GREEN INVESTMENT, GREEN STRATEGY, FIRM CHARACTERISTICS AND CARBON EMISSION DISCLOSURE

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Abstract

The aims of this study is to examine the effect of green investment, green strategy, and company characteristics. In this study, the researcher adopted the checklist issued by Carbon Disclosure Project (CDP) to measure the width of carbon emission disclosure. The Population of this study consisted of mining companies listed on the Indonesian Stock exchange in 2017-2021 and become a proper participant. This research applied purposive sampling method to obtain 11 list mining company from 2017 to 2021. In order to examine the effect, the researcher utilized multiple regression. The result implies that green investment has a positive effect on carbon emission disclosure, green strategy affects the disclosure of carbon emissions, the size of the company as a proxy of the company characteristics has an influence on the disclosure of carbon emissions, and profitability as a proxy of the company characteristics has no influence on the disclosure of carbon emissions.

Keywords: Green Investment; Green Strategy; Size Company; Profitability

INTRODUCTION

Global warming and climate change are issues that are currently being discussed in the world because they greatly impact life on earth. Research (Kılıç & Kuzey, 2019) says that one of the issues that is developing intensely and is an issue that has the potential to threaten the future of the world is climate change. Climate change can occur due to an increase in carbon dioxide. Carbon dioxide (CO_2) is the main contributor and constituent in the formation of greenhouse gases. According to NASA's website, the average level of CO_2 has exceeded 420 parts per million (ppm) reaching its highest level. Carbon dioxide (CO_2) is an important heat-trapping (greenhouse) gas, which is released through human activities such as deforestation and burning of fossil fuels, as well as natural processes such as respiration and volcanic eruptions. Greenhouse gas emissions are the main cause of global warming and climate change which are currently threatening the survival of life on this earth. According to the Brown to Green Report by Climate Transperacy (2018), Indonesia's GHG emissions increased by 196% between 1990 and 2015, nearly tripling and are expected to continue to increase until 2030. By 2030, Indonesia must reduce its greenhouse gas emissions by 29% (on their own) and 41% (with adequate international cooperation), according to the NDC declaration.

Disclosure of carbon emissions is an accounting treatment developed to address this climate issue (Syabilla et al., 2021). Reporting of carbon emissions is still voluntary, so there are still a few companies that provide disclosure of carbon emissions in their reports. Conducting

and presenting carbon emissions from operational activities in annual reports and sustainability reports that are published annually is a form of company efforts to reduce and prevent carbon emissions (D. N. Pratiwi, 2018). Disclosure of carbon emissions will provide benefits for companies, including avoiding reduced operating costs, reputation risk, legal proceedings, fines, and being a way to gain legitimacy (Irwhantoko & Basuki, 2016). Companies that disclose information about carbon emissions in their reports will get a good image in the eyes of investors because it is considered that the information provided by the company is a form of the company's concern for the environment.

The development of green investment or green investment is an effort to create a conducive situation for green investment and capital increase, which is carried out by helping the government to build investor confidence, attract capital, and create sustainable 'green' business models that can generate profits, as well as open a new opportunities that untapped (Green growth). Green investment is expected to help reduce the increase in greenhouse gas emissions so that companies can present carbon emission disclosures that can improve corporate image. However, to develop a green industry, the investment needed by companies is not small, for example, companies need to replace production machines with environmentally friendly technology. Based on researchers Afni et al., (2018) and Syabilla et al., (2021) green investment has a positive effect on disclosure of significant carbon emissions in Nakamura's research (2011) in Afni et al.'s research, (2018) mentions green investment as a prior environmental investment, because it is a company's preventive efforts in reducing the environmental impact of company activities. But according to research by Dani & Harto (2022) green investment has no effect on disclosure of carbon emissions. There is still very little research on the correlation between green investment and disclosure of carbon emissions.

Companies that implement green strategy can integrate risks and opportunities in corporate strategies that have an impact on the environment. The Minister of Energy and Mineral Resources (ESDM) is preparing four strategies to reduce carbon emissions, namely developing a downstream coal industry, utilizing clean coal technology in power plants, Carbon Capture Storage/Carbon Utilization Storage (CCUS), and co-firing biomass. This strategy is a step to reduce carbon emissions that occur so that later carbon emissions can be disclosed in annual reports and sustainability reports. Research from Tila & Augustine (2019) and Sari & Susanto (2021) says that green strategy has a positive effect on disclosure of carbon emissions. Meanwhile, research (Li et al, 2016) says that green strategy has a negative effect on disclosure of carbon emissions.

The larger the size of a company that has gone public, the more it will be seen by the public, so it must show more concern for the environment in order to get a good image in society. Larger company size will be more responsive regarding carbon emissions. Characteristics of companies with company size proxies according to Bae Choi et al., (2013), Ratmono & Selviana, (2019), Eka Dewayani & Ratnadi (2021), Amaliyah & Solikhah (2019), Saptiwi (2019), and Nastiti (2022) said that company size has a positive effect on disclosure of carbon emissions. However, according to Irwhantoko & Basuki (2016), and Pratiwi (2018) it is said that company size has no effect on disclosure of carbon emissions.

Profitability is used as a performance measure for a company in generating profits, so that the profits can be used to reduce carbon emissions. According to Herinda et al., (2021) claims that for disclosing corporate carbon emissions, greater costs are required, high business profitability explains the availability of funds to be used to disclose carbon emissions. Thus,

profitability can be a reference for stakeholders in measuring the performance of company management in terms of disclosing carbon emissions that have been carried out by the company. According to Nastiti (2022), Setiawan et al., (2022) said that profitability has a positive effect on disclosure of carbon emissions. Meanwhile, according to Pratiwi (2018), Koeswandini & Kusumadewi, (2019), P. C. Pratiwi & Sari (2016) say that profitability does not affect the disclosure of carbon emissions.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Legitimacy Theory

This legitimacy theory provides an explanation of social responsibility that must be disclosed so that the company gains legitimacy for the social environment in which the company's activities operate, and this will provide the company's maximum financial strength for a long period of time (Afni et al., 2018). Disclosure of carbon emissions as a form of corporate social and environmental responsibility can be explained by using legitimacy theory as its basis. According to this idea, businesses should publish their carbon emissions as a sign of accountability and concern for the environment. One of the business ways to develop a positive company reputation in society is to disclose carbon emissions (Witri Astiti & Wirama, 2020).

Stakeholder Theory

Stakeholder theory states that a company is not an entity that only operates for the company's own interests, but can also provide benefits to all of its stakeholders, Witri Astiti & Wirama (2020). Stakeholder theory is the basis for the argument that business must uphold a positive relationship with its stakeholders, one of which is by being transparent about the company's carbon emissions. Disclosure of carbon emissions is a voluntary report where there are no regulations regarding voluntary disclosure so that there is diversity regarding voluntary disclosure in each company, so that stakeholders demand that companies also report voluntary disclosures not only those that are mandatory.

Agency Theory

The main principle of this theory states that there is a working relationship between the party giving the authority (principal) and the one receiving the authority (agent) (Idawati, 2020). Agency theory explains that in companies there are differences in interests between principals and agents which can cause agency problems. This agency problem occurs when agents in a company, namely management, are more concerned with their personal interests than the interests of the company, and this can be detrimental to the company (Shogren et al., 2017). Agency theory is the basis that in disclosing carbon emissions there is a conflict of interest where management does not want to to disclose carbon emissions because it is still voluntary, but on the other hand the owner wants to disclose carbon emissions to see how carbon emissions are produced and the company's target to reduce carbon emissions.

Carbon Emissions Disclosure

There are no explicit regulations requiring public companies to include information on carbon emissions in annual reports and sustainability reports. Therefore, the choice to disclose information about carbon emissions rests with companies. Based on PSAK No.1 (revised 2013)

disclosure of carbon emissions is an example of environmental disclosure which is part of an additional report on the environment and a value-added statement. The company is expected to be able to disclose the company's operational activities that affect the increase in climate change, one of which is the disclosure of carbon emissions (Peng, J., Sun, J., & Luo, R. 2015).

Green Investments

The Biodiversity Foundation (KEHATI) says that sustainable investment is also known as investment that focuses on environmental, social, and good governance issues which is another term for green investment. The goal is that the economy and life on earth can continue to function properly. Green investment (Eyraud et al., 2013) is described as an investment made to reduce GHG emissions and air pollutants without significantly reducing the production and consumption of non-energy goods. In a study by Afni et al., (2018) according to the International Monetary Fund (IMF) green investment is an investment that is needed in adapting to climate change by reducing greenhouse gas emissions. The results of research by Afni et al., (2018) Green investment has a positive effect on disclosure of carbon emissions. Like the researcher Syabilla et al., (2021) Green investment has a positive effect on disclosure of carbon emissions. Meanwhile, according to research by Dani & Harto (2022) green investment has no effect on disclosure of carbon emissions. Therefore, the hypothesis proposed is as follows:
H1: Green Investment has a positive effect on Disclosure of Carbon Emissions

Green Strategy

Green Strategy is a strategy that is able to complement the strategy of business, operations, and company assets that helps companies make decisions that have a positive impact on the environment (Abidin, 2021). Green Strategy is a business strategy that pays attention to aspects of environmental protection and development, occupational safety and health and is supported by an attitude of "commitment, involvement, and leadership" that is real at every level and action (Sarwono, 2002). According to Olson, (2008) a green strategy is a corporate strategy that will help a decision contribution for the company. Companies that implement a green strategy are expected to be more likely to disclose information on carbon emissions because a green strategy is one of the supporting factors in disclosing information about carbon emissions, which means that it shows the company pays attention to environmental preservation. The results of research by Afni et al., (2018) and Sari & Susanto (2021) Green Strategy have a positive effect on disclosure of carbon emissions. Whereas Li et al, (2016) green strategy has no effect on disclosure of carbon emissions. Therefore, the hypothesis proposed is as follows:
H2: Green Strategy has a positive effect on Disclosure of Carbon Emissions

Company Size

Company size is an assessment of the size of a company which is reflected or assessed from total assets, total sales, total profits, tax expenses and others (Brigham and Houston, 2015:4). According to Torang (2012: 93) company size is a measure that determines the number of

members involved in choosing how to control activities in an effort to achieve company goals. Company size is a business size that is determined by the amount of equity, revenue, and asset value (Sawir, 2015: 101). The research results of Ratmono & Selviana (2019) and Saptiwi (2019) show that company size has a positive effect on disclosure of carbon emissions. Meanwhile, according to Irwhantoko & Basuki (2016), and Pratiwi (2018) it is said that company size has no effect on disclosure of carbon emissions. Therefore, the hypothesis proposed is as follows:

H3: Company size has a positive effect on Disclosure of Carbon Emissions

Profitability

Profitability is the level of a company's ability to generate profits by using the resources owned by the company with a profit ratio to assess the ability of a company to earn profits (Kasmir, 2012). Profitability is related to the company's ability to generate profits in a certain period (Munawir, 2014:33). Profitability is defined as how the company has a net profit which is the result of the policies and decisions that have been taken by the company. With high company profitability, it will become a concern and even the target of stakeholders. Profitability is considered important for the continuity of its business so that the company will try to increase its profitability to ensure the continuity of its business (Hermuningsih, 2013). According to Setiawan et al., (2022) it is said that profitability has a positive effect on disclosure of carbon emissions. Therefore, the hypothesis proposed is as follows:

H4: Profitability has a positive effect on Disclosure of Carbon Emissions.

RESEARCH METHOD

The object of research in this study are mining companies listed on the Indonesia Stock Exchange and listed on PROPER. This research period is from 2017 – 2021. In this period, we will observe the effect of green investment, green strategy, company size, profitability on disclosure of carbon emissions. The sample selection in this study used a purposive sampling method. Based on this method, 11 mining companies were included in the sample criteria with a research period of 5 years, resulting in 55 samples. Data sources include annual financial report data, sustainability reports on mining sector companies listed on the Indonesia Stock Exchange (IDX) for the 2017-2021 period by direct access to the www.idx.co.id website, each company's website as well as PROPER data collected issued by the Ministry of Environment. The data that has been collected will be processed using Eviews.

Carbon Emissions Disclosure

Disclosure of carbon emissions in this study uses several items based on identification (Bae Choi et al., 2013). The carbon emission disclosure index adopted from Bae Choi et al., (2013) consists of five categories related to climate change and carbon emissions with 18 identification items. Companies that disclose each item are given a score of 1. So that the total score obtained by the company will be divided by a maximum score of 18. The carbon emission disclosure index used in this study is a development of the Carbon Emission Project, where each item will be given a score of 1 if the company discloses it, if the company does not disclose each item, it will be given a score of 0.

$$CED = \frac{\text{Total Score Company}}{\text{Score maximal}} \times 100\%$$

.... (1)

Green Investments

Green Investment is measured using the PROPER level conducted by the Ministry of Environment. The PROPER rating is given by the Ministry of Environment to companies that are serious about investing their funds in environmental management (Syabilla et al., 2021). This program is expected to encourage companies to comply with laws and regulations and implement cleaner production. The PROPER rating consists of 5 color ratings (Gold, Green, Blue, Red, Black). The criteria for each of these colors are gold given a score of 5, green given a score of 4, blue given a score of 3, red given a score of 2, and black given a score of 1.

Green Strategy

The green strategy in this study is measured using the Global Repotting Initiative. The GRI standards used are based on the G4 sustainability guidelines which contain general standards and disclosure standards. GRI G4 is the latest reporting standard issued by GRI in 2013. Aspects related to GRI are programs of a sustainable development strategy that fall into three categories of sustainability, namely environmental, social and economic. The GRI G4 standard shows how the company's strategy is to create a company that cares about the environment, social and economy (Li, D., Huang, M., Ren, S., Chen, X., & Ning, L. (2016).

Company Size

In measuring the size of the company using ln total assets. The size of a company can be seen from the amount of total assets it owns; size can reflect the economic power possessed by a company because with good asset quality it will avoid the company's financial problems (Simamora, R. N. H., Safrida, & Elviani, S. 2022).

$$\text{Company Size} = Ln\,(\text{Total Assets})$$

.... (2)

Profitability

This study uses the ratio of return on assets because using ROA can assess the company's overall profit. ROA is used as the basis for measuring profitability because this measure is popular and reflects the total returns that can be generated by companies from the total assets they control (Sparta & Ayu, 2016), (Hidayat, Taufiq et. all. 2021) and (Hidayat, Taufiq et. all 2022).

$$\text{Return on Asset} = \frac{\text{Net Profit}}{\text{Total Asset}} \times 100\%$$

.... (3)

Multiple Linear Regression Analysis

This study uses a multiple linear regression model, with a period of 2017-2021 which is shown to determine the effect of the independent variables, namely green investment, green strategy, company size, and profitability on the dependent variable, namely disclosure of carbon emissions. The formula for multiple linear regression analysis for the research equation is as

follows:

$$CED_{i,t} = \alpha_0 + \beta_1 GI_{i,t} + \beta_2 GS_{i,t} + \beta_3 SIZE_{i,t} + \beta_4 PROF_{i,t} + \varepsilon_{i,t} \dots\dots\dots\dots\dots\dots\dots (4)$$

RESULTS AND DISCUSSION

Descriptive statistics

Descriptive statistics can describe the description of the characteristics of each variable from the sample used in this study. The dependent variable in this study is disclosure of carbon emissions, while the independent variables are green investment, green strategy, company size, and profitability. The following are the descriptive statistical results of the research variables used:

Table 1
Result Statistics Descriptive

Variabel	Mean	Median	Max	Min	Std. Dev	Skewness
CED	0,383927	0,389000	0,833000	0,000000	0,238569	-0,110613
GI	3,981818	4,000000	5,000000	3,000000	0,757455	0,029684
GS	0,516764	0,549000	0,736000	0,000000	0,133584	-1,239292
SIZE	30,79345	30,82000	32,32000	28,41000	0,914345	-0,843647
ROA	0,074547	0,052900	0,392000	-0,158000	0,100186	1,040253

Output Eviews 12, 2023.

Disclosure of carbon emissions as the dependent variable in this study was measured using a carbon emission disclosure checklist developed by Choi, et al (2013). Based on table 1, namely the results of descriptive statistics, it can be seen that disclosure of voluntary carbon emissions as the dependent variable in this study has a minimum value of 0,000 which is data from PT Indika Energi Tbk in 2017 and 2018 and a maximum value of 0,833 which is data from PT Bukit Asam Tbk in 2019. The average value is 0,383, this shows that the average company discloses 38% or around 6 disclosure items out of 18 disclosure items on the Carbon Disclosure Project (CDP) index. This shows that the disclosures made by companies are still relatively low because on average companies disclose less than 50% of the total items on the Carbon Disclosure Project (CDP) index. The standard deviation value of the carbon emission disclosure variable is 0,238569 which is smaller than the average value of 0,383927. The value of the standard deviation describes the variation in the distribution of data from the carbon emission disclosure variable, which means that the smaller the value of the standard deviation compared to the average value, the closer to the average value and the data is relatively homogeneous.

Green Investment is the first independent variable and is measured using the PROPER level issued by the Ministry of Environment and Forestry. Based on table 4.2, it can be seen that green investment has an average value of 3,98 and a standard deviation of 0,757455, which means that the smaller the standard deviation value indicates that the data is relatively homogeneous or well distributed. The assessment results obtained for the green investment variable resulted in a minimum value of 3,00 obtained from PT AKR Corporindo Tbk while a maximum value of 5,00 was obtained from PT Bukit Asam Tbk in 2017.

The Green Strategy in this study is the second independent variable measured using the GRI G4 standard. Based on table 4.2, it can be seen that the green strategy has an average value

of 0,516 and a standard deviation of 0,133, which means the smaller the standard deviation value, the data is well distributed. The results of the assessment obtained for the green strategy variable resulted in a minimum value of 0,00 obtained from PT Vale Indonesia Tbk in 2021, while a maximum value of 0,736 was obtained from PT Aneka Tambang Tbk in 2020.

Company size in the study is the third independent variable which is measured using the natural logarithm of total assets. Based on table 4.2, it can be seen that company size has an average value of 30,79345 and a standard deviation of 0,914345, which means that the distribution of company size data is well distributed. The assessment results obtained for the company size variable resulted in a minimum value of 28,41000 obtained from PT Mitrabara Adiperdana Tbk in 2017, while a maximum value of 32,32000 was obtained from PT Adaro Energi Indonesia Tbk.

Profitability in this study is the fourth independent variable which is measured using the ratio of return on assets (ROA). Based on table 4.2, it can be seen that profitability has an average value of 0,074547 and a standard deviation of 0,100186, which means that the distribution of data is very varied or heterogeneous so that the data is not well distributed. The results of the assessment obtained for the profitability variable yield a minimum value of -0,158 obtained from PT Berau Coal Tbk data for 2020, while the maximum value is 0,392000 obtained from data from PT Mitrabara Adiperdana in 2021.

Discussion of Research Results

Before testing the hypothesis, the model accuracy test and the classical assumption test are carried out first. The model accuracy test includes the chow test, hausman test and lagrange multiplier test. The classic assumption test consists of a normality test, multicollinearity test, heteroscedasticity test and autocorrelation test. Based on the model accuracy test, the analysis model used is the random effect model (REM). Hypothesis testing is done by testing the equation model partially. The results of testing the regression model are as follows:

Table 2
Results Hypothesis Testing

	Coefficient	Std. Error	t-Statistic	Prob.
C	-3,381284	1,626362	-2,079048	0,0428
GI	0,091620	0,042886	2,136364	0,0376
GS	-0,050684	0,206891	-0,244977	0,8075
SIZE	0,111073	0,054681	2,031277	0,0476
ROA	0,084276	0,332612	0,253377	0,8010

Output Eviews 12, 2023.

Testing the first hypothesis is the effect of green investment on disclosure of carbon emissions. Based on table 2 the independent variable GI (Green Investment) has a probability value of 0,0376 which means it is smaller than the significance value of 0,05. Thus, it can be said that H1 or hypothesis 1 is accepted, that green investment has a positive effect on disclosure of carbon emissions. This shows that companies that implement green investment in managing their company's operations will disclose carbon emissions more broadly. The proper rating used in measuring green investment shows that the better the PROPER level, the wider the disclosure of carbon emissions by companies. The results of this study are in line with research conducted by Afni et al., (2018) and Syabilla et al., (2021) which show that green investment has a significant positive effect on disclosure of carbon emissions. This means that when companies

can provide financing related to environmental impacts and climate change, it can encourage companies to make better disclosure of carbon emissions. Research by Dani & Harto (2022), Allam, G. A., & Diyanty, V. (2020) and Karim, A. E., Albitar, K., & Elmarzouky, M. (2021) says that green investment as a financing program will be focused on reducing carbon emission levels which will later have a positive impact on company sustainability.

Testing the second hypothesis is the effect of green strategy on disclosure of carbon emissions. Based on table 2 the independent variable GS (Green Strategy) has a probability value of 0,8075 which means it is greater than the significance value of 0,05. Thus, it can be said that H2 or hypothesis 2 is rejected, this is because the measurements used in this study cannot directly explain the green strategy that has been carried out by companies towards disclosing carbon emissions by companies. This measurement uses indicators in the GRI, which means that these indicators cannot directly reflect that companies implementing green strategies will make broader disclosures of carbon emissions, so that attitudes and actions are needed that involve company leaders to directly act in reducing emissions. The results of this study are in line with research conducted by Li et al, (2016) which states that there is no effect of green strategy on disclosure of carbon emissions.

Testing the third hypothesis is the effect of company size on disclosure of carbon emissions. Based on table 2 the independent variable SIZE (Company Size) has a probability value of 0.0476 which means it is smaller than the significance value of 0,05. Company size has a regression coefficient of 0,111073, meaning that there is a positive influence on Disclosure of Carbon Emissions. Thus it can be said that H3 or hypothesis 3 is accepted. This indicates that a company with a larger company size will have a wider disclosure of carbon emissions presented in the company's sustainability report and annual report. According to Luo (2019) the larger a company shows the resources owned by a company are also greater so that it will increasingly support expanding disclosure related to the environment. The research results are in line with research conducted by Ratmono & Selviana (2019), Saptiwi (2019), Amaliyah & Solikhah (2019), and Nastiti (2022) and are not in line with the research by Irwhantoko & Basuki (2016), Pratiwi (2018) and Ben-Amar, W., Chang, M., & McIlkenny, P. (2017) which says that company size has no effect on disclosure of carbon emissions. This research shows that companies that have a large size will be encouraged to provide information about carbon emissions more broadly.

Testing the fourth hypothesis is the effect of profitability on disclosure of carbon emissions. Based on table 2 the independent variable ROA (Profitability) has a probability value of 0,8010 which means it is greater than the significance value of 0,05. Thus, it can be said that H4 or hypothesis 4 is rejected. This shows that companies with greater profits cannot guarantee that they will make broader disclosures of carbon emissions, instead companies will feel afraid if expanding disclosure can disrupt information on the company's financial success (Pradini, 2012). If the company experiences financial losses in an insignificant amount, the company will continue to make disclosures related to the environment including disclosure of carbon emissions to maintain the company's environmental image and responsibility (Koeswandini & Kusumadewi, 2019). The results of the research are in line with research conducted by Eka Dewayani & Ratnadi (2021), Pratiwi (2018), P. C. Pratiwi & Sari (2016) and Desai, R. (2022) which say that profitability has no effect on disclosure of carbon emissions.

CONCLUSION

This study aims to examine the effect of green investment, green strategy, company size, and profitability on disclosure of carbon emissions. The test results show that there are two variables that have a significant effect, namely green investment and company size on disclosure of carbon emissions, and the other two independent variables, namely green strategy and profitability on disclosure of carbon emissions, have no significant effect. The green investment variable has a positive effect on disclosing carbon emissions, where companies that implement green investment will have a positive impact on companies because they show concern for the environment through disclosure of carbon emissions in annual reports and sustainability reports. The Green strategy variable has no effect on the disclosure of carbon emissions, because the measurements used cannot directly explain the green strategy used by companies. The variable company size as a proxy for company characteristics has an influence on disclosure of carbon emissions, where larger companies will be encouraged by stakeholders to make disclosures related to carbon emissions to show the company's concern and responsibility for the environment. The variable profitability as a proxy for the characteristics of the company has no effect on the disclosure of carbon emissions, where the profitability of a large company does not necessarily mean that the company will disclose a wider range of carbon emissions.

Based on the limitations in this study, the researcher has several suggestions that can be carried out by further research, namely the independent variables of this study are only able to explain 14,95% of the dependent variable so that 85,05% is still influenced by other independent variables such as environmental performance, type of industry, media exposure, and corporate governance. This study only uses company size and profitability so that further research can use leverage or capital expenditure as a proxy for company characteristics. Future studies are expected to be able to use different measurements to measure the extent of disclosure of carbon emissions using emission indicators in the GRI, green investment using measurements that look at the total expenditure used to replace the company's operational tools with technologies that can reduce emissions, green strategy using measurements which shows the readiness of the commitment of company leaders to implement a green strategy or green strategy checklist which includes strategic processes, implementation, environmental performance, and financial competitive performance.

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