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Do Green Practices Drive Firm Value In The Energy And Mining Sector

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Abstract: The focus of this work is on the relationships between strategic environmental practices and firm value. It draws on stakeholder theory, legitimacy theory and the new prominence of sustainable corporate governance. It looks at how environmental performance, EMS and carbon emissions disclosure can be used to measure sustainability value and explain market valuation. Multiple regression analysis is employed to quantitatively test the hypothesized relationships. The results show that environmental performance does not contribute to firm value, although it has following domestic regulatory systems. Thus, it is not driven solely by outperformance in environmental outcomes. However, the existence of global EMS standards, such as ISO 14001, and the growing practice of carbon disclosure appear to positively affect market prices and investor perceptions. These results highlight the increasing global demand for measurable and accountable sustainability commitments. The study's pioneering nature lies in its juxtaposition of regulatory based with voluntary ESG initiatives from an international perspective, emphasize the strategy of international alignment to augment corporate valuation. This could have significant ramifications for corporations looking to gain sustainable and long-term economic and reputational benefits from their activities. The results also provide compelling evidence for policymakers and regulators to align national reporting frameworks with the emerging global ESG architecture. This will create a more robust, transparent, and investment-friendly business climate. Ultimately, this research promotes a sustainable economic model through cross sectoral environmental integration.
Keyword; Firm value, Environmental strategy, Carbon disclosure, ESG practices, Sustainability management

1. INTRODUCTION

As the business environment shifts away from the mind set of shortsightedness and heedlessness to achieve success, business has started accepting environmental sustainability as one of the fundamental reasons of firm value in recent years. However, industrial operations especially in traditionally energy-intensive industries such as mining and energy are under growing scrutiny for their impact on the environment. The global increase in greenhouse gas (GHG) emissions that trigger climate-induced calamities together with institutional and societal demands for environmental accountability have catalyzed this transformation. Huang et al. (2025) Jacobs et al. (2010), companies with better environmental performance are more likely to gain market trust and serve long-term value. Investment behavior is increasingly consistent with sustainability measures, particularly those involved in emission disclosures and environmental management systems (Guo et al., 2025; Seera et al., 2025). Hu & Xu (2025) Yan et al., (2025) states that environmental disclosure is not only a strategy for achieving legitimacy, but also plays a role in signalling to green investors. Thus, embedding environmental performance metrics into financial valuation is practical obligation, however not just, but a tactical imperative in capital markets.

Current problem of the corporations is how environmental performance is translated to operation and it is observed in firm valuation metrics. Given the growing regulatory attempts and improvements in stakeholder expectations, firms often experience an asymmetry between their disclosed environmental strategy and the actual environmental strategy perceived by investors (Al Amosh, 2025a; Lukács & Molnár, 2025). Recently, across the whole world, the inconsistency of environmental management systems (EMS), fluctuation of carbon disclosure rankings quality and ambivalent reaction to sustainability reporting have led to a debate about the financial materiality of environmental actions. This mismatch has grown to be strengthens in carbon intense high opacity sectors (H. Luo et al., 2025; Wesseh Jr et al., 2025). Also, despite the increasing global acceptance of ESG frameworks, models of firm value have not incorporated them in a consistent way, especially in non OECD economic.

The stakeholder theory and the legitimacy theory support this research since they both underscore the fact that firms do not operate in isolation, rather firms exist within a socio-environmental ecosystem and their legitimacy and stakeholder buy-in is critical. Freeman & Fields (2023), Parmar et al. (2010) hypothesized that organizations must comply with stakeholder expectations in order to achieve sustainable performance. On the other hand, (Suchman, 1995) refers to the legitimacy as a generalized perception that the actions of an entity are desirable within some socially constructed system of norms and beliefs. Aligned with these theoretical perspectives is signaling theory Spence, (1978), which explains how environmental disclosures signal firm quality or firms ethical orientation to capital providers. The combination of these theories provides a holistic lens to study the effect of such environmental initiatives on market valuation through the lens of institutionalized disclosures and institutionalized systems of management.

The literature is mixed on the consequences of environmental strategies for firm value. Mediating effect of market value between proactive environmental strategies and firm performance, with firm age as a moderator (Hussain et al., 2025; Oyelakin et al., 2025). In contrast, Inês & Moreira (2025), Xu et al. (2025), have shown no significant relationship between environmental performance and firm value because stakeholders may refrain from rewarding firms based on their environmental performance, when they sense greenwashing or show skepticism with such initiatives. Public firms that implement an EMS typically reap the financial benefits of the implementation. This is if institutional quality and investor awareness are high (Afolabi & Raifu, 2025; Nam et al., 2025), but on the contrary, it can happen to decrease (Erdas et al., 2025; Mohamed et al., 2025). (Senna & de Araujo Moxotó, 2025; P. Wang et al., 2025), find that firms having a yardstick of similar carbon emissions in comparison with its peers do better in sustainable stock performance. Emissions disclosures unaccompanied by actual environmental outcomes do not have an impact on firm value (Han et al., 2025; Santoso et al., 2025). Such mixed results highlight an important research question that remains unresolved, namely, the relationship between the different dimensions of corporate environmental strategy and firm value (de Lima et al., 2025). This study aims to address this by examining the independent and inter-dependent effects of environment performance, EMS and carbon disclosure.

This study aims to empirically investigate the effect of corporate environmental performance, environmental management system, and carbon emissions disclosure on firm value in mining and energy sectors. This research provides an integrative framework, bringing in stakeholder, legitimacy, and signaling theories to uncover the degree to which environmental initiatives are internalized by investors and become reflected in firm value. The findings are expected to help policymakers and business leaders in understanding the need for transparency about environmental practices and sustainable governance. It has global implications as it forms part of the conversation around ESG-based investment and offers a data-based justification for integrating sustainability with corporate strategy.

2. LITERATURE REVIEW

Environmental performance is how well a company effectively handles and minimizes the adverse effect of its operations on the environment. Due to lower perceived risk and longer sustainable lifespan, it is believed that these firms are more environmental friendly (Bhuiyan & Man, 2025). Even so, as higher environmental performance improves the reputation of the firm through firm support better explains , then better environmental performance can augment firm value (Zheng et al., 2025) which can also support the findings of Javed et al., (2025), Leng et al., (2025), as there is a link between positive environmental performance and firm profitability, firms that have efficient environmental management

are likely to have high overall efficiency. (Dai et al., 2025; Destek et al., 2025), present empirical evidence that pollution prevention approaches are frequently associated with better economic outcomes, suggesting that environmental sustainability and firm value can be complementary. Wang et al. (2025), argue that environmental performance leads to operational efficiencies linearly enhancing firm value. So the first hypothesis is that environmental performance positively impacts firm value.

An Environmental Management System (EMS) is a structured system or framework for managing a firms sustainability responsibilities, which comprises three stages. Setting environmental objectives, auditing, and further-corner improvement processes (Deturbide & Terashima, 2025; Hasselsteen et al., 2025). Organizations that adopt EMS typically experience competitive benefits by decreasing costs, reducing risks, and meeting compliance. EMS adoption and performance relationship in several ways (Leal et al., 2025). Firms with proactive environmental strategies (including EMS) achieve resource efficiency and valuable stakeholder trust in the long run (Oyelakin et al., 2025). From both the corporate culture and the business organization's perspective there are lots of references indicating that EMS adoption demonstrably advances the environmental performance and thus capital market differentiation (Crossey, 2025; Sogut, 2025). Accordingly, the second hypothesis states that EMS implementation has a positive influence on firm value.

Carbon emissions disclosure is an increasingly regarded element of corporate transparency, especially in carbon-intensive industries (Amel-Zadeh & Tang, 2025; Yoon et al., 2025). These disclosures help investors evaluate climate risks and how the company is responding to environmental threats. (L. Luo & Pan, 2025; Zhu et al., 2025), find that disclosing carbon emissions voluntarily is positively rewarded by the market thanks to increased transparency and accountability. (Ioannou & Serafeim, 2015), discovery that the long-term stock performance of firms that practiced sustainability disclosure soared than that of firms which had weak sustainability disclosure practices. (Hu & Xu, 2025; D. Zhang et al., 2025), argued that repeat and quality carbon disclosure is a good signal for green investors. Dwianto et al., (2024) find that higher quality of carbon disclosure drives down the information asymmetry and thus increases firm value. Following which, the third hypothesis expects carbon emissions disclosure to have a beneficial effect on firm value.

3. METHOD

This study Focuses on companies in the energy and mining sectors that are listed on the Indonesia Stock Exchange (ISE) during the period from 2018 to 2023. An appropriate purposive sampling method was used to ensure the sample was in line with the research boundaries, and the process was carried out in accordance with the relevant guidelines. Firms had to be continuously listed throughout the observation period, and there had to be continuously available firm-level data and annual and sustainability reports. This sampling technique is a common tool in environmental and sustainability research, with the aim of enhancing data relevance and integrity (Etikan et al., 2016). Using these criteria, we derive our final sample of 48 firms and a total of 288 firm year observations.

Secondary data obtained from the annual reports and sustainability reports of mining and energy companies listed on the IDX (Indonesia Stock Exchange) during the period 2018–2023, which were used in this study. This data is publicly available through the IDX portal and company websites. Price to Book Value (PBV) is the dependent variable that will be used. This is because it reflects the market perception of the value of the asset net of liabilities. PBV is one of the most widely used ratios in value studies due to its simplicity and sensitivity to investor perception (Dwianto, 2024; R. Rahmawati et al., 2024a). PROPER is a nationwide rating standard that was developed by the Indonesian Ministry of Environment to measure environmental performance (Dwianto et al., 2024; Suhardjo & Suparman, 2025). This ordinal scale is transformed into numbers between 0 and 5 according to the method described (Al Amosh, 2025b).

The Environmental Management System (EMS) is a dummy variable based on the ISO 14001 certification. In other words, 1 = with the certification and 0 otherwise (Wen & Wang, 2025). A content analysis of 18 disclosure items drawn from the Carbon Disclosure Project (Choi et al., 2013) is used to measure carbon emission disclosure (CED). These disclosure items include emission levels, reduction plans and governance. In line with earlier research on sustainability and firm valuation Srivastava et al. (2025), we have included Return on Assets (ROA), firm size (the natural log of total assets), and firm age (log-transformed number of years since listing) as control variables.

The data analysis for this research used panel data regression, which has both cross-sectional and time-series characteristics. The EViews software package was used to estimate the regression model and provide strong statistical inference. Classical assumptions, such as the absence of multicollinearity, heteroscedasticity and autocorrelation, were tested prior to regression on the data set. The Hausman test was used to select between fixed and random effects (Alruwaili, 2025). This constitutes a commendable approach to eradicating associated, unobservable, firm-level heterogeneity and can furnish estimations of considerable accuracy regarding the relationship between environmental variables and firm value (Dwianto et al., 2024).

Table 1. Variable measurement instrument

Variable	Type	Measurement
Firm Value (PBV)	Dependent	Stock Price / Book Value per Share
Environmental Performance	Independent	PROPER Rating (0–5 scale)
Environmental Management Sys.	Independent	Dummy: 1 = ISO 14001 Certified, 0 = Not Certified
Carbon Emission Disclosure	Independent	Score from 18-item disclosure index
Return on Asset (ROA)	Control	Net Income / Total Assets
Firm Size	Control	Ln (Total Assets)
Firm Age	Control	Ln (Observation Year - IPO Year)

Source; author 2025

4. RESULT

Table 2 displays the descriptive statistics of the main research variables. The mean firm value (FV) is 2.3539, with a large standard deviation of 5.5366. This indicates a greater variation in firm value among our observations, likely due to differences in firm size, market exposure and strategic environmental investments. The minimum FV is -2.0535, suggesting that some companies are experiencing low devaluation in the market, while the maximum is 38.8820, indicating that large, high-value firms are also present. Environmental performance (EP), measured between 0 and 5, generally exhibited a median value of 2.1180, indicating low compliance. Nevertheless, the average standard deviation is relatively large (1.8647), and there are still firms with an EP of 0. This implies differences in firms' and sectors' environmental approaches that may be influenced by the enforcement of regulations or corporate priorities.

ISO 14001 certification (ISO) is another measure of the adoption of environmental management systems (EMS), with a mean of 0.7430, indicating that approximately 74.3% of the firms in the sample have certified EMS. These adoption rates, which are higher than in many other states, perhaps suggest mounting global and investor pressure to push for more systematic standardisation of environmental governance. Furthermore CED: Carbon Emission Disclosure (CED), with a mean of 0.2997 and SD = 0.2720, shows that, despite its relevance in ESG frameworks, voluntary disclosure still has limited scope. The average return on assets (ROA) is 8.08% (after controlling for variables), but there are outliers with large losses as well as highly profitable firms. The mean firm age (FAG) is 14.645 years, ranging from 1 to 33 years. In contrast, firm size (FZ) remains relatively consistent, with a mean of 24.92, indicating that the sample consists of well-established, mature firms. These results provide a useful baseline for subsequent regression analysis and hypothesis testing.

As shown in Table 3, the Pearson correlation matrix reveals that this potential multicollinearity was evaluated for both the study's independent and control variables. The correlation coefficients between all pairs of variables are mostly low to moderate, suggesting that there are no significant multicollinearity

issues (Citraningtyas et al., 2025). Notably, none of the correlation coefficients exceeds the standard threshold of 0.80, which indicates multicollinearity issues (Nurlaela et al., 2024). Positive correlations indicate that firms with stronger environmental practices are more likely to disclose emissions (Riani, 2016). The highest correlation is between environmental performance (EP) and carbon emission disclosure (CED) at 0.47. Similarly, there are moderate positive correlations between firm age (FAG) and CED (r = 0.385), as well as between FAG and EP (r = 0.302). This suggests that older firms are more likely to engage with environmental programmes and disclosures.

Conversely, some negative correlations can be observed. Consequently, firm value (FV) exhibits a weak, even inverse, relationship with EP (-0.128), ISO certification (-0.125) and CED (-0.094). This implies that higher firm market valuation is not necessarily related to greater environmental involvement, a finding that aligns with the arguments of Clark et al. (2015) in the literature on sustainable development performance (Febrianto et al., 2025). The negative relationship (-0.432) between FV and FAG suggests that older firms may be penalised for their market valuation, possibly due to costly legacy operational activities that are difficult to change, or lower capability for quickly designing, prototyping and implementing environmentally innovative products. Lastly, the lack of correlation between the control variables (ROA, FAG and FZ) and the other predictors indicates that these variables are uncorrelated with each other and can contribute directly to the model without collinearity interference (Widagdo et al., 2025). Overall, the correlation matrix suggests that multicollinearity will not affect the regression analysis and therefore we can be confident that the estimates will not be biased.

Figure 1 below shows the results of the heteroscedasticity test, based on the residual graph image of the hetero test above, it can be seen that the residual value on the graph does not exceed the upper limit (500) and the lower limit (-500), thus it can be concluded that in the research regression model there is no heteroscedasticity problem. The graph also shows that the variance of the residuals in the regression model is said to remain constant across the entire range of values of the independent variable, and means that the model in the study fulfills the assumption of homoscedasticity. It can be seen that the residual value in the graph does not exceed the specified limit (500 to -500), it can be concluded that the model is free from heteroscedasticity so that it passes the test and there is no indication of non-constant variation in the error term (Rahmawati, Amperawati et al., 2025).

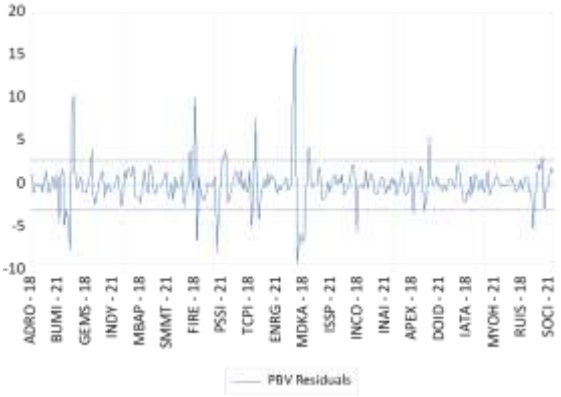

Figure 1. residual plot for heteroscedasticity data

The multiple regression analysis results to test the effect of environmental-related variables and control variables on firm value (FV) is shown in Table 4. This study's hypotheses testing analyses include three hypotheses associated with EP, ISO, and CED, where ROA, FZ, and FAG represent control variables. ISO and CED have statistically significant positive effects on firm value whereas EP has no meaningful effect among the primary variables of interest.

In particular, ISO certification reveals a strong and positively significant firm characteristic effect of 1.5196 (p = 0.0152), pointing towards firms with ISO 14001 environmental management certifications achieving optimal firm value. This result is consistent with the second hypothesis (H2), which is based on legitimacy theory, and suggests that firms actively complying with international environmental standards can enjoy a positive effect on reputation and confidence from investor (Kiswanto et al., 2024; R. Rahmawati et al., 2024b). In addition, the effect of carbon emissions disclosure (CED) is the largest, with a coefficient of 5.7377 and a p-value of 0.0000, providing strong support for hypothesis H3. This underscores the strategic relevance of transparency in sustainability reporting stakeholder theory

(Freeman, 1984) argues that the market rewards firms that credibly disclose their environmental impact (Dwianto et al., 2025).

The close to zero and statistically insignificant (-0.0060, p = 0.9873) coefficient for environmental performance (EP) contradicts expectations, suggesting that that environmental performance activities alone may not directly influence market valuation. Within control variables, ROA is a highly significant positive (6.5807, p = 0.0000) predictor of financial performance in support of its use as a strong control variable. On the other hand, firm age (FAG) has a significant negative influence on firm value (coefficient = −0.0275, p = 0.0000), which could signal that investor are more skeptical with older firms that seem to have lower agility preparedness or innovate less. FZ based on the p-value of 0.05, the firm size is statistically insignificant. These results highlight that the creation of environmental value is less a function of performance but more of governance and disclosure.

Table 2. descriptive statistics of research variables

Variable	Mean	Std. Dev	Min	Max
FV	2.3539	5.5366	-2.0535	38.8820
EP	2.1180	1.8647	0.0000	5.0000
ISO	0.7430	0.4377	0.0000	1.0000
CED	0.2997	0.2720	0.0000	0.8333
ROA	0.0808	0.1915	-0.8782	1.6679
FAG	14.645	8.768	1.0000	33.000
FZ	24.9207	4.5500	17.0007	32.3756

Table 3. Correlation matrix (multicollinearity test)

	FV	EP	ISO	CED	ROA	FAG	FZ
FV	1						
EP	-0.128	1					
ISO	-0.125	-0.031	1				
CED	-0.094	0.47	0.198	1			
ROA	0.258	0.278	0.044	0.209	1		
FAG	-0.432	0.302	0.139	0.385	-0.042	1	
FZ	0.066	-0.167	-0.021	0.018	-0.164	0.082	1

Source; author 2025

Table 4. *Hypothesis test*

Variable	Coefficient	Prob.
EP	-0.0060	0.9873
ISO	1.5196	0.0152**
CED	5.7377	0.0000*
ROA	6.5807	0.0000*
FZ	-8.8254	0.8880
FAG	-0.0275	0.0000*

The insight gained from this study provides a differentiated perspective on the influence environmental governance has in environmentally sensitive industries, not only through their environmental performance. We provide evidence that while the adoption of environmental activities is not likely to increase firm value per se, it does do so when they are accompanied by institutional enforcements and messaging (Meek et al., 2010). This indicates that they may be read by the market as simply symbolic or inconsequential unless they are part of internationally accepted standards or combined with credible reporting. Muñoz Acevedo & Seijo (2025), argue that environmental info that isn't standardized, or framed strategically, is poised to see much of its market capitalization crushed.

Rather, the evidence underlines the key contribution made by Environmental Management Systems (EMS), in particular EMS certified against an ISO 14001 standard, to firm value (Prayogo et al., 2024). This is in line with legitimacy theory suggesting that firms follow global norms to not only become legitimate but also to benefit from the enhanced transparency and the increased investor confidence (Gaillard & Behrouznia, 2025; Zhoulie & Williams, 2025). Firms who have an ISO certification are trusted more because they are deemed to be accountable, prepared and capable of managing environmental risks proactively within a defined governance structure (S. Rahmawati et al., 2015). These systems are auditable and replicable, making them more credible in investor eyes than ad hoc environmental activities or compliance based action.

Also, carbon emission disclosure is likely to serve as general signal related information impacting investor decision-making and thereby more closely relates to the signaling theory (Bella, 2024; Yan et al., 2025). The disclosure of environmental externalities commits firms to credible signals to stakeholders about their level of risk awareness, propensity for long-term decision-making and preparedness to engage with the decarbonisation agenda (Widagdo, 2019). These disclosures reduce information asymmetry and, as a proxy for environmental resilience and strategic foresight, their utilisation by investors is on the rise (Sulistyawati et al., 2025; C. Wang et al., 2025). This is especially important for industries where regulations are getting tighter and carbon price mechanisms are coming into play.

These results theoretically support both the stakeholder theory and legitimacy theory views. Society and the environment are playing an increasing role in influencing what stakeholders expect from companies as expressed by Charl de Villiers, (2006), Villiers et al. (2011), Freeman & Fields (2023). High-impact industries are often pressed to adjust business models to account for these wider concerns (Yasmin et al., 2024). While voluntary environmental reporting such as ISO certification and carbon transparency act as metrics that are monitored during the process to secure social license for operation it also acts as a governance practice. The organizations that involve themselves in active environmental communication, having a higher chance to remain credible and dominant in terms of interactions with the investors, customers, regulators etc (Hussainey et al., 2025).

In theoretical terms, these findings are consistent with stakeholder theory and legitimacy theory. For instance, while stakeholders expect a lot from firms to translate their business practice more broadly into societal and environmental issues (Hjellvik & Kirkels, 2025). Along with governance, environmental reporting is voluntarily used for social licence to operate, i.e. as an instrument such as ISO certification or carbon transparency to further assure it (Körner et al., 2025). Organizations that devote resources to proactive environmental communication are most likely to enjoy credibility with investors, customers and regulators while at the same time developing relationships with them (Al Basheer, 2024). And as a strategic matter that means investors more highly value structure and disclosure as opposed to symbolic conformity. Selecting firms with a strong reputation for environmental performance is not enough to influence pricing, unless we also set voluntary governance goals that are comparable around the world (Gómez-Mejía et al., 2025). Market actors must be able to trust the numbers they are given, which exclude national metrics that only indicate baseline conformance. The market-based rewards for stepping out ahead of mandated state compliance check the box appear to be greater and more consistent with best practice internationally (Ayu Lestari & Nurhadianto, 2024; Lux et al., 1996).

These insights provide timely reflections for corporate managers in light of the current growing trends on sustainable finance. We did, of course, forewarn that capital allocation is influenced by the credibility and visibility of an environmental strategy especially when pegged to investor relevant frameworks like the TCFD or the EU taxonomy in turn affecting funding costs (Putri Hastuti & Gunawan Siregar, 2024). They therefore also need to change not just what they do, but how they communicate it to the financial stakeholders. In a world that is being increasingly structured by ESG driven investing Butler et al. (2022), RZhang et al., (2023), argue that the fusion of environmental governance in financial communication becomes critical competitive edge.

The results of the study emphasise the need for large companies, particularly those in industries with a high environmental impact, to incorporate sustainability into their corporate values. The incorporation of environmental accountability is also gaining momentum with regard to the interests of global investors, with ESG-backed screening quickly becoming a required feature for institutional investors. The positive impact of environmental management systems and carbon emission disclosure on firm value reported here is consistent with recent findings (Putri Hastuti & Gunawan Siregar, 2024), that standardised,

transparent, low risk ESG practices mitigate investment risk and add value to firms. For instance, the global financial community perceives firms with extensive environmental policies, such as ISO 14001 certification and greenhouse gas (GHG) emissions disclosures, as being lower risk and more growth oriented than those without such policies (Margaret et al., 2024). This suggests that companies in the extractive sector with cross-border operations should adopt global sustainability standards sooner rather than later in order to remain competitive and inspire investor confidence.

From a policy perspective, the results indicate a growing urgency for domestic environmental assessment systems to align with global environmental, social and governance frameworks. Surveys conducted earlier this year have shown that even initiatives like national environmental ratings, where a national authority provides a mark indicating compliance, reflect more of this compliance rather than depth and comparability, which global investors need. It should be noted that regulators may choose to increase the relevance and consistency of disclosure on these types of instruments, aligning them more closely with the expectations of the international investment community (Nuraini & Amrulloh, 2024). Policymakers are therefore urged to create reporting mandates that are consistent with international standards and that align domestic regulatory systems with global ESG disclosure frameworks (Alina & Durriya, 2024; Silalahi, 2024). The harmonisation among enterprises, investors, and regulators at various tiers of production is paramount to accelerating the low-carbon economic transformation and achieving long-term sustainability targets (Fu et al., 2023; Rabuni et al., 2025). Only with this alignment will firms be able to establish legitimacy, lower the cost of capital and withstand headwinds in an increasingly ESG-oriented global marketplace (Zhou et al., 2024).

From a green sustainability perspective, the results highlight a strategic imperative for firms to integrate ecological principles into the management at the institutional level and not simply treat their environmental initiatives as an extension of compliance-related work at the organizational level. The lack of effects on firm value of state-driven environmental ratings implies that symbolic or legalistic approaches do not engender substantive stakeholder trust. ISO 14001 certification and carbon disclosure have a positive impact. This illustrates that investors respond better when environmental work is related to a norm. It is also important that it is structured and transparent. Investors like it when it is comparable internationally. As Elkington (1998) has previously argued, the real foundation of reputational capital and stakeholdership lies not in financial trinitarianism, but in organizations that incorporate environmental and social dimensions into their day-to-day operations. In the ESG era, it is not just the quantity of a firm green efforts, but also the quality, transparency and systemic integration of those efforts into the firm's operations that bestows legitimacy (Banna et al., 2024).

The premises of ecological modernization theory are also supported by these findings. According to this theory, environmental sustainability and economic competitiveness are not necessarily opposites. In fact, they can be reinforcing. Environmental innovation, whether in cleaner production technologies or carbon accountability, can serve as operational, regulatory and strategic levers of efficiency (Al Amosh & Khatib, 2025; Ramanathan et al., 2017). The main takeaway is that firms need to transition from a reactive, box-ticking approach to compliance to a transformative green strategy encompassing production, supply chain governance, and capital market communication. In a time of climate accountability and decarbonisation, the ability to achieve what is known as a "return on sustainability" will be as important as, if not more so than, traditional financial returns (Glazerman & Cohen, 2020). This is why corporate green transformation has evolved from being an ethical choice to becoming a strategy that must address both the market and the planet simultaneously.

5. CONCLUSION

This study contributes by presenting empirical findings that sustainable strategies based on international standards and the legitimacy of ISO 14001 certification, as well as carbon disclosure transparency, create expected value in company value, while regulatory ratings without market impact may be less significant. Together, these results suggest that, in an environment supportive of ESG-aware investment, a voluntary and internationally consistent framework is more valuable and attractive to investors than mere compliance driven by local requirements. Theory suggests that companies enjoy competitive advantages not only due to regulatory compliance but also when they address stakeholder interests through legitimate and transparent environmental responsibility, exceeding minimum levels. This supports the relevance of stakeholder theory and legitimacy. This research also aligns with ecological modernisation in emphasising

sustainable development as a path to innovation and competitiveness. These findings add to the broader discussion on strategic ESG integration, particularly in high-impact industries, by showing where different environmental strategies can have different impacts. The findings suggest that ESG reporting and compliance levels should be implemented through mandatory corporate commitments to comprehensive ESG reporting supported by global environmental management standards. This will create a common language. Regulators need to establish an integrated approach between national sustainability frameworks and international norms to ensure comparability and relevance in markets. If there is long-term corporate value to be gained in a decarbonising economy, it will be found in a systematic and principled approach to resource management, not in short-term regulatory compliance that is only transparent to those who seek it.

Theoretical and Practical Contributions

This paper adds to the sustainability accounting literature by providing empirical evidence that voluntary environmental strategies in line with international benchmarks such as ISO 14001 and carbon disclosure best practices have substantial capital market value relevance. This reflects the theoretical lens of stakeholder theory, which views legitimacy and transparency as vital for organizational survival, and adds to ecological modernization theory, underscoring environmental innovation's strategic capabilities. Ultimately, this research has practical implications for corporations, especially in high-impact industries as it demonstrates the market benefits to exceeding regulatory expectations and adopting globally credible ESG practices not as compliance mechanisms but strategic levers which influence investor perceptions and long-term firm value.

Author Contributions

This research was designed by Rasyid Ridha Kurniawan, Rahmawati, Siti Rochmah Ika with assistance from several other authors, starting from the process of literature synthesis (Ari Kuncara Widagdo), data collection (Rasyid Ridha Kurniawan), empirical modeling (Nindyo Cahyo Kresnanto), interpretation of findings (Junaid M. Shaikh), and manuscript improvement conducted by Agus Dwianto. We conducted all stages separately, from empathy to testing/reflection. The authors declare that this manuscript is original, and all sources have been referenced and acknowledged.

CONCLUSION AND SUGGESTIONS FOR FUTURE RESEARCH

The first limitation is that it is based on a sampling of ESG criteria found in public disclosures, which means some private sustainability programs may not be included as they have yet to become so widespread as to create reporting standards. Second, the analysis uses a cross-sectional dataset that limits inferences of causal dynamics across time. Future enquiries should examine the long-term effects of ESG certification on firm value, particularly in times of regulatory turmoil or ecological disaster. Thirdly, integration of qualitative research by conducting interviews with sustainability officers or institutional investors would help gain a deeper understanding of the decision-making rationale for investing in ESG. An interesting angle hinges on how AI based ESG analytics, which is increasingly becoming a key feature of digital finance environment, and the changing stakeholder preferences coexists or reinforces one another.

Policy and Governance Implications

This is some more empirical evidence for the notion that national mandates in themselves may not be able to deeply entrench policy-practice interactions into the psyche of investors. Regulators are also interested in hybrid frameworks that include international standards (e.g., ISO, TCFD, GRI) in the national policy infrastructure. Therefore, this will improve the compare and investor confidence in the market so that they can make informed decisions as well as reduces risks of greenwashing. This requires a shift in the positioning of Governments, in particular those that are from developing countries from fighting ESG non-compliance to promoting ESG compliance by encouraging genuinely practice on sustainable investing through domestic fiscal incentives and sovereign bond credit ratings schemes, plus introduction at least global best practices series with an ESG audit mechanism embedded within capital market supervision as well as nation-wide common-E type guidelines for E and S reporting, however aligned to international standards.

Final Reflections

The global sustainability revolution is not just a plea for environmental sanity; even more, it is about a new way of conceiving economic values and measuring them. Companies which are integrating into their governance and disclosure systems the environmental accountability will be in a stronger position to

create sustainable trust with all relevant stakeholders. The authors concluded that in the architecture of modern capitalism, transparency, legitimacy, and international alignment are not just optional virtues but built-in utilitarianism. As ESG discourse matures, sustainability accounting should continue to calibrate and extend the translation of these principles into practice.

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