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THE ROLE OF FINANCIAL PERFORMANCE IN MEDIATED RELATIONSHIP BETWEEN CARBON EMISSION LEVEL, CARBON EMISSION DISCLOSURE, AND INVESTOR BEHAVIOUR

Gita Ayu Tiara[1], Rahmasari Fahria[2]

[1,2]Universitas Pembangunan Nasional Veteran Jakarta, Jakarta, Indonesia
[1]gitaayutiara@gmail.com
[2]rahmasarifahria@upnvj.ac.id

ABSTRACT

This study aims to explore the role of financial performance in the mediated relationship between carbon emission levels and carbon emissions disclosure on investor behavior in the form of abnormal returns. The study sample is a non-financial company listed on the Indonesian Stock Exchange from 2018- to 2020 and the samples were taken using the purposive sampling method. This study finds that carbon emission level and carbon emission disclosure don't have any significant impact on investor behavior in form of stock's abnormal returns, this study also finds that financial performance (ROE) doesn't significantly affected by carbon emission level and carbon emission disclosure and it's also don't have any significant effect on stock's abnormal returns. Therefore this study finds that financial performance (ROE) cannot mediate the relationship between carbon emission level, carbon emission disclosure, and investor behavior. However, this study has flaws and limitations, such as unstable economic conditions due to covid-19 in Indonesia and limited data resources that lead to a reduction of the year sample. For further research, this study suggests using a control variable for the return of equity variable.

Keywords: *Carbon emissions, carbon emissions disclosure, financial performance, abnormal returns.*

INTRODUCTION

Since the industrial revolution that occurred in 1760, there has been an increase in greenhouse gas components in the atmosphere which generally comes from industrial activities to produce energy by burning fossil fuels. This caused an increase in global temperature of about 0.7°C higher than in 1961-1990. To mitigate this, The World Economic Forum issued the term Low-Carbon Economy in its Global Risk Report in 2020. Low Carbon Economy is a new business model based on low energy consumption, pollution, and emissions, where companies are expected to reduce their carbon emissions and focus on sustainable development. In addition, In the 2015 Paris Agreement -to take action on climate change- countries around the world are committed to formulating policies and regulations in reducing companies' carbon emissions, which hereby pave the way for the development of the Low Carbon Economy concept, especially in Indonesia. As more and more climate risk news dominates the media, cause the pressure to shift into a low-carbon economy comes not only from regulations and agreements but also from the entire world population, including investors.

PT Astra Agro Lestari is one of the companies in the palm oil industry which is listed on the SRI KEHATI stock index on the Indonesia Stock Exchange (IDX) and has been named as The Best Companies with the highest Sustainable Responsible Investment Index in 2019. The company also holds its highest share price for the last 5 years with a nominal value of Rp. 16,775 in 2016, this number was 84% higher than the highest share price of PT Sampoerna Agro Tbk for the last 5 years, which was at Rp. 2,570. This phenomenon seems to indicate that companies who have good sustainable businesses get a positive response from the market (investors) compared to companies that are not environmentally sustainable.

Environmental performance and firm value have been explored in many previous studies, but still, show mixed results. Some previous studies suggest that the company's commitment to the environment and disclose it will have an impact on investor's behavior which describes the value of the company (Derwall et al., 2005; & Hussaney & Salama, 2010). Investor behavior is a series of actions taken by investors in response to information issued by a company to be used as a basis for making investment decisions. The climate issue that dominates the media changes the business paradigm from which was originally a single bottom line (profit) to a triple bottom line (profit, people, & planet) where the company's commitment to the environment is also considered important in this regard. Under the risk of climate change, it is expected that investors' evaluations in decision-making include not only profitability but also a commitment to environmental awareness.

LITERATURE REVIEW

One form of environmental awareness that companies can do is to pay attention to the level of carbon emitted. The reduction and efficiency of carbon emissions by the company is seen as a form of effort in respond to the climate risk caused by the carbon emissions. Research conducted by Young et al., (2019) shows that investors choose a long-term investment in companies with low carbon emissions and short-term investment in companies with high carbon emissions, the research indicates that investing in companies that are carbon-efficient can be profitable, even without government incentives. Contrary to this research, Bolton & Kacperczyk (2020) found that companies with high carbon emissions receive high rates of return. While Aswani et al., (2021) found an insignificant relationship between carbon intensity and stock return. In line with the stakeholder theory which states that the company must serve and fulfill the interests of its stakeholders (Abdullah & Valentine, 2009) the global climate change issue makes the stakeholers pressure the companies to implement sustainable practices. Previous research found that a commitment to sustainable practices will provide a competitive advantage for companies through improved performance, risk reduction, and a well-managed reputation (Clark et al., 2015; & Annisa & Hartanti, 2019). Investors are expected to consider the reduced risk caused by the company's commitment to reducing carbon emission levels as a good information in making investment decisions. Thus, companies that implement a sustainability strategy by paying attention to the level of carbon emissions produced are able to give a good information for investors, where this will have an impact on stock prices.

H1: The Company's Carbon Emission Level has a significant effect on Investor Behavior

Carbon emissions disclosure according to Velte et al., (2020) is part of a company's CSR report that contains information related to the impact of business activities on climate change, and the risks it causes, which are addressed to the stakeholders. Carbon emissions disclosure is a form of rationalization of the investor's expectation and other stakeholders on the company's sustainability. In line with this, research conducted by Ramirez et al., (2014) shows that the company's participation in Carbon Disclosure Project (CDP) well responded by the market through high stock price movements. Research conducted by

Kelvin (2019) shows an indirect relationship between carbon emissions disclosure and abnormal returns of shares, through the cost of equity (full mediation) Meanwhile, Li & Wu (2017) found that environmental announcements were responded negatively by the market through a negative abnormal return. Signaling theory accurately describes the motivation of companies to disclose carbon emissions, namely to be a good signal for investors. Based on this theory, voluntary disclosure of non-financial information, such as disclosure of carbon emissions, is expected to provide good news to investors. This study argues that companies that disclose carbon emissions tend to implement sustainability strategies in their business operations, which can be used as consideration for investment decisions, this can be concluded that the disclosure of carbon emissions will be positively responded by investors as indicated by the increase in the company's stock price.

H2: The Company's Carbon Emission Disclosure has a significant effect on Investor Behavior.

The company's commitment to sustainability through carbon efficiency and disclosure is considered to be a competitive value for the company which of course can improve financial performance. Several previous studies have found that reducing carbon emissions and disclosing carbon emissions have a positive impact on the company's financial performance through Return on Equity, Return on Asset, and Return on Sales (Lu et al., 2021; Emous et al., 2021; Alvarez et al., 2015; & Hart & Ahuja, 1996). Meanwhile, financial performance as a mediating variable refers to the results of previous research by Ardiyanto & Haryanto, (2017) which found that return on equity mediates the relationship between Corporate Social Responsibility and company value. The research of Kurnia et al., (2020) also found that financial performance mediates the effect of Carbon Emission Disclosure to the value of the company. Based on signaling theory carbon emission disclosures and commitments to reduce carbon emission give investors an idea of the company's non-financial performance, which also indicates that the company has good financial performance, Bergh et al., (2014) reveal that high-quality companies are generally motivated to make disclosures, while companies with poor quality tend to only make mandatory disclosures. Companies with high profitability are expected to contribute to reducing carbon emissions and make disclosures in the reports. This study also argues that the product environmentally friendly as a result of efforts to reduce carbon emissions will increase company sales, and a high level of disclosure of carbon emissions will give the company a good reputation, which will lead to an increase in profitability which leads to good financial performance.

H3: The company's carbon emissions level has a significant effect on financial performance

H4: The company's carbon emission disclosure has a significant effect on financial performance

Financial Performance is a measure of the formal efforts made by the company in terms of managing the resources that have been provided by the investors. Investors as part of the stakeholders are entitled to the company's efforts to manage the capital that has been given so that it can be used efficiently and effectively to generate profits. In line with this, stakeholder theory suggests that companies must operate in the interests of stakeholders who are the parties supporting the company's business (Ghozali & Chariri 2007). A good company's financial performance is evidence that the company has the ability to manage the available capital effectively, which can provide an illustration that the company's ability can reduce the risks faced by the company. Thus, it can be said that the company's success in managing its finances not only provides benefits in the form of company profits but can also be added value in the eyes of investors. This means that companies with good financial

performance will enjoy the benefits of high stock prices above what is expected. The researcher's argument is supported by previous research by Rahayu (2021) which shows a positive and significant relationship between financial performance as proxied by Earning per Share (EPS) and Cumulative Abnormal Return. The demand for company shares will be higher if investors will receive a high rate of return. Another study by Solihati (2019) showed that NPM and ROE had a significant and positive influence on Cumulative Abnormal Return. Based on this arguments and previous research, the researcher formulates the following hypothesis.

H5: Financial Performance has significant effect on investor behavior

A good company's financial performance shows that the investment risk is low, because the company is considered to be able to use its management capabilities optimally to achieve its goals and minimize the risk. Companies that have high environmental awareness generally apply unique strategies that are difficult to imitate by other competitors, this brings the company's competitive advantage and gains legitimacy from stakeholders. Superior in the competition means the company is able to outperform other competitors to get high profitability. Thus, companies that are committed to the environment and sustainability and transparent in their environmental disclosure will have a competitive advantage in the eyes of investors, this advantage also supported by the company's good financial performance which indicates a low investment risk. Research conducted by Ardiyanto & Haryanto (2017) found that return on equity mediates the relationship between Corporate Social Responsibility and firm value. Another study by Kurnia et al., (2020) also found that the relationship between Carbon Emission Disclosure and firm value was mediated by financial performance. The argument above leads to the following hypothesis:

H6: Financial Performance mediates the relationship between Carbon Emission Level and Investor Behavior.

H7: Financial Performance mediates the relationship between Carbon Emissions Disclosure and Investor Behavior.

The research model is presented in Figure 1.

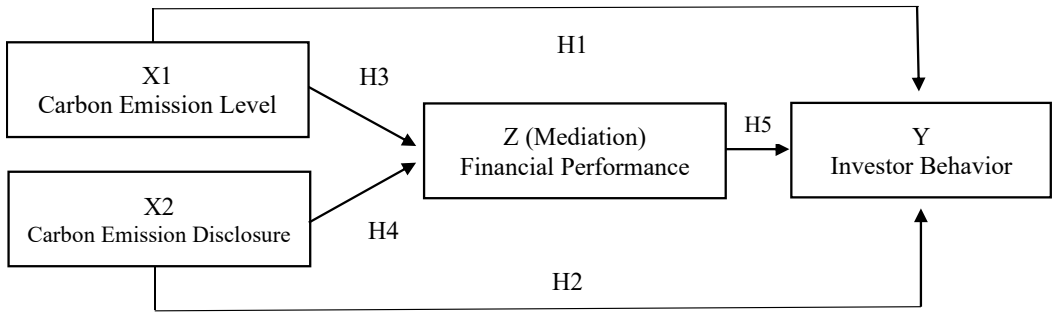

Figure 1. Research Model

METHOD

This research is quantitative research with secondary data sourced from financial statements and company annual reports. The population used was non-financial companies listed on the Indonesia Stock Exchange (IDX) from 2015-to 2020, we selected the sample using the purposive sampling method.

Investor behavior shows how the investors respond to a piece of information released by a company in making investment decisions. In this study investors' behavior is described by the accumulated abnormal returns, namely the difference between the actual stock returns and the expected stock returns over a certain period. This study uses an 11-day observation period, where 5 days before and after observation plus 1 day when the annual report and

company sustainability report are published and an estimated period of 60 days before the observation period. In this study, the market estimation model (market model) is used to determine the expected return. Calculation of Abnormal Return is obtained by using the following formula:

$$\boldsymbol{AR_{it} = R_{it} - E[R_{it}]} \quad (1)$$

where AR_{it} is the stock's abnormal return, R_{it} is the actual stock return, and $E[R_{it}]$ is the expected return of the stock.

Carbon Emissions are the total amount of emissions generated by the company as a result of the company's business activities. In this study, the level of Carbon Emissions is represented through Carbon Efficiency which is a measure of how efficient a company is in generating carbon emissions per 1 million revenue. Carbon efficiency is obtained by dividing the total emissions equivalent to carbon dioxide by the company's revenue (Trucost, 2015).

$$\boldsymbol{Carbon\ Efficiency = \frac{tco^2e}{Revenue\ (million)}} \quad (2)$$

Carbon Emissions Disclosure is part of the company's environmental disclosures in which there is information on the intensity of co^2 emissions, as well as strategies, risks, and opportunities related to climate change (Cotter et al., 2011). The scope of the carbon emissions disclosure in this study was measured using a checklist containing 5 categories related to carbon emissions and climate change with 18 specific items developed by Choi et al. (2013).

Table 1. Carbon Emission Disclosure Index

Category	Item	Description
Climate Change: Risk and Opportunities (CC)	CC1	Assessment or description of the risks relating to climate change and actions taken to address those risks
	CC2	Current and future assessment or description of financial implications, business implications, and opportunities of climate change
Emission Accounting (GHG)	GHG1	Description of the measurement methodology used to calculate the amount of GHG emissions (example: GHG/ISO Protocol)
	GHG2	There is external verification for measuring GHG emissions
	GHG3	Total GHG emissions are expressed in units of tons of carbon dioxide equivalent emissions (CO^2e)
	GHG4	Disclosure of Scope 1, Scope 2, and Scope 3 directly generated GHG emissions
	GHG5	Categories based on the source of the GHG emissions generated (example: coal, electricity, etc.)
	GHG6	GHG disclosure by facility or level segment
	GHG7	Comparison of GHG emissions from the previous year
Energy Consumption (EC)	EC1	Total energy consumption (in tera-joules/map-joules)
	EC2	Statement of the number of units of energy use from renewable resources
	EC3	Energy disclosures are categorized by type, facility, and segment
GHG Reduction and Cost (RC)	RC1	Details of the company's plans and strategies in order to reduce GHG emissions
	RC2	Details on the target level and year of GHG emission reduction
	RC3	Emission reduction and associated costs or savings achieved to date as a form of carbon emission reduction efforts
	RC4	Future emission costs are taken into account in capital expenditure planning
Carbon Emission Accounting (ACC)	ACC1	Indication that the board of committee or other executive body has full responsibility for climate change-related actions
	ACC2	Explanation of the mechanism used by the board to evaluate the company's progress related to climate change

Source: Choi et al (2013)

Each of the items will be given a value of 1 if it is disclosed in the Annual Report or Sustainability Report and will be assigned a value of 0 if not disclosed. The maximum total score is 18 and the minimum is 0. The disclosure scope will be calculated using the following formula:

$$\boldsymbol{CED = \frac{Total\ Score}{Maximum\ Score} \times 100\%} \quad (3)$$

Return on Equity(ROE) is a measurement ratio in measuring the company's profitability in relation to shareholder equity.

In this study, we use multiple regression analysis, path analysis, and Sobel test. Multiple linear analysis is used to determine whether the research hypothesis is proven to be significant or not. Multiple linear regression analysis was used to test hypotheses for hypotheses 1 to 4, with the following equation:

1. Model 1

$$\boldsymbol{CAR_{it} = \propto + \beta 1.CE_{it} + \beta 2.CED_{it} + \varepsilon} \quad (4)$$

2. Model 2

$$\boldsymbol{ROE_{it} = \propto + \beta 1.CE_{it} + \beta 2.CED_{it} + \varepsilon} \quad (5)$$

3. Model 3

$$\boldsymbol{CAR_{it} = \propto + \beta 1.CE_{it} + \beta 2.CED_{it} + \beta 3.ROE_{it} + \varepsilon} \quad (6)$$

RESULTS AND DISCUSSION

The population in this study were non-financial companies listed on the Indonesia Stock Exchange (IDX) from 2018 to 2020. The sample selection was carried out based on the criteria presented in Table 2.

Table 2. Sample Criteria

No	Sample Criteria	Total
1.	Population	647
3.	The company does not disclose policies related to carbon emissions in annual report nor sustainability report for the 2018-2020 reporting year	(597)
4.	The company does not disclose information related to the level of carbon emissions produced in annual report nor sustainability report during the period 2018-2020	(16)
5.	Outliers	(9)
	Number of Samples	**25**

Based on the sample criteria table above, it can be seen that the number of companies that meet the sample criteria (after outliers) is 25 companies, with 3 years of observation the total number of units analysis is 75 samples.

Descriptive Statistics Analysis

The results of descriptive statistical analysis in this study show the statistical conditions of the data from each variable will be shown in table 3.

Table 3. Descriptive Statistics Analysis Table

	N	Minimum	Maximum	Mean	Std. Deviation
CAR	75	-0.23	0.33	-0.006	0.10
CE	75	0.00015	1.64	0.23	0.35
CED	75	0.055	0.89	0.52	0.25
ROE	75	-0.18	0.45	0.11	0.096

CAR = Cumulative Abnormal Return, CE = Carbon Efficiency, CED = Carbon Emission Disclosure, dan ROE = Return on Equity

The results of descriptive statistics show that within the 25 samples the lowest cumulative abnormal return obtained is at the value of -0.23 or -23% while the highest value is 0.33 or 33%. The average results show that the rate of cumulative abnormal return of 25 companies is very low, only 0.06% with a standard deviation of 0.103 or 10.3%. The carbon Efficiency of the sample company shows a minimum value of 0.0015 and a maximum value of 1.64. These results also show that the average level of carbon efficiency from 25 companies in Indonesia is 0.23 with a standard deviation of 0.35. Carbon Emissions Disclosure of the sample company shows the lowest disclosure score of 0.56 and the highest score is 0.89. The results also show that the average score of the sample company in Indonesia is on the value of 0.52. Descriptive statistical results on Return on Equity show the minimum value of -0.18 and the maximum value is 0.45. In addition, the average ROE owned by the sample companies is 0.11 or 11% with a standard deviation of 0.095.

Classic Assumption Test

The normality test was carried out based on the Kolmogorov-Smirnov test. The test results show a significant level of 0.098 for model 1, 0.200 for model 2, and 0.200 for model 3. The significance results for the three regression models show a higher value greater than 0.05, which means the model has met the criteria for the normality test and is said to be normally distributed. The results of the multicollinearity test show the value of tolerance for the CE variable is 0.993, the CED variable is 0.979, and the ROE variable is 0.985, while the VIF value for each CE, CED, and ROE variable is 1.007; 1.021; and 1.015 respectively, the VIF value of each of these variables is less than 10. Therefore it can be concluded that there is no relationship that is reciprocal or correlation between the independent variables.

The results of the heteroscedasticity test show a significance value of 0.544 and 0.498 for the variable CE and ROE, which is greater than 0.05. In the CED variable, there is a heteroscedasticity problem because it has a significant value of 0.037, but after data transformation using the Park-test, the CED value is 0.726 which now is higher than the significance threshold, this can be concluded that there are no symptoms of heteroscedasticity in the regression model.

The results of the autocorrelation test show the value of Durbin-Watson of 1,680 < 2.106 < 2.320 for model 1, for model 2 the results are 1.680 < 2.106 < 2.320, and for model 3 the Durbin Watson value is 1.709 < 2.106 < 2.291. The value of dw for all the models is greater than the value of du which is the threshold value and less than the value of dl or 4-du. Thus, all regression models can be said to be free from autocorrelation.

Hypothesis testing

R^2 Statistical Test

Statistical test results for the R-Squared in model 1 show a value of 0.004, which means that the CE and CED variables have the ability to explain the dependent variable (CAR) only for 0.4%, and the remaining 99.6% is influenced by factors outside the research's independent variables. In model 2, the value of R Square is 0.015 which means that the independent variables (CE and CED) in model 2 only have the ability to explain the dependent variable (ROE) of 1.5%, and the remaining 95.5% is influenced by factors outside the independent variables of the study. While in model 3 can be seen the value of Adjusted R Square of -0.036 or -3.6% the ability of the independent variable in explaining the dependent variable, the negative results show that in model 3 all independent variables (CE, CED, and ROE) do not have the ability to explain the dependent variable (CAR).

T. Statistical Test

In this study, statistical hypothesis testing was used to see the effect of the independent variable on the dependent variable partially. The results are presented in the table below.

Table 3. T-Test Result Model 1

Model 1	t	Sig.
(Constant)	-0.543	0.589
CE	-0.290	0.773
CED	0.445	0.658

Table 5. T-Test Result Model 2

Model 2	t	Sig.
(Constant)	5.215	0.000
CE	0.252	0.802
CED	-1.031	0.306

Table 6. T-Test Result Model 3

Model 3	t	Sig.
(Constant)	-0.656	0.514
CE	-0.299	0.766
CED	0.484	0.630
ROE	0.376	0.708

Table 4 shows the emission level variable (CE) getting a t-count value of -0.290 which is smaller than the t-table (t-count < t-table) and a significance value of 0.773 which is greater than the significance threshold of 0.05. So it can be concluded that the level of carbon efficiency (CE) has no effect on cumulative abnormal return (CAR), therefore the first hypothesis (H1) is rejected. Table 5 shows the variable level of carbon efficiency (CE) showing a t-count value of 0.252 which is smaller than the t-table (t-count < t-table) and a significance value of 0.802 which is greater than the significance threshold of 0.05 is determining that carbon efficiency (CE) has no effect on financial performance (ROE), so the third hypothesis (H3) is rejected. Table 6 shows the financial performance variable (ROE) of 0.376, which is smaller than the t-table (t-count < t-table) and a significance value of 0.708, which is greater than the significance threshold of 0.05. Which can be concluded that financial performance (ROE) has no effect on cumulative abnormal return (CAR), therefore the third hypothesis (H5) is rejected.

Multiple Linear Analysis

The table below presents the results of multiple linear regression tests for model 1, model 2, and 3.

Table 4. Multiple Linear Regression Test Result Model 1

Model 1	*Unstandardized Coefficients*	
	B	*Std. Error*
(Constant)	-0.016	0.029
CE	-0.010	0.035
CED	0.022	0.049

Table 8. Multiple Linear Regression Test Result Model 2

Model 2	*Unstandardized Coefficients*	
	B	*Std. Error*
(Constant)	0.138	0.026
CE	0.008	0.032
CED	-0.046	0.045

Table 9. Multiple Linear Regression Test Result Model 3

Model 3	*Unstandardized Coefficients*	
	B	*Std. Error*
(Constant)	-0.022	0.034
CE	-0.010	0.035
CED	0.024	0.050
ROE	0.048	0.129

The results of linear regression model 1 show that the regression coefficient value of the CE variable has a negative value of -0.010 indicating that cumulative abnormal return (CAR) will decrease by 0.010 each time the company's carbon efficiency level increases by 0, while the regression coefficient value of the CED variable is positive at 0.022, where this value indicates that cumulative abnormal return (CAR) will increase by 0.022 for every 1 value of the score of carbon emission disclosure.

The results of linear regression model 2 show the regression coefficient value of the CE variable which has a positive value of 0.008 indicating that financial performance (ROE) will increase by 0.008 each time the company's carbon efficiency level increases by one. While the regression coefficient value of the CED variable is negative at -0.046, where this value indicates that financial performance (ROE) will decrease by 0.046 for every 1 value of carbon emission disclosure score.

The results of linear regression model 3 show the regression coefficient value of the CE variable which has a negative value of -0.010 indicating that cumulative abnormal return (CAR) will decrease by 0.010 each time the company's carbon emission level increases by one. For the regression coefficient value of the CED variable, it has a positive value of 0.024, where this value indicates that cumulative abnormal return (CAR) will increase by 0.024 for every 1 value of the score of carbon emission disclosure, with the consideration that other variables are constant. Furthermore, the regression coefficient value of the ROE variable is positive at 0.048, which means that cumulative abnormal return (CAR) will increase by 0.048 for every 1 increase in the value of financial performance (ROE), taking into account that other variables are constant.

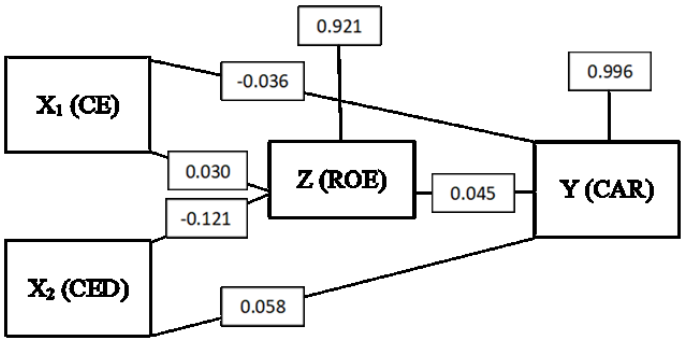

Figure 2. Path Analysis

Sobel Test

Table 5. Sobel Test Results

Description	Coefficient Value	Standard Error	P-Value of Sobel Test
Effect of carbon emission level on cumulative abnormal return through return on equity	0.008; 0.048	0.032; 0.129	0.835
The effect of disclosure of carbon emissions on cumulative abnormal return through return on equity	-0.046; 0.048	0.045; 0.129	0.727

The results of the Sobel test in table 10 show that the indirect effect of carbon efficiency levels (CE) on investor behavior (CAR) through financial performance (ROE) has a Sobel test value of 0.835> 0.05. Thus, the mediating effect of financial performance on the indirect relationship between carbon efficiency levels and investor behavior is not significant, so therefore the sixth hypothesis (H6) is rejected.

Furthermore, the results of the indirect effect of carbon emissions disclosure (CED) on investor behavior (CAR) through financial performance (ROE) have a value for the Sobel test of 0.727> 0.05. Thus, it is said that the mediating effect of financial performance on the indirect relationship between carbon emission disclosure and investor behavior is not significant, so the seventh hypothesis (H7) is rejected.

Table 6. Hypothesis Test Results Recapitulation

	Hypothesis	Resultl
H_1	The Company's Carbon Emission Level has a significant effect on Investor Behavior	Rejected
H_2	The Company's Carbon Emission Disclosure has a significant effect on Investor Behavior	Rejected
H_3	The Company's Carbon Emission Level has a significant effect on Financial Performance	Rejected
H_4	The Company's Carbon Emission Disclosure has a significant effect on Financial Performance	Rejected
H_5	Financial Performance has a significant effect on Investor Behavior	Rejected
H_6	Financial Performance mediates the relationship between Carbon Emission Levels and Investor Behavior	Rejected
H_7	Financial Performance mediates the relationship between Carbon Emission Disclosure and Investor Behavior	Rejected

DISCUSION

The Effect of Carbon Emission Levels on Investor Behavior

This study found that there was no significant effect of the level of carbon efficiency on stock returns, the results of the study are not in line with research by Young et al., (2019) which found that investors choose to invest long-term in companies that have low carbon emissions (carbon-efficient firms), and research by Bolton & Kacperczyk (2020) which found that companies with high carbon emissions will receive a high rate of return(returns) tall one. However, this study supports the results of research by Aswani et al., (2021) which found an insignificant relationship between the level of carbon emissions and stock return.

Effect of Carbon Emissions Disclosure on Investor Behavior

This study shows results that are in line with Kelvin's (2019) research on non-financial companies in Indonesia which found an insignificant direct effect between carbon emissions disclosure and cumulative abnormal return. But the result contradicts the research by Ramirez et al., (2014) that showed the better the company's participation in carbon emission disclosure projects will be well responded by the market through high stock price movements, and research by Li and Wu, 2017 which found that environmental announcements are actually responded negatively by the market through negatives abnormal returns.

Effect of Carbon Emission Level on Financial Performance

The company's commitment in reducing carbon emissions level is one form of effort made to mitigate climate change, this is seen as a unique way and has added value for the company, Hart & Ahuja (1996) revealed that management's ability to be able to use environmental strategies makes this a competitive advantage, based on the signaling theory environmental commitment gives a positive signal that the company has good financial performance. Not in line with the signal theory, the results of this study did not find a significant relationship between the level of carbon efficiency and financial performance through ROE.

Effect of Carbon Emission Disclosure on Financial Performance

This study shows results that are not in line with research conducted by Lu et al., (2021) and Emous et al., (2021) which found that the carbon emission disclosure has a positive impact on the company's financial performance, that the better the company in disclosing emissions-related disclosure and climate change potential, companies will receive a higher level of return on equity, return on assets, and return on sales.

The Effect of Financial Performance on Investor Behavior

The results showed that there was no significant effect of the level of carbon emissions produced on the return received by the company, thus the fifth hypothesis (H5) was rejected. The results of this study support the research conducted by Rahayu (2021) who found that return on equity has no effect on abnormal returns share. However, the results of this study are not in line with the results of research conducted by Solihati (2019) which found that return on equity has a positive significant effect on abnormal returns.

Financial Performance Mediates the Relationship between Carbon Emission Levels and Investor Behavior

In accordance with the signaling theory that states a company with low levels of carbon emissions, in other words, having high carbon performance, will excel in market competition because of the company's commitment to the carbon topic in the midst of the existing climate change issues can be a value for consumers/society which indirectly leads to an increase in financial performance. Meanwhile, a good company's financial performance gives a signal to investors of low investment risk because the company is considered to have a good ability to manage its assets and liabilities. Thus, companies that are committed to the environment and sustainability will have a competitive advantage in the eyes of investors, this advantage is supported by the company's good financial performance which indicates a low investment risk. However, the results of this study indicate that financial performance in the form of return on equity unable to mediate the relationship, this study is not in line with research by Ardiyanto & Haryanto (2017) which suggests that return on equity mediates the relationship between Corporate Social Responsibility and firm value.

Financial Performance Mediates the Relationship between Carbon Emissions Disclosure and Investor Behavior

Based on signaling theory that companies who do voluntary disclosures (in this case carbon emission disclosures) provide a good picture of the company's performance because the company is considered confidential in its performance, which in this case includes financial performance. Meanwhile, a good company's financial performance gives a signal to investors of low investment risk because the company is considered to have a good ability to manage its assets and liabilities. Thus, companies that carry out transparency by disclosing carbon emissions will have a competitive advantage in the eyes of investors, this advantage is supported by the company's good financial performance which indicates low investment risk. Not in line with signaling theory, the result shows that return on equity is unable to mediate the indirect relationship between carbon emission disclosures and investor behavior, this study is not in line with research by Kurnia et al., (2020) which also found that the relationship between Carbon Emission Disclosure and firm value was mediated by financial performance.

CONCLUSION

Based on the study results which aims to determine and assess whether financial performance is able to mediate the indirect relationship between the level of carbon emissions and the disclosure of corporate carbon emissions to investors' behavior. From the test results on 25 samples of non-financial companies listed on the Indonesia Stock

Exchange, the results show that the level of carbon emissions in the form of carbon efficiency and carbon emissions disclosure has no significant effect on investor behavior in the form of cumulative abnormal returns, carbon emission levels in the form of carbon efficiency and carbon emissions disclosure has no significant effect on financial performance in the form of return on equity, return on equity does not have a significant effect on cumulative abnormal returns, and financial performance does not have the ability to mediate the relationship between carbon emission levels and carbon emissions disclosure on behavior investors. Thus can be said that in Indonesia, traditional investment considerations are still more important than environmentally friendly investments, investors still rely on traditional financial considerations in making investments. Companies with good carbon performance have not been able to outperform others so financial performance, in this case, is still dominated by other business strategies. Company awareness of the impact of carbon emissions in Indonesia is relatively low when viewed from the number of companies that raise the topic of carbon in their sustainability reports. This study has several limitations such as the number of samples and unstable economic conditions at the end of 2019 to 2020 due to covid-19 in Indonesia. Therefore, future research needs to consider a more observation period, it is also necessary to use variables control on variable return on equity. Researchers suggest that companies can try to reduce carbon emission levels and be proactive in promoting environmental performance to the public as a competitive advantage, researchers also suggest that investors lean towards a more sustainable and environmentally friendly company. Researchers also urge people to support environmentally friendly products and always monitor our carbon footprint.

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