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THE ROLE OF STAKEHOLDER PRESSURE IN MODERATING THE EFFECT OF GREEN INVESTMENT, CORPORATE GOVERNANCE AND CORPORATE GROWTH ON CARBON EMISSIONS DISCLOSURE

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Abstract

This study aims to determine the role of stakeholder pressure in moderating the effect of green investment, corporate governance and corporate growth on disclosure of carbon emissions. The data of this study use unbalance panel with multiple linear regression analysis which is operated through the eviews. The results of this study are green investment, company growth and the control variable firm size have a positive effect on disclosure of carbon emissions. In addition, stakeholder pressure is able to moderate the effect of green investment on disclosure of carbon emissions. However, corporate governance, profitability and company age control variables have no effect on disclosure of carbon emissions. The same thing happened to stakeholder pressure not being able to moderate the effect of corporate governance and company growth on disclosure of carbon emissions. These results provide implications for investors to consider disclosure of carbon emissions in making investments. The implications for regulators are expected to be able to formulate standards related to the disclosure of carbon emissions in more detail and to determine the number of directors who occupy a company.

Keywords: *Carbon Emission Disclosure, Stakeholder Pressure, Green Investment, Corporate Governance, Corporate Growth*

INTRODUCTION

Climate-related risks are the number 1 (one) highest risk according to the World Economic Forum 2022. The impact of climate change can be seen from several events such as drought in the Horn of Africa, floods in South Asia and extreme hot weather and record-breaking drought. in various regions in the Northern Hemisphere (IPCC, 2022).

The threat of greenhouse gas emissions and rising temperatures is driven by industrial activities that do not consider the environment as an integral part of business sustainability. The company's operational activities as a whole currently contribute 2.80c of global warming this century. As climate impacts increase, the world is moving further away from the goals of the Paris Agreement. There is currently no credible pathway to limit global warming to 1.5°C. Even if countries meet their climate commitments, emissions will only be reduced by 10% by 2030 (UNEP, 2022).

Indonesia is the eighth country as the largest contributor to carbon emissions in the world with the largest contributors being in the energy and raw goods sectors, which include the chemical, metal and other mineral goods industries (CNBC Indonesia, 2022). The Indonesian government has started implementing the National Action Plan for Greenhouse Gas Emissions or RAN-GRK. The initiative targets a 29% reduction in Green House Gas (GHG) emissions by 2030

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nationally under the Intended Nationally Determined Contribution (INDC) (Putranti & Imansyah, 2017).

To achieve this target, good cooperation between the community and the company is needed. As a form of cooperation and corporate responsibility towards society, companies can disclose carbon emissions which aims to find out the carbon emissions produced by the company from year to year (Saraswati et al., 2021).In this study, disclosure of carbon emissions is influenced by several factors, including green investment, corporate governance and company growth.

The first factor iegreen investment. In reducing carbon emissions produced by companies, green investment and good environmental performance are needed as well as moral encouragement from stakeholders. Disclosure of carbon emissions can be driven by the implementation of green investment, good environmental performance and pressure from stakeholders.Green investmentisinvestment needed to adapt to climate change. This is done by minimizing the use of greenhouse gas (GHG) emissions without significantly reducing energy production and consumption(Afni et al., 2018).

This research was supported by Syabilla et al., (2021) and Afni et al (2018), found that green investment has a positive effect on disclosure of carbon emissions. However, these findings contradictDani et al., (2022)who found that green investment has no effect on carbon emission disclosure.

The second factor is corporate governance. This is due to the increasing importance of issues related to climate change on business operations and activities. The role of corporate governance in taking decisive steps to manage and control greenhouse gas (GHG) emissions is critical for companies seeking to gain strategic competitive advantage and to move towards a low-carbon energy transition in the future.(Luo & Tang, 2021). Recently, corporate governance mechanisms used to monitor GHG emissions and climate change risks were improved (Elsayih et al., 2021).

Corporate governance has a relative impact on carbon reduction activities. The Board of Directors is expected to consider the interests of various stakeholder groups. Shareholders tend to focus on economic returns on investment, but non-financially oriented stakeholders may demand that more resources be used for environmental protection and social welfare.(Luo & Tang, 2021). Backed by research(Karim et al., 2021)found that corporate governance has a positive effect on carbon emission disclosure. However, contrary to Elsayih et al., (2021) found that corporate governance mechanisms have a negative effect on carbon performance.

The third factor is company growth. This is because companies that continue to develop will generally have good prospects and will of course be responded positively by stakeholders. The company will always strive to fulfill the desires and positive responses of stakeholders, one of which is by disclosing information regarding the emissions produced (Resya et al., 2021).

Research conducted by Resya et al., (2021) found that company growth has a positive effect on carbon emission disclosure. While research conducted by Dwinanda & Kaweda (2019) found that company growth has no effect on carbon emissions disclosure.

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Based on the inconsistencies in the results of previous research regarding the influence between research variables, then inallow for variables or other factors that influence the relationship between variables or factors with one another (Handayani & Andyarini, 2020). Therefore, this research adds a moderating variable in the form of stakeholder pressure which aims to encourage the influence of green investment, corporate governance and capital expenditure on carbon emissions disclosure.

Stakeholder pressure is the main driver of organizational green practices (Lee et al., 2018). Stakeholder theory asserts that pressure from various stakeholders and the implementation of a positive environment have a positive association on corporate strategy. Stakeholder pressure will also increase stakeholders' ecological knowledge, understanding of social responsibility, and awareness of overcoming environmental problems. Furthermore, stakeholder involvement can improve a company's integrative capabilities in addition to its ability to acquire and share knowledge (Shahzad et al., 2020).

Stakeholder pressure may not only be a driver but also the root of sustainable development when facing the dynamic situation in the current business environment (Del Giudice et al., 2019). Company interaction with stakeholders is important to create creative resources through innovative networks. Supported by research by Chithambo et al., (2020) found that stakeholder pressure influences carbon emission disclosure. Besides that, Shahzad et al., (2020) also found that stakeholder pressure had a positive effect on corporate social responsibility.

This research is a combination of several studies that address green investment, corporate governance, capital expenditure, stakeholder pressure and disclosure of carbon emissions. The purpose of combining these research topics is to provide a more complete picture regarding the role of stakeholder pressure in encouraging companies to disclose carbon emissions.

This study aims to examine and provide empirical evidence regarding the effect of green investment, corporate governance and corporate growth on disclosure of carbon emissions which is moderated by stakeholder pressure on energy and raw goods sector companies at IDX-IC for the 2019-2021 period. The use of the energy and raw goods sectors in this study is because these companies are closely related to their impact on the environment in their operational areas. The next section of this research discusses the literature review and hypothesis development. Then discuss research methods, results and discussion, as well as conclusions and implications.

LITERATURE REVIEW

Stakeholder Theory

The role of stakeholders in a company's business activities is very important. Various company activities and decision-making carried out by the company must consider the approval of its stakeholders. Therefore, the company really needs full support from its stakeholders for the sustainability of the company's business. One way for companies to get support from stakeholders is by providing various information related to company performance (Ahyani & Puspitasari, 2019).

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For companies operating in the energy and raw goods sectors, disclosure regarding carbon emissions is really needed by their stakeholders. This is because the company's operational activities are directly related to the survival of the community around the company's operational area.

Stakeholder theory trying to revitalize the concept of managerial capitalism by replacing the scope of management responsibility, which initially only focused on its responsibilities to shareholders to focus on many stakeholder groups (Freeman, 1984). The main idea is that companies, as business organizations, cannot only care about shareholders as owners of capital (Donaldson & Preston, 1995). Companies must consider that many groups have an interest in the company doing business, such as employees, consumers, regulators, suppliers, creditors, society, government, and the environment (Ramadhini et al., 2020).

Growing stakeholder knowledge and awareness about sustainable production, organizations are forced to redesign the entire life cycle of a product, including sourcing, manufacture, and disposal. (Jakhar et al., 2019). Currently, financial reports do not provide sufficient and extensive social and environmental information. The accounting system may not provide more space for information about interactions between companies, society, the environment, and the consequences of business on society and the external environment.

Social and environmental information can provide value relevance to financial information, such as sustainability information. Disclosure of carbon emissions is able to produce transparency, comprehensive, accountable and relevant reports such as developing a positive reputation (Kurnia et al., 2020).

Legitimacy Theory

Legitimacy theory is a general perception or assumption that the actions of a company are in accordance with several socially constructed systems of norms, values, beliefs and definitions (Suchman, 1995). Legitimacy theory is closely related to environmental disclosure and company financial performance. This is because there is an inconsistency between the company's value system and the community's value system (legitimacy gap), so the company can lose its legitimacy which will further threaten the survival of the company (Damanik & Yadnyana, 2017).

One way to reduce the legitimacy gap is to make disclosures related to the company's concern for the environment (Perera et al., 2019). With disclosures related to carbon emissions made by companies, companies can always improve their image in the eyes of stakeholders. This is done by the company as a form of corporate responsibility in dealing with climate change problems.

Company legitimacy will be threatened if there is a gap between the company and society. An organization takes steps to close the gap between the company and society. Companies must become part of the community to get positive value perceptions, as well as reduce friction between companies and society (Deegan, 2007).

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Lindblum (2010)explains there are four strategies for dealing with threats to legitimacy. First, the company provides relevant information about changes in organizational performance to stakeholders. Second, companies change perceptions of organizational performance. Third, companies change perceptions by diverting stakeholder concerns. Fourth, the company tries to change stakeholder expectations regarding company performance. These four strategies play an important role in maintaining legitimacy. Positive perceptions and expectations may be built by voluntary disclosure of social and environmental information. Lack of disclosure can be seen as low corporate responsibility (Kurnia et al., 2020).

Disclosure of Carbon Emissions

Disclosure of carbon emissions is a disclosure made by the company to increase the credibility of the company, especially to inform the company's efforts to reduce emissions from its operational activities (Florencia & Handoko, 2021). Companies that disclose carbon emissions have several considerations including gaining legitimacy from stakeholders, avoiding threats, especially for companies that produce greenhouse gases such as increased operating costs, reduced demand, reputation risk, legal proceedings, and fines and penalties (Perera et al., 2019).

Greenhouse gases include carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF6) (Alfani & Diyanty, 2020). PSAK No. 1 (revised 2009) made by the Indonesian Association of Accountants states that carbon emission disclosure is one of the environmental disclosures that is part of the additional reports stated in PSAK.

Green Investment

Green investment is an effort made by companies to support environmental preservation and prevent environmental pollution caused by company activities. This is done by allocating costs for various environmental actions in order to achieve the expected environmental performance. Green investment is also defined as public and private investment to reduce emissions of air pollutants and greenhouse gases, without substantially reducing the production and consumption of non-energy commodities (Yutao Chen & Feng, 2019).

Green investment is basically considered a climate-resistant investment or low-carbon investment made by companies to minimize climate change, support the use of renewable energy, and clean technology. Thus, green investment can be defined as internal investment in equipment, technology, materials, energy and services that can prevent, control and reduce environmental pollution, generate environmental benefits, and reduce environmental costs, with the aim of improving corporate environmental performance, developing green management and reduce environmental risks (Chen & Feng, 2019).

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Corporate governance

Corporate governance refers to the way a company is governed. It is a technique that companies use to direct and manage. This means bringing the business in accordance with the wishes of stakeholders (financiers, customers, management, employees, government and society). This briefing is actually carried out by the Board of Directors and related committees for the benefit of the company's stakeholders. The aim of the briefing is to balance individual and societal goals, as well as, economic and social goals (Okudo & Amahalu, 2021).

Corporate governance is the interaction between the various participants (shareholders, board of directors, and company management) in shaping the corporation's performance and the way it proceeds toward it. The relationship between owners and managers in an organization should be healthy and there should be no conflict between the two. The owner must look at the individual's actual performance against performance standards (Okudo & Amahalu, 2021).

Corporate governance represents a mechanism within a company that ensures that strategic decisions taken by managers are able to serve the best interests of company owners compared to their own interests (Singh & Delios, 2017). One important corporate governance mechanism is the board of directors.

Company Growth

Company growth is the company's ability to increase the size of a company. The company's growth also shows a positive thing for stakeholders and shows good development of a company (Antoro et al., 2020).

From a stakeholder perspective, the company's growth can be seen from sales growth which illustrates the company's success in carrying out its business strategy. Growth in sales is also a picture that the company can compete in its industry. The higher the sales, the higher the profit earned by the company. Sales growth refers to an increase in the number of sales from one year to the next (Irawan et al., 2022).

Stakeholder pressure

Stakeholders are a group or individual who can influence or be affected by the realization of company goals (Earnhart, 2018). Stakeholders are an important part of the company, a company cannot operate without stakeholders. The survival of the company is strongly influenced by stakeholders (Sandri et al., 2021).

Regulators as corporate stakeholders have the power to punish and limit companies from engaging in activities that damage the environment. Therefore, managers can use disclosure of information, such as GHG emissions and environmental management, to help raise regulator expectations and as a way to meet regulatory interventions (Chittambo et al., 2020).

Stakeholder pressure is defined as the ability and capacity of stakeholders to influence an organization by influencing its organizational decisions (Helmig et al., 2016). Currently, various

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social and environmental challenges urge companies to increase awareness of environmentally and community-oriented businesses (Shahzad et al., 2020).

Hypothesis Development

The Effect of Green Investment on Carbon Emissions Disclosure

*Green investment*or green investment is an investment used to reduce emissions from greenhouse gas (GHG) effects and air pollution (air pollutant) made by companies. Based on the legitimacy theory, the legitimacy obtained by the company will increase the company's awareness of carbon emissions disclosure.*Green investment* carried out directing the company in reducing emissions from the greenhouse gas effect (GHG) produced (Miao et al., 2019).

The expansion of green investment is related to technological progress and innovation. The criteria for a green industry according to the Indonesian Ministry of Industry are a group of potential investment sectors that are driven as environmentally friendly green investments (Afni et al., 2018). The higher the level of investment made by the company, it will increase information related to the company's efforts to reduce the emissions it produces.

Backed by research Syabilla et al., (2021) and Afni et al (2018), found that green investment has a positive effect on disclosure of carbon emissions. Based on the description that has been submitted, the hypothesis is formulated as follows.

H1: Green investment has a positive effect on carbon emissions disclosure.

The Effect of Corporate Governance on Carbon Emission Disclosure

Corporate governance is an important mechanism for resolving separation of interests and controlling rights to protect the interests of external investors. A large number of previous studies indicate that internal governance is an important factor affecting the quality of corporate information disclosure (He et al., 2019).

The stronger the decisions made by the Board of Directors, the higher the level of corporate information disclosure. The company's board of directors is the main agent responsible for strategic change in the organization. The importance of having an effective corporate governance mechanism that can encourage changes related to social and environmental responsibility of a company.

Backed by research El-Bassiouny & El-Bassiouny (2019) found that the size of the Board of Directors has a positive effect on the disclosure of corporate social and environmental responsibility. He et al., (2019) also found that the Board of Directors had a positive effect on voluntary carbon disclosure. Based on the description that has been submitted, the hypothesis is formulated as follows.

H2: Corporate governance has a positive effect on carbon emissions disclosure

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The Effect of Company Growth on Carbon Emissions Disclosure

Rapid growth will force companies to think about strategies to maintain and develop what they have acquired. High sales can also indicate that the company is performing well in terms of revenue which will further expand the company's various disclosures (Irawan et al., 2022).

Companies that are continuing to grow will always be selective in using the resources they have. Therefore, the company will use resources that focus on improving performance without ignoring environmental aspects. This is because companies that have a high level of income will produce more carbon emissions as a result of increased production activities. However, companies will disclose more information to increase transparency and reduce information asymmetry and avoid negative reactions from the market and stakeholders (Karim et al., 2021).

Supported by research by Resya et al., (2021) found that company growth has a positive effect on carbon emission disclosure. Based on the description that has been submitted, the following hypothesis is formulated.

H3: Company growth has a positive effect on disclosure of carbon emissions

The Role of Stakeholder Pressure in Moderating the Effect of Green Investment on Carbon Emission Disclosure

Regulators as stakeholders issue various regulations which are a pressure that must be implemented by companies in order to avoid various legal risks, which is supported by stakeholder theory. Stakeholders can encourage companies to make green investments in order to reduce the resulting carbon emissions. Stakeholders also demand transparency over the various carbon emissions produced by the company.

The higher the pressure from stakeholders will increase the company's various environmental disclosures, including disclosures related to carbon emissions (Chithambo et al., 2020). Stakeholder pressure can lead organizations to adopt and respect environmentally responsible practices in a sustainable manner.

Supported by research by Chithambo et al., (2020) found that regulatory pressure has an effect on carbon emission disclosure. Kowalczyk & Kucharska (2019) shows that stakeholder pressure is able to encourage companies to continue to carry out their social responsibilities. Besides that, Afni et al (2018), found that green investment has a positive effect on disclosure of carbon emissions.Based on this explanation, the hypothesis is formulated as follows.

H4: Stakeholder pressure strengthens the effect of green investment on carbon emissions disclosure

The Role of Stakeholder Pressure in Moderating the Effect of Corporate Governance on Carbon Emissions Disclosure

Stakeholder theory suggests that there are various stakeholders who have different needs and anticipations, and hence companies have several social contracts with different groups of

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stakeholders. Internationally, stakeholder theory has become an important research method in the social and environmental literature and is used as a way to define and clarify why businesses adopt these social and environmental reporting practices (Almagtome et al., 2020).

An efficient corporate governance structure within the business and economy as a whole will help increase the trust and confidence needed to support corporate sustainability. In the context of integration, the incorporation of environmental, social, and economic aspects of the company into the corporate governance system is a core element in formulating the company's strategy, and the company's long-term goals. Stakeholder pressure, which in this case is the regulator, will always encourage the company to continue to comply with various applicable regulations, especially related to the company's concern for the environment. Corporate governance can direct companies to carry out transparency, including disclosure related to carbon emissions produced.

Supported by research by Chithambo et al., (2020) found that regulatory pressure has an effect on carbon emission disclosure. Almagtome et al., (2020) found that stakeholder pressure was able to increase company awareness in supporting sustainable development. Based on this explanation, the hypothesis is formulated as follows.

H5: Stakeholder pressure strengthens the influence of corporate governance on carbon emissions disclosure

The Role of Stakeholder Pressure in Moderating the Effect of Company Growth on Carbon Emissions Disclosure

Stakeholder pressure can encourage companies to improve their environmental performance so that the company is considered to have contributed to the environment. This stakeholder pressure requires companies to make their companies more transparent and disclose more information, including information related to environmental risks. Therefore, managers can use information disclosure, such as emissions and environmental management, to help raise regulators' expectations (Elmagrhi et al., 2019). In this way, the company will avoid severe penalties, revocation of licenses and intense public scrutiny through the media.

Companies with higher income will be more intensive in producing carbon waste. This tends to get greater pressure from stakeholders. Companies must always provide carbon disclosure reports so that they comply with demands and gain legitimacy from their stakeholders, especially the public and investors. Therefore, the higher the pressure from stakeholders on companies that have high income will increase the disclosure of carbon emissions as a form of corporate transparency.

Research by Chithambo et al., (2020) andChithambo et al., (2021)found that regulatory pressure had an effect on carbon emission disclosure. Ramadhini et al., (2020) found that stakeholder pressure has a positive effect on corporate social and environmental responsibility. Based on this explanation, the hypothesis is formulated as follows.

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H6: Stakeholder pressure strengthens the influence of corporate growth on carbon emissions disclosure

METHOD

Samples and Sampling Techniques

The unit of analysis used in this study is the energy and raw goods sector companies listed on the Indonesia Stock Exchange. While the data used is panel data (lots of time and lots of objects) for the period 2019-2021.The criteria specified in this study are as follows:

1. Energy and raw goods sector companies listed on the Indonesia Stock Exchange 2019-2021.
2. The company was not listed/delisted during the research period.
3. The company's annual report and/or sustainability report can be accessed
4. The company discloses all information related to research variables

Empirical Models

In this research, the data used is an unbalanced panel and the analysis method used ismultiple linear regression analysis operated through the eviews program. The aim of this research is to examine the influence of green investment, governance and capital expenditure on carbon emissions disclosure which is moderated by stakeholder pressure. This research also carried out descriptive statistical analysis, classical assumption tests including normality test, multicollinearity test, heteroscedasticity test and autocorrelation test, as well as data quality tests, namely the coefficient of determination test, f test and t test. The research model is as follows:

$$PEK = a + IH + TK + PP + TP + TP*IH + TP*TK + TP*PP + CS + UP + PF + e$$

Information:

PEK = Disclosure of Carbon Emissions
IH = Green Investment
TP = Stakeholder Pressure
PP = Company Growth
CS = Company Age
UP = Company Size
P.F = Profitability
e = Error

Operational definition and measurement of variables

Table 1. Variable Operational Definitions

Variable	Formulas	Source
Carbon Emissions	CED=(Total Items disclosed)/n	Alfani & Diyanti (2020), Andrian &

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Variable	Formulas	Source
Disclosure (Dependent)		Sudibyo (2019) and Choi et al., (2013)
Green Investment (Independent)	GI=(Total spending on environment)/(Total Assets)	Chen & Ma (2021)
Corporate governance (Independent)	Total Directors in the company.	Tila & Augustine (2019)
Company Growth (Independent)	PP =(Sales year t-Sales year t1)/ (Sales year t-1)	Irawan et al., (2022)
Stakeholder Pressure (Moderating)	The number of government regulations implemented by the company disclosed in the company's annual report and/or sustainability report.	Chittambo et al., (2020).
Company Size (Control)	Company Size = Natural Logarithm of Total Assets	Saraswati et al., (2021), Tonay & Murwaningsari, 2022)
Profitability (Control)	ROA=Net Income/Total Assets	Saraswati et al., (2021)
Company Age (Control)	Company Age = Year of Research – Year of Company Establishment	Ambarwati et al., (2020), Jannah & Narsa (2021) and Yunus et al., (2016)

RESULT AND DISCUSSION

This study uses a sample of 201 firm-years. The sample was obtained from companies in the energy and raw goods sector in 2019-2022, namely 173 companies, by excluding listing/delisting companies in the research period of 34 companies, resulting in a population of 139 companies and 556 firm-years (139 companies x 4 years). Then this research issuedcompany reports cannot be accessed as many as 60 firm-years, companies do not disclose information related to research variables as a whole for 291 firm-years, and a sample of companies that are outliers for 4 firm-years.

Descriptive Statistical Analysis

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Table 2. Descriptive statistics

Variable	N	Min Value	Maximum Value	Average value	Standard Deviation
Disclosure of Carbon Emissions	201	0.04	0.73	0.33	0.17
Green Investment	201	0.00	0.17	0.005	0.018
Corporate governance	201	2	13	5.00	1.92
Sales Growth	201	-0.74	2.77	0.18	0.48
Stakeholder Pressure	201	4	53	14.76	6.83
Company Size	201	3.335 Million	109,045,810 Million	28.89	1.71
Profitability	201	-0.26	0.62	0.08	0.14
Company Age	201	4	106	37.00	18.75

Source: Data processed 2023

Based on table 2, it shows thatThe carbon emissions disclosure variable has a minimum value of 0.04 and a maximum value of 0.73. The average disclosure of carbon emissions by companies is 0.33, meaning that the company is aware of providing information related to carbon emissions produced only by 33% and is still quite low. Furthermore, the data on this variable is said to be good because the data distribution is homogeneous which can be seen from the average value being greater than the standard deviation (0.33 > 0.17).

The green investment variable has a minimum value of 0.00 and a maximum value of 0.77. The minimum green investment value is the result of rounding to two decimal places, so it is only 0.00 due to the small green investment allocation when compared to the company's total assets. Furthermore, the standard deviation of 0.018 indicates that the data on the green investment variable is heterogeneous. The data on this variable has a large data distribution because the standard deviation is greater than the average value (0.005 > 0.018).

The corporate governance variable has a minimum value of 2 and a maximum value of 13. The large gap between the minimum value and the maximum value is due to the absence of specific regulations related to the size of the Board of Directors in a company. The average value of corporate governance is 5 people (rounded from 4.78). Furthermore, the data on this variable is said to be good because of the distribution of the data is homogeneous which can be seen in the average value greater than the standard deviation (4.78 > 1.92).

The stakeholder pressure variable has a minimum value of 4 and a maximum value of 53. The size of the gap in the stakeholder pressure variable as measured by the regulations implemented by the company is between the minimum value and the maximum value because the company only discloses the applicable regulations and does not include specific regulations. referred to. The average value of stakeholder pressure is 14.76. Furthermore, the data on this variable is said to be good because the data distribution is homogeneous which can be seen in the average value greater than the standard deviation (14.76 > 6.83).

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The control variable for company size has a minimum value of 3,335 million and a maximum value of 109,045,810 million. The large gap between the minimum value and the maximum value in the company size variable as measured by total assets makes it possible that the company is also moving internationally. The average value of the natural logarithm of company size is 28.89 or the equivalent of 12,332,544 million. Furthermore, the data on this variable is said to be good because the data distribution is homogeneous which can be seen from the average value being greater than the standard deviation (28.89 > 1.71).

The profitability control variable has a minimum value of -0.26 and a maximum value of 0.62. The minimum value of profitability is negative because the company made a loss in the year concerned. Furthermore, the standard deviation of 0.14 indicates that the data on the green investment variable is heterogeneous. The data on this variable has a large data distribution because the standard deviation is greater than the average value (0.08 > 0.14).

The company age control variable has a minimum value of 4 years and a maximum value of 106 years. The average age of the company is 37 years. Furthermore, the data on this variable is said to be good because the data distribution is homogeneous which can be seen in the average value greater than the standard deviation (37 > 18.75).

Normality test

From the above results it can be seen that the results of the normality test are normally distributed or greater than 0.05. So it can be concluded that Ha is accepted and the assumptions required for the regression test to be normally distributed are met or in other words that this regression model can be continued.

Table 3. Normality Test Results

Significance	Information
0.257	Normal

Source: Data will be processed in 2023

Multicollinearity Test

The criterion used is that if the tolerance value is < 10 or VIF > 10 then there is multicollinearity. From table 4 the multicollinearity test shows that there are several independent and moderating variables used in this study that have a VIF value > 10, but for the use of control variables, there is no multicollinearity disorder. Multicollinearity problems in this study are ignored because multicollinearity problems arise as a result of interactions with moderating variables (Ghozali, 2016). The multicollinearity problem arises as a result of the interaction between the independent variable and the moderating variable, so it cannot be overcome because if it is handled, it must remove the moderating variable.(Gujarati & Porter, 2008).

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Table 4. Multicollinearity Test Results

Variable	VIF	Information
Green Investment	38,43	There is Multicollinearity
Corporate governance	8.41	No Multicollinearity
Sales Growth	7,40	No Multicollinearity
Stakeholder Pressure	9.70	No Multicollinearity
Green Investment* Stakeholder Pressure	41.65	There is Multicollinearity
Corporate Governance* Stakeholder Pressure	19,81	There is Multicollinearity
Sales Growth* Stakeholder Pressure	8,14	No Multicollinearity
Company Size	1.83	No Multicollinearity
Profitability	1.92	No Multicollinearity
Company Age	1.26	No Multicollinearity

Source: 2023 data processing results

Autocorrelation Test

Based on table 5 of the autocorrelation test, the Durbin-Watson value is 1.891. This is in accordance with the provisions that dU < d < 4 – dU, namely 1.8413 < 1.906 < 2.159 so it can be concluded that there is no autocorrelation in this study.

Table 5. Autocorrelation Test Results

Durbin-Watson	Value du (lower bound)	Value 4 - dU (upper limit)
1,906	1.8413	2,159

Source: 2023 data processing results

Heteroscedasticity Test

The requirement to pass the heteroscedasticity test is a sig value > 0.05. Based on the heteroscedasticity test in table 6, it can be seen that the significance value of all the variables studied has a significance value of > 0.05. It can be concluded that there is no element of heteroscedasticity in this study.

Table 6. Heteroscedasticity Test Results

Variable	Significance	Information
Green Investment	0.63	Not distrubed
Corporate governance	0.20	Not distrubed
Sales Growth	0.21	Not distrubed
Stakeholder Pressure	0.19	Not distrubed

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Variable	Significance	Information
Green Investment* Stakeholder Pressure	0.70	Not distrubed
Corporate Governance* Stakeholder Pressure	0.06	Not distrubed
Sales Growth* Stakeholder Pressure	0.06	Not distrubed
Company Size	0.42	Not distrubed
Profitability	0.24	Not distrubed
Company Age	0.08	Not distrubed

Source: Data results will be processed in 2023

Multiple Linear Regression Analysis

Table 7. Hypothesis testing

Variable	Coefficient	Sig (Two Tailed)	Sig (One Tailed)	Predictions	Conclusion
Constant	-1.09	0.00			
Green Investment	5.99	0.07	0.04	Positive	H1 is accepted
Corporate governance	0.01	0.38	0.19	Positive	H2 is rejected
Sales Growth	0.11	0.05	0.03	Positive	H3 is accepted
Stakeholder Pressure	0.01	0.19	0.09	Positive	Ha rejected
Green Investment* Stakeholder Pressure	0.43	0.08	0.04	Strengthen	H4 is accepted
Corporate Governance* Stakeholder Pressure	0.00	0.87	0.46	Strengthen	H5 is rejected
Sales Growth* Stakeholder Pressure	-0.01	0.14	0.07	Strengthen	H6 is rejected
Company Size	0.04	0.00	0.00		
Profitability	-0.05	0.59	0.28		
Company Age	0.00	0.78	0.32		
F test	13.65		0.00		
Adjusted R Squared					0.42

Source: Data processed 2023

The Effect of Green Investment on Disclosure of Carbon Emissions

Based on table 7, the results of data processing for the green investment coefficient are 5.99. This means that the theory test which states that there is a positive effect between green investment on disclosure of carbon emissions is proven. So that it can proceed to the statistical test. From the

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statistical test results, it was obtained that the p-value was 0.04 (0.04 <0.05). Thus, it can be concluded that H_0 rejected and H1 accepted.

These results are supported by Syabilla et al., (2021) and Afni et al (2018) who found that green investment has a positive effect on carbon emissions disclosure. This result is supported by legitimacy theory which states that the legitimacy obtained by a company will increase the company's awareness of carbon emissions disclosure. Therefore, the green investments made have directed companies to reduce emissions from the resulting greenhouse gas (GHG) effects (Miao et al., 2019).

The company's success in expanding green investment is related to technological advances and innovation. The criteria for a green industry according to the Indonesian Ministry of Industry are a group of potential investment sectors that are driven as environmentally friendly green investments (Afni et al., 2018). The higher the level of investment made by the company, it will increase information related to the company's efforts to reduce the emissions it produces.

The Effect of Corporate Governance on Carbon Emission Disclosure

The result of the data processing of the corporate governance coefficient is 0.01. This means that the theory test which states that there is a positive influence between corporate governance on disclosure of carbon emissions is proven. So, it can be continued into statistical tests. From the statistical test results, a p-value was obtained of 0.19 (0.19 > 0.05). Thus, it can be concluded that H_0 accepted and H2 rejected.

This result is contrary to researchEl-Bassiouny & El-Bassiouny (2019) found that the size of the Board of Directors has a positive effect on the disclosure of corporate social and environmental responsibility. He et al., (2019) also found that the Board of Directors had a positive effect on voluntary carbon disclosure.

However, these results are supported by Elsayih et al., (2021),Astari et al., (2020)AndHapsari & Prasetyo (2020)which shows that there are components of corporate governance that do not affect the disclosure of carbon emissions. This result is possible that the existence of corporate governance is used to meet regulatory demands but does not have the aim of increasing the disclosure of carbon emissions within the company(Astari et al., 2020). In addition, the average value of corporate governance proxied by the number of Directors of 5 people indicates that the role of the Directors has not been effective inencourage companies to carry out social and environmental responsibilities.

The Effect of Company Growth on Carbon Emissions Disclosure

The result of the data processing of the company's growth coefficient is 0.11. This means that the theory test states that there is a positive influence between company growth on disclosure of proven carbon emissions. So that it can proceed to the statistical test. From the statistical test

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results, it was obtained that the p-value was 0.03 (0.03 <0.05). Thus, it can be concluded that H_0 rejected and H3 accepted.

These results are supported by researchResya et al., (2021) who found that company growth has a positive effect on carbon emission disclosure. This finding supports the statement that for companies that continue to grow, they will always be selective in using the resources they have. Therefore, the company will use resources that focus on improving performance without ignoring environmental aspects.

This is because companies that have a high level of income will produce more carbon emissions as a result of increased production activities. However, companies will disclose more information to increase transparency and reduce information asymmetry and avoid negative reactions from the market and stakeholders (Karim et al., 2021).

In addition, company growth will force companies to think about strategies to maintain and develop what they have acquired. High sales could also indicate that the company is performing well in terms of earnings which will further expand the range of company disclosures(Irawan et al., 2022).

The Role of Stakeholder Pressure in Moderating the Effect of Green Investment on Carbon Emission Disclosure

Results of data processing the interaction coefficient between stakeholder pressure and green investment on disclosure of carbon emissions is 0.043. This means that the theory test states that stakeholder pressure interest strengthen the positive influence of green investment on disclosure of proven carbon emissions. So that it can proceed to the statistical test. From the statistical test results, it was obtained that the p-value was 0.04 (0.04 <0.05). Thus it can be concluded that H_0rejected and H4 accepted.

Powered byresearch by Chithambo et al., (2020) found that regulatory pressure had an effect on carbon emission disclosure. Kowalczyk & Kucharska (2019) shows that stakeholder pressure is able to encourage companies to continue to carry out their social responsibilities. Besides that,Afni et al (2018), found that green investment has a positive effect on disclosure of carbon emissions.

These results show that the higher the pressure from stakeholders will increase the company's various environmental disclosures, including disclosures related to carbon emissions (Chithambo et al., 2020). Stakeholder pressure can lead organizations to adopt and respect environmentally responsible practices in a sustainable manner.

Besides that, it is supported by stakeholder theory, regulators as stakeholders issue various regulations which are a pressure that must be implemented by companies in order to avoid various legal risks. Stakeholders encourage companies to do what the company produces. It can be concluded that stakeholder pressure is able to encourage companies to do so, green investments to reduce the resulting carbon emissions. Stakeholders also demand transparency regarding various

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carbon emissions so that stakeholder pressure is able to encourage increased green investment which has an impact on increasing company transparency in disclosing the carbon emissions produced.

The Role of Stakeholder Pressure in Moderating the Effect of Corporate Governance on Carbon Emissions Disclosure

The results of data processing, the interaction coefficient between stakeholder pressure and corporate governance on carbon emissions disclosure is 0.00. This means that the theory test which states that stakeholder pressure strengthens the positive influence of corporate governance on carbon emissions disclosure is proven. So it can be continued into statistical tests. From the statistical test results, a p-value was obtained of 0.46 (0.46 > 0.05). Thus it can be concluded that H_0accepted and H5 rejected.

This result is contrary to research Chithambo et al., (2020) found that regulatory pressure influences carbon emission disclosure.Almagtome et al., (2020) found that stakeholder pressure was able to increase company awareness in supporting sustainable development. However, these results are in line with research Hapsari & Prasetyo (2020)which shows that corporate governance has no effect on carbon emissions disclosure.

The findings from the research contradict stakeholder theory which states that a company must meet the needs of its stakeholders. The average value for stakeholder pressure is only 14.76 or 15 regulations adopted by each company which can be categorized as still quite low. Then, from this value it is also possible that most of the regulations referred to by companies do not yet lead to regulations related to corporate responsibility towards the environment. Apart from that, independent corporate governance variables also have no effect on carbon emissions disclosure. Therefore, stakeholder pressure has not been able to encourage corporate governance to improvedisclosure of carbon emissions within the company.

The Role of Stakeholder Pressure in Moderating the Effect of Company Growth on Carbon Emissions Disclosure

The results of data processing on the interaction coefficient between stakeholder pressure and company growth on carbon emissions disclosure are -0.01. This means that the theory test which states that stakeholder pressure strengthens the positive influence of company growth on carbon emissions disclosure is not proven. So the p-value does not need to be analyzed further.

This result is contrary to research Chithambo et al., (2020) and Chithambo et al., (2021) found that regulatory pressure had an effect on carbon emission disclosure.Ramadhini et al., (2020) found that stakeholder pressure has a positive effect on corporate social and environmental responsibility. In addition, the average value of stakeholder pressure as measured based on regulations disclosed by the company is still relatively low when compared to the maximum value, and there are still companies that did not grow positively during the research year. This result is

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supported by Dwinanda & Kaweda (2019)found that company growth has no effect on carbon emissions disclosure.

These results indicate that stakeholder pressure focuses more on improving performance in the economic aspect (Dwinanda & Kaweda, 2019). In addition, measurements of stakeholder pressure, namely the regulations referred to, show that most of the regulations referred to by companies are still related to regulations and laws that support economic aspects, so they do not yet cover environmental aspects.

Results data processing of control variable coefficients

company size is 0.04 and the p-value is 0.00. This means that company size has a significant positive effect on carbon emissions disclosure. Meanwhile, the results of data processing on the control variables profitability and company age show that both have no effect on carbon emissions disclosure.

Furthermore, based on the results of data processing, the adjusted R square value was 0.42. This can be interpreted as meaning that the ability of the independent variable to explain the variance of the dependent variable is 42%, while 58% is influenced by other variables not included in this research.

The simultaneous test (F test) obtained a significance value of 0.000 < 0.05, so it can be concluded that all independent variables jointly influence the disclosure of carbon emissions in energy and raw materials companies in Indonesia.

CLOSING

Conclusions

The results of this research show that green investment has a positive effect on carbon emissions disclosure. This means that green investment is able to increase company awareness to disclose carbon emissions for all carbon emissions produced in its operations. Company growth also has a positive effect on carbon emissions disclosure. This means that companies that continue to grow have full awareness of their obligations in disclosing all carbon emissions that have been generated from company operations. In addition, this research also shows that increasing stakeholder pressure is able to encourage companies that make green investments to increase their carbon emission disclosures for their operations. In the control variable used,

However, in this study, corporate governance has not been able to encourage companies to increase their disclosure of carbon emissions. Stakeholder pressure also failed to strengthen the influence of corporate governance and company growth in increasing carbon emissions. In the control variable profitability and company age, there are companies in the energy and raw goods sector in Indonesia that are unable to increase disclosure of carbon emissions.

Limitations

During the course of this research, researchers naturally had some limitations, there are several companies whose Annual Reports and Financial Reports cannot be accessed, either through the IDX website or on the company's official website. In processing research data, there are several companies that fall into the outlier category, so they must be excluded from the research sample, and there are still many companies that do not have awareness of allocating environmental costs.

Implications

There are implications in this research, namely for investors, investors can consider the carbon emissions produced in making their investments, so that the investments made do not encourage companies to increase the emissions they produce. Investors can choose companies that have high green investment and company growth that continues to increase. Regulators can provide detailed standards related to the disclosure of carbon emissions from company operations.

In addition, regulators can also provide regulations related to the number of Directors in a company, so that small, medium and large companies have a reference for placing Directors in their company. Companies can continue to make better disclosures of carbon emissions as a form of transparency to the public. For literature, This research can be used as a reference for conducting further research related to disclosure of carbon emissions, as well as to obtain more comprehensive results regarding other factors that may affect disclosure of carbon emissions. Suggestions for future researchers are to add other factors such as green strategy, climate technology and so on, in order to get better results.

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