



DISCLOSURE OF CARBON EMISSIONS: MEDIA EXPOSURE, INDUSTRY TYPE, AND PROFITABILITY OF FOOD AND BEVERAGE COMPANIES

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Abstract

This study aims to determine the effect of media exposure, industry type, and profitability on the disclosure of carbon emissions in food and beverage sector manufacturing companies listed on the Indonesia Stock Exchange in 2017-2019. The type of data used in this study is quantitative data sourced from the company's financial statements. The source of data in this study is secondary data. The population in this study is the food and beverage sector companies on the Indonesia Stock Exchange in the 2017 to 2019 period with a total of 60 companies. The sampling technique used purposive sampling technique based on predetermined criteria. Based on the predetermined criteria, a sample of 18 companies was obtained. The analytical method used in this study used logistic regression analysis. The results of this study show that, partially, media exposure has an insignificant effect on carbon emissions, industry type has a significant effect on carbon emissions, profitability has an insignificant effect on carbon emissions, and simultaneously, media exposure, industry type, and profitability have an effect on carbon emissions. The unique findings of this paper are relevant to government, management, and standard setters.

Keywords: media exposure; industry type; profitability; carbon emissions; food and beverage

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INTRODUCTION

Global phenomena such as climate change are one of the encountered major environmental issues. The development of a growing industry shows the expansion of industry and the economy but it also has an impact on the environment. The declining environmental conditions caused by the implementation of the economy have been the main problem in recent decades for the government (Sadiq et al., 2022). The decline in quality related to the environment is unavoidable so industrial growth, carbon retention, and other greenhouse gases tend to increase from time to time. The growing industrial activity causes a shift in the function of forests, land, and energy use. This is in line with POJK Nomor 51/POJK.03/2017, which states that the goal of sustainable development is to ensure the integrity of the environment as well as the safety, capabilities, welfare, and quality of life of present and future generations. Indonesia is a developing country and also a country that is geographically at risk of climate change. Therefore, better management and prevention of social and environmental risks are required. The management and prevention of environmental risks in the OJK regulations include emissions

and energy, in which companies and issuers that carry out business processes that are directly related to the environment must include energy use, energy reduction, the amount, and intensity of emissions as well as efforts to reduce emissions.

Based on an analysis conducted by the BMKG in 1866, Indonesia has had climate change as indicated by an increase in temperature of 2.120 over 100 years, an increase in the intensity of extreme rainfall in the last 30 years, to an increase in sea surface temperature (Putratama, 2020). Based on the information obtained from the United States Environment Protection Agency (2022), the impact of heating and cooling over time is caused by changes in the earth's energy balance. A warming effect can arise due to an increase in the concentration of Greenhouse Gases (GHG) in the atmosphere. Referring to this information, the impact of warming in the atmosphere from human-made GHGs increased by 45% from 1990 to 2019. An increase in GHGs in the atmosphere will have a negative impact on life on earth. To minimize the consequences of these problems, conservation forests have a role to exchange carbon so that the amount of GHG in the atmosphere is reduced. Reforestation and forest conservation must continue to improve nature and life on earth.

GHG emissions can also threaten people's lives and global development. This is also a concern for Indonesia as a developing country with industrial developments that are no less rapid than other developing countries. Indonesia's commitment to this can be seen through the implementation of the green economy transition, low carbon development priorities in an inclusive and equitable manner, to the focus on increasing the renewable energy mix, which was originally targeted at 11% to 23% by 2025 (Limanseto, 2021). Indonesia is also committed to reducing greenhouse gas (GHG) emissions by 26% by 2020 (Direktorat Jenderal Pengendalian Perubahan Iklim - Kementerian Lingkungan Hidup dan Kehutanan Republik Indonesia, 2017). Therefore, the triggers for the emergence of environmental pollution problems in Indonesia need to be investigated in depth so that appropriate prevention and repair efforts can be carried out, in this case, related to GHG emissions which are increasingly concerning. Management of GHG emissions arising from industrial activities can be controlled so as not to exceed the normal limits of GHG emissions and this has been studied for a long time in accordance with the Kyoto Protocol (Kyoto Protocol to the United Nations Framework Convention on Climate Change) which states that industrialized countries will reduce collective GHG emissions of 5.2% (United Nations). ASEAN and countries around the world are also committed to reducing continuing GHG emissions, including Indonesia which is committed to reducing these emissions unconditionally by 26% based on the scenario in 2020 (The Association of Southeast Asian Nations, 2021).

GHG emissions are the major source of problems that have an impact on global warming requires companies around the world to disclose these emissions (Akbaş & Canikli, 2018). The company's demand to compile a GHG emission report is a company effort and a high demand for sustainable development (Hilpert et al., 2011). Disclosure of carbon emissions is developed as an accounting treatment for these issues by presenting the company's approach to carbon generated from the company's operational activities in the annual report. By using this disclosure, companies can take precautions or ways to reduce carbon emissions. A study found that companies with principles of corporate sustainability have a positive impact on CSR committees and reports both related to decisions from reporting and behavior on the sustainability of emission reductions (Córdova et al., 2018). Based on this report, stakeholders can assess the company's role in reducing GHG and as a form of company concern for the environment, so that the company's efforts to reduce carbon emissions with carbon accounting are in line with the CSR concept.

Previous research has examined the disclosure of carbon emissions from various aspects, both domestic and abroad. This research refers to research conducted by Bae Choi et al. (2013) Carbon Emission Disclosure is measured by several items in five relevant broad categories based on the information request sheet provided by the CDP (Carbon Disclosure Project). Media exposure is one of the variables used in the study considering the role of the media in providing information. Media exposure is one of the variables that can have a significant effect on the disclosure of carbon emissions (Saputro & Basuki, 2019; Hermawan et al., 2018). Similarly, Kusumah R et al. (2019) put forward that media exposure has a significant and positive effect on the disclosure of carbon emissions. Media exposure by companies' CEOs can improve decisions in making green technology innovation decisions for pollution that occurs in China (Wang et al., 2022). In the research conducted by Dawkins and Fraas (2011) and Bae Choi et al. (2013), they found empirical evidence that the media have a positive effect on the disclosure of carbon emissions and play a role in monitoring the activities of companies that can affect climate change. With the news released in the media, stakeholders become more aware of the surrounding environment and take a stand on the news.

The type of company is certainly considered prior to their inclusion in this research. Industrial companies with a high profile have a tendency to have greater risk due to more attention from the public (Roberts, 1992), and in their operations, they tend to have a negative impact on the environment (Reverte, 2009). Similar findings can be found in research by Kusumah R et al. (2019) which assessed one of the variables, industry

type, that has a negative impact on the disclosure of carbon emissions. Different findings can be seen in the study conducted by Bae Choi et al. (2013) which show that the industry type affects the disclosure of carbon emissions because the emission-intensive industry will get stricter supervision from the government and is often a sensitive political issue in a country so that those who are in the emission-intensive sector are more likely to provide voluntary disclosures, including disclosure of carbon emissions. The industry type is one of the determinants that have a significant (Wahyuningrum et al., 2020; Faisal et al., 2018) and positive impact on environmental disclosure. The industry category that is classified as sensitive in providing information related to the environment is more than the non-sensitive industry (Wahyuningrum et al., 2020).

Profitability is also our consideration to be included in this study as an assessment of performance from a financial perspective. A structured examination of the present and future related to environmental accounting disclosures may provide an overview of critical problems and concerns. By understanding the importance of environmental accounting disclosures, profitability provides a role (Suileek & Alshurafat, 2023) and impact in disclosing the environment (Hermawan et al., 2018) because companies with the good financial condition are more likely to disclose environmental information (Luo et al., 2013). The opposite research results show that profitability has a negative impact on the disclosure of carbon emissions (Kusumah R et al., 2019). Other findings show that profitability does not have a significant impact on the disclosure of carbon emissions (Prado-Lorenzo et al., 2009; Asmeri et al., 2017; Bae Choi et al., 2013; Saputro & Basuki, 2019).

Manufacturing companies in the food and beverage sector that are listed on the Indonesia Stock Exchange (IDX) are the subjects of our research considering that the sector has factory waste which has a remarkably large impact on the environment around the factory. Disclosure of carbon emissions is explained in the environmental report which is presented in the annual report of manufacturing companies in the food and beverage sector. Previous research conducted regarding carbon emissions shows that there are still companies that lack detail and pay attention to this because this will affect the credibility and lack of trust of investors in the company. This research is interesting to conduct, re-verifying the results of previous studies and there is still limited research on this topic with research subjects in Indonesia.

METHOD

The research method used is verification research using quantitative data sourced from the financial statements of manufacturing companies in the food and beverage sector on the Indonesia Stock Exchange (IDX) website during the 2017-2019 period. Based on information obtained on the IDX website, there are 60 companies classified as food and beverage sector companies that are selected as the population. The authors used a purposive sampling technique in determining the sample to be tested with the following criteria.

Manufacturing companies in the food and beverage sector listed on the Indonesia Stock Exchange in 2017-2019. Companies that are consistently listed as the food and beverage sector on the IDX in 2017-2019. Companies that attach audited financial statements for 2017-2019. Manufacturing companies in the food and beverage sector that report their consolidated financial statements in rupiah in 2017-2019. Food and beverage sector manufacturing companies in 2017-2019 that reported no losses.

This study involves three independent variables, including media exposure, industry type, and profitability, while the dependent variable used is carbon emissions. The media exposure variable is assessed using a dummy variable that refers to the research conducted by Abdullah et al. (2020), the industry type is assessed using a dummy variable referring to Bae Choi et al. (2013), and profitability is assessed using ROA by dividing total profit and total assets. The assessment of profitability variables refers to research conducted by Luo et al. (2013). Companies that earn profits have the ability from a financial perspective to make green decisions, unlike companies that are not profitable (Luo et al., 2013). Carbon emissions as the dependent variable are assessed using a dummy variable that refers to the research conducted by Bae Choi et al. (2013) so that it can be seen how far the company can disclose carbon emissions.

The data presented in descriptive statistics are usually in the form of measures of data concentration (mean, median, and mode), measures of data spread (standard deviation and variance), tables, and graphs (histograms, pies, and bars). The next stage is testing using a logistic regression test. The logistic regression model that is formed produces regression coefficient values and significance. By including variables in the model, the logistic regression model in this study is:

$$\ln = Y/(1 - Y) = \alpha + B_1 X_1 + B_2 X_2 + B_3 X_3 + e$$

Y stands for Carbon Emission, α represent Constant B_1 , B_2 , B_3 stands for Regression Coefficient, X_1 represent Media Exposure, X_2 stands for Industry Type, X_3 represent Profitability, e stands for Residual Error.

RESULTS

The first test was conducted to find out the overview descriptively for each of the included variables using descriptive regression analysis with the results obtained as follows.

Table 1. Descriptive Regression Analysis

	N	Minimum	Maximum	Mean	Std. Deviation
Media Exposure	54	0	1	.56	.502
Industry Type	54	0	1	.57	.499
Profitability	54	.001	.527	.14509	.123473
Carbon Emission	54	0	1	.48	.504
Valid N (listwise)	54				

Source: Processed in SPSS version 25

Descriptive testing used a sample of 54 data (N = 54). Each variable was tested and the results obtained are shown in Table 1. The media exposure variable used as X_1 has a minimum value of 0, a maximum value of 1, an average of 0.56, and a standard deviation of 0.502. The industry type variable as X_2 obtained a minimum value of 0, a maximum value of 1, an average of 0.57, and a standard deviation of 0.499. The profitability variable as X_3 obtained a minimum value of 0.001, a maximum value of 0.527, an average of 0.14509, and a standard deviation of 0.123473. Further testing was also carried out for the dependent variable of carbon emissions (Y) which obtained a minimum value of 0, a maximum value of 1, an average of 0.48, and a standard deviation of 0.504.

In the next step, after testing descriptively, a logistic regression analysis test was conducted for the model that has been formed. Before the logistic regression analysis, two feasibility tests were carried out, consisting of the goodness of fit and an assessment of the overall model fit. Based on the goodness of fit that has been carried out, the results can be seen in Table 2 below.

Table 2. Goodness of Fit

Hosmer and Lemeshow Test			
Step	Chi-square	df	Sig.
1	11.854	8	.158

Source: Processed in SPSS version 25

Based on Table 2, the statistical value of Hosmer and Lemeshow's goodness of fit test is 11.854 with a significance value of 0.158 where $0.158 > 0.05$ which indicates the null hypothesis (H_0) cannot be accepted. These results can be interpreted that the regression model used in the study is feasible and can be continued in the next analysis. After testing the feasibility of the model, the test was continued by assessing the entire model with the following results.

Table 3. -2 Log Likelihood Step 0 Test

Iteration History ^{a,b,c}			
	Iteration	-2 Log likelihood	Coefficients
			Constant
Step 0	1	74.786	-.074
	2	74.786	-.074

Table 4. Coefficient of Determination Test

Model Summary			
Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	66.236 ^a	.146	.195

Based on Table 3, the value of -2 log likelihood step 0 is 74.786 and the value of -2 log likelihood step 1 is 66.236. The results show a decrease in the value of -2 log likelihood in block 0 and block 1 by $74.786 - 66.236 = 8.55$. The decrease that occurs in the -2 log likelihood indicates that the hypothesized model (fit) is in accordance with the data. The coefficient of determination test was also carried out to find out how much the dependent variable was explained by the independent variables. The test was carried out by SPSS version 25, with the following results shown in Table 4.

Based on Table 4, the Cox & Snell R Square and Nagelkerke R Square values are 0.146 and 0.195, respectively. Based on the results obtained, it can be interpreted that the variation of the carbon emission variable can be explained by the media exposure, industry type, and profitability variables of 19.5% while the remaining 80.5% is explained by other variables not included in this study. Table 5 presents the result of the classification matrix activity which shows the following results.

Table 5. Classification Matrix

		Classification Table ^a			
		Observed		Predicted	
				Carbon Emission	
Step 1	Observed	Not Disclosing	Disclosing	Not Disclosing	Disclosing
	Carbon Emission	Not Disclosing	Disclosing	19	9
		Disclosing		6	20
	Overall Percentage				72.2
					67.9
					76.9

a. The cut value is .500

Source: Processed in SPSS version 25

As shown in the results obtained in Table 5, based on predictions, there are 28 companies that do not disclose carbon emissions. Meanwhile, based on the observations, there are only 19 companies that do not disclose carbon emissions with a classification accuracy of 67.9% (19/28). There are 26 companies that disclose carbon emissions, while based on the observations, there are only 20 companies that disclose carbon emissions with a classification accuracy of 76.9% (20/26) or overall classification accuracy is 72.2%. Subsequent testing was conducted to ensure that there are no symptoms of multicollinearity for each variable.

Table 6. Correlation Matrix

Step 1		Constant	Media Exposure	Industry Type	Profitability
	Constant	1.000	-.307	-.429	-.382
	Media Exposure	-.307	1.000	-.136	-.362
	Industry Type	-.429	-.136	1.000	-.135
	Profitability	-.382	-.362	-.135	1.000

Source: Processed in SPSS version 25

The test results for media exposure with a constant value of -0.307, industry type of -0.429, and profitability of -0.382 show that there is no correlation coefficient value between variables whose value is higher than 0.9. It can be concluded that there are no serious multicollinearity symptoms between independent variables.

After confirming that the data used did not have problems and there were no symptoms of multicollinearity, the model was tested using logistic regression at an error rate of 5%. The results of the logistic regression equation are presented in Table 7 as follows.

Table 7. Variables in the Equation

Step 1 ^a		B	S.E.	Wald	Df	Sig.	Exp(B)
	Media Exposure	-.041	.651	.004	1	.950	.960
	Industry Type	1.402	.613	5.223	1	.022	.246
	Profitability	4.759	2.718	3.066	1	.080	116.598
	Constant	.055	.563	.009	1	.923	1.056

a. Variable(s) entered on step 1: Media Exposure, Industry Type, Profitability

Source: Processed in SPSS version 25

In Table 7, it can be seen that the constant value of 0.055 indicates the independent variables, particularly media exposure, industry type, and profitability are constant. ME (Media Exposure) regression coefficient of -0.041 indicates that there is a negative relationship between media exposure and carbon emissions. IT (Industry Type) regression coefficient of 1.402 indicates that there is a positive relationship between industry type and carbon emissions. ROA (profitability) regression coefficient of 4.759 indicates that there is a positive relationship between profitability and carbon emissions.

After measuring the relationship between variables, testing the significance of the relationship between variables was conducted, both individual and simultaneous. The results of the analysis carried out show the following evidence.

Table 8. Results of Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	8.550	3	.036
	Block	8.550	3	.036
	Model	8.550	3	.036

Source: Processed in SPSS version 25

Based on the results obtained in Table 8, It can be seen that the media exposure variable (X_1) obtained a Wald value of 0.004 with a regression coefficient of -0.041 with a significance level (p -value) of $0.950 > 0.05$. The significant level is higher than $\alpha = 0.05$, so the first hypothesis is rejected. This means that media exposure has a negative but insignificant effect on carbon emissions. The results of this study do not support the first hypothesis which states that media exposure has an effect on carbon emissions. The industry type variable (X_2) obtained a Wald value of 5.223, a regression coefficient of 1.402 with a significance level (p -value) of $0.022 < 0.05$. The significance level is lower than $\alpha = 0.05$, so the second hypothesis is accepted. This means that the industry type has a significant positive effect on carbon emissions. The results of this study support the second hypothesis which states that the industry type has an effect on carbon emissions. The profitability variable (X_3) obtained a Wald value of 3.066, a regression coefficient value of 4.759 with a significance level (p -value) of $0.080 > 0.05$. The significance level is higher than $\alpha = 0.05$, so the third hypothesis is accepted. This means that profitability has a positive but insignificant effect on carbon emissions. The results of this study do not support the third hypothesis which states that profitability has an effect on carbon emissions.

The researchers also tested the significance of the variable linkage together using the omnibus test of the model coefficient which showed a Chi-Square value of 8.550 with a significant level of 0.036 which was lower than 0.05. These results can be interpreted that H_4 is accepted, in which media exposure, industry type, and profitability variables simultaneously have a significant effect on carbon emissions.

DISCUSSION

Based on the results of the Wald Test for the media exposure variable, the Wald value is 0.004, the regression coefficient is -0.041, and the significance level (p -value) is $0.950 > 0.05$. Because the significant level is higher than $\alpha = 0.05$, the first hypothesis is rejected. This means that media exposure has a negative but insignificant effect on carbon emissions. With a high significant value, it proves that the company discloses more information related to carbon emissions through its company website. However, this has a negative effect on the company's environmental disclosures. Therefore, companies need to consider the existence of these media.

The test results show that media exposure has an indirect relationship with the disclosure of carbon emissions, meaning that the presence or absence of the media will not always motivate companies to disclose greenhouse gas emissions in their annual reports. Moreover, considering the rapid use of the internet among the public, the use of the company's website to communicate social and environmental responsibility programs must also consider the risks that follow, such as the risk of plagiarism or which can create a bad company image. Given the rapid use of the internet among the public, the use of the company's website to communicate social and environmental responsibility programs must also consider the risks that follow, such as the risk of plagiarizing the same carbon emission disclosures or which can make the company's image bad due to excessive concerns regarding the company's environmental monitoring when exposed to the media. The negative social model of carbon emitters can trigger a public climate strike (Sarraf, 2020). This tends to create a negative stigma from public opinion against the company when it is known that environmental control is not running optimally. These results are not in line with previous research conducted by Saputro dan Basuki (2019), Hermawan et al. (2018), Kusumah R et al. (2019), Dawkins dan Fraas (2011), Bae Choi et al. (2013) and these results can be considered as the latest findings.

Based on the results of the Wald Test for the industry type variable, the Wald value is 5.223, the regression coefficient is 1.402, and the significance level (p -value) is $0.022 < 0.05$. Because the significance level is lower than $\alpha = 0.05$, the second hypothesis is accepted. This means that the industry type has a significant positive effect on carbon emissions. The results of this study support the second hypothesis which states that the industry type has an effect on carbon emissions. Based on the results of the industry type, it shows that the company uses the industry type with a small or non-intensive level of significance so that the carbon emissions produced are small. With a positive coefficient value and a small significance value, it proves that the industry type has an effect on the company in terms of reducing carbon emissions.

The test results show that the industry type has a direct relationship with the disclosure of carbon emissions, meaning that companies that are intensive in producing carbon tend to disclose information related to environmental aspects compared to those that are not intensive in producing carbon from their operational activities. This is

because companies that emit carbon intensively have a greater responsibility towards environmental issues. The results of the study are in line with research conducted by (Faisal et al., 2018; Wahyuningrum et al., 2020). The industry type has a positive impact on environmental disclosure. The industry category is classified as sensitive and can provide more information related to the environment (Wahyuningrum et al., 2020). Based on the results of data analysis in this study, it can be concluded that companies in industries that are intensive in producing emissions such as energy, transportation, materials, and utilities will have a greater level of disclosure of carbon emissions and vice versa. These results are in line with research conducted by Bae Choi et al. (2013) which shows that the level of disclosure of carbon emissions will be greater in companies in industries that are intensive in producing emissions, such as energy, transportation, materials, and utilities. The industry type divides the industry into two categories, including carbon-intensive companies and non-carbon-intensive companies. A carbon-intensive industry is an industry that produces large carbon emissions so that it has a relatively large impact on environmental pollution, while a non-carbon-intensive industry is an industry that produces small carbon emissions so that it has a relatively small impact on environmental pollution.

Based on the results of the Wald Test for the profitability variable, the Wald value is 3.066, the regression coefficient is 4.759, and the significance level (p -value) is $0.080 > 0.05$. The significant level is higher than $\alpha = 0.05$, so the third hypothesis is rejected. This means that profitability has a negative but insignificant effect on carbon emissions. The results of this study do not support the third hypothesis which states that profitability has an effect on carbon emissions. The results are also in line with the statement that profitability has a negative impact on the disclosure of carbon emissions (Kusumah R et al., 2019; Li and Yang 2022) and it is found a negative correlation between profitability and environmental disclosure in relation to GHG profitability measures (Prado-Lorenzo et al., 2009). Viewed from the results of the profitability test, it can be concluded that the company is able to generate overall profits in relation to the sale of assets and investments. However, in terms of reducing carbon emissions, the company has not succeeded or the strategy used is less effective.

The test results show that profitability has an indirect relationship with carbon emission disclosures, meaning that companies do not need to wait for high profitability to disclose carbon emissions because profitability is the company's ability to generate profits within a certain period which is the net result of good management policies in managing the company's liquidity, assets, or debt. The results of this study are not able to support the theory that companies with high profitability will disclose more CSR. A significant impact can occur because companies need to provide a number of funds to reduce pollution emissions, so they need to increase innovation to reduce the negative relationship of spending on environmental disclosures with profitability (Kim & Kim, 2022).

Based on the Omnibus Test of the Model Coefficient, it obtained the Chi-Square value of 8.550 and the value of df 3 with a significant level of 0.036 which is lower than 0.05. This indicates that H_4 is accepted. Thus, based on the results of the Omnibus Test of Model Coefficient test, it can be concluded that media exposure, industry type, and profitability simultaneously have a significant effect on carbon emissions. Media exposure is a medium used as a means of providing information to stakeholders. Media exposure is important because of its role in growing the image of the company for its concern for environmental impacts, especially carbon emissions resulting from the company's activities. With encouragement from the media, companies can grow a positive image of those whose presence is the ideal form of controlling the company (Bednar, 2012) even companies are motivated to reveal more deeply to gain legitimacy in the environment (Braojos-Gomez et al., 2015). The industry type also has an impact on the disclosure of carbon emissions. This is because companies with industries that are sensitive to this will provide information related to the environment as well as a form of monitoring the company's operational activities. Environmental disclosure with sensitive industry categories in providing information related to the environment is more detailed (Wahyuningrum et al., 2020). Companies operating in the emission-intensive type of industry may get stricter treatment under government supervision so that disclosure is made voluntarily (Bae Choi et al., 2013). Profitability has a positive impact related to the disclosure of carbon emissions. With the ability to utilize better assets, the company will be more open to reporting its carbon emissions (Abdullah et al., 2020). Companies with the good financial condition can better disclose environmental information (Luo et al., 2013).

CONCLUSION

Research conducted on food and beverage companies listed on the Indonesia Stock Exchange involves three independent variables, including media exposure, industry type, and profitability with the disclosure of carbon emissions as the dependent variable. The results showed that media exposure had a partial and insignificant negative effect on the disclosure of carbon emissions. Owning or not owning the media does not always motivate companies to disclose greenhouse gas emissions in their annual reports. The industry type has a partial and significant positive effect on the disclosure of carbon emissions. Companies that are intensive in

producing carbon tend to disclose information on environmental aspects and have responsibility for it compared to those that are not intensive in producing carbon from their operational activities. Profitability has a partial and insignificant negative effect on the disclosure of carbon emissions in manufacturing companies in the food and beverage sector listed on the Indonesia Stock Exchange in 2017-2019. Companies with good profits for selling assets or investments but not reducing carbon emissions show less effective strategies. Disclosure of carbon emissions in traditional finance is often considered as the need for additional resources to realize it. If a joint test is carried out, Media Exposure, Industry Type, and Profitability have a positive and significant effect simultaneously on the disclosure of carbon emissions. Based on these results, there are several recommendations that can be made, in future researchers should consider and look for other independent variables that affect the disclosure of carbon emissions, such as company size, leverage, environmental performance, quality of corporate governance, and others with a longer period of time.

REFERENCES

- Abdullah, M. W., Musriani, R., Syariati, A., & Hanafie, H. 2020. Carbon Emission Disclosure In Indonesian Firms: The Test Of Media-Exposure Moderating Effects. *International Journal of Energy Economics and Policy*, 10(6), 732–741. <https://doi.org/10.32479/ijeep.10142>
- Akbaş, H., & Canikli, S. 2018. Determinants of Voluntary Greenhouse Gas Emission Disclosure: An Empirical Investigation on Turkish Firms. *Sustainability*, 11(1), 107. <https://doi.org/10.3390/su11010107>
- Asmeri, R., Alvionita, T., & Gunardi, A. 2017. CSR Disclosures in the Mining Industry: Empirical Evidence from Listed Mining Firms in Indonesia. *Indonesian Journal of Sustainability Accounting and Management*, 1(1), 16. <https://doi.org/10.28992/ijSAM.v1i1.23>
- Bae Choi, B., Lee, D., & Psaros, J. 2013. An analysis of Australian company carbon emission disclosures. *Pacific Accounting Review*, 25(1), 58–79. <https://doi.org/10.1108/01140581311318968>
- Bednar, M. K. 2012. Watchdog or Lapdog? A Behavioral View of the Media as a Corporate Governance Mechanism. *Academy of Management Journal*, 55(1), 131–150. <https://doi.org/10.5465/amj.2009.0862>
- Braojos-Gomez, J., Benitez-Amado, J., & Javier Llorens-Montes, F. 2015. How Do Small Firms Learn To Develop A Social Media Competence? *International Journal of Information Management*, 35(4), 443–458. <https://doi.org/10.1016/j.ijinfomgt.2015.04.003>
- Córdova, C., Zorio-Grima, A., & Merello, P. 2018. Carbon Emissions by South American Companies: Driving Factors for Reporting Decisions and Emissions Reduction. *Sustainability*, 10(7), 2411. <https://doi.org/10.3390/su10072411>
- Dawkins, C., & Fraas, J. W. 2011. Coming Clean: The Impact Of Environmental Performance And Visibility On Corporate Climate Change Disclosure. *Journal of Business Ethics*, 100(2), 303–322.
- Direktorat Jenderal Pengendalian Perubahan Iklim - Kementerian Lingkungan Hidup dan Kehutanan Republik Indonesia. 2017. *Kontribusi Penurunan Emisi GRK Nasional, Menuju NDC 2030. Direktorat Jenderal Pengendalian Perubahan Iklim - Kementerian Lingkungan Hidup Dan Kehutanan Republik Indonesia*. <http://ditjenppi.menlhk.go.id/berita-ppi/3150-kontribusi-penurunan-emisi-grk-nasional,-menuju-ndc-2030.html>
- Faisal, F., Andiningtyas, E. D., Achmad, T., Haryanto, H., & Meiranto, W. 2018. The Content And Determinants Of Greenhouse Gas Emission Disclosure: Evidence From Indonesian Companies. *Corporate Social Responsibility and Environmental Management*, 25(6), 1397–1406. <https://doi.org/10.1002/csr.1660>
- Hermawan, A., Aisyah, I. S., Gunardi, A., & Putri, W. Y. 2018. Going Green: Determinants Of Carbon Emission Disclosure In Manufacturing Companies In Indonesia. *International Journal of Energy Economics and Policy*, 8(1), 55–61.
- Hilpert, H., Friedemann, S., & Schumann, M. 2011. Improved Emission Data Collection In Air Cargo Processes Using ADS-B. *ACIS 2011 Proceedings - 22nd Australasian Conference on Information Systems*. <https://www.scopus.com/inward/record.uri?eid=2-s2.0-84869123570&partnerID=40&md5=e829ff3b9253d18bc362b06fcd4c30f>
- Kim, Y., & Kim, S.-I. 2022. Environmental Risk and Credit Ratings, and the Moderating Effect of Market Competition. *International Journal of Environmental Research and Public Health*, 19(9), 5341. <https://doi.org/10.3390/ijerph19095341>
- Kusumah R, W. R., Manurung, D. T. ., Oktari, S. ., & Husnatarina, F. 2019. Analysis Of Factors Affecting Carbon Emission Disclosure (An Empirical Study At Companies Registered With Sustainability Reporting Award 2015). *Journal of Advanced Research in Dynamical and Control Systems*, 11(3), 973–980.
- Li, X., & Yang, Y. 2022. Does Green Finance Contribute to Corporate Technological Innovation? The Moderating Role of Corporate Social Responsibility. *Sustainability*, 14(9), 5648. <https://doi.org/10.3390/su14095648>

- Limanseto, H. 2021. *Upaya Penurunan Gas Rumah Kaca Melalui Langkah Strategis pada Sektor Kritis Perubahan Iklim*. Kementerian Koordinator Bidang Perekonomian Republik Indonesia. <https://ekon.go.id/publikasi/detail/3491/upaya-penurunan-gas-rumah-kaca-melalui-langkah-strategis-pada-sektor-kritis-perubahan-iklim>
- Luo, L., Tang, Q., & Lan, Y. 2013. Comparison Of Propensity For Carbon Disclosure Between Developing And Developed Countries. *Accounting Research Journal*, 26(1), 6–34. <https://doi.org/10.1108/ARJ-04-2012-0024>
- POJK Nomor 51/POJK.03/2017, 2017.
- Prado-Lorenzo, J.-M., Gallego-Alvarez, I., & Garcia-Sanchez, I. M. 2009. Stakeholder Engagement And Corporate Social Responsibility Reporting: The Ownership Structure Effect. *Corporate Social Responsibility and Environmental Management*, 16(2), 94–107. <https://doi.org/10.1002/csr.189>
- Prado-Lorenzo, J., Rodriguez-Domínguez, L., Gallego-Alvarez, I., & García-Sánchez, I. 2009. Factors Influencing The Disclosure Of Greenhouse Gas Emissions In Companies World-Wide. *Management Decision*, 47(7), 1133–1157. <https://doi.org/10.1108/00251740910978340>
- Putratama, R. 2020. *Suhu Udara Terik Apakah Dipicu Pemanasan Global? Badan Meteorologi, Klimatologi, Dan Geofisika*. <https://www.bmkg.go.id/press-release/?p=suhu-udara-terik-apaakah-dipicu-pemanasan-global&tag=press-release&lang=ID>
- Reverte, C. 2009. Determinants Of Corporate Social Responsibility Disclosure Ratings By Spanish Listed Firms. *Journal of Business Ethics*, 88(2), 351–366.
- Roberts, R. W. 1992. Determinants Of Corporate Social Responsibility Disclosure: An Application Of Stakeholder Theory. *Accounting, Organizations and Society*, 15(6), 595–612.
- Sadiq, M., Amayri, M. A., Paramaiah, C., Mai, N. H., Ngo, T. Q., & Phan, T. T. H. 2022. How Green Finance And Financial Development Promote Green Economic Growth: Deployment Of Clean Energy Sources In South Asia. *Environmental Science and Pollution Research*, 29(43), 65521–65534. <https://doi.org/10.1007/s11356-022-19947-9>
- Saputro, B. T., & Basuki. 2019. Carbon Emission Disclosure in Manufacturing companies in Indonesia. *Indian Journal of Public Health Research & Development*, 10(9), 1422. <https://doi.org/10.5958/0976-5506.2019.02647.0>
- Sarra, J. 2020. *From Ideas to Action Governance Paths to Net Zero*. Oxford University Press.
- Suileek, H. A., & Alshurafat, H. 2023. The Determinants of Environmental Accounting Disclosure: A Review of the Literature (pp. 463–477). https://doi.org/10.1007/978-3-031-08954-1_42
- The Association of Southeast Asian Nations. 2021. ASEAN State of Climate Change Report (Current status and outlook of the ASEAN region Toward the ASEAN climate vision 2050). https://asean.org/wp-content/uploads/2021/10/ASCCR-e-publication-Correction_8-June.pdf
- United Nations. (n.d.). *Industrialized Countries To Cut Greenhouse Gas Emissions by 5.2%*. United Nations.
- United States Environment Protection Agency. 2022. *Climate Change Indicators: Greenhouse Gases*. United States Environment Protection Agency. <https://www.epa.gov/climate-indicators/greenhouse-gases>
- Wahyuningrum, I. F. S., Yanto, H., Oktavilia, S., Setyadharma, A., Yulianto, A., & Triasi, A. 2020. Effect of Company Characteristics and Corporate Governance on the Quantity of Environmental Disclosure. *IOP Conference Series: Earth and Environmental Science*, 448(1), 012084. <https://doi.org/10.1088/1755-1315/448/1/012084>
- Wang, F., Sun, Z., & Feng, H. 2022. Can Media Attention Promote Green Innovation of Chinese Enterprises? Regulatory Effect of Environmental Regulation and Green Finance. *Sustainability*, 14(17), 11091. <https://doi.org/10.3390/su141711091>