Enrichment: Journal of Management, 13 (1) (2023)

Published by: Instiute of Computer Science (IOCS)

Enrichment: Journal of Management

Journal homepage: www.enrichment.iocspublisher.org

The impact of green investment, media coverage, and international sales on carbon emission disclosure with audit committee as the moderating variable

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ARTICLE INFO

Article history:

Received Mar 15, 2023
Revised Mar 30, 2023
Accepted Apr 20, 2023

Keywords:

Audit Committee;
Disclosure Of Carbon Emissions;
Green Investment;
International Sales;
Media Exposure;

ABSTRACT

This study aims to examine the effect of green investment, media exposure, and international sales on the disclosure of carbon emissions with the audit committee as a moderating variable. Researchers took data on companies from 2018 to 2021 and used energy company analysis units, basic materials, and non-cyclical consumers listed on the Indonesia Stock Exchange. The method of determining the sample in this study is using purposive sampling. The results of this study indicate that green investment has a positive and significant effect on the disclosure of carbon emissions, while media exposure and international sales have no significant effect on the disclosure of carbon emissions, while the audit committee moderates the effect of green investment and international sales on disclosure of carbon emissions, and the audit committee does not moderate the influence of media exposure on disclosure of carbon emissions.

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INTRODUCTION

In recent years, the issue of global warming has become a very important business and political issue in national and international circles, both developed and developing countries. Various challenges and threats due to global warming make governments in various countries make policies as a form of anticipation for business people that have a direct impact on reducing the quality of the environment. The cause of this climate change is the effect of greenhouse gases. The Intergovernmental Panel on Climate Change report (2020) states that human activities are accelerating the increase in greenhouse gas concentrations in the atmosphere. The accumulation of greenhouse gas concentrations in the atmosphere leads to excess heat that is absorbed by greenhouse gases. The trapping of excess heat is what then becomes the cause of the increase in the earth's temperature. In today's world, global warming has reached 1.50 C, which will cause many impacts such as increased heatwaves and heavy rain events. Greenhouse Gases (GHG) or Greenhouse Gas Emissions (GHGs) are also one of the causes of climate change.

Currently, the disclosure of carbon emissions is required in the company's sustainability

report. This has resulted in a lack of stakeholder awareness of the adverse effects of carbon emissions. Many positive consequences that can be taken for disclosing carbon emissions in sustainability reports can increase investor confidence as well as declining competitors, investors have more trust in companies that are open in company operations.

In this study, several factors affect the disclosure of carbon emissions in a company. Green investment, media coverage, international sales, and audit committees as research variables are thought to be influential aspects in carbon emission disclosure. Unlike previous studies, the object of research uses the Energy, Basic Materials, and Consumer non-Cyclical sectors. Researchers use this sector because production processes allow causing carbon emissions to increase.

RESEARCH METHOD

This study aims to determine the variables of green investment, media coverage, and international sales of carbon emission disclosure with the audit committee as a moderation variable in energy, basic materials, and consumer non-cyclical sector companies. The type of research used by the author is quantitative research. A quantitative approach is an approach using numbers as a basis for calculation, starting from data collection, interpretation of the data, and the results of the data that has been processed. Quantitative data in this study is in the form of annual reports and sustainability reports from Energy, Basic Materials, and Consumer non-Cyclical sector companies listed on the Indonesia Stock Exchange during the 2018-2021 period. The population in this study is Energy, Basic Materials, and Consumer non-Cyclical sector companies that have been listed on the Indonesia Stock Exchange and published annual reports and annual sustainability reports for 2018-2021. From this study, the data taken is considered, because the annual financial statements of companies in the Energy, Basic Materials, and Consumer non-Cyclical sectors are very detailed in their financial statements.

Table 1. Variable Measurement

Variable	Variable Measurement
Carbon Emissions Disclosure (Y)	$\text{CED} = \frac{Total\ Company\ Score}{Shoes\ Maximum} \text{x } 100\%$ Using the 5 Checklist: 1. Climate Change (Opportunities &; Risks) 2. Greenhouse Gas Accounting (GHG Emission Calculation) 3. Energy Use Accounting (amount of Energy used) 4. GHG Reductions and Costs (Strategy, targets, and planning) Accountability for Carbon Emissions (existence of a responsible Board Committee)
Green Investment (X1)	Proper Rating 5 Color Rating (Gold (5), Green (4), Blue (3), Red (2), Black (1)
Media Coverage (X2)	A dummy variable (score 1 if there is information related to the environment, score 0 if there is no environmental disclosure)
International Sales (X3)	$\text{PI} = \frac{Total\ International\ Sales}{\text{Total Sales}} \text{x } 100\%$
Audit Committee (M)	Dummy Variables (Code 1 if meeting at least 4 times in 1 year, code 0 if meeting less than 4 times in one year)

Table 2. Research Sampling

No	Information	Sum
1.	Companies in the Energy, Basic Materials, and Consumer non-Cyclical sectors listed on the Indonesia Stock Exchange (IDX) for the period 2018 to 2021.	263
2.	Companies that did not publish consecutive sustainability reports during the 2018-2021 period	(238)
3.	Number of Companies that are the object of research.	25
	Research period	4 years
The number of samples used as the object of research		100

Source: Research Sample Criteria

This study uses quantitative data with multiple regression analysis methods and the tests carried out by this study are descriptive statistical tests, classical assumption tests, and hypothesis tests. The regression model in this study is as follows:

$$\mathbf{CED - \alpha - \beta_1 IH - \beta_2 LM - \beta_3 PI - \beta_4 (KA*IH) - \beta_5 (KA*LM) - \beta_6 (KA*PI) - e} \quad \mathbf{(1)}$$

Explanation:

CED	: Carbon Emissions Disclosure
a	: Constanta
b1, b2, b3, b4, b5, b6	: Koefisien Regresi
IH	: Green Investment
LM	: Media Coverage
PI	: International Sales
KA	: Audit Committee
E	: Error Term

RESULTS AND DISCUSSIONS

Descriptive Statistics

Descriptive statistics explain data in the form of the mean value, maximum value, minimum value, and standard deviation of each statistic in this study. This descriptive statistic describes data into information that is clearer and easier to understand in interpreting the results of data analysis and discussion.

Table 3. Descriptive Statistics

Variable	N	Minimum	Maximum	Mean	Std Deviation
CED	100	0,278	0,889	0,649	0,143
IH	100	3,00	5,00	3,700	0,703
LM	100	0,00	1,00	0,920	0,272
PI	100	0,000	100,000	22,767	30,915
KA	100	0,00	1,00	0,940	0,238

Source: Processed secondary data, 2022

Based on the table above, it is known that the dependent variable of carbon emission disclosure (CED) has a minimum value of 0.278 owned by ELSA companies in 2018. A maximum value of 0.889 was owned by an INTP company in 2018. The average value of the variable disclosure of carbon emissions in this study was 0.649 standard deviations of 0.143.

The green investment independent variable (IH) has a minimum value of 3.00 owned by a sample of ELSA companies in 2018, while a maximum value of 5.00 is owned by PTBA companies

in 2018. The average value of the green investment variable in this study was 3.7 and had a standard deviation value of 0.703.

The independent variable of international sales has a minimum value of 0.00 owned by a sample of BWPT companies in 2018, and a maximum value of 100.00, owned by INRU company in 2018. The average value of the international sales variable in this study was 22 and had a standard deviation value of 30.915.

Table 4. Dummy Variable Frequency Results

Variable	Frekuensi	Percentage (%)
Media Coverage (LM)		
The company does not disclose Media Coverage	8	8,0
Company Reveals Media Coverage	92	92,0
Audit Committee (KA)		
The company holds meetings less than 4 times a year	6	6,0
The company holds meetings at least 4 times a year	94	94,0
Total	100	100,0

Source: Processed secondary data, 2022

The independent variables of media coverage of companies that make environmental disclosures are as many as 92 companies (92.0%), companies that do not make environmental disclosures as many as 8 companies (8.0%).

The moderation variable of the audit committee is that the majority of companies hold meetings at least 4 times a year, namely as many as 94 companies (94.0%), while companies that hold meetings less than 4 times a year as many as 6 companies (6.0%).

Classical Assumption Test

Normality Test

The normality test aims to test whether, in a regression model, residuals have a normal distribution.

Table 4. Normality Test Results

	Unstandardized Residual
N	100
Asymp. Sig. (2-tailed)	0,085c

Source: Processed secondary data, 2022

The results of Kolmogorov Smirnov's statistical test in Table 4.4 show the value of asymp. Sig (2-tailed) is 0.085 > alpha (α = 0.05), implying normally distributed residual data.

Multicollinearity Test

The multicollinearity test is a condition in which there is a strong correlation among independent variables included in the formation of a linear regression model.

Table 5. Multicollinearity Test Results

Variabel	Tolerance	VIF	Kesimpulan
IH	0,530	1,887	There is no multicollinearity
LM	0,707	1,414	There is no multicollinearity
PI	0,123	8,152	There is no multicollinearity
KA* IH	0,417	2,401	There is no multicollinearity
KA * LM	0,754	1,326	There is no multicollinearity
KA * PI	0,118	8,498	There is no multicollinearity

Source: Secondary data processed, 2022

Heteroskedasticity Test

The heteroscedasticity test aims to test whether in the regression model, there is an inequality of variance from the residuals of one observation to another or to see the spread of data. The results of the heteroskedasticity test can be seen in the following table:

Table 6. Heteroskedasticity Test Results

Variable	Sig	Conclusion
IH	0,267	There is no heteroscedasticity
LM	0,316	There is no heteroscedasticity
PI	0,838	There is no heteroscedasticity
KA * IH	0,736	There is no heteroscedasticity
KA * LM	0,518	There is no heteroscedasticity
KA * PI	0,492	There is no heteroscedasticity

Source: Secondary data processed, 2022

Autocorrelation Test

To detect the presence or absence of autocorrelation symptoms in regression models can use statistical models from Durbin-Waston (D-W). Here is a table of autocorrelation test results:

Table 7. Autocorrelation Test Results

Model	Durbin Watson	Conclusion
100	1,947	No autocorrelation

Source: Processed secondary data, 2022

Based on the results of the autocorrelation test Table 4.8 shows the magnitude of the Durbin-Watson value of 1.947 (-2 < DW < +2). So, it can be concluded that this research data is free from autocorrelation, then the research data is good to use.

Test the hypothesis.

Multiple Analysis Regression Model

Multiple regression analysis is used to measure the effect of two or more independent variables on the dependent variable. Based on the dependent variable and the independent variable that has been predetermined, the multiple regression equation models used to test the hypothesis is as follows:

Table 8. Hypothesis Test Results

Variabel independent	Direction Prediction	B	Beta	t	Sig (one-tailed)	Decision
IH	+	0,114	0,559	2,201	0,015	H1 accepted
LM	+	0,180	0,342	0,868	0,194	H2 rejected
PI	+	-0,004	-0,752	-2,774	0,004	H3 rejected
KA * IH	+	0,093	0,713	1,706	0,046	H4 accepted
KA * LM	+	0,263	0,637	1,295	0,100	H5 rejected
KA * PI	+	0,003	0,588	2,131	0,018	H6 accepted
Adjusted R2					0,150	
Uji F					0,014	Significant

Source: Secondary data processed, 2022

CONCLUSION

This study aims to determine the effect of green investment, media coverage, and international sales on carbon emission disclosure with the audit committee as a moderation variable. green investment variables have a positive and significant effect on carbon emission disclosure Media coverage variables have no effect on carbon emission disclosure, International sales variables have no effect on carbon emission disclosure, and Moderation variables Audit committee strengthens the influence of green investment on carbon emission disclosure, Audit committee influences media coverage on carbon emission disclosure, and Audit committee strengthens international sales influence against carbon emissions disclosure. The limitations of this study are that there are still other variables outside the research variables, it is expected to further explore other factors that influence carbon emission disclosure, the number of samples of this study is relatively small from 263 companies listed only 25 companies that meet the sample criteria. Furthermore, researchers should be able to widen the research period so that the results of the analysis carried out can be more accurate and representative, covering other company sectors, and adding other variables that are thought to affect carbon emission disclosure such as environmental performance, company size and type of industry. To prove the conjecture, it is necessary to conduct further research.

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