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Can substantive CSR or symbolic ISO 14001 drive real environmental performance in Indonesian manufacturing?

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This study aims to provide empirical evidence of the influence of Corporate Social Responsibility (CSR) and Green Innovation on Actual Environmental Performance (EP) with Environmental Disclosure Quality (EDQ) as a mediating variable. The population for this study comprises manufacturing companies listed on the Indonesia Stock Exchange (IDX) for the 2021-2024 period. This study uses purposive sampling. The sample consists of companies that routinely issue GRI-compliant disclosures and have PROPER scores, yielding 284 firm-year observations. The study's results show that CSR has no direct effect on EP but significantly improves EDQ, indicating that transparency serves as a complete mediating mechanism, transforming ethical commitments into concrete performance outcomes. The study's results further show that Green Innovation (ISO 14001) fails to affect disclosure quality or performance, indicating that technology adoption remains largely symbolic. Validating quality reporting beyond mere compliance is essential for regulators to reduce the risk of greenwashing.

Keywords: Corporate Social Responsibility, Green Innovation, Environmental Performance, Greenwashing

INTRODUCTION

As nations strive towards manufacturing achieving net zero emissions by 2050, corporations worldwide are experiencing mounting pressure from investors and regulatory authorities to enhance their environmental performance (IEA, 2021). This impetus is propelled by global initiatives such as the sustainable development goals and a concentrated focus on Environmental, Social, and Governance (ESG) standards, which have become the primary benchmarks for sustainability (Senadheera et al., 2021; Wu & Tham, 2023). In Indonesia, the manufacturing sector is strategically significant, accounting for 19.02 % of Gross Domestic Product (GDP) in the third quarter of 2024 (Badan Pusat Statistik, 2024), with projections indicating it will increase to 20.8 % by 2025 (CNBC, 2025). Nevertheless, it remains a predominant source of greenhouse gas emissions, reaching 367,738 thousand tons of CO_2 equivalent in 2023 (Badan Pusat Statistik, 2024)

To comply with POJK No. 51/2017, an increasing number of companies are implementing Corporate Social Responsibility (CSR) strategies that encompass environmental, social, and governance considerations (OJK, 2017) . While CSR can serve as a legitimacy tool (Suchman, 1995), its genuine impact depends on the substantive content of these initiatives. Research indicates that CSR activities are frequently symbolic, often articulated through sustainability reports devoid of substantial operational changes (Abdul Rahman & Alsayegh, 2021; Al-Shaer et al., 2022). Consequently, the objective assessment of environmental performance becomes imperative.

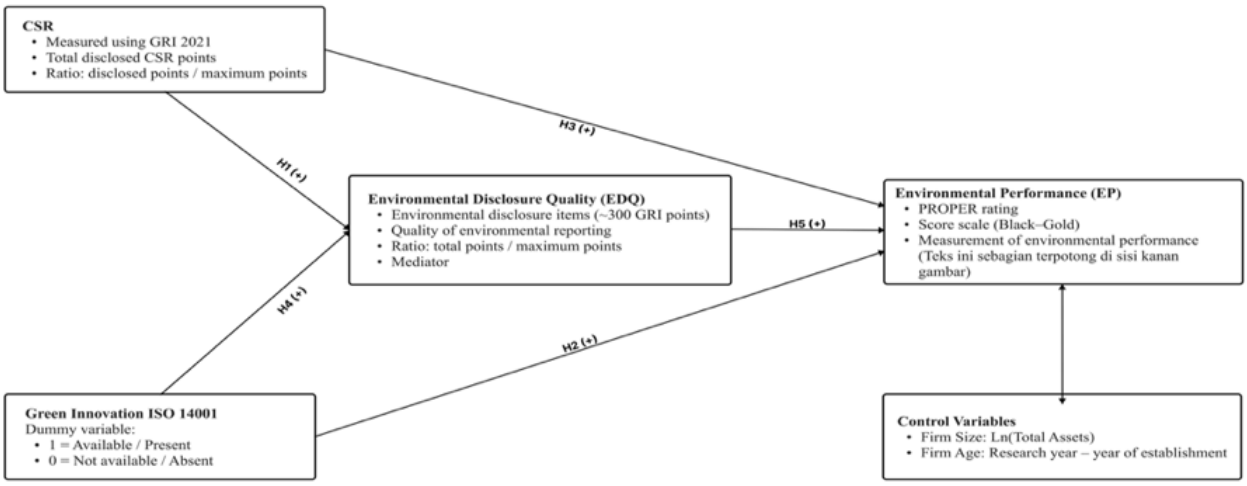
In the realm of green innovation, ISO 14001 certification is commonly regarded as evidence of an organization's commitment to environmental management (Khan & Johl, 2019). However, it does not invariably reflect meaningful action. Many firms pursue ISO 14001 primarily for legitimacy purposes, neglecting fundamental operational improvements, which can result in pseudo compliance and greenwashing where efforts are superficial or mainly aimed at image enhancement (Heras-Saizarbitoria et al., 2020; Kuruneri, 2025; Lian et al., 2022; Zervoudi et al., 2025).

Indonesia's external audit framework, PROPER (Ministerial Regulation of the Ministry of Environment and Forestry of the Republic of Indonesia No. 7/2025), involves rigorous inspections, document reviews, and compliance evaluations to objectively assess ecological performance. However, reliance on unverified self-reporting can lead to information bias, public misperceptions, and diminished trust in sustainability claims (Bhullar et al., 2025; Bosone et al., 2025; Dawar et al., 2025).

Environmental disclosure is essential for ensuring transparency and confirming that a company's claimed CSR activities align with its actual ecological performance (Sun et al., 2019). This transparency not only increases corporate accountability but also boosts its credibility in the eyes of stakeholders. Therefore, the quality of environmental disclosure serves as a key indicator for determining whether a company's sustainability efforts are genuine or simply symbolic.

This study aims to address the empirical gap identified by (Palea et al., 2025) regarding the phenomenon of decoupling the misalignment between communication claims and actual performance by responding to their recommendation to expand the research beyond a sample of developed countries (EEA, US, Japan) to the context of developing countries, specifically the manufacturing sector in Indonesia. The importance of this research is further clarified by comparing it with the positive findings of (Song et al., 2024) in South Korea, which demonstrated that ISO 14001 certification significantly improved technical production efficiency in an already developed industrial ecosystem. This contradiction between the risk of global decoupling and technical effectiveness in developed countries raises a key research gap that is the focus of this study : Does similar effectiveness apply in Indonesia, or do differences in regulatory pressures and market maturity make certification merely a symbolic adoption without a substantive impact on performance?.

This study further explores the gap phenomenon by applying Institutional Theory, specifically the concept of decoupling. This concept, rigorously defined by (Meyer & Rowan, 1977) , describes how organisations often adopt formal, legitimacy oriented structures such as ISO 14001 certification without fully integrating them into their core operational routines to resolve the conflict between external expectations and internal efficiency. Meyer and Rowan build on this structural foundation, while this study also leverages (Baum & Oliver, 1991) strategic perspective to frame these decoupling actions as active responses to institutional pressures. This theoretical framework is further enriched by integrating Legitimacy Theory and Signalling Theory to explain how external pressures shape firms' strategic decisions regarding the choice between substantive and symbolic CSR practices.



Source: Researcher (2025)

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Several previous studies, such as those by (Baum & Oliver, 1991), provide a basis for understanding the environmental performance gap phenomenon through an Institutional Theory perspective. The concept of decoupling, introduced by (Meyer & Rowan, 1977), explains how companies can adopt

formal legitimacy oriented structures, such as ISO 14001 certification, without fully integrating them into their operational routines due to efficiency pressures and the need to maintain technical stability. (Baum & Oliver, 1991) strategic approach extends this understanding by showing that symbolic adoption is often an adaptive response to institutional pressures and stakeholder expectations. The integration of Legitimacy Theory and Signalling Theory provides a framework for explaining how organisations balance stakeholder demands by choosing between substantive and symbolic practices, particularly in environmental management and information transparency. Recent literature on Corporate Social Responsibility, green innovation, and the quality of environmental disclosure is then used as a conceptual basis in formulating the research hypotheses.

Legitimacy Theory explains how companies can utilize Corporate Social Responsibility (CSR) to gain, maintain, and restore legitimacy in society (Suchman, 1995). Facing stringent Environmental, Social, and Governance (ESG) pressures, CSR serves as an important tool for organizations to demonstrate their dedication to sustainability (Ortas et al., 2015). By engaging in environmental disclosure, companies can signal that their operations align with societal norms. This aligns with Institutional Theory, which states that an organization's survival and legitimacy significantly improve by demonstrating conformity to the expectations of the institutional environment. Thus, organizations are motivated to address normative pressures through high quality reporting, such as compliance with Global Reporting Initiative (GRI) standards (Alvi & Siegert, 2022; Beddewela & Herzig, 2013). Therefore, CSR is expected to drive improvements in the quality of environmental information provided to stakeholders. Based on this rationale, the following hypothesis is proposed:

H_1: CSR positively influences Environmental Disclosure Quality

According to earlier studies (Chowdhury et al., 2018; Iatridis & Kesidou, 2018), decoupling, which happens when environmental practices are merely symbolic and react to regulatory pressure without having any actual impact, can be dangerous. Unlike administrative policies, which are vulnerable to outside influences, green innovation entails direct intervention in an organization's core technical aspects (Meyer & Rowan, 1977). According to (Connelly et al., 2011), Green Innovation is seen through the prism of Signaling Theory as an expensive and hard to replicate signal that the business has progressed from symbolic legitimacy to actual technical efficiency. By physically changing the production process, green technology improves resource efficiency and lowers emissions through technical causal mechanisms. Therefore, green innovation serves as a means for stakeholders to gain credibility as well as a fundamental shift that directly improves environmental performance. Based on this rationale, the following hypothesis is proposed:

H_2: Green Innovation has a positive effect on Environmental Performance

A sustainability strategy called corporate social responsibility (CSR) seeks to reduce its adverse environmental impacts while increasing operational effectiveness. According to legitimacy theory, businesses that are strongly committed to environmental responsibility typically improve their operational practices to reduce pressure from investors, the public, and regulators (Suchman, 1995). Additionally, CSR communicates ethical operational practices to stakeholders in a positive way, according to Signaling Theory (Connelly et al., 2011). However, internalization of norms, or goodness logic, within organizations reinforces the impact of CSR on environmental performance (Meyer & Rowan, 1977). This creates internal pressure to align moral claims with actual practices in order to avoid cognitive dissonance. According to (Liu, 2024) research, businesses that perform well in corporate social responsibility (CSR) also perform better in environmental sustainability, indicating that CSR is a catalyst for ecological efficiency rather than merely a public relations tool. Based on this rationale, the following hypothesis is proposed:

H_3: Corporate Social Responsibility (CSR) exerts a positive influence on Environmental Performance (EP)

Green Innovation serves as a sustainability approach designed to reduce environmental impact while improving operational effectiveness. According to (Meyer & Rowan, 1977), the application of this technology can be viewed as a mere rational myth if it is not verified, so companies must demonstrate real integration to prevent a disconnect between claims and practices. The strategic view of (Baum & Oliver, 1991) asserts that demonstrating legitimate institutional relationships through concrete

evidence of innovation provides organizations with a survival advantage. Thus, in accordance with Legitimacy Theory, companies improve the quality of their reports to reduce pressure from regulators and the public and to affirm the substance of the innovation (Suchman, 1995). In line with this, Signaling Theory states that technology based innovation generates real information that serves as a positive signal to stakeholders (Connelly et al., 2011) enabling companies to deliver deeper, more transparent, and more objective environmental disclosures as proof of responsible operational practices. Based on this rationale, the following hypothesis is proposed:

H_4: Green Innovation has a positive effect on Environmental Disclosure Quality

Environmental Disclosure Quality (EDQ) serves as a strategic transparency tool that reduces information asymmetry between companies and stakeholders (Ferdous et al., 2025). (Meyer & Rowan, 1977) commitment to high quality disclosure serves as a control mechanism that prevents separation, thereby forcing organizations to align the rational myths in their reports with technical activities in the field. This approach is in line with the views of (Baum & Oliver, 1991), who emphasize the importance of verifying institutional relationships through proper reporting to maintain the legitimacy and sustainability of the organization. Therefore, in Legitimacy and Signaling Theory, in depth disclosure not only demonstrates symbolic commitment, but also creates back pressure that encourages real improvements in operational processes to ensure consistency between statements and actions (Connelly et al., 2011; Suchman, 1995), as supported by the findings of (Bosone et al., 2025) that transparency improves environmental performance. Based on this rationale, the following hypothesis is proposed:

H_5: Environmental Disclosure Quality positively influences Environmental Performance

According to Legitimacy Theory, corporate social responsibility (CSR) pushes companies to increase transparency to ensure that their sustainability initiatives are more than just rational myths or token gestures (Suchman, 1995). Environmental Disclosure Quality (EDQ) serves as a vital mechanism for recoupling in this situation, bridging the gap between actual field conditions and normative CSR promises (Meyer & Rowan, 1977) Strict data accountability is necessary for high quality disclosure, which boosts confidence in CSR programs and motivates businesses to significantly improve their environmental performance (Lyu et al., 2024). As a result, EDQ acts as a middleman, actively translating institutional pressure from CSR into tangible operational accomplishments. Based on this rationale, the following hypothesis is proposed:

H_{6a}: EDQ mediates the relationship between CSR and Environmental Performance

When it comes to green innovation, companies need a robust validation system to demonstrate that their claims about their technology are not just rational myths (Meyer & Rowan, 1977) but provide tangible advantages (Ferdous et al., 2025). At this point, Environmental Disclosure Quality (EDQ) serves as an important channel for confirming the strategic institutional linkages generated by the innovation (Baum & Oliver, 1991). Based on Signaling Theory, EDQ conveys strong information to the market by using data from green innovations, thereby ensuring that their implementation is credible rather than merely symbolic (Connelly et al., 2011). This honest and neutral reporting mechanism encourages organizations to fully utilize the technical capabilities of their innovations fully, thereby enabling the EDQ to effectively serve as a mediator in transforming innovation potential into tangible improvements in Environmental Performance. Based on this rationale, the following hypothesis is proposed:

H_{6b}: EDQ mediates the relationship between Green Innovation and Environmental Performance (EP)

RESEARCH METHOD

This research is explanatory, aiming to clarify the positions of the variables studied and their relationships. A descriptive approach was used because this research focuses on testing hypotheses regarding the direct and indirect effects between CSR, Green Innovation, Environmental Disclosure Quality, and Environmental Performance. Through this approach, the research is expected to provide

an in depth explanation of the extent to which these variables interact and how mediation occurs through environmental disclosure.

The population in this study comprises companies in the manufacturing sector listed on the Indonesia Stock Exchange (IDX) during the period 2021–2024. A total of 71 companies were selected. The manufacturing sector was chosen due to its significant contribution to the Indonesian economy and its role as the primary source of greenhouse gas emissions, making the measurement of environmental performance highly relevant. Additionally, manufacturing companies are the main focus of the Ministry of Environment and Forestry's PROPER programme, enabling the use of verified environmental performance data.

The sampling method employed was purposive sampling, based on the following criteria:

1. Manufacturing companies listed consecutively on the IDX during 2021–2024
2. Companies that published annual reports or sustainability reports during the study period
3. Companies that provided CSR disclosures according to GRI Standards
4. Companies that published data or certifications ISO 14001
5. Companies that obtained a PROPER score as an indicator of environmental performance
6. Companies with complete data for all research variables

The total sample size, based on these criteria, was 284

All research data were secondary, derived from existing official company reports. Secondary data refer to information not directly gathered by the researcher from primary sources or research subjects but previously available (Bougie, 2025). Data collection involved reviewing documentation from annual reports, GRI based sustainability reports, the Ministry of Environment and Forestry's PROPER publications, and certification documents such as ISO 14001. Data sources included the official websites of the Indonesian Stock Exchange, company portals, and relevant government publications.

Model 1 – The Effect of CSR and Green Innovation on Environmental Disclosure Quality:

$$EDQ_{it} = \alpha + \beta_1 CSR_{it} + \beta_2 GI_{it} + \varepsilon_{it}$$

Model 2 – The Impact of Corporate Social Responsibility (CSR), Green Innovation (GI), and Environmental Disclosure Quality (EDQ) on Environmental Performance:

$$EP_{it} = \alpha + \beta_3 CSR_{it} + \beta_4 GI_{it} + \beta_5 EDQ_{it} + \varepsilon_{it}$$

The initial model analyses the direct influence of CSR and Green Innovation on EDQ. Conversely, the subsequent model evaluates the direct effects of all independent variables and mediators on Environmental Performance. The coefficient β5 underscores the significance of EDQ as a mediator in the relationships between CSR and EP, as well as GI and EP. The functional definitions, measurement methods, and references of each variable in this study are presented briefly in Table 1.

Table 1. Research Variables

Variables	Theoretical Justification	Measurement Methodology	References
Corporate Social Responsibility Disclosure ($CSRD_I$)	This pertains to the communication process of a public company that conveys its role in managing environmental, social, and economic aspects of its core business.	$CSRDI = \Sigma \frac{XYi}{XYi/ni}$ X= disclosure value for each item (0 if not disclosed, one if disclosed) Yi = indicator weight (can be the same or different) ni = total number of indicators used (117 for GRI 2021)	(Wartina, 2018)
Green Innovation (GI)	GI is regarded as green innovation that broadly	(1) Process: ISO 14001 certification (dummy	

	encompasses processes and outcomes.	0/1); (2) Outcome: 0/1 index of green innovation disclosure.	(Song et al., 2024)
Environmental Disclosure Quality (EDQ)	EDQ indicates the completeness and quality of a company's environmental disclosure.	Scoring 0/1 per GRI 300 series item (Environmental Series).	(Gallego-Álvarez et al., 2018)
Environmental Performance (EP)	EP describes objective environmental performance based on external audits.	PROPER scale 1–5 (Black–Gold).	(Lindrianasari & Denziana, 2018)
Firm Size (SIZE)	Firm size acts as a proxy for resource capacity.	Total assets; Ln transformed for statistical normalisation.	(Le et al., 2024)
Firm Age (AGE)	Firm age relates to operational stability and the organisation's life cycle.	Calculation of the company's age since its founding.	(Coad, 2018)

Source: Processed secondary data (2025)

This study uses a panel regression to analyze the available data. This method is applied to assess the relationship between the independent variables, namely Corporate Social Responsibility (CSR) and Green Innovation, with Environmental Performance. In this study, Green Innovation is represented by ISO 14001 certification, which reflects an organization's green innovation because it requires implementing a new management system based on continuous improvement (Song et al., 2024). In addition, this model integrates Environmental Disclosure Quality (EDQ) as a mediator variable, while company scale and age serve as control variables. Data processing is conducted using Stata 17 to produce an estimation model that is precise, valid, and efficient, while addressing heteroscedasticity through robust standard errors.

RESULT AND DISCUSSION

Result

Table 2. Descriptive Statistics

	N (Obs)	Mean	Std. Dev.	Min	Max
EP	284	3.418	0.946	1	7.959
CSR	284	0.584	0.192	0	0.991
GI	284	0.763*	0.425*	0	1
EDQ	284	0.556	0.248	0	1
SIZE	284	29.45	1.957	21.77	32.938
AGE	284	43.514	21.507	7	113
Valid N (listwise)	284				

Source : Data processed by Stata

Table 2 contains descriptive statistics from 284 observations, which form a balanced panel with no missing values. Overall, the standard deviations of all key variables are lower than their means. This indicates that the data show limited variability, with a distribution that tends to be concentrated around the mean, thereby reducing the risk of estimation bias from excessive outliers.

In terms of specific variables, Environmental Performance (EP) has an average of 3.418. Based on the PROPER scale, this figure shows that companies in the sample are, on average, above the Blue category (score of 3), indicating adequate regulatory compliance. The CSR variable averaged 0.584, indicating that manufacturing companies in the sample reported approximately 58.4% of the GRI standard indicators. Meanwhile, Green Innovation (GI) showed a relatively high average of 0.763, indicating significant adoption of environmentally friendly technology in this field. The EDQ variable has an average of 0.556, indicating moderate environmental disclosure quality.

Finally, statistics for control variables describe a stable company profile. The average company size (SIZE) of 29,450 (in log total assets) indicates the dominance of large companies in the sample. In contrast, the average age of companies (AGE) of 43.5 years shows that these entities have been operating for an extended period and are proven to be robust.

Table 3. Results of the Regression Model Estimation Test

Variables	CEM (Coefficient)	FEM (Coefficient)	REM (Coefficient)	REM (Robust)	Uji Chow (Probability)	Uji Hausman (Probability)
Constant	2.4535***	3.0593***	2.8491***	2.8491***	-	-
CSR	0.4546	0.2243	0.2954	0.2954	0.0000	0.0597
Green Innovation (GI)	0.1611	0.1250	0.1420	0.1420	-	-
EDQ	1.0364*	0.2383	0.5185	0.5185	-	-
R-Squared	0.1373	0.1271	0.1355	0.1355	-	-
F-Statistic / Wald Chi2	14.86	1.12	13.24	11.12	-	-
Prob (F-Stat / Wald)	0.0000	0.3430	0.0041	0.0111	-	-
Cross-section Chi-square	-	-	-	-	0.0000	-
Cross-section random	-	-	-	-	-	0.0597

Source: Data processed by Stata

The model selection evaluation in Table 3 concludes that the Random Effects Model (REM) is the most efficient and consistent estimator for the study data. This conclusion is based on a significant Chow test, which rejects the OLS model (0.0000 < 0.05), and a Hausman test that produces an insignificant probability (0.0597 > 0.05), indicating that the null hypothesis for the random effects model cannot be rejected. To ensure the accuracy of inferences about heteroscedasticity, the analysis focused on the REM Robust column. Overall, the model was appropriate, with a significant Wald Chi-square statistic (0.0111 < 0.05), indicating that the independent variables contributed simultaneously to environmental performance.

Partially speaking, the Full Mediation Hypothesis and the Decoupling phenomenon in Institutional Theory are strongly supported empirically by the insignificance of the CSR coefficient (0.2954) and Green Innovation (0.1420) (Meyer & Rowan, 1977b). When CSR's direct effect is eliminated, it means the mediator variable (EDQ) has fully absorbed its impact. In the meantime, the lacklustre effect of Green Innovation points to the adoption of ritualistic or symbolic practices rather than those closely linked to basic technical elements. Environmental Disclosure Quality (EDQ), on the other hand, has the highest coefficient (0.5185), supporting Signalling Theory (Connelly et al., 2011), which holds that reporting transparency serves as the primary signalling mechanism that closes the gap between businesses' operational performance and their normative commitments.

Table 4: Multicollinearity Test Results (VIF)

Variable	VIF	1/VIF
EDQ	4.27	0.234
CSR	4.17	0.24
SIZE	1.07	0.934
GI	1.03	0.972
AGE	1.03	0.975

Mean VIF	2.31

Source: Data processed by Stata

The diagnostic results for determining multicollinearity between the independent variables in the regression model are shown in Table 4. The test results show that the Variance Inflation Factor (VIF) values for all variables are consistently below the critical threshold of 10. While other variables ranged from 1.03 to 1.07, EDQ (4.27) and CSR (4.17) had the highest VIF values. The predictors have moderate, acceptable correlations, as indicated by the Mean VIF of 2.31. Tolerance values (1/VIF), which all surpass the minimal threshold of 0.10, support the validity of these conclusions. Therefore, severe multicollinearity does not affect this regression model. This guarantees the stability, accuracy, and objectivity of the regression coefficient estimates, making them appropriate for further hypothesis testing.

Table 5. Hypothesis Test

Model Path	Coefficient (B)	z value	P value	Conclusion
Model 1: Effects on EDQ (Mediator)				
CSR → EDQ (Path a1E)	1.096	28.67	< 0.001	Accepted
GI → EDQ (Path a2)	0.027	1.6	0.109	Rejected
SIZE → EDQ (Control)	0.007	1.96	0.05	Accepted
AGE → EDQ (Control)	-0.0003	-0.99	0.32	Rejected
Model 2: Effects on EP (Dependent)				
EDQ → EP (Path b)	0.928	2.21	0.027	Accepted
CSR → EP (Path c'1)	0.466	0.87	0.383	Rejected
GI → EP (Path c'2)	0.109	0.91	0.365	Rejected
SIZE → EP (Control)	0.095	3.58	< 0.001	Accepted
AGE → EP (Control)	0.007	2.79	0.005	Accepted

Source: Data processed by Stata

Table 5 contains the results of path analysis that empirically support the Full Mediation mechanism in the relationship between CSR and environmental performance. The results show that CSR has a highly significant positive impact on Environmental Disclosure Quality (EDQ) ($p < 0.001$; H1 Accepted), and that EDQ subsequently has a significant effect on Environmental Performance (EP) ($p = 0.027$; H5 Accepted). However, when tested directly against EP, the effects of CSR and Green Innovation are insignificant ($p > 0.05$), leading to the rejection of H2 and H3. Based on (Baron & Kenny, 1986) causality procedure, the loss of significance of the direct CSR path amid the existence of a significant indirect path proves that all CSR effects on performance have been absorbed and transferred through EDQ, thus H6a is accepted. This finding confirms that transparency in reporting serves as a crucial mechanism that transforms normative CSR commitments into concrete operational discipline. In contrast, Green Innovation fails to demonstrate a significant impact on either disclosure or performance, indicating that its adoption is merely symbolic.

Table 6. Mediation Effect Test Results (Indirect Effects)

Hypothesized Mediation Path	Effect Type	Coeff. (Std.)	P-value	Conclusion	Mediation Type
CSR → EDQ → EP	Indirect	0.203	0.028	Accepted	Full Mediation
GI → EDQ → EP	Indirect	0.012	0.228	Rejected	No Mediation

Source: Data processed by Stata

Table 6 presents the results of the indirect effect test to confirm the mediating role of Environmental Disclosure Quality (EDQ). This analysis produced two conflicting findings about how organizational commitment is translated into performance.

First, the test revealed a statistically significant indirect effect on the CSR pathway (CSR → EDQ → EP), with a coefficient of 0.203 ($p = 0.028 < 0.05$). This result demonstrates complete mediation, as the direct effect of CSR on EP was not significant in the prior test (see Table 5). This empirical data bolsters Hypothesis 6a, which postulates that EDQ serves as a crucial recoupling mechanism. To put it another way, normative CSR commitments do not directly improve environmental performance; instead, they must be realized through transparent, high quality reporting to promote genuine ecological improvements.

Conversely, the Green Innovation pathway (GI → EDQ → EP) shows an insignificant indirect effect with a minimal coefficient of 0.012 ($p = 0.228 > 0.05$). Therefore, Hypothesis 6b is rejected. These results indicate a broken chain in green innovation value. The absence of this mediation reinforces the assumption that the application of green technology is often symbolic or administrative, failing to yield the strong information needed to compile quality disclosures and ultimately having no impact on environmental performance.

Discussion

The Influence of CSR and Green Innovation on Environmental Disclosure Quality

Model 1 results show a clear difference in how corporate commitment affects transparency. Environmental Disclosure Quality is positively and significantly associated with Corporate Social Responsibility, suggesting that Indonesian manufacturing companies that prioritize meaningful CSR practices are more likely to produce transparent, high-quality environmental reports. Such findings are consistent with Signaling Theory, which states that profitable companies use disclosure as an expensive signal to differentiate themselves from less successful competitors (Connelly et al., 2011). In addition to reducing information asymmetry with stakeholders, sharing comprehensive environmental data allows these companies to reaffirm their commitments. According to Legitimacy Theory, extensive CSR encourages businesses to uphold their social license to operate and increase accountability by aligning with international standards, such as the GRI Standards, in response to external pressures (Suchman, 1995; Sun et al., 2019)

Conversely, Green Innovation does not significantly affect EDQ. Given the high level of innovation adoption shown in the descriptive data, this is noteworthy. Such evidence provides theoretical support for the concept of decoupling in Institutional Theory (Meyer & Rowan, 1977), which states that businesses adopt ISO 14001 certification and Green Innovation as rationalized myths or symbols of modernity to comply with external regulations without integrating these innovations internally. As a result, these symbolic efforts fail to deliver the concrete information required for high-quality disclosure. These findings align with the concerns expressed by (Heras-Saizarbitoria et al., 2020; Zervoudi et al., 2025), who view this gap as an example of pseudo-compliance or greenwashing when firms fail to report technical claims transparently. These findings also reinforce (Palea et al., 2025) argument regarding the widespread global gap between claim communication and actual performance.

The Impact of CSR, Green Innovation, and EDQ on Environmental Performance

Model 2 shows that EDQ has a positive and significant impact on Environmental Performance (EP). These findings reinforce the notion that transparency serves as a disciplining regulatory tool. Businesses committed to high-quality disclosure face greater public scrutiny, forcing management to improve operational performance to ensure reported data accurately reflects actual performance. These results support (Bosone et al., 2025) claim that transparency enhances environmental responsibility.

However, the direct impact of CSR and Green Innovation on EP was not statistically significant. The absence of a direct relationship suggests that social responsibility alone does not necessarily lead to environmental improvements unless managed through specific controls. Similarly,

the insignificant impact of Green Innovation on performance reflects decoupling in the Indonesian manufacturing sector.

The insignificant findings on Green Innovation are interesting when contrasted with global literature. Previous research in developed countries, such as (Song et al., 2024) study of the manufacturing sector in South Korea, found that ISO 14001 certification could drive real technical efficiency because a mature industrial ecosystem and intense market pressures supported it. In contrast, the results of this study in Indonesia show a different anomaly. This contextual difference can be explained by the characteristics of regulations in developing countries, which tend to be administrative rather than enforceable, creating loopholes for paper compliance practices. Despite having green labels or ISO 14001 certification, these initiatives are often superficial, disconnected from core operations, and fail to produce real reductions in waste or emissions. This phenomenon reinforces suspicions of greenwashing, where innovative attributes are adopted solely for symbolic legitimacy without substantive impact (Billah et al., 2025; Chowdhury et al., 2018).

The Role of Environmental Disclosure Quality Mediation

Mediation analysis clarifies the CSR Performance paradox, which shows that EDQ fully mediates the relationship between CSR and EP (Full Mediation). These findings indicate that CSR efforts improve environmental performance only when accompanied by transparent, thorough reporting. EDQ functions as a recoupling mechanism, bridging the gap between CSR moral intentions and operational implementation, consistent with Legitimacy and Signaling Theory CSR sets the goals, and EDQ provides the validation and discipline to achieve them (Lyu et al., 2024; Padilla-Lozano & Collazzo, 2022). Without high-quality disclosure, CSR can become a sunk cost without tangible environmental benefits.

On the other hand, EDQ does not mediate the relationship between Green Innovation and EP. This broken link highlights the tendency for Green Innovation to be used symbolically. Given the shallow implementation of Green Innovation (as indicated by decoupling), this does not yield the quality information needed by EDQ or lead to operational improvements that enhance EP. Such evidence aligns with the findings of (Ferdous et al., 2025; Kuruneri, 2025), who state that without meaningful implementation, technical innovations remain nonexistent and do not create sustainable value.

CONCLUSION

The study concludes that Environmental Disclosure Quality is greatly enhanced by Corporate Social responsibility, which in turn improves Environmental Performance. It is noteworthy that CSR has no direct impact on EP, supporting the idea of a complete mediation mechanism. These results are consistent with signalling theory and legitimacy theory, which explain how companies use quality disclosure as a tactic to address information asymmetry with stakeholders and show their ethical commitment (Connelly et al., 2011; Suchman, 1995). Therefore, when accompanied by open reporting, new CSR initiatives can produce noticeable outcomes ((Lyu et al., 2024). However, neither actual performance nor disclosure quality was significantly impacted by Green Innovation (GI). The decoupling theory of Institutional Theory, which maintains that certifications like ISO 14001 are frequently adopted as rationalized myths or symbols in response to external pressures without being fully integrated into core technical operations, is supported by this empirical data (Meyer & Rowan, 1977b). Consequently, these innovations are unable to deliver the observable benefits needed to enhance environmental performance (Chowdhury et al., 2018).

However, this study has several limitations. Examining dynamic changes in sustainability practices over time and the long-term effects of decoupling on corporate sustainability is limited by the use of cross-sectional data (Baum & Oliver, 1991) Moreover, certification-based proxies, which may not accurately reflect the proper level of technology adoption or R&D investment, are a significant component of green innovation measurement. Additionally, the sample is restricted to the manufacturing sector, which may limit the applicability of the findings to other industries with varying degrees of environmental risk.

The conceptual framework put forth in this study should be further expanded and tested in future research, especially regarding the phenomenon of decoupling in green innovation. To increase the generalizability of the findings, researchers can use a larger sample and examine a variety of industries susceptible to environmental problems and diverse business environments. Deeper insights into the internal factors that determine whether Green Innovation is symbolic or actually significant in improving Environmental Performance can be obtained by adding variables like Green Dynamic Capabilities or Top Management Commitment. Using primary data from surveys or experiments can provide a clear picture of the extent of ISO 14001 implementation from the company's perspective, going beyond simple formal compliance. To reduce the risk of greenwashing, this study also promotes further research into sustainability governance mechanisms, the application of green supply chain management, and the verification of sustainability reports. Academics, practitioners, and industry stakeholders working together can have a bigger impact and promote future sustainable, integrated, and effective practices.

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