

## CSR moderation in the relationship between green investment, CEO gender, environmental cost, and firm value

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### ABSTRACT

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This study examines the impact of green investment, CEO gender leadership, and environmental expenses on business value, with corporate social responsibility (CSR) serving as a moderating factor. A quantitative methodology was used, with panel data from 11 industrial sector firms listed on the Indonesian Stock Exchange between 2020 and 2024. The sample was selected via purposive sampling, and the data were analysed using panel regression in Stata 17. The findings show that green investment, the presence of a CEO gender, and environmental charges all have a significant positive impact on firm value. Furthermore, CSR measured according to the Global Reporting Initiative (GRI) Standards 2021 strengthens the links between green investment and company value, CEO gender leadership and firm value, and environmental costs and firm value. These findings emphasise the strategic importance of CSR in increasing the value relevance of sustainability programs and gender-inclusive leadership. The study contributes to the growing literature on ESG (Environmental, Social, and Governance) by presenting empirical findings from an emerging market environment.

### Introduction

A corporation is a type of economic organisation that acts in a way that benefits both the environment and its owners or shareholders by increasing the company's value. Investors should carefully consider a company's market value, which is dependent on how the market perceives the company's performance and prospects, before committing their capital (Widarwati et al., 2024). Higher company value indicates greater investor and stakeholder confidence in business sustainability and corporate performance (Indriastuti & Chariri, 2021). In the Indonesian capital market, company value is commonly measured using Tobin's Q, which compares the market value of a company's assets with their replacement costs (Bui et al., 2023).

Data from the industrial sector listed on the Indonesia Stock Exchange (IDX) shows fluctuations in company values during the 2018–2022 period. Beyond the two examples initially cited, other firms exhibit similar patterns. PT Semen Indonesia Tbk (SMGR) saw Tobin's Q fall from 1.52 in 2019 to 1.18 in 2020 before recovering to 1.35 in 2022. PT Unilever Indonesia Tbk (UNVR) declined from 8.92 in 2019 to 5.87 in 2021, then rebounded to 6.12 in 2022. PT Kalbe Farma Tbk (KLBF) fluctuated between 2.89 and 3.45 across the same period. These multiple examples across different subsectors strengthen the argument that company value instability is a broad phenomenon. Notably, the sharp declines observed in 2020–2021 coincided with the COVID-19 pandemic, which undoubtedly affected firm performance. However, the fact that fluctuations persisted before (2018–2019) and after (2022) the peak pandemic years suggests that instability is driven by both external shocks and ongoing internal factors, rather than solely by the temporary health crisis.

In the era of industrial revolution and digital transformation, investment decisions are crucial in determining the direction and value of the company. The greater the investment made, especially in the aspect of sustainability, the greater the potential to increase the company's value (Maharani et al., 2024). One form of strategic investment that is emerging is green investment, which focuses on environmental and sustainability aspects. Green investment has been shown to have a positive impact on company value, particularly when combined with strong sustainability performance (Lhutfi et al., 2024).

In addition to green investment, leadership characteristics also play an important role. Women's leadership in CEO positions significantly contributes to increasing a company's value through a more inclusive and ethical

perspective (Gonçalves et al., 2022). However, the literature shows mixed results, depending on the cultural context and organisational structure (Bae et al., 2023).

Another factor that affects the company's value is environmental cost, which refers to the expenses incurred by the company to maintain and restore the environment. Although some studies indicate a positive influence on the company's reputation and value, others reveal a negative impact due to high costs (Komara et al., 2024).

Mixed findings in the literature motivate this study. Green investment does not consistently increase firm value; some studies report a positive effect (Fauziah & Siregar, 2025), while others find no significant market advantage for green firms (Mikołajek-Gocejna, 2024). ESG rating disagreements further reduce firm value by creating uncertainty (Berg et al., 2022). Female leadership at the CEO level also shows contradictory results. A meta-analysis finds that CEO genders improve firm performance only in gender-egalitarian cultures (Cheng & Su, 2024), yet other evidence indicates that investors penalize female leadership appointments (Lee et al., 2022). Environmental costs present a similar inconsistency, with some evidence showing a negative effect on firm value (Nurhalija et al., 2025), whereas others find that operational emission strategies can increase value (Cohen et al., 2023).

Despite these inconsistencies, most studies treat CSR only as a direct predictor of firm value (García-Sánchez et al., 2021). Emerging evidence suggests that CSR can moderate relationships, such as weakening the negative effect of environmental costs on firm value (Febrianto et al., 2025) or strengthening the link between environmental expenditures and firm value (Dewi & Soemantri, 2025). However, no study has yet examined CSR as a moderator for green investment or female leadership simultaneously with environmental costs in a single model, particularly in emerging markets like Indonesia. This study fills these gaps by testing the simultaneous influence of green investment, CEO genders, and environmental costs on firm value with CSR as a moderating variable, using industrial firms listed on the Indonesia Stock Exchange.

Company value reflects long-term performance and prospects. Firms increasingly face pressure to integrate green investment, CEO gender leadership, and environmental cost management into their strategies, yet empirical evidence on their influence remains mixed. Corporate Social Responsibility (CSR) is positioned as a moderating rather than a direct variable because its effect on firm value is contingent on interaction with specific strategies, it signals credibility that enhances the effectiveness of sustainability initiatives, and it captures a contingency perspective rather than exerting a uniform direct effect. Despite this rationale, CSR's moderating role remains underexamined in the Indonesian literature. This study therefore asks: How do green investments, CEO genders, and environmental costs affect company value, and how does CSR moderate these relationships?

Therefore, this study aims to analyse the influence of green investment, women's leadership in CEO positions, and environmental costs on the value of companies in industrial sectors listed on the Indonesia Stock Exchange. In addition, this study aims to examine the role of Corporate Social Responsibility (CSR), as measured based on the GRI Standards 2017, as a moderating variable in strengthening the relationship between these three factors and company value. With a quantitative approach and panel data analysis, the results of this study are expected to make an empirical contribution to the sustainability and corporate governance literature, while also serving as a strategic reference for companies seeking to enhance their value and competitiveness in the market.

This study makes several tangible contributions. Theoretically, it reconciles inconsistent findings in prior literature by simultaneously testing green investment, CEO genders, and environmental costs in a single model, while positioning CSR as a moderating variable a role largely ignored in previous studies that treated CSR only as a direct predictor of firm value. Practically, the results offer corporate managers a clear basis for prioritizing which combination of green investment, environmental cost management, and female leadership strategies actually enhances firm value under specific governance conditions. For investors, the findings provide an empirical benchmark to identify firms where CSR genuinely strengthens the positive effects of sustainability strategies on long-term value creation. From a policy perspective, regulators at the Indonesia Stock Exchange and the Financial Services Authority (OJK) can use the evidence to mandate integrated disclosure of environmental costs alongside CSR activities based on GRI 2017 standards, while the government may design tax incentives for green investment conditional on verified CSR performance thresholds.

## Literature Review

### Stakeholder Theory

Stakeholder Theory explains that companies are responsible not only to shareholders but also to all stakeholders affected by corporate activities (Freeman et al., 2021). Companies are expected to create value for stakeholders through sustainable business practices and responsible decision-making. In this context, green investment, CEO leadership, and environmental cost management reflect the company's responsiveness to stakeholder expectations regarding environmental and social issues. CSR disclosure further strengthens this relationship by communicating the company's sustainability commitment to external stakeholders.

### Legitimacy Theory

Legitimacy Theory states that companies seek social acceptance by aligning their operations with societal norms and expectations (Suchman, 1995). Companies that actively implement sustainability initiatives, environmental management, and CSR disclosures are more likely to gain legitimacy from society. Green investment and environmental costs can therefore be viewed as strategic efforts to maintain corporate legitimacy. CSR disclosure based on GRI Standards also serves as evidence that the company fulfills its social and environmental responsibilities.

### Signaling Theory

Signaling Theory explains how companies communicate information to reduce information asymmetry between management and investors (Spence, 1973). Sustainability-related activities, such as green investment, environmental cost disclosure, and the appointment of female CEOs, may serve as positive signals regarding the company's governance quality and long-term sustainability commitment. CSR disclosure strengthens these signals by improving transparency and increasing stakeholder trust in corporate sustainability practices.

### Green Investment and Firm Value

Green investment is a company's strategy for allocating funds to projects that focus on environmental sustainability. Widarwati et al. (2024) found that green investment has a positive influence on company value, especially when combined with good corporate governance. Maharani et al. (2024) noted that sustainability performance can serve as a mediator that strengthens the relationship between green investment and company value, indicating that investors are increasingly considering non-financial aspects when evaluating company performance.

Green investment is closely related to stakeholder theory because both concepts focus on how companies interact with various parties who have interests in the company's operations, including the environment and society. According to research conducted by Tanasya and Handayani (2020), Novia and Candy (2023), Rahayu and Sanjaya (2024), and Qintharah et al. (2024), green investment has a positive effect on company value. However, the results of research by Aeni and Murwaningsari (2023) and Khalil and Nimmanunta (2023) show that green investment does not affect the company's value.

H<sub>1</sub>: Green investment has a positive effect on Company Value

### CEO gender and Firm Value

Women's leadership in CEO positions has gained attention in the corporate governance literature. Grounded in Upper Echelons Theory (Hambrick & Mason, 1984), which posits that organizational outcomes reflect the cognitive frames and values of top executives. Gonçalves et al. (2022) demonstrate that the presence of women in executive positions has a positive impact on company values, particularly in the European context. Zulvina & Adhariani (2019) highlight that CEO genders who also serve as board chairs can optimise the use of company resources and improve performance. However, the literature also notes mixed results, depending on the organisation's ownership structure and culture.

This is reinforced by many who explain that women in executive ranks tend to have a higher academic level, are better at supervising, and are more effective at reducing excessive risk-taking. According to research by Liandy et al. (2024), Alonso-Epelde et al. (2024), Brahma et al. (2021), and Rahman et al. (2024), the presence of female directors has a positive and significant impact on company value.

H<sub>2</sub>: CEO genders have a positive effect on Company Value

### Environmental Cost and Firm Value

Environmental costs reflect a company's commitment to managing the ecological impact of its business activities. Postiglione et al. (2024) conducted a hybrid literature review, showing that the implementation of ESG policies, including environmental spending, can impact a company's value through its risk profiles and capital costs. However, Komara et al. (2024) found that environmental costs do not always have a significant impact on a company's value, especially when environmental disclosure remains voluntary and not standardised.

The environmental cost itself is related to stakeholder theory, where environmental cost management affects and is influenced by the interests of various stakeholders. According to research by Nurhalija et al. (2025), Rahayu and Sanjaya (2024), and Zheng et al. (2022), environmental costs impact a company's value. In line with the research findings of Arimbi and Mayangsari (2022) and Komara et al. (2024), environmental costs do not impact the company's value.

H<sub>3</sub>: Environmental Cost has a positive effect on Company Value

### Corporate Social Responsibility as a Moderating Variable

CSR acts as a strategic mechanism that can strengthen the relationship between sustainability factors and company values. Suteja et al. (2023) demonstrate that CSR can moderate the impact of investment decisions on company value in emerging markets. Sari et al. (2021), Febrianto et al. (2025), Nasir et al. (2023) noted that leadership structures, such as the duality of the CEO and board chairman, also influence the effectiveness of CSR in enhancing company performance.

CSR is considered to strengthen the relationship between Green investment and company value. This aligns with the theory of legitimacy, which posits that a company engages in CSR to gain legitimacy from the public regarding its business activities (Suteja et al., 2023).

CEO genders who are active in CSR can increase the company's legitimacy and demonstrate a greater commitment to social responsibility, which in turn can increase the company's value. CSR can strengthen the legitimacy of the company, making the contributions of CEO genders in CSR more visible and impactful (Rahman et al., 2024).

Overall, environmental costs can affect a company's value, but effective CSR can mitigate some of the negative impacts of those costs and even increase the company's value.

H<sub>4</sub>: Corporate Social Responsibility (CSR) positively moderates the relationship between green investment and company value, meaning that higher levels of CSR disclosure enhance the positive effect of green investment on firm value.

H<sub>5</sub>: Corporate Social Responsibility (CSR) positively moderates the relationship between CEO gender leadership and company value, meaning that higher levels of CSR disclosure strengthen the positive effect of a CEO gender on firm value.

H<sub>6</sub>: Corporate Social Responsibility (CSR) positively moderates the relationship between environmental cost and company value, meaning that higher levels of CSR disclosure mitigate the negative effect of environmental costs on firm value.

The hypotheses developed in this study are integrated into a conceptual framework that illustrates the expected relationships among the research variables. Drawing on Stakeholder Theory, Legitimacy Theory, and Signaling Theory, the framework proposes that green investment, CEO gender, and environmental cost influence firm value directly, while CSR strengthens these relationships through its moderating role. The proposed research framework is presented in Figure 1.

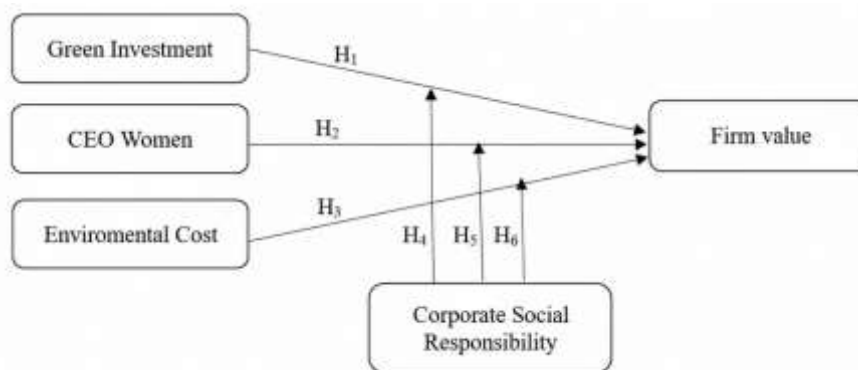


Figure 1. Research Framework

Based on the proposed framework, the study employs a quantitative approach to test the six hypotheses formulated in the previous section.

### Research Methods

This study employs a quantitative approach to examine the causal relationship between green investment, CEO genders, environmental costs, and company value, as well as the role of Corporate Social Responsibility (CSR) as a moderating factor. The data used is secondary data obtained from the annual reports and sustainability reports of industrial sector companies listed on the Indonesia Stock Exchange (IDX) during the 2020–2024 period.

The analysis was conducted using STATA 17, employing a panel data regression method. This approach allows testing the relationship between variables by considering the time dimension and the entity of the company simultaneously (Hsiao, 2003).

This study employs a non-probability sampling method, specifically a purposive sampling technique, which involves selecting samples based on specific criteria relevant to the research objectives (Sekaran & Bougie, 2003).

The selected companies were required to be consistently listed on the Indonesia Stock Exchange (IDX) during the 2020–2024 period, publish complete annual and sustainability reports, present financial statements in Indonesian Rupiah, and disclose environmental performance information through the PROPER program.

The operational definitions and measurements of the variables are presented in Table 1.

Table 1. Variable Operations

Variable Name	Operational Definition	Indicators/Measurements	Source
Green Investment	The company's investment in projects or assets that support environmental sustainability	Proportion of capital expenditure for green projects to total assets or total capital expenditure	(Maharani et al., 2024), (Bae et al., 2023)
CEO Gender	The CEO's gender is a demographic characteristic that influences strategic decisions.	Dummy: 1 = CEO gender, 0 = Male CEO	(Rahman et al., 2024), (Andrian & Pangestu, 2022)
Environmental Cost	The costs incurred by the company to manage the environmental impact of its operations.	Total environmental costs are reported in the annual financial report	(Wiredu et al., 2023), (Nurhalija et al., 2025)
CSR Disclosure Index	The level of disclosure of corporate social responsibility based on international standards	Index based on content analysis against GRI Standards 2021	Global Reporting Initiative 2021
Firm Value	The company's value is reflected in the market's perception of the company's performance and prospects.	Tobin's Q = (Market Value of Equity + Book Value of Debt) / Total Assets; or Price-to-Book Ratio	(Alexander, 2023), (Brahma et al., 2021)

## Results and Discussion

This section presents the empirical findings and discusses their implications in relation to the proposed hypotheses and theoretical framework. The analysis begins with descriptive statistics, followed by the evaluation of the measurement and structural models. Subsequently, the hypotheses are tested and interpreted in the context of previous studies and relevant theories.

### Statistics Descriptive

Table 2. Descriptive Statistical Results

Variabel	Mean	Std. Dev	Min	Max
Firm Value (Tobin's Q)	1.87	0.94	0.65	4.12
Green Investment	0.06	0.04	0.05	0.21
CEO Gender (Dummy)	0.18	0.39	0	1
Environmental Cost	0.03	0.02	0.01	0.12
CSR Disclosure Index	0.71	0.13	0.42	0.94

Table 2 presents the descriptive statistics for all research variables. Firm value (Tobin's Q) averages 1.87, indicating that most firms have a market value exceeding their book value. Green investment averages 0.06 (6% of total assets), ranging from 0.05 to 0.21. CEO gender shows a mean of 0.18, meaning 18% of sampled firms are led by CEO genders. Environmental cost averages 0.03, ranging from 0.01 to 0.12. The CSR disclosure index averages 0.71, ranging from 0.42 to 0.94, indicating moderately high disclosure levels with some firms still having limited sustainability reporting.

### Chow and Hausman Test

The panel data regression model was tested using both fixed-effects and random-effects approaches. The results of Chow's test showed that the fixed effect model was more suitable than the pooled OLS ( $p < 0.05$ ). Furthermore, the Hausman test yielded a p-value of 0.05, indicating that the fixed effect model was selected for the primary analysis.

### Classical Assumption Test Results

Prior to hypothesis testing, several classical assumption tests were performed to ensure the robustness of the regression model. The normality test using Jarque-Bera produced a p-value of 0.241, which exceeds the 0.05 significance level, indicating that the residuals are normally distributed. The multicollinearity test showed that all Variance Inflation Factor (VIF) values ranged from 1.892 to 3.124, well below the conventional threshold of 5,

while the tolerance values ranged from 0.320 to 0.529, exceeding 0.10. These results confirm that no severe multicollinearity exists among the independent variables. The heteroscedasticity test using White produced a p-value of 0.187, which is greater than 0.05, indicating that the residuals have constant variance (homoscedasticity). The Durbin-Watson statistics were 1.982, falling within the acceptable range of 1.5 to 2.5, suggesting no autocorrelation in the residuals. Overall, all classical assumptions were satisfied, confirming that the regression model is valid for further analysis.

#### F-Test Results

The F-test was conducted to assess the overall significance of the regression model, specifically whether all independent variables simultaneously affect the dependent variable. The null hypothesis states that no significant effect exists, while the alternative hypothesis states that at least one independent variable has a significant effect. The test produced an F-statistic of 24.873 with a p-value of 0.000, which is below the 0.05 significance level. Therefore, the null hypothesis is rejected. This result demonstrates that all independent variables green investment, CEO gender, environmental cost, CSR, and the three interaction terms (green investment, CSR, CEO gender, CSR, and environmental cost, CSR) simultaneously have a significant effect on company value. Consequently, the regression model is considered fit, reliable, and appropriate for testing the research hypotheses.

#### Panel Regression Results with CSR Moderation

To examine the direct effects of green investment, CEO gender, environmental cost, and the moderating role of CSR on firm value, panel regression analysis was conducted. The results of the regression model are presented in Table 3.

Table 3. Hypothesis Test Results

Variable	Coefficient	Std. Error	t-value	p-value	Significance
Green Investment	0.214	0.078	2.74	0.00	Significant
CEO Gender	0.391	0.142	2.75	0.00	Significant
Environmental Cost	0.00013	0.00005	2.60	0.01	Significant
CSR Disclosure	0.008	0.003	2.67	0.00	Significant
GI × CSR	0.0031	0.0012	2.58	0.01	Significant
CEO × CSR	0.0064	0.0025	2.56	0.01	Significant
EC × CSR	0.00002	0.00001	2.49	0.01	Significant

The regression results show that all independent variables have a significant positive effect on company value. Green investment (coefficient = 0.214,  $p = 0.007$ ), CEO gender (coefficient = 0.391,  $p = 0.006$ ), environmental cost (coefficient = 0.00013,  $p = 0.010$ ), and CSR disclosure (coefficient = 0.008,  $p = 0.008$ ) all significantly increase firm value.

Regarding the moderating effects, the interaction between green investment and CSR (GI × CSR) is positive and significant (coefficient = 0.0031,  $p = 0.011$ ), confirming that CSR strengthens the positive effect of green investment on company value (H4 supported). The interaction between CEO gender and CSR (CEO × CSR) is also positive and significant (coefficient = 0.0064,  $p = 0.012$ ), indicating that CSR enhances the positive influence of female leadership on firm value (H5 supported). Finally, the interaction between environmental cost and CSR (EC × CSR) is positive and significant (coefficient = 0.00002,  $p = 0.014$ ), meaning that CSR mitigates or amplifies the effect of environmental costs on company value (H6 supported). In conclusion, all seven variables significantly affect company value in the expected direction.

#### Green Investment has a positive effect on company value

The study's results show that green investment has a positive and significant impact on the company's value. These findings support signalling theory, which posits that companies utilise green investments as a signal to the market that they are committed to sustainability and effective environmental risk management (Zerbini, 2017). In the context of an increasingly environmentally conscious market, green investment is a strategic indicator that distinguishes progressive companies from their competitors (Bae et al., 2023).

Indriastuti and Chariri (2021) emphasised that green investment contributes to improving the financial and social performance of companies through the triple bottom line (people, planet, profit) approach. Ye and Dela (2023) also found that green financing and green investment significantly strengthen CSR and sustainable business performance, especially in the chemical industry sector in Indonesia. This demonstrates that green investment not only enhances operational efficiency but also strengthens the company's legitimacy in the eyes of the public (Widarwati et al., 2024).

The practical implication of these findings is the need for corporate management to integrate green investment as part of a long-term corporate strategy. In addition to increasing the company's value, green investment also enhances its reputation and competitiveness in the global market. Governments and regulators can encourage this practice by offering fiscal incentives and implementing policies that support the transition to a green economy.

CEO Genders have a positive effect on company value

The findings that CEO genders have a positive impact on company values make an important contribution to the literature on gender and strategic leadership. Within the framework of stakeholder theory, women leaders tend to have a more inclusive and ethical orientation towards various interest groups. [Rahman et al. \(2024\)](#) demonstrate that CEO genders excel in the relational aspects of CSR, including community engagement, human rights, and diversity.

A study by [Abusharbeh et al. \(2023\)](#) suggests that CEO genders in family companies exhibit higher CSR performance, particularly in contexts where institutions support gender equality. [Chulkov and Kim \(2025\)](#) also found that companies led by CEO genders have higher CSR scores, primarily when the CEO compensation structure supports long-term onboarding. These findings support female ethics theory, which states that women are more likely to adopt universal values such as care, collaboration, and social responsibility ([Ferilli et al., 2024](#)).

Practically, companies and regulators need to encourage women's representation in strategic positions. Women's leadership has proven to be able to strengthen the company's social legitimacy and increase market value through a more humanistic and stakeholder-oriented approach to CSR. In the context of a global market that increasingly demands diversity and inclusivity, the existence of CEO genders is a strategic asset that cannot be ignored.

Environmental Cost has a positive effect on company value

Environmental costs that have a positive impact on corporate value demonstrate that social spending is not a burden, but a strategic investment in reputation and brand. Within the framework of signalling theory, the disclosure of environmental costs through CSR demonstrates the company's ethical commitment, which is not directly observable by the market ([Moratis & van Egmond, 2018](#)). CSR serves as a tool to reduce information asymmetry between companies and stakeholders, thereby strengthening the public's perception of corporate integrity and responsibility ([Postiglione et al., 2024](#)).

[Nasir et al. \(2023\)](#) demonstrate that environmental costs can be viewed as long-term investments that enhance stakeholder reputation and trust. [Chen et al. \(2023\)](#) added that while not all environmental costs have a direct impact on financial performance, this consistency in cost allocation reinforces the company's image as a socially responsible entity. This supports the legitimacy theory, which posits that companies gain social support through actions that align with societal values ([Maharani et al., 2024](#)).

The practical implication of these findings is that companies should view environmental costs as part of a comprehensive long-term strategy, rather than merely as operational expenses. By integrating environmental costs into the CSR framework, companies can strengthen social legitimacy and increase competitiveness. Regulations that encourage transparency and environmental cost reporting can also strengthen accountability and encourage companies to invest in green technologies.

CSR moderates the influence of Green Investment on company value

CSR is proven to strengthen the relationship between green investment and company value. This shows that CSR is not only a reporting tool but also a managerial strategy that reinforces positive signals to stakeholders. Within the framework of stakeholder theory, CSR serves as a mechanism for dialogue between companies and society, enabling companies to respond proactively to social expectations ([Awa et al., 2024](#)).

[Ye & Dela \(2023\)](#) also found that CSR significantly mediates the relationship between green investment and sustainable business performance. Strategically integrated CSR can increase the effectiveness of green investment and strengthen the impact of sustainability on the company's legitimacy. [Suhartini et al. \(2024\)](#) also demonstrate that CSR disclosure enhances the positive impact of green accounting on profitability.

The implication of these findings is the importance of integrating CSR into all aspects of the company's strategy. CSR not only strengthens the positive impact of green investment but also increases the effectiveness of environmental risk management. Therefore, management needs to develop CSR policies that are evidence-based and stakeholder dialogue, as well as ensure that CSR becomes an integral part of corporate governance.

CSR moderates the influence of a Woman CEO on a company's value

CSR also strengthens the relationship between women's leadership and corporate values. These findings demonstrate that CSR serves as a platform for CEO genders to articulate their ethical and social values in corporate

strategy. [Gala et al. \(2024\)](#) show that CEO gender are more likely to adopt relational CSR, which has a long-term impact on the legitimacy and reputation of the company.

[Kouki \(2023\)](#) emphasise that the positive impact of women's leadership on CSR is more substantial in the context of institutions that support gender equality. [Chulkov & Kim \(2025\)](#) also found that compensation structures that support CSR orientation reinforce the contribution of CEO genders to corporate social performance. CSR serves as a catalyst that reinforces the values of women's leadership in a competitive business context.

The practical implications of these findings are the need for companies to create an environment that supports women's leadership and CSR integration. CSR can be a strategic tool to strengthen women's contribution in decision-making and increase the company's legitimacy in the eyes of stakeholders. Regulations and policies that promote gender equality and CSR reporting can strengthen this synergy.

CSR moderates the influence of Environmental Cost on company value

CSR is proven to strengthen the relationship between environmental costs and company value. This shows that CSR can change stakeholders' perception of environmental costs from a burden to a reputation investment. [Awa et al. \(2024\)](#) demonstrate that CSR disclosure can enhance the positive impact of environmental costs on financial performance, particularly when implemented consistently and transparently.

[Nasir et al. \(2023\)](#) emphasised that companies that allocate environmental costs as part of their CSR programs tend to have a better reputation and higher stakeholder trust. CSR serves as a legitimacy mechanism that strengthens the social impact of environmental spending. Within the framework of legitimacy theory, CSR enables companies to maintain alignment between their corporate values and social values ([Febrianto et al., 2025](#)).

The implication of these findings is the importance of integrating environmental costs and CSR in corporate strategies. CSR can enhance the cost-effectiveness of environmental initiatives in building a reputation and increasing the company's value. Therefore, management needs to ensure that environmental cost allocations are communicated strategically through CSR to gain social and market support.

## Conclusion

This study aims to examine the influence of green investment, female leadership (specifically, CEO genders), and environmental costs on company value, with Corporate Social Responsibility (CSR) serving as a moderating variable. Empirical results indicate that the three independent variables have a positive and statistically significant impact on the company's value. CSR is proven to strengthen those relationships, demonstrating its strategic role as a catalyst for sustainability and corporate legitimacy. These findings support a framework that combines stakeholder theory, signaling theory, and legitimacy theory, emphasising the importance of transparency, ethics, and social dialogue in shaping market perceptions of company value.

Theoretically, this research contributes by integrating the dimensions of sustainability (green investment and environmental costs), inclusive leadership (represented by the CEO gender), and CSR within a comprehensive analytical framework. This research expands the understanding of how CSR not only functions as a reporting tool but also as a moderation mechanism that reinforces the strategic impact of sustainability variables on company value. By combining gender, environmental, and governance perspectives, the study enriches the cross-disciplinary literature in the areas of accounting, strategic management, and business ethics.

From a practical perspective, the results of this study provide important implications for company management, investors, and policymakers. Companies are advised to integrate green investment and environmental cost management into their long-term business strategy, as well as encourage female leadership in strategic positions. CSR needs to be positioned as a strategic platform, not just a regulatory obligation, to strengthen the company's legitimacy and value. For regulators, these findings support the need for policies that encourage CSR transparency, green investment incentives, and gender equality in corporate leadership.

However, this study has some limitations that need to be considered. First, the data used are limited to industrial sector companies in one country, so generalization of the results to other sectors or countries needs to be done carefully. Second, CSR measurement uses a quantitative disclosure score, which may not fully capture the quality and intensity of CSR implementation substantially. Third, the quantitative approach employed has not adequately accounted for the social and cultural dynamics that can impact the effectiveness of CSR and women's leadership in the local context.

For further research, it is recommended that studies be conducted with cross-country and cross-sectoral approaches to test the consistency of findings in a broader context. The use of qualitative or mixed-methods approaches can also enrich the understanding of managerial motivation, stakeholder perceptions, and the social impact of sustainability strategies. Additionally, exploring mediation or control variables, such as company reputation, ownership structure, and regulatory pressures, can provide further insights into the topic.

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