The Existence of Carbon Trading Through Profitability and Carbon Emission Disclosure as a Concretization of Net Zero Emission

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ABSTRACT

Global warming and climate change are problems that require entities or companies to respond to these phenomena, so hat companies are required to be responsible for environmental problems related to emissions resulting from company activities. This research aims to determine the effect of profitability and carbon emission disclosure on trading carbon in energy sector companies listed on the IDX in 2017-2021. This research usesa quantitative approach. Data analysis techniques use descriptive statistical analysis, calssical assumption testing and hypothesis testing. The research result show that profitability has no effect on trading carbon, while carbon emission disclosure as an effect on trading carbon. Profitability and carbon emission disclosure effect simultaneously on the trading carbon.

KEYWORDS Profitability; Carbon Emission Disclosure; Trading Carbon

INTRODUCTION

Global warming and climate change are problematic that cause entities and political leaders to be driven to respond to the many pressures that have occurred (Choi, Lee & Psaros, 2016). Global warming can occur from increasingly complex human activities that cause the occurrence of greenhouse gas components and air pollution that will be absorbed by sunlight as well as radiation rays that will later be released to the earth's surface (Wijoyo, 2014). Indonesia's geographical location also affects this phenomenon, where it is located in a climate change-prone area and many industries that eventually increase carbon emissions.

Carbon emissions decreased by 56% and deforested forests and declining flora and fauna contributed 60% of emissions according to records from the Ministry of Environment and Forestry (Kemenrian LHK) (Sumiahadi, Chozin & Guntoro, 2016). One of the ways to tackle global warming and climate change is ratifying a new regulation adopted from the Kyoto protocol, the Paris Agreement in 2015, which aims to anticipate an increase in the

earth's temperature by no more than two degrees Celsius caused by global warming. Countries that contribute to setting commitments to reduce national emissions by participating in carbon trading actions nationally to oversee the implementation of National Determined Contributions (NDCs) (Kawanishi et al, 2020).

Carbon trading is a mechanism that adopts a market framework, namely entities that produce emissions in excess of the regulatory limit are obliged to pay a certain amount of funds to parties who have the potential for emissions produced not exceeding the stipulated limit. The carbine absorber must calculate or offset the carbon sequestration that has been owned. Entities or parties that experience a surplus from carbon sequestration will sell the potential carbon sequestration space to other parties that experience a carbon sequestration deficit (UNFCC, 2007). The carbon trading mechanism has the potential to pressure all parties to have an attitude of concern for global warming and climate change that continues to occur. Indonesia's commitment to reduce emissions as a form of concern is to reduce Greenhouse Gases (GHG) by 29% and it is projected that by 2030 the GHG figure will be at 2,881 GtCO2e (Kementerian-ESDM, 2020).

The phenomenon that occurs is related to the theory of legitimacy and the theory of stakeholders. Legitimacy theory focuses on the interaction between companies and society. The theory of legitimacy reveals that an entity always maintains a commitment that in carrying out the company's operational activities in accordance with applicable norms (Deegan, 2002). One of the company's efforts to maintain legitimacy by taking responsibility for the environment through the implementation of carbon emission disclosure and compliance with new regulations related to carbon emissions (Jannah & Muid, 2014). The stakeholder theory is created from a premise that reveals that the stronger the relationship established in the entity, the more the business continuity of the entity will be guaranteed. Stakeholders are individuals or groups that can influence the activities and presentation of financial statements on entities (Freeman et al, 2010). Carbon emission disclosure is a need for information by stakeholders, because stakeholders need reports related to the amount of gas and GHG emissions as a performance analysis tool regarding climate change (Firdaus, 2019).

Many strategies and efforts to reduce carbon emissions have been carried out, one of which is through scenarios that support net zero emissions, namely carbon trading. Carbon trading is an activity carried out in an effort to reduce carbon emissions so that the negative impact on climate change can be reduced (Irama, 2020). Carbon trading regulates the carbon management cycle produced, so that mobilization and emission reduction commitments are carried out as planned. The context of carbon in carbon trading includes six greenhouse gases contained in the Kyoto Protocol and calculated in units of CO2 ton equivalent (Hindrato et al., 2020). Trading carbon is calculated from the amount of carbon emissions after offsetting multiplied by the circulating carbon price (Entezaminia, Gharbi & Ouhimmou, 2021). Carbon trading can also be influenced by the company's management conditions, one of which is profitability or the company's ability to maximize profits and carbon emission disclosure (CED) actions.

Profitability is a company's ability to generate profits from income or investment (Novika & Siswanti, 2022). Profitability is reviewed from the company's ability to maximize profits, which will show the effectiveness of the company's management performance (Hery, 2019). Profitability can be a benchmark for environmental

responsibility by showing the stability of financial conditions, so that companies are not worried if there are additional costs such as carbon emission disclosure actions. The level of profitability can be measured through Return on Asset (ROA) (Halisa, 2014). Meanwhile, CED is a company's action to disclose its activities to stakeholders (Widiyani, 2022). The CED level can be measured through five main categories that have been adopted, including risks and risks and opportunities of climate change (CC), greenhouse gas emissions (GHG), energy consumption (EC), greenhouse gas reduction and cost (RC), and Accountability of Emission Carbon (AEC) (Choi, Lee, & Psaros, 2016).

RESEARCH METHOD

This study uses a quantitative approach. The quantitative approach is used for data that has been obtained in the form of numbers to be analyzed using statistical methods. The population in the study is energy sector companies listed on the Indonesia Stock Exchange (IDX) in 2017-2021. Sample selection uses the purposive sampling method or selection based on criteria. The sample selection criteria are as follows:

1. Energy sector companies listed on the Indonesia Stock Exchange in 2017-2021.
2. Energy sector companies that conducted Initial Public Offerings (IPOs) during 2017-2021.
3. Companies that conduct financial reporting using the dollar currency.
4. Companies that publish annual reports and sustainability reports.

The data analysis methods used include descriptive statistics, classical assumption tests (normality test, multicollinearity test, heteroscedasticity test, and autocorrelation test) and hypothesis test (multiple linear regression analysis, determination coefficient (R2), statistical test F and statistical test t) (Ghozali, 2018). The regression model equations in this study are as follows:

$$\mathbf{Y = \alpha + \beta_1 X_1 + \beta_2 Y_2 + e}$$

Information:

α	= Konstanta
β_1- β_2	= Koefisien
e	= *Erorr*
Y	= *Trading Carbon* (TR)
X_1	= Profitabilitas (PR)
X_2	= *Carbon Emission Disclosure* (CED)

RESULT AND DISCUSSION

1. Descriptive Statistics

Table 1. Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
X1_PR	42	,00	,43	,0898	,10667
X2_CED	42	,22	,83	,6204	,15517
YTR	42	-14680470,00	-580560,00	-6806669,0821	4759907,68761
Valid N (listwise)	42				

Source: *Output IBM SPSS Statistic 26*

The results of descriptive statistical analysis show that profitability has a minimum value of 0.00, a maximum value of 0.43, an average value of 0.0898 and a standard deviation value of 0.10667 which means greater than the average value, so it is said that profitability has a low data distribution.

The results of descriptive statistical analysis show that carbon emission disclosure has a minimum value of 0.22, a maximum value of 0.83, an average value of 0.6204 and a standard deviation value of 0.15517 which means smaller than the average value, so it is said that carbon emission disclosure has a high data distribution.

The results of descriptive statistical analysis show that trading carbon has a minimum value of -14680470.00, a maximum value of -580560.00, an average value of -6806669.0821 and a standard deviation value of 4759907.68761 which means that it is greater than the average value, so it is said that profitability has a low data distribution.

2. Classical Assumptions

The results of the classical assumption test show that the data has been free from classical assumptions. Classical assumption tests include data normality tests, multicollinearity tests, heteroscedasticity tests, and autocorrelation tests.

Here are the results of the classic assumption test:

Table 2. One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		42
Normal Parameters[a,b]	Mean	,0000000
	Std. Deviation	4297315,59474114
Most Extreme Differences	Absolute	,134
	Positive	,124
	Negative	-,134
Test Statistic		,134
Asymp. Sig. (2-tailed)		,055[c]

a. Test distribution is Normal.
b. Calculated from data.
c. Lilliefors Significance Correction.

Source: *Output IBM SPSS Statistic 26*

Table 2. Coefficients[a]

Model		Collinearity Statistics	
		Tolerance	VIF
1	X1_PR	,910	1,098
	X2_CED	,910	1,098

a. Dependent Variable: YTR

Source: *Output IBM SPSS Statistic 26*

Table 3. Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	5399656,399	1197052,845		4,511	,000
	X1_PR	-1136593,895	2844219,299	-,065	-,400	,692
	X2_CED	-2366512,790	1955266,305	-,198	-1,210	,233

a. Dependent Variable: ABRESID

Source: *Output IBM SPSS Statistic 26*

Table 4. Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,430[a]	,185	,143	4406125,61407	1,736

a. Predictors: (Constant), X2_CED, X1_PR

b. Dependent Variable: YTR

Source: *Output IBM SPSS Statistic 26*

3. Hypothesis test

Table 5. Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	-14984175,986	2845454,711		-5,266	,000
	X1_PR	157380,304	6760852,071	,004	,023	,982
	X2_CED	13158868,974	4647766,173	,429	2,831	,007

a. Dependent Variable: YTR

Source: *Output IBM SPSS Statistic 26*

The results of hypothesis testing in the statistical test t show as follows:

1. The profitability variable shows a significant value of 0.982 greater than 0.05 which means that profitability has no effect on carbon trading.
2. The carbon emission disclosure variable shows that a significant value of 0.007 is less than 0.05, which means that carbon emission disclosure has an effect on carbon trading.

1. The Effect of Profitability on Carbon Trading

The test results show that profitability has no effect on carbon trading. The results of the test are not in line with the stakeholder theory which reveals that the bigger the company, the greater the profit the company will get, so the company needs support in maintaining survival, one of which is by disclosing carbon emissions (Freeman, 1984).

This discrepancy is possible because companies sometimes have the assumption that expenses that do not generate profits will harm the company, one of which is participation in carbon trading activities. In fact, the implementation of carbon trading is not detrimental to the company because it is only buying and selling or it is possible that there will be a surplus if the company has the ability to reduce the amount of emissions produced by the company, so a demonstration of carbon trading is needed so that the company does not misperceive it.

2. The Effect of Carbon Emission Disclosure on Carbon Trading

The test results show that carbon emission disclosure has no effect on carbon trading. The results of the test are not in line with the theory of legitimacy and the theory of stakeholders, where the theory of legitimacy reveals that carbon emissions have a high externality value which makes them classified in the category of public goods that are controlled through new regulations, namely carbon trading or carbon trading. Meanwhile, stakeholder theory reveals that companies have high social environmental responsibility, where companies indirectly have an attachment to the social environment in accordance with the assumptions of stakeholder theory (Pratiwi & Ardini, 2019).

The discrepancy is possible because the disclosure of carbon emissions as the main benchmark and basis for calculating emissions is the main requirement in the implementation of the mechanism of carbon trading. The results of this test are supported by a previous research statement conducted by Liu & Li (2022) which revealed that discipline in regulations related to the environment has a positive effect on the implementation of carbon trading.

CONCLUSION

The conclusion based on the results of the study shows that profitability has no effect on carbon trading, while carbon emission disclosure has an effect on carbon trading. However, simultaneously profitability and carbon emission disclosure have an effect on carbon trading.

The researcher is then expected to add, replace and combine other variables, research objects to samples used related to carbon trading, and the results of this research are expected to be insight into knowledge and reference for readers in general.

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