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Does stakeholder pressure drive carbon emission disclosure? evidence from the mining and energy sector in Indonesia

Umi Sulistiyanti[1], Doddy Setiawan[2], Y. Anni Aryani[3], Sri Hartoko[4]

[1]Faculty of Business and Economics, Universitas Islam Indonesia, Jl. Ringroad Utara, 55283 Yogyakarta, Indonesia

[1,2,3,4]Faculty of Economics and Business, Universitas Sebelas Maret, Jl. Ir. Sutami No. 36A, 57126 Surakarta, Indonesia

Corresponding Email Address: umi_sulistiyanti@uii.ac.id

Abstract

This study examines the influence of media exposure, government pressure and institutional investors on carbon disclosure of mining and energy companies in Indonesia. The sample consists of 235 firm-year observations from 47 mining and energy companies in Indonesia. This study uses annual reports and sustainability reports covering the period from 2017 to 2021 as data sources. The collected data were analyzed using multiple regression with the Ordinary Least Squares (OLS) method. These findings indicate that institutional investors positively affect carbon disclosure as opposed to the negative and significant impact induced by the government. Meanwhile, media exposure has no significant relationship on carbon disclosure. The results of this study underscore the critical role of external stakeholders in fostering corporate accountability and transparency, particularly with regard to carbon emissions disclosure. This study considers the large segments of companies in developing countries like Indonesia which is also the top contributor of carbon emissions in Southeast Asia, meanwhile previous research focused on countries with developed economies.

Keywords: media exposure, government pressure, institutional investors, carbon disclosure

1. Introduction

Climate change is one of the current paramount environmental issues gaining global attention and challenging the corporate leaders in the world (Herold, 2018; Jaisinghani & Sekhon, 2022). This climatically gradual and lethal change is brought about by an increase in carbon emissions which further also takes its toll on the environment and economy (Daskalakis et al., 2009; Elsayih et al., 2021). The impact is also felt in Indonesia where the climate patterns become unpredictable and bring loss to various sectors.

The corporate sector is a major contributor to global carbon emissions, thereby increasing the demand for greater transparency in managing environmental impacts (Calvin et al., 2023). According to data from the World Resources Institute (WRI), more than half of global greenhouse gases emissions is produced by ten countries, including Indonesia which is also the top contributor of carbon emissions in Southeast Asia. The energy sector—particularly power and heat generation—accounts for the largest share of emissions (43%), followed by the transportation sector (23%) and the manufacturing sector (23%). In this context, carbon emission disclosure has become a critical mechanism for communicating corporate commitment and accountability toward sustainability issues. This disclosure is also aligned with Sustainable Development Goal (SDG) No. 13, which underscores the importance of public and private sector involvement in addressing climate change (Banerjee et al., 2021)

Despite this global emphasis, environmental disclosure practices in Indonesia remain limited, particularly with respect to carbon emissions (Simamora et al., 2022). Evidence from

Setiawan & Iswati (2019) indicates that the average level of carbon emission disclosure among Indonesian firms is only 0.211%. In comparison, a cross-country study by Luo et al. (2013) examining disclosure levels in 15 countries—including the United Kingdom, the United States, Japan, Germany, China, South Korea, and Australia—reports an average disclosure rate of 0.411%. These findings highlight that Indonesian companies disclose significantly less carbon-related information than their global counterparts.

The increase in carbon emissions results in the pressure exerted by stakeholders to companies to disclose their activities related to climate change (Kumar & Firoz, 2018; Li et al., 2018). As a result, companies start to reveal their carbon-generation-related activities in their annual reports and sustainability reports (Harte & Owen, 1991). This research employs the Theory of Stakeholders which is used by many studies on environment and sustainability (Ching & Gerab, 2017; Elijido-Ten et al., 2010; Hörisch et al., 2014; Miles, 2019). Hörisch et al. (2014) reveal that management of relation with stakeholders requires the provision of relevant information and identification of stakeholders who are deeply involved with a particular business activity. Consequently, companies are likely to respond to the initiative of carbon emission reduction if there is a related demand from particular influential stakeholders (Haque & Islam, 2015). Climate change engages not only one but many groups of stakeholders. Some of the stakeholders that can exert more pressure to companies to be more responsible for climate change is government, institutional investors, and media (Haque & Islam, 2015).

Media plays a significant role in shaping corporate visibility and influencing public perceptions. As an external governance mechanism, media coverage monitors and pressures firms to act responsibly, thereby encouraging broader and more transparent environmental disclosures (Ananzeh et al., 2023; Bednar, 2012; Dyck et al., 2008). Through increased scrutiny, media exposure stimulates firms to enhance both the quantity and quality of disclosed environmental information to strengthen legitimacy and maintain public trust (Hammami & Hendijani Zadeh, 2020; Jan et al., 2019). Within the Stakeholder Theory framework, external stakeholders—particularly governments and institutional investors—exert substantial pressure that shapes firms' carbon disclosure practices by reducing information asymmetry (Shen et al., 2020). The government influences corporate behavior through regulatory requirements, sanctions, and policy interventions, thereby motivating firms to disclose carbon-related information as part of their compliance and legitimacy strategies (He et al., 2019; Liesen et al., 2015). Institutional investors, with their professional expertise and monitoring capacity, further intensify demands for transparent, accurate, and timely environmental information, making them an important force in driving corporate carbon disclosure (Bushee & Noe, 2000; Haque & Islam, 2015; Shen et al., 2020). Collectively, pressures from the media, government, and institutional investors operate as mutually reinforcing external governance mechanisms that compel firms to enhance their environmental transparency and carbon-related reporting. These mechanisms contribute to strengthened corporate accountability, improved governance effectiveness, and greater legitimacy in response to rising societal expectations for sustainability.

This study offers a distinct contribution to the carbon disclosure literature by addressing the limited empirical evidence on how different forms of stakeholder pressure shape corporate carbon reporting in Indonesia, a developing country with high carbon-intensive sectors such as mining and energy. Prior studies examining stakeholder influence on environmental transparency remain scarce and yield inconsistent findings (Chithambo et al., 2020; Guenther et al., 2016; Herold, 2018; Liesen et al., 2015). To fill this gap, the present research simultaneously investigates the effects of media exposure, government pressure, and institutional investor ownership on carbon disclosure within a Stakeholder Theory framework—an approach that has rarely been integrated in a single empirical model. Moreover, unlike previous studies that predominantly focus on developed economies Chithambo et al. (2022), Haque and Islam (2015), Liesen et al. (2015), and Wu and Memon (2022), this study advances the literature by providing evidence from Indonesia, a developing country with high carbon-intensive sectors such as mining and energy. By examining firms operating in one of the world's most environmentally vulnerable and highly regulated

emerging markets, this study provides novel insights into how stakeholder pressure manifests in different institutional settings. The findings are expected to deepen understanding of carbon disclosure behavior in developing economies and highlight the importance of external stakeholder influence in driving corporate accountability and transparency.

The next parts of the article are structured as follows. The second part discusses literature review and hypothesis development; while the following part explains research methods. The last two parts present the results and discussion as well as the conclusion, limitations, and implications of this research.

2. Literature Review and Hypothesis Development

2.1 Stakeholder theory

This study discusses the disclosure of carbon emissions, which puts pressure on companies to communicate their environmental activities, both voluntarily and involuntarily. The role of stakeholders in driving companies is shifting from economic value alone to a broader perspective (Harrison & Wicks, 2013). This is because companies are largely individualist-collectivist (Morris et al., 1993). Therefore, this study uses stakeholder theory to discuss carbon disclosure.

This study employs the Stakeholder Theory that is much used on social and environmental research, such as those by Yunus et al. (2020)dan (Shen et al., 2020) . The theory is associated with effective corporate and business management that is delineated through the relationship with stakeholders (Yunus et al., 2020). The basis of the theory is how a company gets along well with its stakeholders and how it fulfils their demands (Roberts, 1992). According to the Stakeholder Theory, carbon disclosure is a form of company response to the stakeholders' concerns and pressure (Roberts, 1992). A company has a social contract with its stakeholders (Kostova & Zaheer, 1999), as a result, the company should conduct particular activities as expected by the stakeholders and report to them (Guthrie et al., 2004).

2.2 Carbon Disclosure

Carbon disclosure describes the risks and opportunities related to climate change and the past and future acts to mitigate those risks and embrace the opportunities. A carbon disclosure report is a review of carbon performance in the past and its future projection for the stakeholders (Velte et al., 2020). Carbon disclosure is one of a company's attempts to meet its stakeholders' demand in managing and reducing the carbon emission level of the company. This carbon disclosure can also be used by the stakeholders to make a better investment decision (Siddique et al., 2023).

2.3 Media exposure and carbon disclosure

Information is critical for a company to build its image before its stakeholders. The company symbolically builds a positive image with the help of media (Bednar, 2012). Media can shape public expectation to a company and plays an important role to mobilize social activities (Burritt et al., 2016). The information about a company which has not been known by public will be revealed by media (Islam & Deegan, 2010). More media exposure increases company visibility which will later invite further surveillance, attention, and pressure from public (Reverte, 2009). In this digital era, the community gains information easily since it can be accessed online, and this eventually makes media pressure stronger thus forcing companies to respond the pressure (Wicaksono & Setiawan, 2023).

Furthermore, media functions as an external corporate governance mechanism that monitors and influences corporate operational behavior (Dyck et al., 2008; Joe et al., 2009), and it can encourage companies to expand their environmental disclosures (Ananzeh et al., 2023). Media coverage stimulates firms to improve their transparency—both in the quantity and quality of environmental information disclosed—as a strategy to build public trust and reinforce legitimacy (Hammami & Hendijani Zadeh, 2020; Jan et al., 2019). Consequently, the pressure generated by media exposure significantly affects a company's carbon disclosure practices (Haque & Islam, 2015;

Wu & Memon, 2022; Yunus et al., 2016). Based on the description, the proposed hypothesis is as follows.
H1: Media exposure positively affects carbon disclosure.

2.4 Government pressure and carbon disclosure

Stakeholder Theory posits that external stakeholders exert substantial influence on corporate behavior, particularly in shaping firms' environmental disclosure practices as a means to reduce information asymmetry between the company and outside parties (Shen et al., 2020). Among these stakeholders, the government plays a uniquely powerful role due to its authority to establish policies, enforce regulatory standards, impose sanctions, and initiate legal actions. Government institutions hold the capacity to directly affect corporate strategies and operational performance through environmental regulations and compliance requirements (Buchholz & Rosenthal, 2004; Liesen et al., 2015). A company which is sued for violating environmental regulation is likely to disclose its environmental information in its annual report (Deegan & Blomquist, 2006). Consistent with findings of prior study that government influence significantly shapes carbon transparency as companies attempt to demonstrate environmental responsibility, reduce regulatory risks, and enhance their legitimacy (He et al., 2019; Shen et al., 2020). Taken together, the theoretical foundations and empirical evidence suggest that stronger government pressure encourages firms to disclose carbon-related information more extensively. The explanation is the basis of the formulated hypothesis as follows.
H2: Government pressure positively affects carbon disclosure.

2.5 Institutional investors and carbon disclosure

Institutional investors are recognized as influential external stakeholders due to their substantial ownership stakes, professional expertise, and heightened monitoring incentives compared with individual investors. As professional investment entities—such as pension funds, mutual funds, insurance companies, and asset management firms— institutional investors possess advanced analytical capabilities that enable them to rigorously evaluate firms' environmental performance and long-term sustainability risks. Their monitoring role equips them with the power to influence managerial decision-making and demand greater transparency from firms (Bushee & Noe, 2000). In line with Stakeholder Theory, institutional investors exert pressure on companies to enhance information transparency to reduce information asymmetry and protect shareholder interests. Empirical evidence consistently supports the proposition that institutional investors positively influence environmental and carbon disclosure. Studies show that firms with higher institutional ownership release more extensive carbon emissions data, adopt more transparent sustainability practices, and respond more proactively to climate-related stakeholder expectations (Haque & Islam, 2015; Shen et al., 2020). These findings suggest that institutional investors play a critical monitoring and governance role that encourages firms to disclose their carbon emissions more comprehensively. Given the theoretical arguments and empirical findings, this study expects institutional investor ownership to have a positive effect on corporate carbon disclosure. Therefore, the hypothesis is formulated as follows.
H3: Institutional investors positively affect carbon disclosure.

3. Methods

3.1 Sample and data

The population of this research is the mining and energy companies in Indonesia registered at the Indonesian Stock Exchange. The registered companies are more regulated in terms of reporting practices compared to those that are unregistered (Cahaya et al., 2017). This research collected 235 samples from 47 Indonesian mining and energy companies including 28 mining companies and 19 energy companies. The data used in this study are annual reports and sustainability reports from 2017 to 2021.

3.2 Variable definitions and measurement

3.2.1 Dependent variable

Dependent variable of this study is carbon disclosure which is measured using checklist adopted from the research of Bae Choi et al. (2013). The checklist was used to determine the voluntary disclosure level related to climate change and carbon emissions in the reports (Sulistiyanti & Setiawan, 2025). The checklist involved five categories (with total 18 indicators) as follows: Climate change risks and opportunities (CC/Climate Change), Greenhouse gases emission (GHG/Greenhouse Gas), Energy consumption (EC/Energy Consumption), Greenhouse gases reduction and cost (RC/Reduction and Cost), and Carbon emission accountability (AEC/Accountability of Emission carbon). The measurement of CDI was conducted by valuing each item using dichotomous scoring where 1 was given for the disclosed item, otherwise it got 0. Therefore, the minimum score was 0, and the maximum was 18. CDI total score derived from the total score of the disclosed items divided by the maximum score of disclosed items.

3.2.2 Independent variable

The independent variable of this research is stakeholders pressure proxied by government pressure, institutional investors, and media exposure. Government pressure is the presence or absence of share ownership by the government. To directly measure government pressure is not an easy thing to do, so this variable is proxied by company share ownership by the government (GOV) (Shen et al., 2020). Dummy variable was used with score 1 given if there was share ownership by the government and, if not, the score was 0 (Shen et al., 2020).

In addition, the institutional investor is share ratio of institutional investors which is measured by the proportion of company share ownership by institutions (Bushee & Noe, 2000; Shen et al., 2020). Meanwhile, the media exposure variable is information about media articles that refer to the company and its environmental issues as measured by the total number of articles about the company and its environmental issues (Wicaksono & Setiawan, 2023; Yunus et al., 2020). This research counted all articles from both local and international media that could be accessed on the internet between 2017 and 2021.

3.2.3 Control variable

This study adds some control variables that are theoretically related to carbon emission disclosure. Control variables are included in regression model to avoid model specification default and reduce research finding bias (Zaid et al., 2020). There are two control variables employed in this research. This study uses profitability as a control variable. Environmental disclosure serves as a strategic mechanism for building public trust and securing organizational legitimacy, thereby enabling firms to enhance profitability. Consequently, profitability is expected to influence the extent of carbon emission disclosure (Sulistiyanti & Setiawan, 2025; Tingbani et al., 2020). Profitability is commonly measured using the ratio of net income to total assets (Kılıç & Kuzey, 2019; Sulistiyanti & Setiawan, 2025). This study also incorporates company age as a control variable. Older firms are generally assumed to be more engaged in corporate responsibility initiatives to maintain their reputation, which may lead to higher levels of carbon emission disclosure (Roberts, 1992). Company age is measured by calculating the number of years since the company's establishment (Agarwala et al., 2023; Habbash, 2016; Suherman et al., 2023; Sulistiyanti & Setiawan, 2025). Table 1 presents the definitions and measurement approaches for the dependent, independent, and control variables.

Table 1. Variable Definitions and measurement

Variable	Definition	Measurement	References
Dependent Variabe			
Carbon Disclosure Index (CDI)	The extent of voluntary carbon information disclosed in corporate reports.	Measured using an 18-item checklist adapted from Choi et al. (2013), Each item is scored 1 if disclosed, 0 otherwise. CDI = Total disclosed items / 18.	Choi et al. (2013)

Independent Variables			
Media Exposure (MED)	Media articles related to environmental issues.	Total number of online media articles (local and international) mentioning the company and its environmental issues (2017–2021).	(Wicaksono & Setiawan, 2023; Yunus et al., 2020)
Government Pressure (GOV)	Government share ownership	Dummy variable: 1 = company has government share ownership; 0 = otherwise.	(Shen et al., 2020)
Institutional Investor Ownership (INS)	Share ratio of institutional investors	Proportion of company shares owned by institutional investors.	(Bushee & Noe, 2000; Shen et al., 2020)
Control Variables			
Profitability (ROA)	Firm's ability to generate income relative to its assets	ROA= Net income divided by total assets	(Kılıç & Kuzey, 2019; Sulistiyanti & Setiawan, 2025; Tingbani et al., 2020)
Firm Age (AGE)	Number of years the company has been established;	Number of years since firm establishment.	(Agarwala et al., 2023; Habbash, 2016; Suherman et al., 2023; Sulistiyanti & Setiawan, 2025)

3.3 Regression model

This study uses ordinary least square (OLS) regression to test the proposed hypotheses. The following regression model was estimated to test the hypotheses developed regarding the relationship between media exposure, government pressure, institutional investors and carbon disclosure in mining and energy companies in Indonesia

$$CDI = \beta_0 + \beta_1 MEDit + \beta_2 GOVit + \beta_3 INSit + \beta_4 ROAit + \beta_5 AGEit + \varepsilon$$

where CDI refers to carbon disclosure index; MED is articles written on a company and its environmental issues; GOV refers to government pressure proxied by company share ownership by the government; INS indicates the ratio of institutional investor shares; ROA represents net profit divided by total assets of a company; and AGE is company age. Also, β_0 is constant; i represents country, t describes year; $\beta 1$ - $\beta 5$ are regression coefficients; and ε is error.

4. Results and Discussion

4.1 Descriptive statistics

Table 2 presents the results of descriptive statistical analysis of all variables of this study. The average score of CDI is 0.255 with the minimum score of 0 and maximum score of 0.889. 28 companies constituting 60% of the total samples had below average CDI. This indicates that carbon disclosure in Indonesian mining and energy companies is still low, while the carbon disclosure item variation is significantly high (standard deviation = 0.274).

The mean value of media exposure is 1.472 with the minimum and maximum scores 0 and 21 respectively. There were 28 companies or 60% of the total samples whose articles on environmental issues were published on the media. That shows that the environment-related activities of mining and energy companies in Indonesia are monitored by the media.

Government pressure's mean value is 0.123 with the minimum and maximum scores 0 and 1 respectively. There were only 6 companies or 13% of the total samples whose shares were owned by the government. This demonstrates that the level of share ownership of mining and energy companies by the government is still low.

Institutional investor variable has mean value of 64.547 with the minimum score of 10 and the maximum score of 97.920. There were 35 companies or 75% of the total samples having share ownership by institutional investors above average. This shows that the level of ownership of

mining and energy companies' shares by institutions is significantly high. In addition, the mean values of both control variables (profitability and company age) are 1.163 and 28.893. respectively.

Table 2. Descriptive Analysis

Variable	Obs	Mean	Min	Max	Std. Dev.
CDI	235	0.255	0.000	0.889	0.274
MED	235	1.472	0.000	21.000	3.386
GOV	235	0.123	0.000	1.000	0.329
INS	235	64.547	10.000	97.920	23.807
ROA	235	1.163	-59.127	62.463	12.527
AGE	235	28.893	2.000	102.000	16.921

Note: CDI = Carbon disclosure index; MED = Media exposure; GOV= Government pressure; INS = Institutional investor; ROA = Company profitability; and AGE = Company age.

4.2 Correlation Analysis

Table 3 presents the inter-variable correlation matrix of this research model. Carbon disclosure index is positively correlated with media exposure (0.203) and institutional investors (0.129). However, negative correlation is displayed between carbon disclosure index and government pressure (-0.052). Both control variables, profitability and company age, have positive correlation with carbon disclosure index, 0.041 and 0.306 respectively. Furthermore, all variables' correlation coefficients are less than 0.8 which indicates no multicollinearity exists.

Table 3. Correlation Analysis

	CDI	MED	GOV	INS	ROA	AGE
CDI	1					
MED	0.203***	1				
GOV	-0.052	0.097	1			
INS	0.129**	-0.001	-0.131**	1		
ROA	0.041	0.012	0.001	0.033	1	
AGE	0.306***	0.356***	0.167***	-0.006	-0.030	1

Note: CDI = Carbon disclosure index; MED = Media exposure; GOV= Government pressure; INS = Institutional investor; ROA = Company profitability; and AGE = Company age.
Symbols *, **, *** represent significance levels at 10%, 5%, and 1%.

4.3 Regression Analysis

The Chow and Hausman tests were carried out to select the best model, and the results show that the most appropriate model is the fixed effects model (FEM), according to Table 3, which shows the regression results using ordinary least square (OLS) multiple linear regression. The regression test results for each variable are shown in Table 4, columns M1 to M3. This study then fully tests all independent variables on the dependent variable presented in column M4.

Table 4 presents the regression results with carbon disclosure as the dependent variable. First, in analysis model 4 (M4), the results show that media exposure has no significant effect on carbon disclosure (β=0.003; ϱ=0.572), so the first hypothesis (H1) is not supported. This result is consistent with the regression results of the media exposure variable together with the control variables on the carbon disclosure variable presented in analysis model 1 (M1), which shows that media exposure has no effect on the carbon disclosure (β = 0.003, ϱ =0.558). This finding is supported of the previous research findings (Chen et al., 2023; Wu & Memon, 2022) which shows that there is no significant relationship between media exposure and carbon disclosure.

Second, in analysis model 4 (M4), the results of this study indicate that government pressure has a significant negative effect on carbon disclosure (β=-0.212; ϱ=0.016),), so the second hypothesis (H2) is not supported. This result is consistent with the regression results of the government pressure variable together with the control variables on the carbon disclosure variable presented in analysis model 2 (M2), which shows that government pressure has a significant negative effect on the carbon disclosure (β = -0.175, ϱ =0.027). The results of this study support

research conducted by (Pham et al., 2020) which shows that government pressure has a significant negative effect on voluntary disclosure.

Third, in analysis model 4 (M4), the results of this study show that institutional ownership has a significant positive effect on carbon disclosure (β=0.003; ϱ=0.068),), so the third hypothesis (H3) is supported. This result is consistent with the regression results of the institutional ownership variable together with the control variables on the carbon disclosure variable presented in analysis model 3 (M3), which shows that institutional ownership has a significant positive effect on the carbon disclosure (β = 0.003, ϱ =0.066). This supports the research results (Haque & Islam, 2015; Shen et al., 2020) which institutional ownership has a significant positive effect on carbon disclosure. The last analysis carried out included all variables in this model, and the result was consistent with all the findings of the previous analyses on this model. For control variables, company age demonstrates positive effect on carbon disclosure, whereas profitability shows no effect.

Table 4.Regression Analysis Results

Variable	Koef (Prob)	Koef (Prob)	Koef (Prob)	Koef (Prob)
	M1	M2	M3	M4
MED	0.003			0.003
	(0.558)			**(0.572)**
GOV		-0.175		-0.212
		(0.027)**		**(0.016)****
INS			0.003	0.003
			(0.066)*	**(0.068)***
ROA	-0.001	-0.001	-0.001	-0.001
	(0.072)*	**(0.135)**	**(0.415)**	**(0.318)**
AGE	0.069	0.071	0.072	0.073
	(0.000)***	**(0.001)*****	**(0.000)*****	**(0.000)*****
Adjusted R2	0.725	0.727	0.730	0.730
F-Stat	13.618	13.694	13.929	13.432
Prob. (F-Stat)	0.0000	0.000	0.000	0.0000

Notes: CDI = Carbon disclosure index; MED = Media exposure; GOV = Government ownership; INS = Institutional investor; ROA = profitability; and AGE = Company age. *, **, *** represent the significance level at 10%, 5%, and 1%, respectively.

4.4 Robustness Test

This research also conducted robustness test to ensure that this research model was solidly built. The measurement of dependent variable was represented by the number of items on carbon disclosure (Rao & Tilt, 2016). The results revealed that all the variables hypothesised were constant as presented in Table 5.

Table 5. Robustness Test

Variable	Koef (Prob)
MED	0.063
	(0.558)
GOV	-3.811
	(0.017)**
INS	0.058
	(0.065)**
ROA	-0.010
	(0.299)
AGE	1.310
	(0.000)***
Adjusted R2	0.705
F-Stat	11.973
Prob. (F-Stat)	0.000

Notes: CDI = Carbon disclosure index; MED = Media exposure; GOV = Government ownership; INS = Institutional investor; ROA = profitability; and AGE = Company age. *, **, *** represent the significance level at 10%, 5%, and 1%, respectively.

4.5 Discussion

This study aims to investigate the influence of media exposure, government pressure and institutional investors on carbon disclosure using stakeholder theory. This study uses 235 firm-year observations from 47 mining and energy companies in Indonesia, because this industry sector contributes a lot to the increase of carbon emissions. Based on the hypotheses proposed in this study, this study found that some independent variables have a significant effect on carbon disclosure and some other independent variables have no effect on carbon disclosure.

4.5.1 Media exposure and carbon disclosure

The result of the analysis shows that media exposure has no significant effect on carbon disclosure). The findings of this study offer valuable insights into the role of stakeholder pressure in shaping carbon disclosure practices in Indonesia. One of the key results shows that media exposure does not have a significant effect on corporate carbon disclosure. This outcome is consistent with previous research findings, which similarly indicates that media coverage does not sufficiently influence firms' environmental reporting behaviors (Chen et al., 2023; Wu & Memon, 2022). Although media is theoretically positioned as an external governance mechanism capable of monitoring corporate conduct and pressuring firms to enhance transparency, its influence appears limited within the Indonesian context.

Several factors may account for this insignificant relationship. First, media in Indonesia tends to function primarily as an ex-post information disseminator rather than an active monitoring agent. Media outlets frequently report corporate activities only after events occur, rather than proactively investigating or consistently scrutinizing environmental practices. This limits their capacity to impose reputational pressure strong enough to influence corporate disclosure strategies, particularly regarding carbon emissions—an issue that is technically complex, long-term in nature, and often underreported in mainstream news.

Second, the media ecosystem in developing countries commonly prioritizes financial, political, and social issues over environmental matters. As a result, climate-related reporting—including corporate carbon performance—receives less systematic attention and remains less visible to the public. Weak environmental journalism diminishes the visibility of carbon emissions as a reputational risk, reducing firms' incentives to voluntarily disclose such information in their annual or sustainability reports.

Third, structural challenges such as media ownership concentration, commercial pressures, and limited investigative capacity may further constrain the independence and effectiveness of domestic media. In the absence of strong institutional support—such as regulatory protection for investigative reporting or mandatory environmental disclosure frameworks—the media cannot effectively function as a governance mechanism capable of influencing firms' disclosure behavior.

From a theoretical perspective, these findings refine the expectations of Stakeholder Theory. While the theory suggests that external stakeholders, including the media, can pressure firms to increase transparency, such pressure depends heavily on the strength, independence, and institutional capacity of the stakeholder group. In contexts where the media lacks sufficient resources or authority to exert monitoring pressure, its ability to shape carbon disclosure becomes restricted.

Overall, the results highlight that although media exposure is conceptually relevant as a stakeholder pressure mechanism, its practical influence on carbon disclosure remains weak in emerging economies such as Indonesia. This underscores the importance of broader institutional conditions in shaping the effectiveness of stakeholder pressures and suggests that efforts to enhance corporate environmental transparency must extend beyond media scrutiny alone.

4.5.2 Government pressure and carbon disclosure

The results of this study also show that government pressure has a negative and significant effect on carbon disclosure. This finding is consistent with the results of (Pham et al., 2020), who report that government pressure may reduce rather than enhance the level of carbon disclosure. In the context of developing countries, this pattern is unsurprising, as carbon disclosure practices remain largely voluntary and are not supported by strong regulatory enforcement. Although the government is theoretically the most powerful stakeholder due to its authority to design policies, impose sanctions, and regulate environmental compliance, its practical influence on corporate transparency becomes limited when the regulatory environment is weak or inconsistently implemented (Pham et al., 2020). In Indonesia, environmental disclosure—particularly carbon emissions reporting—is not mandated and lacks rigorous monitoring or punitive mechanisms. As a result, firms may not perceive government pressure as a compelling incentive to disclose detailed carbon-related information.

Another plausible explanation is the relatively low level of government share ownership in Indonesian mining and energy companies. State ownership often strengthens monitoring incentives and aligns corporate disclosure practices with national environmental priorities. However, when government ownership is minimal, its ability to influence corporate environmental behavior through ownership channels becomes constrained. Consequently, companies may prioritize the expectations of other stakeholders—such as markets, investors, or internal interests—over those of the government, leading them to comply only with basic environmental requirements rather than voluntarily expanding their carbon disclosures.

The negative relationship also suggests the possibility of symbolic rather than substantive compliance. Firms may choose to satisfy minimal regulatory requirements without improving transparency, particularly when regulatory scrutiny is low or when policy inconsistencies allow companies to strategically avoid detailed carbon reporting. This highlights a gap between regulatory intention and regulatory effectiveness and suggests that, in emerging economies, government pressure alone may be insufficient to drive meaningful carbon disclosure without stronger enforcement mechanisms, mandatory reporting frameworks, and clearer national guidelines on climate-related transparency. Overall, this finding underscores the complexity of governmental influence in developing institutional contexts and suggests that strengthening the regulatory environment is essential to ensure that government pressure results in improved carbon disclosure rather than unintended negative outcomes.

4.5.3. Institusional investor and carbon disclosure

In the next analysis of this model, institutional investors is proved to have positive and significant effect on carbon disclosure. This result corroborates previous empirical evidence by (Haque & Islam, 2015) and (Shen et al., 2020) who similarly find that institutional ownership strengthens corporate transparency, particularly in environmental reporting. The significance of this relationship suggests that institutional investors exert greater influence on corporate governance mechanisms than individual investors, largely due to their higher levels of professionalism, competence, analytical capability, and rational decision-making (Smith, 1996). With substantial financial resources and stronger monitoring incentives, institutional investors possess greater bargaining power to pressure management and boards of directors to adopt more transparent disclosure practices. They frequently demand detailed, specific, and timely information to evaluate environmental risks and ensure alignment with long-term shareholder interests (Bushee & Noe, 2000).

Furthermore, the rise of global ESG-oriented investment practices has heightened institutional investors' expectations for companies to disclose credible, high-quality carbon-related information. In the Indonesian context, where regulatory enforcement of carbon disclosure remains relatively weak, institutional investors may fill a critical governance gap by functioning as external monitors who push firms to adopt higher standards of environmental transparency. Their influence is particularly relevant in carbon-intensive industries such as mining and energy, where

stakeholders increasingly expect clearer communication regarding environmental performance. Taken together, these findings highlight the essential role of institutional investors as effective governance agents capable of driving voluntary carbon disclosure. Their pressure complements regulatory frameworks and strengthens firms' incentives to provide transparent, credible, and decision-useful environmental information to the market.

5. Conclusion, implications and limitations

This study examines the influence of stakeholder pressure—namely media exposure, government pressure, and institutional investor ownership—on corporate carbon disclosure within Indonesian mining and energy companies. The findings show that media exposure does not significantly affect carbon disclosure, suggesting that the domestic media landscape has not yet evolved into an effective monitoring mechanism capable of driving environmental transparency. Conversely, government pressure exhibits a negative and significant relationship with carbon disclosure, indicating that weak regulatory enforcement, limited policy consistency, and low levels of government ownership undermine the effectiveness of governmental influence on corporate reporting. In contrast, institutional investors are found to have a positive and significant effect on carbon disclosure, demonstrating their strong governance role in encouraging firms to provide transparent and credible carbon-related information. Overall, the results highlight the differing effectiveness of stakeholder pressures in shaping voluntary environmental reporting practices in emerging economies.

Theoretically, this study extends Stakeholder Theory by showing that stakeholder influence on carbon disclosure is highly context-dependent and shaped by institutional strength. The contrasting effects of government pressure and institutional investor ownership offer nuanced insights into how various stakeholder groups operate within emerging-market environments.

Practically, the findings underscore the need for policymakers to strengthen regulatory frameworks, introduce mandatory carbon reporting requirements, and improve monitoring mechanisms to enhance environmental accountability. For corporate managers, the study highlights the increasing importance of institutional investors as key actors driving sustainability reporting, suggesting that firms should engage more proactively with investor expectations related to climate risks. For institutional investors, the results reaffirm their role as influential governance agents capable of shaping corporate environmental performance through active monitoring and responsible investment practices.

Despite its contributions, this study has several limitations. First, the measurement of media exposure relies solely on the number of media articles and does not capture tone, sentiment, or depth of coverage; future research may incorporate sentiment analysis or content-based approaches. Second, the study focuses exclusively on mining and energy companies, which may limit generalizability; subsequent research should examine a broader set of industries to provide more comprehensive insights. Third, carbon disclosure is measured using a voluntary disclosure index, which may not fully reflect disclosure quality; future studies could employ textual analysis or machine-learning techniques to assess disclosure depth and credibility. Lastly, this study does not examine the moderating role of institutional factors—such as political connections, regulatory transitions, or ESG policy reforms—which may provide deeper explanations for variations in disclosure behavior across emerging markets.

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