F-statistic (df = 1, 46)	1.045
Prob > F	0.3120

It is known that the study's Wooldridge test value is 0.3120 based on Table 4.3. Since this value is higher than 0.05, it can be said that there is no autocorrelation in this study.

c. Heteroscedasticity Test

The heteroscedasticity test is conducted to determine whether there is an inconstant spread of variance in each variable in the study. Heteroscedasticity testing is done using the Breusch-Pagan test. Heteroscedasticity does not occur if the prob value. F value in the model is greater than 0.05.

Table 4.

Uji	Nilai
Hipotesis Nol (H_0)	Varians konstan (tidak ada heteroskedastisitas)
$Chi^2(1)$	2.59
Prob > Chi^2	0.1077

It is known that the probability value is 0.1077 based on the above table. Given that this number is higher than 0.05, it may be said that there is no heteroscedasticity in any of the study's variables.

d. Multicollinearity Test

The multicollinearity test is used to ascertain whether the independent variables in a regression model have a substantial correlation with one another. This test looks at tolerance levels as well as the Variance Inflation Factor (VIF). If the tolerance value exceeds 0.1 and the VIF value is less than 10, multicollinearity is absent. The following findings are derived from the multicollinearity testing that was conducted.

Table 5.

Variable	VIF	1/VIF
KomIn	1.55	0.646951
DP_BOD	1.36	0.735898
DP_BOC	1.33	0.752669
KM	1.18	0.849762
KI	1.10	0.905172
Mean VIF	1.30	

The table above shows the multicollinearity test results for each variable, where all variables have VIF coefficient values below 10. Consequently, it can be said that multicollinearity does not exist in any of the independent variables employed in this investigation.

Multivariate Analysis

Source	SS	df	MS		
Model	1.58525639	7	.226465198	Number of obs	= 235
Residual	.354818507	227	.001563077	F(7, 227)	= 144.88
Total	1.94007489	234	.008290918	Prob > F	= 0.0000
				R-squared	= 0.8171
				Adj R-squared	= 0.8115
				Root MSE	= .03954

PKL	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]
KI	.0781499	.0113657	6.88	0.000	.0557541	.1005457
KM	.0411675	.0123339	3.34	0.001	.016864	.065471
KomIn	.4759766	.0290158	16.40	0.000	.418802	.5331513
DP_BOC	.0173707	.0122261	1.42	0.157	-.0067204	.0414618
DP_BOD	.0528924	.0163839	3.23	0.001	.0206085	.0851763
Size	.01023	.0020865	4.90	0.000	.0061187	.0143414
Lev	.0507115	.0099244	5.11	0.000	.0311558	.0702672
_cons	.0262985	.0091965	2.86	0.005	.0081772	.0444198

To ascertain the concurrent impact of several independent factors on multiple dependent variables, a multivariate regression test is used. IO (KI), MO (KM), IC (KomIn), Supervisory BOC (DP_BOC), and BOD (DP_BOD) were the independent variables employed in this study.

All of the independent variables in this model concurrently have a substantial impact on the dependent variables under investigation, according to the data processing findings, which show an F-statistic value of 144.88 with a significance level of 0.0000. Therefore, it can be said that the multivariate regression model that was constructed is appropriate for additional research.

T test

Source	SS	df	MS		
Model	1.51122924	5	.302245847	Number of obs	= 235
Residual	.428845658	229	.001872688	F(5, 229)	= 161.40
Total	1.94007489	234	.008290918	Prob > F	= 0.0000
				R-squared	= 0.7790
				Adj R-squared	= 0.7741
				Root MSE	= .04327

PKL	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]
KI	.0628216	.0121844	5.16	0.000	.0388138	.0868294
KM	.0421128	.0134983	3.12	0.002	.0155161	.0687095
KomIn	.5443464	.0296988	18.33	0.000	.4858286	.6028643
DP_BOC	.0279521	.0126041	2.22	0.028	.0031174	.0527868
DP_BOD	.0511831	.0178781	2.86	0.005	.0159566	.0864097
_cons	.0576269	.008285	6.96	0.000	.0413024	.0739514

The following conclusions are drawn from the regression output results:

1. The findings demonstrate a substantial and positive correlation between IO and environmental sustainability reporting, with a coefficient of 0.0628 and a p-value of 0.000. For every unit increase in KI, the dependent variable will rise by 0.0628.
2. MO with a p-value of 0.002 and a coefficient of 0.0421, the results indicate that MO and ESR are positively and significantly correlated. The dependent variable will rise by 0.0421 for every unit increase in MO.
3. The findings indicate a very strong and substantial positive correlation between IC and ESR, with a coefficient of 0.5443 and a p-value of 0.000. ESR will rise by 0.5443 for every increase in KomIn.
4. Female Directors (DP_BOC and DP_BOD)

   The findings for DP_BOC indicate a positive and significant correlation between ESR and the number of female directors on the BOC, with a coefficient of 0.0279 and a p-value of 0.028.

   With a p-value of 0.005 and a coefficient of 0.0511 for DP_BOD, the findings indicate that there is a positive and significant correlation between ESR and the number of female BOD.

   Environmental sustainability reporting will therefore rise in tandem with any growth in the percentage of female directors on the BOC and BOD.

Discussion

a. There is a Positive Association between Institutional Ownership and the Quality of Environmental Sustainability Reporting

According to the first hypothesis, Environmental Sustainability Reporting (ESR) and IO are positively and significantly correlated. According to the t statistical test results (p = 0.000), institutional ownership significantly and favorably affects ESR.

The results of this investigation align with Dakhli (2021), who found that institutional ownership positively affects a company's ability to adopt and bolster its environmental sustainability reporting initiatives. To put it another way, institutional ownership is seen to be a factor that can motivate businesses to implement environmental sustainability policies more actively and responsibly.

b. There is a Positive Association between Managerial Ownership and Environmental Sustainability Reporting Quality

The second hypothesis posits that MO is positively related to ESR. The t-test results (p = 0.002) indicate a significant and positive relationship between MO and ESR. These findings align with the study by Arista et al. (2019), which highlights that when managers hold shares in the company, they are more likely to prioritize environmental sustainability reporting. This is due to the alignment of their interests with those of other shareholders in enhancing firm value, one strategy being through improved ESR. Similarly, Wulandari and Sudana (2018) found that managerial ownership positively influences the extent of ESR disclosure among companies in Indonesia.

c. There is a Positive Association between Independent Commissioners and Environmental Sustainability Reporting Quality

According to the third hypothesis, Environmental Sustainability Reporting (ESR) and independent commissioners are significantly positively correlated. The existence of independent commissioners has a favorable and significant impact on ESR, according to the results of the t statistical test ($p = 0.000$).

The results of the study agree with those of Chiu and Wang (2015) and Odriozola and Baraibar-Diez (2017), who found that independent commissioners substantially impact the course of decision-making and the development of business strategy, particularly with regard to environmental sustainability.

d. There is a Positive Association between the Presence of Female Directors on the BOD & BOC and the Quality of Environmental Sustainability Reporting

The fourth hypothesis, which examines the relationship between the presence of female directors on BOD and Environmental Sustainability Reporting (ESR), yielded positive results. The t-test ($p = 0.026$) indicates that female representation on the BOD has a significant positive impact on ESR.

Similarly, the hypothesis regarding female directors on BOC also demonstrates a significant positive relationship with ESR. The t-test results ($p = 0.002$) confirm that the presence of women on the BOC contributes positively to the level of environmental sustainability reporting.

These findings are consistent with those of Arayssi et al. (2016), who suggest that female participation on corporate boards positively influences the organization by enhancing board members' empathy toward stakeholder needs and expectations. Their involvement is also seen as a factor that strengthens strategic connections with stakeholders and highlights the board's role in promoting responsiveness and active engagement on environmental matters.

CONCLUSION

Overall, the findings in this study show empirical evidence that ownership structures and board composition play an important role in improving Environmental Sustainability Reporting (ESR) performance:

1. Strategic decision-making on environmental investments, green technology implementation and regulatory compliance;
2. Contribution to long-term environmental initiatives through advice and guidance based on professional experience and expertise.

This research contributes both theoretically and practically. Practically, the results of this study can be utilized by stakeholders and management, especially in developing countries such as Indonesia, especially in the mining sector, in making investment decisions and formulating environmental policies.

Theoretically, this study links various theoretical approaches to explain the relationship between corporate governance and environmental information disclosure decisions. Thus, this study is one of the first to integrate three theoretical frameworks in explaining the link between corporate governance and environmental sustainability reporting.

Based on the findings, it is recommended that company management consider balance in the shareholding structure as a strategy to support environmental sustainability reporting practices. From the managerial side, the findings also recommend that companies adopt more comprehensive environmental strategies.

This research also encourages the active involvement of various stakeholders and activist groups in demanding improved environmental sustainability reporting. However, this study has some limitations. The ESR scores were developed with reference to the GRI guidelines, which may not fully reflect the quality of corporate environmental disclosures. Therefore, it is recommended that future research be conducted longitudinally and cover more developing countries in order to produce broader and deeper generalizations.

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