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STAKEHOLDER PRESSURE MODERATES THE RELATIONSHIP BETWEEN GREEN INVESTMENT AND ENVIRONMENTAL MANAGEMENT SYSTEMS TO CARBON EMISSIONS DISCLOSURE

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Abstract
This study aims to examine the moderating effect of stakeholder pressure on the relationship between green investment and environmental management systems on carbon emission disclosure. The research focuses on companies listed in the KOMPAS100 index on the Indonesia Stock Exchange (IDX) during the 2021–2023 period. A quantitative associative approach was employed, with sample selection conducted through purposive sampling and data analyzed using panel data regression models. The findings indicate that green investment does not significantly influence carbon emission disclosure, whereas the implementation of environmental management systems positively affects disclosure practices. Moreover, stakeholder pressure does not moderate the relationship between green investment and carbon emission disclosure. Interestingly, it weakens the positive relationship between environmental management systems and carbon emission disclosure. These results suggest the need for stronger regulatory frameworks and internal mechanisms to encourage transparent and consistent environmental reporting. Enhancing carbon disclosure is a crucial step in supporting Indonesia's commitment to achieving Net Zero Emissions by 2060.

Keywords: Carbon Emission Disclosure, Green Investment, Environmental Management System, Stakeholder Pressure

1. Introduction

The rapid rise in global surface temperatures has increasingly drawn international concern, particularly due to its association with greenhouse gas (GHG) emissions and the ensuing climate change. Over the past decade, global warming has escalated into a pressing issue not only within environmental discourse but also in the realms of economic and political governance at both national and international levels. The intensification of natural disasters ranging from droughts and crop failures to cyclones and sea-level rise is a direct manifestation of global warming, largely driven by the accumulation of carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and other greenhouse gases in the Earth's atmosphere (Pipit, 2022). These gases are predominantly emitted through fossil fuel combustion, industrial activities, and land-use changes such as deforestation.

In response to escalating emissions, the Kyoto Protocol established a legally binding framework for industrialized countries to reduce GHG emissions. The first commitment period (2008–2012) mandated Annex I countries to reduce their collective emissions to at least 5% below 1990 levels (Basuki, 2016). This protocol also introduced three market-based mechanisms: the Clean Development Mechanism (CDM), Joint Implementation (JI), and Emissions Trading, aimed at providing flexible approaches to meet emission targets (UNFCCC, 1998).

Indonesia's commitment to climate action intensified following its ratification of the Kyoto Protocol through Law No. 17 of 2004 and was further emphasized in Presidential Regulation No. 98 of 2021, which targets a 41% reduction in GHG emissions by 2030 with international support. Moreover, under the Long-Term Strategies for Low Carbon and Climate Resilience 2050 (LTS-LCCR 2050), Indonesia aims to achieve net-zero emissions by 2060 or sooner (Putri, 2023).

Despite its status as a developing country, Indonesia ranked sixth globally in CO_2 emissions in 2024, contributing approximately 746.9 million tons, driven mainly by fossil-fuel energy generation, deforestation, and industrial activities (Statistical Review of World Energy, 2025). Studies have shown that sectors such as mining, energy, and forestry are major contributors to national emissions (Madyan, 2024; BPS, 2024). However, disclosure practices in carbon emission reporting remain inconsistent and, in many cases, inadequate. For instance, state-owned coal company PT Bukit Asam Tbk reported only 62% environmental disclosure, much of which was deemed low quality (Syahputra et al., 2019).

Carbon emission disclosure is increasingly recognized as a critical component of corporate environmental responsibility. Transparent reporting provides essential information for stakeholders including governments, investors, and the public to evaluate environmental risks and corporate sustainability performance. In particular, investors are showing a growing preference for companies engaged in green investments, emphasizing environmental, social, and governance (ESG) factors in their capital allocation decisions (Riyanti & Murwaningsari, 2023). The Indonesian government has echoed this sentiment by embedding environmental responsibility within its investment legislation (UU No. 25/2007).

Furthermore, environmental management systems (EMS), such as ISO 14001, have proven effective in enhancing emission disclosures by offering structured procedures for monitoring and reporting emissions (Setiadi, 2021). Stakeholder pressure from institutional investors, consumers, and NGOs also plays a vital role in driving companies toward greater environmental transparency and accountability (Hanisyah Iratiwi & Sulfitri, 2023; Yunus et al., 2020).

Despite the increasing importance of carbon disclosure, empirical studies exploring the combined influence of green investment, environmental management systems, and stakeholder pressure on emission disclosure particularly in emerging economies like Indonesia remain limited. Given the growing expectations for corporate transparency amid climate crises, there is a critical need to understand the determinants of carbon emission disclosure in large Indonesian firms.

2. Theoretical Background

2.1 Legitimacy Theory

Legitimacy theory posits that organizations continually seek to ensure that their activities are perceived as legitimate by aligning with the norms, values, and expectations of society (Suchman, 1995). In the context of environmental disclosure, this theory suggests that firms engage in voluntary reporting such as carbon emission disclosure to justify their operations, especially when facing societal scrutiny over environmental performance (Deegan, 2002). As environmental concerns grow, companies are more likely to disclose environmental initiatives to maintain legitimacy and avoid reputational damage or regulatory intervention.

2.2 Stakeholder Theory

Stakeholder theory emphasizes the importance of addressing the interests and expectations of various stakeholder groups, including investors, regulators, customers, communities, and non-governmental organizations (Freeman, 1984). This perspective holds that corporate transparency, especially concerning environmental impact, is essential for sustaining long-term stakeholder trust. Carbon emission disclosure serves as a communication mechanism through which companies demonstrate accountability and responsiveness to stakeholder concerns about climate change (Clarkson et al., 2008).

2.3 Carbon Emission Disclosure

Carbon emission disclosure (CED) refers to the voluntary or mandatory reporting of greenhouse gas emissions by firms, along with mitigation strategies and environmental impacts. CED plays a crucial role in enabling external stakeholders to evaluate environmental performance and climate-related risks. Firms with high environmental exposure or those operating in carbon-intensive sectors are under increasing pressure to disclose emission data as part of broader sustainability reporting (Luo et al., 2013). Transparent carbon reporting also aligns with international frameworks such as the Task Force on Climate-related Financial Disclosures (TCFD).

2.4 Green Investment

Green investment encompasses corporate capital allocation toward environmentally sustainable projects, technologies, and infrastructure that aim to reduce environmental degradation and support the transition to a low-carbon economy. Investments in renewable energy, clean technology, and pollution control are examples of green investment initiatives (Riyanti & Murwaningsari, 2023). According to legitimacy theory, firms may use green investment not only as a strategic environmental action but also as a symbolic tool to gain legitimacy by signaling environmental responsibility (Liesen et al., 2015). Empirically, green investments have been associated with enhanced environmental disclosure and improved corporate reputation.

2.5 Environmental Management Systems (EMS)

An Environmental Management System is a structured framework that enables firms to monitor, manage, and improve their environmental performance systematically. Standards such as ISO 14001 guide organizations in identifying environmental aspects, complying with regulations, and setting sustainability targets (Setiadi, 2021). Firms with certified EMS often exhibit superior environmental reporting practices, as EMS facilitates reliable data collection, internal audits, and stakeholder communication. EMS adoption also reflects a company's commitment to continuous environmental improvement, often translating into more comprehensive carbon disclosures (Boiral, 2007).

2.6 Stakeholder Pressure

Stakeholder pressure refers to the influence exerted by various stakeholders such as investors, regulators, environmental NGOs, and the public on corporate behavior. When stakeholders demand greater accountability and transparency, firms are likely to respond by enhancing disclosure practices, particularly in areas of high reputational or regulatory risk (Hanisyah Iratiwi & Sulfitri, 2023). Stakeholder theory suggests that firms that ignore these pressures risk losing legitimacy and stakeholder support. Therefore, stakeholder pressure is hypothesized to moderate the relationship between environmental strategies (e.g., green investment and EMS) and carbon emission disclosure.

2.7 Hypotheses Development

2.7.1 Green Investment and Carbon Emission Disclosure

Green investment refers to a firm's commitment to allocate capital towards environmentally sustainable initiatives, including energy efficiency, renewable energy adoption, and low-carbon technologies. Such investments represent corporate efforts to reduce ecological footprints while aligning with broader sustainability agendas.

According to stakeholder theory (Freeman, 1984), companies are increasingly expected to address the concerns of diverse stakeholders, especially regarding environmental responsibility. Green investments serve as a response mechanism to such expectations and reflect a proactive stance toward environmental performance. In parallel, legitimacy theory (Suchman, 1995) posits that firms undertake symbolic and substantive actions to maintain societal approval. Disclosing carbon emissions is one such action that legitimizes green investment efforts in the eyes of stakeholders.

Empirical evidence supports a positive association between green investment and disclosure practices. Riyanti and Murwaningsari (2023) demonstrate that green investments are significantly correlated with increased environmental transparency, particularly in carbon reporting. Similarly, Mutiara Dani and Harto (2022) argue that firms with high green investment profiles tend to enhance their disclosure to strengthen legitimacy and mitigate reputational risks. *H1: Green investment has a positive effect on carbon emission disclosure.*

2.7.2 Environmental Management Systems and Carbon Emission Disclosure

Environmental Management Systems (EMS), such as ISO 14001, provide a structured framework for monitoring, managing, and improving environmental performance. Firms that implement EMS often institutionalize environmental practices, which enhances their capacity to track and disclose environmental data, including carbon emissions.

Legitimacy theory suggests that adopting internationally recognized environmental standards helps firms gain social acceptance, especially in industries with significant environmental impacts. EMS implementation not only improves operational sustainability but also strengthens legitimacy through transparent reporting. Furthermore, stakeholder theory emphasizes that EMS can facilitate responsiveness to stakeholder pressures for accountability and environmental stewardship.

Numerous studies corroborate the positive influence of EMS on environmental disclosure. Anggraini and Handayani (2021) find that EMS adoption correlates with improved carbon reporting quality. Hanisyah Iratiwi and Sulfitri (2023) also observe that EMS-certified firms exhibit higher levels of voluntary environmental disclosures compared to non-certified peers. *H2: Environmental management systems have a positive effect on carbon emission disclosure.*

2.7.3 Stakeholder Pressure as a Moderator between Green Investment and Carbon Emission Disclosure

Stakeholder pressure encompasses regulatory demands, investor scrutiny, civil society advocacy, and public expectations for corporate environmental accountability. Under stakeholder theory, such pressures shape organizational behavior, pushing firms to align their activities and disclosures with societal values.

While green investment signals environmental commitment, the extent to which it translates into carbon disclosure may depend on the level of stakeholder pressure. Under high stakeholder scrutiny, firms may be more inclined to report carbon emissions to

justify their investments and maintain legitimacy. Legitimacy theory reinforces this perspective, suggesting that stakeholder pressure intensifies the need for visible and credible environmental disclosures.

Empirical findings indicate a moderating effect of stakeholder pressure. For example, Riyanti and Murwaningsari (2023) show that firms with high green investments disclose more carbon information when operating under heightened stakeholder oversight. These disclosures serve to reduce information asymmetry and strengthen stakeholder trust. *H3: Stakeholder pressure positively moderates the relationship between green investment and carbon emission disclosure.*

2.7.4 Stakeholder Pressure as a Moderator between Environmental Management Systems and Carbon Emission Disclosure

The effectiveness of EMS in promoting environmental disclosure may also depend on stakeholder pressure. When external demands for transparency are strong, firms with EMS are more likely to disclose detailed environmental information as part of their accountability practices.

Stakeholder theory posits that firms adapt their disclosure behavior in response to stakeholder expectations. In this context, EMS implementation becomes a foundation upon which stakeholder-oriented disclosure practices are built. Legitimacy theory further suggests that firms facing greater stakeholder pressure must use EMS not only to improve internal performance but also to enhance transparency and legitimize their environmental actions.

Studies by Iratiwi and Sulfitri (2023) and Setiadi (2022) highlight that stakeholder pressure significantly moderates the EMS–disclosure relationship. Their findings suggest that firms under intense scrutiny are more proactive in communicating the outcomes of their environmental management systems. *H4: Stakeholder pressure positively moderates the relationship between environmental management systems and carbon emission disclosure.*

3. Methods

3.1 Research Design

This study adopts a quantitative research design to examine the influence of green investment, environmental management systems, and stakeholder pressure on carbon emission disclosure (CED) among publicly listed companies in Indonesia. The analysis relies on panel data regression covering the period 2021 to 2023.

The data were obtained from secondary sources, including the Indonesia Stock Exchange (IDX) official website (https://www.idx.co.id) and each company's official website. Key information such as sustainability reports, annual reports, and financial statements was collected manually to ensure consistency and data accuracy across firms.

The population of this research includes all firms listed on the KOMPAS100 Index, which comprises the 100 most liquid and fundamentally sound companies listed on the IDX. To ensure the relevance and availability of environmental disclosure data, a purposive sampling method was used with specific inclusion and exclusion criteria, as detailed in the following table:

Table 1. Sample Selection Process

No	Criteria	Number of Firms
1	Companies listed in the KOMPAS100 Index (2021–2023)	100
2	Companies that did not publish sustainability reports (2021–2023)	(24)

No	Criteria	Number of Firms
3	Companies that did not disclose environmental cost information (2021–2023)	(31)
4	Companies with incomplete data	(1)
	Final Sample	44
	Research Period (years)	3
	Total Firm-Year Observations (44 firms × 3 years)	132

Source: processed data, 2025

3.2 Measurement Variable

To ensure the validity and consistency of measurement in this study, each construct is defined based on established indicators derived from prior literature and standard measurement frameworks. The operational definitions, measurement techniques, and data sources for each variable are summarized in Table 2

Table 2. Operational Definition of Variables

Variable	Indicator / Item	Operationalization	Measurement
Carbon Emission Disclosure (CED)	1. Climate Change: Risks and Opportunities CC1 – Risk assessment related to climate change CC2 – Financial/business implications and opportunities 2. GHG Emissions GHG1 – Methodology description GHG2 – External verification GHG3 – Total GHG emissions (CO2-e) GHG4 – Emissions by scope (1, 2, or 3) GHG5 – Emissions by source GHG6 – Emissions by facility/segment GHG7 – Emission comparison with prior years 3. Energy Consumption EC1 – Total energy consumption EC2 – Renewable energy usage EC3 – Disclosure by type/facility	Total number of carbon-related items disclosed in sustainability report or annual report based on CDP checklist consisting of 20 items	CED = (∑di) / M ∑di = total items disclosed M = total disclosure items (max 20) Scored: 1 = disclosed, 0 = not disclosed

Variable	Indicator / Item	Operationalization	Measurement
	4. Reduction and Cost RC1 – Emission reduction strategy RC2 – Target level and year RC3 – Achieved savings RC4 – Future emission costs in CAPEX 5. Carbon Emission Accountability ACC1 – Board responsibility ACC2 – Board review mechanism		
Green Investment (GI)	Environmental-related expenditures: technology transformation, industrial waste treatment, pollution control, renewable/clean energy projects, environmental restoration	Total green/environmental-related investment divided by total assets, expressed as a percentage	GI =(Environmental Expenditures / Total Assets) × 100%
Environmental Management System (EMS)	ISO 14001 Certification	Whether or not the company has ISO 14001 certification, used as a proxy for formal EMS implementation	Dummy variable:1 = company has ISO 14001 certification0 = otherwise
Stakeholder Pressure (KI)	Public shareholding proportion	Shareholding by public (individuals or institutions), used to reflect external stakeholder influence on corporate transparency	KI = (Public Shareholding / Total Outstanding Shares)

3.3 Data Analysis

The data analysis in this study is conducted through several sequential statistical procedures. The following table summarizes the stages, methods, purposes, and criteria used:

Table 3. Data Analysis Method

Stage	Method/Test	Purpose	Decision Criteria
Descriptive Analysis	Descriptive Statistics (mean, min, max, std. dev.)	To describe the distribution of each variable	Mean, Std. Dev., Min, Max values are reported
Model Selection Test	Chow Test	To choose between Common	p-value < 0.05 → use Fixed Effect Model (FEM)

Stage	Method/Test	Purpose	Decision Criteria
		Effect and Fixed Effect models	
	Hausman Test	To choose between Fixed Effect and Random Effect models	p-value < 0.05 → use FEM; otherwise use REM
	Lagrange Multiplier (LM) Test	To choose between Common Effect and Random Effect models	p-value < 0.05 → use REM
Hypothesis Testing	Partial Test (t-test)	To test the significance of individual coefficients	p-value < 0.05 indicates significant effect
	Simultaneous Test (F-test)	To test the joint significance of all independent variables	p-value < 0.05 indicates significance
	Coefficient of Determination (R^2)	To measure explanatory power of the model	Higher R^2 indicates better explanatory ability
Moderation Analysis	Moderated Regression Analysis (MRA)	To test whether stakeholder pressure moderates the effect of GI and EMS	p-value < 0.05 on interaction term indicates significant moderating effect

4. Results and Discussion

4.1 Descriptive Statistic

Table 4. Descriptive Statistics of Research Variables (n = 132)

Variable	Mean	Median	Maximum	Minimum	Standard Deviation
CED (Carbon Emission Disclosure)	0.8687	0.8889	1.0000	0.1667	0.1105
GI (Green Investment)	0.2188	0.0481	3.3458	0.0000	0.4265
ISO (Environmental Management System Certification)	0.5227	1.0000	1.0000	0.0000	0.5014
SP (Stakeholder Pressure)	0.3384	0.3500	0.7104	0.0754	0.1416

Source: processed data, 2025

The descriptive statistics presented in Table 2 summarize the distributional characteristics of the four main variables analyzed in this study over 132 firm-year observations.

1) The mean value of 0.8687 indicates that, on average, firms disclose approximately 86.87% of the expected carbon emission information based on the applied disclosure index. The maximum value is 1.0000, signifying full disclosure, while the minimum of 0.1667 suggests that some firms disclose only a small fraction. The standard deviation of 0.1105 shows relatively low variability in disclosure practices across firms, suggesting a generally high and consistent level of reporting within the sample.
2) The average value of green investment is 0.2188, which indicates that environmental-related capital expenditure is generally low relative to total assets. The minimum value is close to zero, suggesting that some firms made no green investment during the observed years, while the maximum value of 3.3458 indicates a few firms invested substantially in environmental initiatives. The high standard deviation (0.4265) reflects significant variability among firms in terms of their commitment to green investment.
3) This dummy variable reflects whether or not a company holds ISO 14001 certification. The mean value of 0.5227 implies that approximately 52.27% of the firms in the sample are certified, while the median value of 1.0000 confirms that certification is more common than not. The standard deviation of 0.5014 is expected for binary data and reflects a balanced distribution of certified versus non-certified firms.
4) This variable, proxied by the ratio of independent commissioners, has a mean value of 0.3384, indicating that, on average, 33.84% of the board consists of independent members. The median value (0.3500) and the narrow range between the minimum (0.0754) and maximum (0.7104) suggest a relatively uniform composition of boards across the sample. The low standard deviation (0.1416) further supports this homogeneity.

4.2 Panel Data Selection

Table 5. Summary of Panel Data Model Selection

Test Stage	Hypotheses	Test Statistics	Probability	Decision	Selected Model
Chow Test	H_0: Common Effect Model (CEM) H_1: Fixed Effect Model (FEM)	Chi-square = 226.5299	0.0000	H_0 rejected H_1 accepted	FEM
Hausman Test	H_0: Random Effect Model (REM) H_1: Fixed Effect Model (FEM)	Chi-square = 1.0266	0.7948	H_0 accepted H_1 rejected	REM
Lagrange Multiplier Test	H_0: Common Effect Model (CEM) H_1: Random Effect Model (REM)	Breusch-Pagan = 70.4079	0.0000	H_0 rejected H_1 accepted	REM
Final Model					REM

Source: processed data, 2025

Based on the results of the Chow, Hausman, and Lagrange Multiplier tests, the Random Effect Model (REM) is selected as the most appropriate estimation model. Since REM is chosen, it assumes that the error term components are uncorrelated with the explanatory variables, and thus classical assumption tests (normality, heteroscedasticity,

multicollinearity, and autocorrelation) are not mandatory in this context, as the estimators remain consistent and efficient under REM assumptions.

4.3 Hypothesis Testing

Table 6. Hypothesis Testing Results

Test Type	Variable	Coefficient	t-Statistic	Prob.	Conclusion
Simultaneous Test (F-Test)	GI, ISO, SP	-	F = 2.7267	0.0468	All independent variables jointly affect Carbon Emission Disclosure (CED).
Partial Test (t-Test)	Green Investment (GI)	0.0105	0.5223	0.6024	Not significant; GI does not affect CED.
	Environmental Management System (ISO 14001)	0.0593	2.7591	0.0066	Significant; ISO 14001 positively affects CED.
	Stakeholder Pressure (SP)	0.0303	0.2948	0.7686	Not significant; SP does not affect CED.
Determination Coefficient	-	$R^2 = 0.0601$	Adjusted $R^2 = 0.0380$	-	The model explains 3.8% of the variation in CED; the rest is influenced by other variables.

Source: processed data, 2025

The hypothesis testing results indicate that the independent variables Green Investment (GI), Environmental Management System (ISO 14001), and Stakeholder Pressure (SP) jointly influence Carbon Emission Disclosure (CED), as shown by the F-statistic of 2.7267 and a p-value of 0.0468. However, when examined individually, only ISO 14001 has a statistically significant and positive effect on CED ($\beta = 0.0593$; $p = 0.0066$), suggesting that firms certified with ISO 14001 are more likely to disclose their carbon emissions. In contrast, both GI ($\beta = 0.0105$; $p = 0.6024$) and SP ($\beta = 0.0303$; $p = 0.7686$) do not significantly affect CED. The model's adjusted R^2 value of 0.0380 indicates that only 3.8% of the variation in carbon disclosure is explained by the variables, implying the presence of other influencing factors not captured in the model.

4.4 Discussion

4.4.1 The Effect of Green Investment on Carbon Emission Disclosure

The analysis shows that Green Investment has no significant effect on Carbon Emission Disclosure (CED), indicated by a t-statistic of 0.522 and a p-value of 0.602 (>0.05). This finding implies that green investment initiatives conducted by the observed firms do not translate into greater carbon transparency. This result is inconsistent with the legitimacy theory, which posits that companies engage in environmental disclosure to gain societal legitimacy (Suchman, 1995). Although the theory suggests that green investment should signal environmental responsibility, descriptive statistics reveal that average environmental expenditure among KOMPAS100-indexed companies is only 0.21% of total assets, with a maximum of just 3%. This reflects a generally low commitment to environmental investment, weakening its potential impact on carbon disclosure practices.

This finding corroborates previous research (Dani & Harto, 2022; Ramadhani & Astuti, 2023; Yesiani et al., 2023), which similarly found no significant relationship between green investment and CED. The implication is that without substantial and sustained environmental investments, firms may not achieve meaningful reductions in carbon emissions or feel compelled to disclose such information transparently.

4.4.2 The Effect of Environmental Management System on Carbon Emission Disclosure

Results show that the Environmental Management System (EMS), proxied by ISO 14001 certification, has a significant positive effect on CED ($t = 2.759$, $p = 0.0066 < 0.05$). This finding aligns with legitimacy theory, which argues that firms adopt EMS and disclose environmental information to comply with societal expectations and maintain social legitimacy (Deegan, 2002). The implementation of ISO 14001 reflects adherence to internationally recognized environmental standards, enhancing organizational accountability and transparency.

Descriptive analysis indicates that 52% of the firms in the sample have ISO 14001 certification, suggesting a moderate level of EMS adoption. This supports the argument that firms with certified environmental systems are more likely to disclose carbon-related information as a way to reinforce their green reputation, attract environmentally conscious stakeholders, and meet the growing demand for environmental transparency (Khotimah & Sari, 2024).

4.4.3 The Moderating Effect of Stakeholder Pressure on the Relationship between Green Investment and Carbon Emission Disclosure

The interaction between Green Investment and Stakeholder Pressure was found to be statistically insignificant ($t = -0.682$, $p = 0.4971 > 0.05$), suggesting that stakeholder pressure does not moderate the relationship between green investment and CED. This contradicts the stakeholder theory, which posits that external pressure from various stakeholders such as regulators, investors, and civil society should drive firms to align their environmental practices with stakeholder expectations (Freeman, 1984).

The lack of moderating effect may be explained by the relatively weak stakeholder enforcement mechanisms in the Indonesian context. Environmental investment remains largely voluntary, and regulatory sanctions for non-compliance are minimal. As a result, green investment decisions often serve as symbolic gestures rather than substantive environmental actions. This finding is consistent with Riyanti & Murwaningsari (2023), who also found that stakeholder pressure failed to moderate the green investment–CED relationship, likely due to the absence of binding regulatory frameworks and limited market incentives.

4.4.4 The Moderating Effect of Stakeholder Pressure on the Relationship between Environmental Management System and Carbon Emission Disclosure

In contrast, stakeholder pressure significantly moderates the relationship between EMS and CED ($t = -3.883$, $p = 0.0002 < 0.05$). This suggests that firms with certified EMS are more responsive to stakeholder demands for environmental transparency, thereby increasing their carbon disclosure. Legitimacy theory explains this behavior as a strategic response to maintain legitimacy in the face of stakeholder scrutiny (Suchman, 1995).

The effectiveness of stakeholder pressure in moderating EMS–CED linkage may be attributed to the rigorous compliance requirements of ISO 14001. Firms that fail to meet the standard risk losing certification, damaging their reputation, and potentially jeopardizing access to environmentally sensitive funding or markets. Therefore, stakeholder pressure, when supported by institutional mechanisms like EMS certification, becomes a powerful driver of environmental disclosure. This finding underscores the role of formal environmental management systems in translating stakeholder expectations into concrete sustainability reporting practices.

5. Conclusion

This study investigated the effect of Green Investment, Environmental Management Systems (ISO 14001 certification), and Stakeholder Pressure on Carbon Emission Disclosure (CED) among companies listed in the KOMPAS100 index from 2021 to 2023. The findings reveal that green investment does not have a statistically significant effect on CED, suggesting that environmental investments made by companies may not be sufficiently material or transparently communicated to impact disclosure practices. In contrast, the adoption of environmental management systems as evidenced by ISO 14001 certification has a positive and statistically significant influence on CED, indicating that formalized environmental governance structures contribute to enhanced transparency in carbon-related reporting. Furthermore, stakeholder pressure does not significantly affect CED, implying that external demands may be insufficiently strong or inconsistent to drive changes in disclosure behavior within the sample firms.

Overall, the study underscores the critical role of internal environmental management systems in promoting carbon disclosure, while also highlighting the limited impact of external stakeholder influence and green investments in the current disclosure landscape. These findings provide meaningful insights for policymakers and corporate decision-makers seeking to enhance environmental accountability through institutional and regulatory mechanisms.

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