

CORPORATE GOVERNANCE MECHANISMS AND ENVIRONMENTAL DISCLOSURE

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ABSTRACT

This study aims to analyze the effect of corporate governance mechanisms on environmental disclosure among energy sector companies in Indonesia during 2021-2023 period. The governance mechanisms examined include board size, independent commissioners, audit committee, and managerial ownership. While, environmental disclosure is measured using environmental disclosure index based on Global Reporting Initiative Standards. Firm size and firm age are included as control variables. Using purposive sampling, 65 companies (195 firm-year observations) were selected. Multiple regression analysis was employed to test the hypotheses. The results show that board size, independent commissioners, audit committee, and firm size have a positive effect on environmental disclosure. In contrast, managerial ownership and firm age have no significant influence. These findings highlight the importance of strengthening corporate governance mechanisms to enhance environmental transparency and accountability.

Keywords: Corporate Governance, Environmental Disclosure, Independent Commissioner, Board of Commissioner Size, Audit Committee, Managerial Ownership

INTRODUCTION

Environmental degradation in Indonesia, mainly driven by industrial activities, has been a serious issue that could lead to public unrest. Water, air, and soil pollution, as well as deforestation, have been major issues frequently reported to the Ministry of Environment and Forestry (KLHK). For instance, the PT Timah case, with its alleged illegal mining resulting in environmental damage valued at trillions of rupiah, exemplifies the lack of corporate responsibility. This situation highlights the significance of environmental disclosure as a means of corporate transparency in reporting the operational impacts of their activities and their recovery initiatives.

Indonesian regulations, such as Government Regulation PP No. 47 of 2012 and Limited Corporation Act article 74, require firms to implement social and environmental responsibilities and to include these initiatives in their annual reports. Environmental disclosure does not merely reflect accountability; it also establishes public trust, mitigates social conflicts, and exposes firms' sustainability practices. Nonetheless, its effectiveness highly depends on corporate governance.

Board size, independent commissioners, audit committees, and managerial ownership are crucial in corporate governance. Larger boards of commissioners arguably provide stronger oversight and greater transparency, although prior studies yield mixed results. Independent commissioners are likely to offer more objective oversight to ensure environmental compliance, while audit committees ensure more

accurate and transparent reporting. Managerial ownership also aligns managerial interests with those of shareholders, although its effect on environmental disclosure is debatable.

This study analyzes the impact of corporate governance mechanisms on environmental disclosure, focusing on high-profile firms with nature-related operations. The selection of this sector arguably enhances the validity of our findings and offers a more comprehensive perspective of the association between corporate governance and environmental transparency. Our results inform firms to strengthen their governance structure, regulators to formulate more effective environmental policies, and investors to evaluate firms' social responsibilities.

THEORETICAL FRAMEWORK AND HYPOTHESIS DEVELOPMENT

Agency Theory

Agency theory explains the contractual relationship between owners (principals) and managers (agents), in which agents are authorized to make decisions on behalf of the firm. This condition creates information asymmetry because agents have more information than principals, which will potentially lead to conflicts of interest that harm firm performance. In this respect, good corporate governance is critical to facilitate more effective oversight mechanisms.

Better-governed firms motivate agents to act more in line with principals' interests through discipline, financial reporting transparency, internal audits, and accountable policies. Various studies demonstrate that firms with more robust governance mechanisms disclose more transparently, reducing information asymmetry. In the context of environmental issues, firms may disclose their adverse environmental impacts reluctantly, but more effective corporate governance enforces firms to remain transparent, socially responsible, and long-term oriented. Hence, agency theory highlights that good governance enhances environmental reporting quality, mitigates agency conflicts, and establishes trust among investors and the public by implementing accountability, transparency, and responsibility principles.

Corporate Governance Mechanisms

Corporate governance (GCG) refers to systems to manage firms based on transparency, accountability, responsibility, independence, fairness, and equality principles (Bursa Efek Indonesia, 2024). There are two GCG mechanisms: external (investors, public accountants, legal institutions, etc.) and internal (structures and processes within firms). This study focuses on internal mechanisms, encompassing boards of commissioners that actively monitor and supervise directors, protect shareholders' rights, and ensure the implementation of operations and policies. Independent commissioners (minimum 30% of the total board of commissioner members) avoid conflicts of interest, oversee regulatory compliance, and encourage (environmental reporting) transparency. Further, audit committees, established by boards of commissioners, evaluate firms' compliance with environmental regulations and disclosure requirements, thereby improving operational oversight and balance. Lastly, managerial ownership (shares owned by managers) reduces agency costs because managers align their interests with those of principals, thus motivating them to perform more optimally (Bursa Efek Indonesia, 2024).

Environmental Disclosure

Environmental disclosure includes all information related to the management of environmental impacts of firms' past, current, and future operating activities (Campbell, 2004). As a voluntary disclosure, it is not mandated by regulations or accounting standards. Nonetheless, firms strategically use voluntary disclosure to manage risks and establish social security by focusing on long-term sustainability over short-term profits (Setiadi & Agustina, 2019). According to POJK No. 51/POJK.03/2017, publicly listed firms must publish sustainability reports that encompass economic, social, and environmental performance. Such reporting globally refers to the GRI Standards that inform both firms' positive and

negative impacts on sustainable development. Accordingly, this study employs the 2016 GRI Standards (GRI 300) to focus on environmental aspects most relevant to firms.

Board Size and Environmental Disclosure

Agency theory argues that firms must provide structures that discipline agents to act in accordance with principals' interests, including the presence of boards of commissioners authorized to oversee managers. The number of commissioners or the size of the board of commissioners is crucial in effective oversight. Larger boards provide more extensive oversight, especially when they include individuals with greater experience and skills in environmental, government, and industry matters. These skills enable boards of commissioners to evaluate firms' environmental policies and performance more critically and thoroughly (KNKG, 2021).

Boards of commissioners' more stringent oversight seeks to ensure that managers have fulfilled their responsibilities, including by disclosing environmental information as a form of transparency to their stakeholders. Boards of commissioners' skills and experience add value to evaluating environmental risks and impacts and to ensuring the effectiveness of firms' mitigating actions. Yanto & Maulia (2020), Ramadhani & Maresti (2021), and Restu et al., (2017) reveal that board size positively affects environmental disclosure. These findings highlight that larger boards of commissioners with varying backgrounds, skills, and experience improve oversight effectiveness and promote greater transparency in firms' reporting environments.

H₁: Board of commissioner size is positively associated with environmental disclosure.

Independent Commissioners and Environmental Disclosure

Agency theory explains that independent commissioners serve as a monitoring mechanism to reduce conflicts of interest between agents and principals. Independent commissioners are expected to perform their oversight functions objectively, as they are unaffiliated with managers or controlling shareholders, thereby promoting transparency and accountability (Ummah et al., 2024). The presence of independent commissioners in firms' governance structure enhances the effectiveness of oversight of managerial policies and actions, including environmental disclosure. Heightened pressure from independent commissioners motivates managers to focus more on social and environmental responsibilities as part of their firms' reputations and sustainability. Herizona & Yuliana (2021), Mohammadi et al. (2021), and Fatimah Z et al. (2016) demonstrate that the proportion of independent commissioners positively affects environmental disclosure. The findings indicate that independent commissioners — those unaffiliated with majority shareholders or managers — improve objective monitoring and promote transparency in environmental disclosure. By focusing on stakeholders' interests, independent commissioners facilitate social responsibilities and compliance with sustainability principles.

H₂: Independent commissioners positively affect environmental disclosure.

Audit Committees and Environmental Disclosure

Agency theory argues that an imbalance in information between agents and principals leads to information asymmetry. Nonetheless, this problem is potentially mitigated by the presence of audit committees that support the boards of commissioners' functions and responsibilities (Otoritas Jasa Keuangan, 2015). Additionally, according to the *Forum for Corporate Governance in Indonesia* (2003), audit committees' corporate governance responsibilities include ensuring that firms' accountability reports are transparent, thereby minimizing information asymmetry between principals and agents.

Audit committees hold meetings discussing firm-relevant topics, including firms' environmental impacts that will be reported to the boards of commissioners (Otoritas Jasa Keuangan, 2015). Additionally, meeting minutes shall be signed by all present committee members, implying that the presence of audit committee members in the meetings affects decision-making processes (Prabowo, 2017). Hence, audit committees minimize information asymmetry risks and ensure that managers fulfill

their responsibilities, including disclosing reliable and complete information. The arguments are consistent with Putra et al., (2019), Waoma (2020), and Restu et al., (2017), who document that audit committees positively affect environmental disclosure.

H₃: Audit committees positively affect environmental disclosure.

Managerial Ownership and Environmental Disclosure

Managerial ownership refers to managerial ownership of firms' shares, which motivates them to make decisions more cautiously, including environmental disclosure. The ownership of their firms' shares encourages managers to appreciate the direct financial and reputational impacts of their choices. This will motivate them to disclose the environmental effects of their firms' operational activities more transparently, which will mitigate potential agency conflicts due to greater alignment between the interests of agents and principals.

Better disclosure not only signals firms' social responsibilities but also enhances stakeholders' trust and mitigates reputational risks arising from irresponsible environmental practices. managerial ownership also motivates managers to provide more honest, accurate, and comprehensive environmental management-related information because they have a direct interest in preserving the corporate image and sustainability. Hence, managerial ownership is critical to promoting greater transparency and accountability in environmental disclosure, as suggested by Erawati & Sari (2021), Listyaningsih et al. (2018), and Suprpti et al. (2019).

H₄: Managerial ownership positively affects environmental disclosure.

Research Model

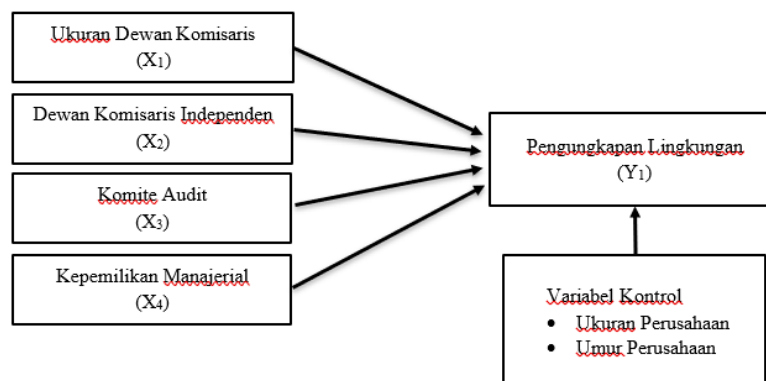


Figure 1 Research Model

RESEARCH METHODS

Research Population and Sample

Our population comprises all energy-sector firms listed on the Indonesian Stock Exchange (IDX) during 2021-2023. We focus on the energy sector due to its high profile, implying these firms' operational activities are closely connected with nature. Additionally, high-profile firms' operational activities are highly sensitive because of their relationship with environmental sustainability, political risks, and business competition (Pratama & Deviyanti, 2022). We select our sample using the purposive sampling method, a nonprobability sampling method. This method selects sample units based on specific criteria according to the research problems or objectives. More specifically, our sampling criteria are (a) energy-sector firms listed on IDX in 2021-2023; (b) firms publishing their annual reports consecutively on the IDX website in 2021-2023; and (c) energy-sector firms publishing their annual reports ending on December 31 consecutively on the IDX website in 2021-2023.

Data Type and Sources

Our data type is secondary quantitative data obtained from various sources. The environmental disclosure variable is obtained from firms' sustainability reports available on their websites and aligns with international disclosure standards (Global Reporting Initiative, or GRI Standards). Further, we obtain the data for the good governance mechanism variable from firms' annual reports downloaded from www.idx.co.id.

Operational Definition

Our research variables are the dependent, independent, and control variables. The dependent variable is environmental disclosure, operationalized using 30 checklist items from the 2016 GRI Standard covering eight environmental topics, with a score of 1 indicating disclosure and zero otherwise. These scores are then added to generate the Environmental Disclosure (ED) index. The independent variables are i) board of commissioner size (UKD), measured with the number of board of commissioner members, ii) independent commissioners (DKI), measured with the proportion of independent commissioners to the total board of commissioner members, iii) audit committees (KA), measured with the meeting attendance of audit committee members, and iv) managerial ownership, operationalized with the percentage of shares owned by directors to total outstanding shares (KM). Additionally, our control variables are firm size (UkP), measured as the logarithm of total assets, and firm size (UmP), measured as the difference between the observation year and a firm's listing year.

Analysis Technique

We use IBM SPSS Statistics version 27 with three analysis phases: descriptive statistics, classical assumption tests, and hypothesis testing. The descriptive statistics illustrate the data using the mean, minimum, maximum, and standard deviation. The classical assumption tests ensure that the results of the multiple regression analysis do not violate the classical assumptions and consist of multicollinearity test (tolerance $\geq 0,1$ and VIF ≤ 10), normality test (using Kolmogorov-Smirnov with a significance > 0.05), heteroskedasticity test (using Glejser test with a significance > 0.05), and autocorrelation test (using Durbin-Watson test with a criterion of $dU < d < 4 - dU$). Next, the hypothesis testing utilizes multiple regression analysis to investigate the effects of the independent variables on the dependent variable.

RESULTS AND DISCUSSIONS

Sample Description

Our population is all energy-sector firms listed on the Indonesian Stock Exchange (IDX) in 2021-2023, totaling 90 firms. We select the research sample based on specific criteria that align with the purposive sampling method.

Descriptive Statistics

Table 1 Descriptive Statistics

Variable	Mean	Minimum	Maximum	Std. Deviation
ED	0.391	0.000	1.000	0.253
UDK	2.112	1.000	5.000	0.998
DKI	0.786	0.000	3.000	0.517
KA	7.100	0.000	59.667	8.053
KM	0.022	0.000	0.450	0.072
UKP	28.906	22.080	32.764	1.823
UMP	13.061	0.000	33.000	8.740

The descriptive statistics indicate that the environmental disclosure variable has a mean of 0.391, or about 12 of the 30 environmental disclosure items in the 2016 GRI Standard. Further analysis reveals

that the subgroups most disclosed are GRI 302 (Energy), GRI 303 (Water), and GRI 306 (Effluent and Waste). The lowest environmental disclosure score is 0, indicating that firms disclose no environmental items at all, such as Atlas Resources Tbk.. Meanwhile, the highest score for this variable is 0, suggesting that firms disclose all environmental items of the 2016 GRI Standard, such as TBS Energi Utama Tbk.

The board of commissioner size variable has a mean of 2.112, indicating that, on average, firms have two or three commissioners. This complies with Article 20 FSA Regulation No. 33/PJOK.04/2014. The minimum (maximum) value of this variable is one (five). Further, the mean value of the independent commissioner variable is 0.786, suggesting that our samples have complied with the regulation (a minimum of 0.3 of the total commissioners) (Otoritas Jasa Keuangan, 2014). The minimum value is zero, indicating that some firms have no independent commissioners, such as PT Garda Tujuh Buana Tbk. Accordingly, these firms do not comply with the existing regulation.

The audit committee variable has a mean value of 7.100, implying that, on average, an audit committee member attended 7-8 meetings annually, thereby complying with the existing regulation that stipulates a minimum annual meeting attendance of four (Otoritas Jasa Keuangan, 2015). The minimum value of zero indicates that there are audit committee members who did not attend any meeting (such as those of Bintang Samudera Mandiri Lines Tbk in 2021, because its audit committee was recently established). The maximum value of this variable is very high (59.667) and was recorded for ABM Investama Tbk. in 2022. The mean managerial ownership is only 0.022, indicating that, on average, directors hold a small shareholding.

This study utilizes firm size and firm age as the control variables. Firm size is measured with the natural logarithmic value of total assets, with a mean value of 28.906 (total asset value of Rp 3.56 trillion) and a minimum (maximum) value of Rp 3.88 billion (Rp 169.61 trillion). Further, the mean value of firm age is 13 years, with a minimum (maximum) value of zero (33) years.

Classical Assumption Tests

This study runs classical assumption tests for multicollinearity, normality, heteroskedasticity, and autocorrelation. The multicollinearity test yields tolerance values of 0.569-0.901 and VIF exceeding one, indicating that the model is free from serious multicollinearity problems. The Kolmogorov-Smirnov normality test yields a p-value of 0.200 (>0.05), implying that the data is normally distributed. The Glejser heteroskedasticity test yields values of 0.054–0.911 (>0.05), indicating no heteroskedasticity. Nonetheless, the initial autocorrelation test yields a Durbin-Watson value of 1.154, indicating a positive autocorrelation. We then add a lag variable as the predictor to mitigate this issue. Adding a lag variable increases the Durbin-Watson statistic to 1.653, suggesting that we can minimize autocorrelation and that the residuals are effectively distributed.

Variable	Unstandardized Coefficients		t	Sig
	B	Std. Error		
(Constant)	-1.285	0.224	-5.740	0.000
Board of Commissioners Size	0.043	0.016	2.708	0.007
Independent Commissioners	0.107	0.028	3.818	0.001
Audit Committees	0.006	0.002	3.137	0.002
Managerial Ownership	0.241	0.169	1.429	0.155
Firm Size	0.048	0.009	5.615	0.000
Firm Age	-0.001	0.001	-0.517	0.606
Y_Lag1	0.376	0.060	46.263	0.000
Y_Lag2	-0.211	0.054	-3.882	0.000
R-Squared	0.601			

Adjusted R-Squared	0.584
F-statistic	34.696
Prob (F-Statistic)	0.000

The partial test results (t-test) demonstrate that board of commissioner size, independent commissioners, and audit committees positively affect environmental disclosure, suggesting that H1, H2, and H3 are empirically supported. Nonetheless, managerial ownership does not significantly affect environmental disclosure, implying that H4 is not supported. For control variables, only firm size exhibits a significant (positive) effect.

The simultaneous test results (F-test) yield a significance value of $0.000 < 0.05$, implying that all independent variables simultaneously have a significant impact on environmental disclosure. The Adjusted R-Squared value is 0.584, indicating that the independent and control variables explain 58.4% of the variance in environmental disclosure, while other variables explain the remaining 41.6%.

Discussions of the Results

Our study demonstrates that board of commissioner size, independent commissioners, audit committees, and firm size positively affect environmental disclosure because these factors arguably strengthen oversight functions, enhance objectivity, encourage transparency, and provide sufficient resources in sustainability reporting, especially among energy-sector firms that are highly sensitive to environmental issues. Meanwhile, managerial ownership and firm age do not significantly affect environmental disclosure because these factors do not guarantee firms' commitment to environmental disclosure, and external factors such as regulations, public pressure, and investor demands are arguably more influential in improving firms' accountability.

CONCLUSIONS, SUGGESTIONS, AND LIMITATIONS

Conclusions and Suggestions

This study seeks to analyze and demonstrate the impacts of corporate governance mechanisms, such as boards of commissioners, independent commissioners, audit committees, and managerial ownership, on environmental disclosure. We document that good corporate governance mechanisms, as represented by board of commissioner size, the presence of independent commissioners, and the attendance of audit committee members at meetings, enhance firms' transparency in providing information on environmental impacts and performance. Hence, strengthening corporate governance mechanisms strategically supports more responsible and sustainable business practices, especially in disclosing environmental information. Meanwhile, managerial ownership does not significantly affect environmental disclosure, possibly due to size-effect bias. Nonetheless, future studies could address our findings to mitigate size-effect bias.

Our study offers several recommendations for better future practices. Firms, especially those operating in the energy sector, must strengthen their corporate governance mechanisms by focusing on the board of commissioner size (a minimum of two), the minimum proportion of independent commissioners of 30%, and the minimum meeting attendance of audit committee members of once every three months, to improve the quality of environmental disclosure. Additionally, the government, as a regulator, must formulate policies requiring environmental disclosure in firms' annual or sustainability reports, accessible through their websites, thereby enabling investors and the public to be informed about environmental accountability-related transparency.

Limitations

Our sample firms exhibit distinct reporting formats and standards in their sustainability reports, particularly regarding the implementation of the GRI Standard. These variances may affect the

consistency and comparability of firms' environmental disclosure. Hence, our findings must be interpreted cautiously, given differences in reporting standards across firms.

The limitations motivate us to recommend future studies to address these matters by using methodological approaches that adjust for differences in reporting format and standards, such as employing multiple GRI Standard versions tailored to each sample firm's practices. Further, scholars could focus more on firms that have fully adopted the GRI Standard to minimize subjectivity due to varying reporting practices.

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