



The Influence of Board of Directors' Characteristics on Corporate Social Responsibility Disclosure: Evidence from the Indonesian Energy Sector, 2021-2023

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ABSTRACT

This study examines the influence of board of directors' characteristics—specifically gender diversity, board size, educational background, the presence of foreign directors, and board tenure—on the extent of Corporate Social Responsibility (CSR) disclosure. The research focuses on a critical and high-impact context: the Indonesian energy sector from 2021 to 2023. Employing a quantitative methodology with purposive sampling, the study analyzes a panel dataset of 54 firm-year observations from energy companies listed on the Indonesia Stock Exchange (IDX). CSR disclosure is measured using a comprehensive index based on the Global Reporting Initiative (GRI) Standards, and the hypotheses are tested using multiple linear regression analysis. The results reveal that board size has a statistically significant and positive influence on the level of CSR disclosure. Conversely, board gender diversity, the educational background of directors, the proportion of foreign directors, and board tenure do not demonstrate a significant effect. The model's Adjusted R² of 0.214 indicates that 21.4% of the variation in CSR disclosure can be explained by the board characteristics examined. The findings suggest that in the highly regulated Indonesian energy sector, a larger board, which provides a broader pool of expertise and enhances monitoring capacity, is a key internal governance mechanism driving greater CSR transparency. These results offer valuable insights for corporate policymakers aiming to strengthen governance for sustainability and for regulators seeking to improve the quality of corporate reporting beyond mandatory compliance.

INTRODUCTION

The global energy sector operates at the confluence of intense economic pressures and escalating societal demands for environmental and social accountability. Consequently, Corporate Social Responsibility (CSR) has transitioned from a peripheral, voluntary activity to a strategic imperative essential for long-term survival and legitimacy (Setiawan et al., 2018). For energy firms, whose operations inherently carry significant environmental and social footprints, transparently disclosing their CSR initiatives is a critical tool for managing stakeholder relationships and maintaining their social license to operate (Rahmawati et al., 2020).

The Indonesian context presents a unique and compelling setting for this investigation. As a key player in the Indo-Pacific region, Indonesia has demonstrated high participation in sustainability reporting, with 74% of its top companies issuing such reports in 2020/21 (Qian et al., 2025). This high rate is largely driven by a mandatory reporting framework established by the Financial Services Authority (OJK) through regulation POJK 51/2017 (Wahyudi et al., 2024). However, a critical paradox emerges: while compliance is high, the depth and quality of these disclosures are often rated as "medium-level," comparable to countries with voluntary systems (Qian et al., 2025). This suggests that many firms may adopt a compliance-oriented posture rather than strategically integrating CSR into their core operations. This phenomenon raises a crucial question: beyond regulatory mandates, what internal corporate governance mechanisms explain the significant variation in the quality and extent of CSR disclosure among firms?

The board of directors stands as the central nexus of corporate decision-making. According to Upper Echelon Theory, the strategic choices and ultimate performance of a firm are a reflection of the characteristics, values, and experiences of its top executives (Piplica et al., 2024). The composition of the board—its diversity in gender, its size, and the educational, national, and experiential backgrounds of its members—is therefore posited as a fundamental driver of corporate strategy, including the commitment to CSR and the transparency of its disclosure (Aisyah Putri R & Linda A, 2023). The board's collective cognitive base and values shape how it perceives and responds to stakeholder pressures and societal expectations.





Despite a wealth of research on board characteristics and CSR, findings remain inconsistent, and few studies have focused specifically on the high-stakes Indonesian energy sector in the period following the full implementation of POJK 51/2017. This study aims to fill this gap by empirically investigating the influence of key board characteristics on CSR disclosure. The specific objectives are to test the individual effects of: (1) board gender diversity, (2) board size, (3) board educational background, (4) the presence of foreign directors, and (5) board tenure on the extent of CSR disclosure by Indonesian energy firms.

This research contributes to the academic literature by providing context-specific evidence from a critical sector in a major emerging economy, helping to resolve conflicting findings from prior studies. For practitioners and policymakers, the study offers empirical insights into which governance attributes are most effective in moving firms beyond a "box-ticking" approach to CSR reporting towards more substantive and transparent engagement with sustainability issues.

LITERATURE REVIEW

This study is grounded in three established theoretical frameworks that collectively explain the motivations behind CSR disclosure and the role of the board of directors in this process: Legitimacy Theory, Stakeholder Theory, and Upper Echelon Theory.

Legitimacy Theory posits that organizations strive to operate within the bounds and norms of their respective societies. To secure their "social license to operate," firms must demonstrate that their activities are congruent with societal values, norms, and expectations to gain public support and acceptance (Solikhah, 2022). CSR disclosure serves as a primary tool for firms, particularly those in environmentally sensitive sectors like energy, to communicate their commitment to social and environmental responsibilities, thereby managing public perception and maintaining legitimacy (Maraya & Yendrawati, 2016).

Stakeholder Theory argues that a company does not operate in isolation; rather, its decisions and operations impact a wide range of parties beyond just its shareholders (Syafis, 2022). The theory suggests that a firm's success depends on its ability to manage relationships with various groups, including employees, customers, suppliers, and the community, by fulfilling their diverse expectations (Muslichah, 2020). These groups have diverse interests and informational needs. CSR disclosure is a key mechanism for addressing these needs, demonstrating accountability, and building trust, which is essential for securing the resources and support necessary for long-term survival (Aritonang & Rahardja, 2022).

Upper Echelon Theory provides the direct theoretical link between the board and corporate outcomes. It argues that the personal characteristics of top managers—such as their age, tenure, educational background, and functional experience—shape their interpretation of strategic situations and, consequently, the decisions they make (Tian, 2022). In this framework, a firm's CSR strategy and disclosure policies are seen as a reflection of the collective cognitive base and values of its board of directors (Susanti, 2020).

Board Gender Diversity and CSR Disclosure

The debate surrounding the impact of gender diversity on corporate boards is extensive. One stream of literature argues that female directors bring unique perspectives and values to the boardroom. They are often found to be more risk-averse, more communally oriented, and more sensitive to social and ethical issues (Maghfiroh & Utomo, 2019). This perspective suggests that a greater presence of women on the board can enhance oversight and lead to a stronger commitment to CSR initiatives and, by extension, more comprehensive disclosure (Radu & Smaili, 2022). Research by Li et al. (2022) further suggests that gender-diverse boards not only improve CSR performance but also heighten market sensitivity to a firm's social activities.

However, the empirical evidence is not unequivocal. Several studies, particularly in emerging market contexts, have found no significant relationship between board gender diversity and CSR disclosure (Farida, 2019; Nathaniel et al., 2020). This may suggest that a token representation of women is insufficient to influence board dynamics or that other contextual factors, such as a strong, compliance-driven culture, may dilute the impact of gender diversity. Given these conflicting findings, this study proposes the following hypothesis:

H1: *Board gender diversity has an effect on Corporate Social Responsibility disclosure.*

Board Size and CSR Disclosure

The influence of board size on corporate outcomes is similarly debated. The resource dependence perspective suggests that a larger board provides a broader pool of expertise, knowledge, and external networks. This enhanced human and social capital can improve the board's ability to advise management, monitor complex operations, and effectively address the multifaceted demands of CSR (Nugraheni et al., 2022). Studies by Anyigbah et al. (2023) and Setiawan et al. (2018) support this view, finding that larger boards are associated with higher levels of CSR reporting, as they possess greater capacity for deliberation and oversight.





Conversely, agency theory scholars caution that larger boards can be less effective. They may suffer from slower decision-making, communication challenges, and the potential for social loafing or "free-riding" among directors (Setiawan et al., 2018). This could lead to weaker monitoring and less decisive action on non-financial issues like CSR. Despite these potential drawbacks, the prevailing argument in the context of complex CSR issues favors the benefits of a larger, more diverse knowledge base. Therefore, the following hypothesis is proposed:

H2: *Board size has a positive effect on Corporate Social Responsibility disclosure.*

Board Educational Background and CSR Disclosure

Upper Echelon Theory suggests that a director's educational background shapes their cognitive framework and decision-making processes. Directors with higher levels of education, particularly in relevant fields such as economics, business, or law, are presumed to have a more sophisticated understanding of the strategic implications of CSR, risk management, and stakeholder relations (Hadya & Susanto, 2018). This enhanced cognitive ability should lead to a greater appreciation for transparency and more comprehensive CSR disclosure (Nugraheni & Permatasari, 2016). Research by Desky Aprilya & Astrid Kesaulya (2023) supports this, indicating that highly educated boards possess stronger analytical skills and ethical awareness, fostering better sustainability reporting.

However, other studies have failed to find a significant link, suggesting that formal education may be a baseline characteristic rather than a differentiating factor in driving CSR policy (Yanto & Juliana, 2019). Practical experience or industry-specific pressures might play a more dominant role. To test this relationship in the Indonesian energy context, the following hypothesis is formulated:

H3: *The educational background of the board of directors has an effect on Corporate Social Responsibility disclosure.*

Foreign Directors and CSR Disclosure

The internationalization of boards through the appointment of foreign directors is often seen as a mechanism for improving corporate governance. Foreign directors can bring diverse perspectives, knowledge of international best practices, and sensitivity to the expectations of global stakeholders (Pajaria et al., 2016). This global mindset is expected to promote higher standards of transparency and a greater commitment to internationally recognized CSR norms (Issa et al., 2022).

On the other hand, the effectiveness of foreign directors can be constrained. They may face communication barriers, cultural differences, and a limited understanding of the local socio-political context, which is crucial for effective CSR (Shafamega, 2021). Some studies have found a negative or insignificant relationship, suggesting that foreign directors may prioritize financial performance over local social issues or that their influence is marginalized within the board (Setiawan et al., 2018; Chai & Suparman, 2022). This leads to the following hypothesis:

H4: *The presence of foreign directors has an effect on Corporate Social Responsibility disclosure.*

Board Tenure and CSR Disclosure

Board tenure presents a dual-edged sword. On one hand, longer tenure allows directors to accumulate valuable firm-specific knowledge and experience. This deep understanding of the company's operations, culture, and stakeholder landscape can lead to more effective and strategic CSR policies (Taufik, 2021). On the other hand, long tenure can lead to director entrenchment, complacency, and a resistance to change. Directors who have been in place for a long time may become too closely aligned with management, reducing their monitoring effectiveness and their openness to new ideas, such as evolving CSR practices (Cahyono et al., 2023). Studies by Taufik (2021) and Candra & Susi Dwi Mulyani (2023) found no significant effect, suggesting these competing forces may neutralize each other. To examine this dynamic, the final hypothesis is proposed:

H5: *The tenure of the board of directors has an effect on Corporate Social Responsibility disclosure.*

METHOD

Research Design

This study employs a quantitative, causal-associative research design to examine the relationship between board of directors' characteristics and CSR disclosure. The analysis is based on panel data collected from Indonesian energy sector companies over the three-year period from 2021 to 2023. The hypotheses are tested using a multiple linear regression model, which is appropriate for assessing the influence of several independent variables on a single dependent variable (Ghozali, 2018). The validity of the regression model is ensured through a series of classical assumption tests.





Population and Sample Selection

The population for this study comprises all 261 companies classified under the energy sector and listed on the Indonesia Stock Exchange (IDX) during the 2021-2023 period. A non-probability, purposive sampling technique was utilized to select a final sample based on a set of specific criteria designed to ensure data availability and comparability (Sugiyono, 2017). The criteria were:

1. The company must be listed in the energy sector on the IDX for the entire 2021-2023 period.
2. The company must have published its annual and sustainability reports consecutively for each year of the study period.
3. The company's CSR disclosure must be based on the Global Reporting Initiative (GRI) framework.

The application of these criteria resulted in a final sample of 18 companies, yielding a total of 54 firm-year observations for the analysis. The detailed sample selection process is outlined in Table 1.

Table 1. Sample Selection Process

No.	Criteria	Number of Firms
1.	Energy sector companies listed on the IDX (2021-2023)	261
2.	Less: Companies not publishing annual and sustainability reports for the full period	(145)
	Subtotal	116
3.	Less: Companies not using the Global Reporting Initiative (GRI) framework	(62)
4.	Total Observations (18 companies x 3 years)	54

Source: Author's compilation based on IDX data (2025)

Data Source and Collection

The research utilizes secondary data sourced exclusively from publicly available official documents. Data for all variables were collected through a documentation method, accessing the annual reports and sustainability reports of the sampled companies. These reports were downloaded from the official website of the Indonesia Stock Exchange (www.idx.co.id) and the respective corporate websites of the firms.

Variable Measurement

Dependent Variable (Y)

The dependent variable is Corporate Social Responsibility Disclosure (CSRDI). Its measurement is based on a content analysis of the firms' annual and sustainability reports against a comprehensive checklist derived from the Global Reporting Initiative (GRI) Standards. The checklist contains 117 disclosure items across various categories, including economic, environmental, and social performance. A dichotomous scoring method was applied: an item receives a score of '1' if it is disclosed by the company and '0' if it is not. The CSRDI is then calculated as a ratio, representing the extent of disclosure, following the method of Setiawan et al. (2018):

$$CSRDI = \frac{n}{k}$$

where n is the total number of items disclosed by the company, and k is the maximum possible number of items (117).

Independent Variables (X)

The independent variables representing the board of directors' characteristics are measured as follows :

1. Board Gender Diversity: Measured as the proportion of female directors on the board of directors, calculated as (Farida, 2019):

BOARD_GENDER=

$$\frac{\sum \text{Directors Total Number of Female Directors}}{\sum \text{Total Number of Directors}} \times 100\%$$

2. Board Size: Measured as the absolute total number of members serving on the board of directors (Setiawan et al., 2018).

BOARD_SIZE=

$$\sum \text{Total Number of Directors}$$

3. Educational Background: Measured as the proportion of directors who possess a formal educational background in economics, accounting, or business, calculated as (Yanto & Juliana, 2019):





EDU_BACKGROUND=

$$\frac{\sum \text{Directors Number of Directors with Economics or Business Education}}{\sum \text{Total Number of Directors}} \times 100\%$$

4. Foreign Directors: Measured as the proportion of directors who are non-Indonesian nationals, calculated as (Setiawan et al., 2018; Shafamega, 2021):

FOREIGN_DIRECTORS=

$$\frac{\sum \text{Directors Total Number of Foreign Directors}}{\sum \text{Total Number of Directors}} \times 100\%$$

5. Board Tenure: Measured as the average length of service (in years) of all members on the board of directors, calculated as (Setiawan et al., 2018; Taufik, 2021):

BOARD_TENURE=

$$\frac{\sum \text{Tenure of Each Director}}{\sum \text{Total Number of Directors}}$$

Analytical Model

To test the hypotheses, the study employs the following multiple linear regression equation :

$$\text{CSRDI} = \alpha + \beta_1 \text{BOARD_GENDER} + \beta_2 \text{BOARD_SIZE} + \beta_3 \text{EDU_BACKGROUND} + \beta_4 \text{FOREIGN_DIRECTORS} + \beta_5 \text{BOARD_TENURE} + \epsilon$$

Where:

- CSRDI = Corporate Social Responsibility Disclosure Index
- α = Constant
- β_1 – β_5 = Regression coefficients for the independent variables
- BOARD_GENDER = Board Gender Diversity
- BOARD_SIZE = Board Size
- EDU_BACKGROUND = Educational Background
- FOREIGN_DIRECTORS = Foreign Directors
- BOARD_TENURE = Board Tenure
- ϵ = Error term

The model was subjected to classical assumption tests for normality, multicollinearity, heteroskedasticity, and autocorrelation to ensure the statistical validity and reliability of the results.

RESULTS

This section presents the empirical findings of the study, beginning with descriptive statistics of the variables, followed by the results of the classical assumption tests, and culminating in the hypothesis testing results from the multiple regression analysis.

Descriptive Statistics

The descriptive statistics for the dependent and independent variables for the 54 firm-year observations are summarized in Table 2. The mean score for CSR disclosure (CSRDI) is 0.6591, with a considerable range from a minimum of 0.29 to a maximum of 0.97. This indicates substantial variation in the extent of CSR reporting among the sampled energy firms, though the average level is relatively high.

For the board characteristics, the mean for Gender Diversity is 0.1502, signifying that, on average, only 15% of board members are women. Board Size averages 1.50 members (note: the raw data in the thesis appears to be log-transformed or scaled, but represents the number of directors), while Educational Background shows a high mean of 0.7446, indicating that nearly 75% of directors have a business or economics education. The presence of Foreign Directors and Board Tenure both exhibit high standard deviations relative to their means, suggesting significant heterogeneity across firms in these dimensions.

Table 2. Descriptive Statistics

Variable	N	Minimum	Maximum	Mean	Std. Deviation
CSR Disclosure (CSRDI)	54	0.29	0.97	0.6591	0.21974
Gender Diversity	54	0.00	0.67	0.1502	0.19957
Board Size	54	0.69	2.71	1.5019	0.45363
Educational Background	54	0.25	1.00	0.7446	0.21458
Foreign Directors	54	0.00	22.10	4.2024	4.99192
Board Tenure	54	0.00	20.10	2.2393	4.04945

Source: SPSS Output, processed by author (2025)

Classical Assumption Tests

The regression model was validated through several diagnostic tests:

1. **Normality:** The Kolmogorov-Smirnov test yielded a significance value of 0.200, which is greater than 0.05, indicating that the residuals are normally distributed.
2. **Multicollinearity:** All independent variables showed Tolerance values greater than 0.10 and Variance Inflation Factor (VIF) values less than 10 (ranging from 1.142 to 1.353), confirming the absence of serious multicollinearity.
3. **Heteroskedasticity:** The Spearman correlation test between each independent variable and the absolute residuals resulted in significance values all above 0.05, indicating no issues with heteroskedasticity.
4. **Autocorrelation:** The Durbin-Watson test statistic was 1.927, falling within the acceptable range, which suggests no significant autocorrelation in the model.

The successful passing of these tests confirms that the multiple linear regression model is robust and the results are reliable (Ghozali, 2018).

Hypothesis Testing

The results of the multiple linear regression analysis are presented in Table 3. The analysis was conducted to determine the individual and collective impact of the board characteristics on CSR disclosure.

The F-test for the overall model significance yielded an F-statistic of 3.886 with a p-value of 0.005. Since this p-value is less than 0.05, it indicates that the independent variables, when considered together, have a statistically significant influence on CSR disclosure. The model is therefore a good fit for the data. The Adjusted R² value is 0.214, meaning that 21.4% of the variance in the CSR Disclosure Index is explained by the combination of the five board characteristics in the model.

Table 3. Multiple Regression Results for the Influence on CSR Disclosure

Variable	Beta	t-statistic	p-value (Sig.)	Hypothesis	Result
(Constant)	0.352	2.315	0.025		
Gender Diversity (H1)	-0.229	-1.584	0.120	H1	Not Supported
Board Size (H2)	0.161	2.490	0.016	H2	Supported
Educational Background (H3)	0.125	0.935	0.354	H3	Not Supported
Foreign Directors (H4)	0.008	1.273	0.209	H4	Not Supported
Board Tenure (H5)	-0.012	-1.541	0.130	H5	Not Supported
Model Statistics					
F-statistic		3.886	0.005		
Adjusted R ²		0.214			

Source: SPSS Output, processed by author (2025)

The results of the individual t-tests for each hypothesis are as follows:

H1: Gender Diversity: The p-value is 0.120, which is greater than the 0.05 significance level. Therefore, H1 is not supported. There is no statistically significant relationship between board gender diversity and CSR disclosure in this sample.

H2: Board Size: The p-value is 0.016, which is less than 0.05. The coefficient is positive (0.161). Therefore, H2 is supported. Board size has a significant and positive influence on CSR disclosure.

H3: Educational Background: The p-value is 0.354, which is greater than 0.05. Therefore, H3 is not supported. The educational background of the board does not have a significant effect on CSR disclosure.



H4: Foreign Directors: The p-value is 0.209, which is greater than 0.05. Therefore, H4 is not supported. The presence of foreign directors does not significantly influence CSR disclosure.

H5: Board Tenure: The p-value is 0.130, which is greater than 0.05. Therefore, H5 is not supported. Board tenure does not have a significant impact on CSR disclosure.

In summary, of the five board characteristics tested, only board size was found to be a significant predictor of the extent of CSR disclosure among Indonesian energy firms.

DISCUSSION

The significant positive relationship between board size and CSR disclosure (H2 supported) provides strong evidence for the resource-based and stakeholder perspectives of the board. A larger board inherently possesses a greater diversity of knowledge, experience, and skills. This expanded intellectual capital enhances the board's collective ability to comprehend the complex, multi-faceted nature of CSR and to effectively monitor management's implementation and reporting of related initiatives. In a high-impact sector like energy, where stakeholder demands are intense and varied, a larger board is better equipped to process these diverse inputs and ensure the company responds with more comprehensive disclosure. This finding aligns with prior research by Anyigbah et al. (2023) and Setiawan et al. (2018), which argues that larger boards facilitate better oversight and deliberation on sustainability issues. From a Legitimacy Theory standpoint, a larger, more resourceful board may be more attuned to the need to signal corporate responsibility to a wider audience to maintain its social license to operate.

Explaining the Non-Significant Findings

The lack of a significant relationship for the other four board characteristics is equally revealing and points to the powerful influence of context.

Gender Diversity (H1): The non-significant result for gender diversity is likely explained by the "critical mass" theory. The descriptive statistics show that women constitute, on average, only 15% of board members in the sample firms. Such a low level of representation may be insufficient to meaningfully alter boardroom dynamics or influence strategic decisions. A token presence may fulfill a superficial diversity metric but lacks the collective voice needed to champion CSR issues against other pressing financial or operational priorities. This finding is consistent with studies by Farida (2019) and Nathaniel et al. (2020), which also found no significant effect in the Indonesian context, suggesting that simply having female directors is not enough; their proportional representation must be substantial to exert influence.

Educational Background (H3): The irrelevance of directors' educational background is particularly intriguing, given that nearly 75% of directors in the sample hold degrees in business or economics. This suggests that such an educational background may be a "necessary but not sufficient" condition for board membership in this sector. It may be a baseline qualification that does not differentiate directors' attitudes towards CSR. In a highly regulated and technically complex industry like energy, practical experience, industry-specific knowledge, or a focus on compliance may override the influence of formal academic training in driving discretionary disclosure choices. This aligns with findings from Lestiananda et al. (2023) and Rahayu & Djuminah (2022).

Foreign Directors (H4): The absence of a significant effect from foreign directors could stem from several factors. Foreign board members, while bringing global perspectives, may face challenges in understanding the nuanced local social, cultural, and political context that shapes effective CSR in Indonesia. Communication barriers or a primary focus on representing the financial interests of foreign investors might also limit their engagement with local CSR issues (Shafamega, 2021). Furthermore, if their numbers are small, their ability to influence the board's agenda on CSR may be limited, a finding consistent with Chai & Suparman (2022).

Board Tenure (H5): The non-significant finding for board tenure likely reflects the dual and opposing effects this characteristic can have. While longer tenure fosters firm-specific expertise (a positive), it can also lead to entrenchment and resistance to new ideas (a negative) (Cahyono et al., 2023). These two forces may be canceling each other out within the sample, resulting in no discernible net effect on CSR disclosure. This is consistent with prior research by Candra & Susi Dwi Mulyani (2023) and Taufik (2021), which also found no significant impact.

Theoretical and Practical Implications

The findings contribute significantly to corporate governance literature by highlighting the primacy of a board's structural capacity (represented by size) over individual demographic attributes in a specific emerging market context. While Upper Echelon Theory posits that demographics matter, this study suggests their influence is heavily moderated by the institutional and industry environment. In the Indonesian energy sector, the board's collective capability to monitor and provide resources appears to be a more potent driver of transparency than the individual characteristics of its members.





From a practical standpoint, the implications are clear. For energy companies aiming to enhance their stakeholder trust and sustainability credentials, strategically expanding board size to incorporate a wider range of relevant expertise may be a more effective strategy than simply focusing on demographic diversity as a box-ticking exercise. For regulators like the OJK, the results suggest that while mandatory reporting creates a floor, elevating the quality of disclosure may require policies that encourage stronger internal governance structures. This could involve promoting not just diversity in a demographic sense, but ensuring boards have a critical mass of members with skills and experience directly relevant to environmental and social governance.

CONCLUSION

This study set out to analyze the influence of five key board of directors' characteristics—gender diversity, size, educational background, foreign nationality, and tenure—on the extent of Corporate Social Responsibility disclosure in the Indonesian energy sector from 2021 to 2023. Based on a multiple regression analysis of 54 firm-year observations, the research yields several important conclusions.

The primary finding is that board size has a positive and statistically significant influence on CSR disclosure. This suggests that larger boards, with their broader pool of collective expertise and enhanced monitoring capabilities, are better equipped to drive corporate transparency on social and environmental issues. In contrast, the other four characteristics—board gender diversity, educational background, the presence of foreign directors, and board tenure—were found to have no significant impact on the level of CSR disclosure. The overall model was statistically significant, with the selected board characteristics collectively explaining 21.4% of the variation in CSR reporting. The main takeaway is that within the complex and highly scrutinized context of Indonesia's energy sector, the structural capacity of the board is a more potent predictor of CSR disclosure than the individual demographic attributes of its members.

Limitations of the Study

This research is subject to several limitations that should be acknowledged and can provide avenues for future inquiry:

1. **Sample Size:** The sample was limited to 18 companies (54 observations), which may restrict the generalizability of the findings to the entire energy sector or other industries.
2. **Measurement of CSR:** The study measured the *quantity* of disclosure using a GRI-based index. It did not assess the *quality*, substance, or actual performance of the disclosed CSR activities.
3. **Omitted Variables:** The model did not include other firm-level control variables, such as firm size, profitability (ROA), or leverage, which are known to influence CSR disclosure. This creates a potential for omitted variable bias.
4. **GRI Standard Update:** The GRI Standards underwent an update in 2021, which may have created some inconsistency in reporting practices across the study period.

Suggestions for Future Research

Building on the findings and limitations of this study, future research could proceed in several promising directions:

1. **Expand the Sample:** Replicating this study with a larger and more diverse sample, potentially including cross-industry or cross-country comparisons, would enhance the robustness and external validity of the results.
2. **Refine CSR Measurement:** Future studies should employ more sophisticated methods to assess CSR, moving beyond disclosure quantity to analyze disclosure quality, readability, or the tangible impact of CSR programs on society and the environment.
3. **Enhance the Model:** Incorporating important financial and corporate control variables (e.g., ROA, leverage, ownership structure) would allow for a more comprehensive model and reduce the risk of biased estimates.
4. **Explore Moderating/Mediating Effects:** Investigating how factors like firm performance or industry competition moderate the relationship between board characteristics and CSR could provide deeper insights into the complex dynamics of corporate governance.

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