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INCREASING DISCLOSURE OF CARBON EMISSIONS WITH CORPORATE GOVERNANCE AS A MODERATION VARIABLE (STUDY OF MANUFACTURING COMPANIES LISTED IN IDX IN 2017-2021)

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Abstract: This research aims to test corporate governance: independent commissioners, independent audit committees, and gender diversity moderate the influence of company size on carbon emission disclosure. The data collection method used purposive sampling with a sample of 89 manufacturing companies listed on the IDX in 2017-2021. In hypothesis testing using Moderated Regression Analysis. The results of this research show that company size has an effect on carbon emission disclosure and is strengthened by the existence of a moderating variable, namely corporate governance consisting of independent commissioners, independent audit committees, and gender diversity.

Keywords: *Firm size, carbon emission disclosure, corporate governance*

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1. Introduction

Industrial companies act as providers of goods and services needed by society, but over time the company's activities have a negative impact which causes environmental pollution, increased production of carbon emissions and greenhouse gases (Blesia, Trapen, & Arunglamba, 2023). This, as evidenced by data from the Carbon Dioxide Information Analysis Center (CDIAC), carbon dioxide (CO2) emissions have increased rapidly by more than 400 billion metric tons of CO2 and have been dispersed into the atmosphere from fossil fuel consumption and cement production since the last year 1751(Gilfillan & Marland, 2020). Indonesia is included in the top 10 countries that contribute greatly to the use of carbon emissions in the world, around 2.03% of gas emissions in the world (CNN, 2021). This has an impact on weather changes which will increase the risk of flooding, extreme rain and hot weather (CNN, 2021). This has an impact on weather changes which will increase the risk of flooding, extreme rain and hot weather (Khaq & Sasongko, 2022).

Due to the significant impact of climate change, at the Virtual Summit (High-Level Conference), the UN secretary general, Antonio Guteress, called on all conference participants to issue a "climate emergency" status for each participating country, including Indonesia (Khaq & Sasongko, 2022). Therefore, Indonesia issued Presidential Regulation 61 of 2011 concerning a national action plan called the National Action Plan (RAN) as the basis for implementing GHG (Greenhouse Gas) emission reductions (Amaliyah, Solikhah, & Technology, 2019) and strengthened by the Minister of Energy Regulation and Mineral Resources Number 22 of 2019 concerning "Guidelines for Implementing Greenhouse Gas Inventory and Mitigation in the Energy Sector". as the regulator of Indonesian financial accounting standards emphasizes the importance of environmental disclosure for industry by disclosing carbon emissions as part of social responsibility in the statement of financial accounting standards (PSAK) number 1 paragraph 9 (Keuangan & Dewi, 2019). This explains that disclosing carbon emissions is a form of corporate accountability to increase trust and encourage investors to invest, especially in environmentally friendly companies(Hsu & Wang, 2013) and is a form of environmental conservation that is responsible for the carbon produced during its operations(Rahmanita, 2020).

However, disclosure of carbon emissions in Indonesia is still voluntary, so companies still have the freedom to determine what information to disclose or not and is considered very reasonable in decision-making (Astari, Saraswati, & Purwanti, 2020). In addition, disclosing carbon emissions will increase company operational costs, reduce market value and provide managers with opportunities to carry out earnings management (Aggarwal & Dow, 2011; Coburn, Donahue, Jayanti, & directors, 2011; Prior, Surroca, & Tribó, 2008). This is supported by research from Pratiwi (2018) that only 30 manufacturing and mining companies that went public reported their carbon emissions out of a total of 91 companies. A company's voluntary carbon disclosure may depend on its governance structure, characteristics and an independent and diverse board of directors associated with high levels of disclosure (Liao, Luo, & Tang, 2015).

Previous research explains that corporate governance mechanisms are expected to control management performance and determine carbon emission disclosure policies (Astari et al., 2020). Elsayih, Tang, and Lan (2018) show that the effectiveness of corporate governance is the main key to controlling the disclosure of carbon emissions in annual reports. This is also supported by research by Yunus, Elijido-Ten, and Abhayawansa (2016) and (Ben-Amar, Chang, & McIlkenny, 2017) which focuses on carbon emissions disclosure. He continued, that previous research explored the relationship between GHG emissions disclosure and conventional company characteristics, for example, firm size, profitability, leverage, and company age (Chithambo & Tauringana, 2014; Gonzalez-Gonzalez, Zamora Ramirez, & Management, 2016). In contrast, there is still little research investigating the impact of corporate governance characteristics (e.g. board size, board independence and board committees) on corporate reporting practices on carbon emissions (Ben-Amar et al., 2017; Liao et al., 2015; Yunus et al., 2016). In addition, several research studies examining the relationship between board gender diversity and carbon emissions disclosure are also rare (Ben-Amar et al., 2017; Hollindale, Kent, Routledge, Chapple, & Finance, 2019; Liao et al., 2015; Prado-Lorenzo & Garcia-Sanchez, 2010; Zahri, 2019).

The results of research conducted by several researchers above show that there is an inconsistent correlation between the influence of firm size on carbon emissions disclosure. As for inconsistent results, there may be confounding factors that cause differences in research results between the correlation between firm size and carbon emissions disclosure. In this research, contingency theory is explained using one of the variables in contingency theory, namely the moderating variable. Moderating variables allow for variables that can strengthen and weaken the influence of earnings management on carbon emissions disclosure. The novelty of this research is that the sample data was taken from 2017-2021 and used corporate governance mechanism variables (independent audit committee, independent commissioner and board gender diversity) as moderation.

2. Literatur Review

2.1. Legetemacy Theory

Legitimacy theory suggests that environmental legitimacy is built based on the perception of an organization as a party responsible for the environment by the surrounding community (Kuo & Yi-Ju Chen, 2013). As a consequence of increasing attention to environmental issues, companies tend to engage in environmentally responsible practices. In this case, companies convince stakeholders that their activities are in line with stakeholder expectations regarding carbon emissions to legitimize themselves and maintain the social contract (Yunus et al., 2016). One way to do this is by disclosing their carbon management practices through multiple channels such as annual reports, sustainability reports, and websites(Kılıç, Kuzey, & Management, 2018).

2.2. Stakeholder theory

Stakeholder theory argues that an entity tries to align its activities with stakeholder expectations (Barako, Brown, & governance, 2008). External pressure from several stakeholder groups, including customers, non-governmental organizations (NGOs), the media and local communities, tends to continue to increase regarding environmental and social issues (Lee, Park, Klassen, & Management, 2015). Pressure from stakeholders forces company management to disclose more information (Naser, Al-Hussaini, Al-Kwari, & Nuseibeh, 2006), therefore, stakeholders have an important role in corporate social and environmental disclosure. To respond to pressure from stakeholder groups, companies may be inclined to undertake environmentally responsible practices and express them through communication channels (Kılıç et al., 2018).

2.3. Carbon Emission Disclosure

Carbon emissions disclosure is a company's environmental disclosure that combines quantitative and qualitative analysis regarding carbon emission levels and company predictions regarding the financial implications arising from the opportunities and risks of climate change (Wang, Xu, Sun, & Cullinan, 2020). As an environmental responsibility, CED is an effort by every company to gain legitimacy from the community (Zahri, 2019). In Indonesia, CED is still a voluntary disclosure because there are no regulations yet. Companies voluntarily disclose CED if they can increase company value (Astari et al., 2020).

2.4. Corporate Governance

The concept of corporate governance began to become an important issue to be researched since the separation between ownership and management, especially after 1930 (H. Khan, 2011). It is about balancing individual and societal goals, as well as, economic and social goals (Okudo, Ndubuisi, & Review, 2021). Therefore, corporate governance in companies aims to maximize shareholder value legally, ethically and sustainably, while ensuring fairness and transparency to each stakeholder (Khaq & Sasongko, 2022). Corporate governance is the blood that fills the veins of transparent corporate disclosures and high-quality accounting practices.

Hypothesis Development

Firm Size to Carbon Emission Disclosure

Firm size can be measured using the total assets of a company (Subekti, 2000). Environmental disclosures will be mostly carried out by companies that have large turnover (Despina dan Stavropoulos, 2011). Therefore, large companies are under pressure to disclose

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business activities, because many company activities have an impact on the surrounding environment and influence the community, shareholders and investors in assessing the company (Suhardjanto, Tower, & Brown, 2008).

According to Prado-Lorenzo, Rodríguez-Domínguez, Gallego-Álvarez, and García-Sánchez (2009) and (Chithambo & Tauringana, 2014); Gonzalez-Gonzalez et al. (2016) explained that firm size has a positive and significant effect on the level of environmental disclosure. In contrast to (Oktariani & Mimba, 2014) firm size does not affect the level of environmental disclosure. In this study, researchers hypothesized that firm size has not consistently affected the level of carbon emissions disclosure. Based on the explanation above, the hypothesis in this research can be formulated as follows:

H1: ***Firm size has a positive and significant effect on the level of carbon emission disclosure.***

Corporate governance Moderates Firm Size with Carbon Emission Disclosure

Large companies with effective corporate governance mechanisms have more motivation to invest and report more carbon emission activities to provide information to the public and attract investors. Corporate governance in companies aims to maximize shareholder value in a legal, ethical and sustainable manner while ensuring fairness and transparency to each stakeholder (Khaq & Sasongko, 2022). In this study, researchers hypothesized that corporate governance mechanisms correlate firm size and carbon emissions disclosure. Researchers assume that companies with large revenues lack a sense of responsibility towards the environment because they only focus on company turnover (Zahri, 2019). Furthermore, that the existence of a corporate governance mechanism becomes a monitoring system in the management of the Company so that it can increase disclosure of the Company's carbon emissions. Based on the explanation above, the hypothesis in this research can be formulated as follows:

H2: corporate governance moderate firm size on the level of carbon emission disclosure

3. Research Method

Types of Research

This research uses quantitative research methods, following the approach described by (Sugiyono, 2013). Quantitative methods focus on investigating specific populations and samples and involve collecting data using research tools. The collected data was analyzed using quantitative and statistical methods to validate the formulated hypothesis.

Data Source

The research data for this study comes from notes related to previous research or literature reviews published in various journals. Apart from that, data was collected from books. In addition, internet and literature sources were also used to collect relevant research information. The official website of the Indonesian Stock Exchange www.idx.co.id is accessed to retrieve specific research data related to research.

Population and sample

According to (Sugiyono, 2013), population refers to a group of individuals or certain objects with certain characteristics that are chosen by researchers to study and become the basis for conclusions. For this research, the population includes manufacturing companies listed on the Indonesia Stock Exchange during the 2017-2021 period. The research sample was 89, selected for this research based on the special needs and characteristics of the research population.

Research Variable and Measurement

Table 1. Research Variable

Variable	Indicator	Source	Measurement scale
Carbon Emission Disclosure	*Climate change, greenhouse gasses, energy consumption, reduction cost, accountability carbon cost*	(Andrew & Cortese, 2011; Choi, Lee, & Psaros, 2013)	$\text{CED} = \frac{Total\ score\ of\ entity}{Total\ maximum\ score} X\ 100\%$
Firm Size	ROA (Return on Asset)	(Akrout & Othman, 2013; Freedman & Jaggi, 2005)	$\text{ROA} = \frac{Laba\ bersih\ setelah\ pajak}{Total\ aset}$
Proportion of independent commissioners (PIC)	The percentage of commissioners from outside the company	(Akbas & Business, 2016; A. Khan, Muttakin, & Siddiqui, 2013; H. Khan, 2011)	$\text{PIC} = \frac{\sum Independent\ Commissioner}{\sum Member\ of\ the\ board\ of\ commissioners}$
Proportion of independent audit committee (PIA)	The percentage of audit committee members who come from outside the company	(Akbas & Business, 2016; Zahri, 2019)	$\text{PIA} = \frac{\sum The\ company's\ external\ audit\ committee}{\sum Company\ Audit\ Committee}$
Gender Diversity in Commissioner Board (DG)	The number of women on the board of commissioners compared to the total number of commissioners	(Ye, Deng, Liu, Szewczyk, & Chen, 2019; Zahri, 2019)	$\text{DG} = \frac{\sum \text{Women's Commissioner}}{\sum Total\ Commissioners}$

Data Analysis

The data analysis method uses 2 regression analyses, namely multiple regression analysis and moderated regression analysis (MRA). Data analysis was carried out after collecting information related to research variables from financial reports.

4. Results and Discussion

4.1. Results

Regression Analisis

Table 2. Analisis Regresi

Coefficients[a]						
Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	6.869	0.500		13.730	0.000
	UP	4.786E-08	0.000	0.221	4.551	0.000

a. Dependent Variable: CED

It is known that the regression results of firm size (UP) have an influence on carbon emission disclosure with a significance value of 0.000 (<0.05), so it is concluded that firm size (UP) has a significant effect on the company's carbon emission disclosure.

Moderated Regression Analysis

Regression analysis using the Moderated Regression Analysis method is a special application of multiple linear regression where the regression equation contains elements of interaction (multiplication of two or more independent variables) with the Equation formula.

Table 3. First Moderation

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	6.822	1.299		5.252	0.000
	UP	-1.537E-07	0.000	-0.711	-2.016	0.044
	PKI	-2.075	3.203	-0.035	-0.648	0.517
	UP*PKI	5.285E-07	0.000	0.903	2.555	0.011

a. Dependent Variable: CED

It is known that from the regression results with MRA, the value of the interaction variable between firm size (UP) and independent commissioner (PKI) is 0.011 (<0.05), so it is concluded that the PKI variable can moderate the influence of the firm size (UP) variable on the CED (carbon emission disclosure).

Table 4. Second Moderation

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.239	1.208		3.509	0.000
	UP	-1.388E-08	0.000	-0.064	-0.383	0.702
	KAI	3.259	2.032	0.080	1.604	0.110
	UP*KAI	8.816E-08	0.000	0.210	4.493	0.000

a. Dependent Variable: CED

It is known that the regression results with the MRA value of the interaction variable between firm size (UP) and the independent audit committee (KAI) is 0.000 (<0.05), so it is concluded that the variable (KAI) can moderate the influence of the firm size variable (UP) on the CED variable (carbon emission disclosure).

Table 5. Third Moderation

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	6.491	0.372		17.448	0.000
	UP	3.367E-08	0.000	0.156	3.017	0.003
	DG	-3.481	1.995	-0.087	-1.745	0.082
	UP*DG	3.174E-07	0.000	0.134	2.691	0.007

a. Dependent Variable: CED

It is known that the regression results with the MRA value of the interaction variable between firm size (UP) and gender diversity (DG) is 0.007 (<0.05), so it is concluded that the gender diversity variable (DG) can moderate the influence of the firm size variable (UP) on the CED variable (carbon emission disclosure).

4.2. Discussion

Firm Size Influences Carbon Emission Disclosure

Hypothesis 1 in this study tests firm size (UP) on carbon emission disclosure (CED). Based on the results of Table 1, the hypothesis that firm size (UP) has a significant effect on carbon emission disclosure (CED) with a significance value of 0.000. This is in line with research (Chithambo & Tauringana, 2014; Gonzalez-Gonzalez et al., 2016) that increasing firm size will influence the impact of external pressures on the company such as society and the environment, so large companies tend to disclose corporate carbon emission disclosures to reduce these impacts. and provide a positive, sustainable image of the company.

Corporate Governance Strengthens the Relationship between Firm Size and Carbon Emission DisclosureDisclosure

Strengthens the relationship between firm size (UP) and carbon emission disclosure (CED). Based on the results from Tables 2, 3, and 4 corporate governance hypotheses which include independent commissioners (PKI) with a significance value of 0.011, independent audit committees (KAI) 0.000 and gender diversity (DG) 0.007 in the company moderate the carbon emission disclosure (CED) hypothesis. It can be concluded that implementing carbon emission disclosure is part of implementing the concept of corporate governance. As a business entity that has responsibilities towards society and the environment, companies must be able to act as good citizens thanks to good business ethics (Okudo et al., 2021).

Thus, if small to large companies implement good corporate governance, they can minimize suspicion from the public and stakeholders. So that it can increase public or stakeholder confidence that the company has good performance and financial condition and can guarantee the continuity of the company. Corporate governance has the advantage that financial governance is transparent. The transparency that is consistently implemented has positive aspects in the long term because disclosure of carbon emissions is carried out without any coercion. Thus, ideally, the company's carbon emission disclosure practices are accompanied by corporate governance practices so that sustainability and business development can run synergistically.

5. Conclusion

Based on the results of the research above regarding the influence of firm size (UP) on carbon emissions disclosure with corporate governance as a moderating variable in Go Public companies listed on the Indonesia Stock Exchange (BEI) for the period 2018 - 2022 as follows:

1) Firm size has a significance value of 0.000 <0.05, meaning that firm size has a significant effect on carbon emission disclosure and hypothesis H1a is accepted.
2) Independent Commissioner as a moderating variable as part of corporate governance has a significance of 0.011 < 0.005 that independent commissioner (PKI) moderates carbon emission disclosure (CED) and H2a is accepted.
3) The Independent Audit Committee as a moderating variable as part of corporate governance has a significance value of 0.000 < 0.05 that the independent audit committee (KAI) moderates carbon emission disclosure (CED) and H2b is accepted.

4) Gender diversity as a moderating variable as part of corporate governance has a significance value of 0.007 < 0.05 that gender diversity (DG) moderates carbon emission disclosure (CED) and H2c is accepted.

References

Aggarwal, R., & Dow, S. (2011). *Greenhouse gas emissions mitigation and firm value: a study of large North-American and European firms.* Paper presented at the Midwest Finance Association 2012 Annual Meetings Paper.

Akbas, H. E. J. S. E. E. J. o. E., & Business. (2016). The relationship between board characteristics and environmental disclosure: Evidence from Turkish listed companies. *11*(2), 7.

Akrout, M. M., & Othman, H. B. J. J. o. r. o. G. E. (2013). A study of the determinants of corporate environmental disclosure in MENA emerging markets. *2*, 46.

Amaliyah, I., Solikhah, B. J. J. o. E., Management, Accounting, & Technology. (2019). Pengaruh kinerja lingkungan dan karakteristik corporate governance terhadap pengungkapan emisi karbon. *2*(2), 129-141.

Andrew, J., & Cortese, C. (2011). *Accounting for climate change and the self-regulation of carbon disclosures.* Paper presented at the Accounting Forum.

Astari, A., Saraswati, E., & Purwanti, L. J. J. D. A. D. B. (2020). The Role of Corporate Governance as a Moderating Variable on Earnings Management and Carbon Emission Disclosure. *7*(1), 69-86.

Barako, D. G., Brown, A. M. J. J. o. m., & governance. (2008). Corporate social reporting and board representation: evidence from the Kenyan banking sector. *12*, 309-324.

Ben-Amar, W., Chang, M., & McIlkenny, P. J. J. o. b. e. (2017). Board gender diversity and corporate response to sustainability initiatives: Evidence from the carbon disclosure project. *142*(2), 369-383.

Blesia, J. U., Trapen, E., & Arunglamba, R. S. J. T. I. J. o. A. R. (2023). The Moderate Effect of Good Corporate Governance on Carbon Emission Disclosure and Company Value. *26*(1), 151-182.

Chithambo, L., & Tauringana, V. J. J. o. A. A. R. (2014). Company specific determinants of greenhouse gases disclosures. *15*(3), 323-338.

Choi, B. B., Lee, D., & Psaros, J. J. P. A. R. (2013). An analysis of Australian company carbon emission disclosures. *25*(1), 58-79.

CNN. (2021). 7 Negara Biang Kerok Emisi Karbon di Dunia. *CNN Indonesia*.

Coburn, J., Donahue, S. H., Jayanti, S. J. A. g. f. c. e., attorneys, & directors. (2011). Disclosing climate risks & opportunities in SEC filings.

Elsayih, J., Tang, Q., & Lan, Y.-C. J. A. R. J. (2018). Corporate governance and carbon transparency: Australian experience. *31*(3), 405-422.

Freedman, M., & Jaggi, B. J. T. I. J. o. A. (2005). Global warming, commitment to the Kyoto protocol, and accounting disclosures by the largest global public firms from polluting industries. *40*(3), 215-232.

Gilfillan, D., & Marland, G. J. E. S. S. D. D. (2020). CDIAC-FF: global and national CO 2 emissions from fossil fuel combustion and cement manufacture: 1751-2017. *2020*, 1-23.

Gonzalez-Gonzalez, J. M., Zamora Ramirez, C. J. I. J. o. C. C. S., & Management. (2016). Voluntary carbon disclosure by Spanish companies: an empirical analysis. *8*(1), 57-79.

Hollindale, J., Kent, P., Routledge, J., Chapple, L. J. A., & Finance. (2019). Women on boards and greenhouse gas emission disclosures. *59*(1), 277-308.

Hsu, A. W.-h., & Wang, T. J. O. (2013). Does the market value corporate response to climate change? *, 41*(2), 195-206.

Keuangan, S. A. J. S. E. J. N., GI, & Dewi, R. (2019). Ikatan Akuntan Indonesia.

Khan, A., Muttakin, M. B., & Siddiqui, J. J. J. o. b. e. (2013). Corporate governance and corporate social responsibility disclosures: Evidence from an emerging economy. *114*, 207-223.

Khan, H. (2011). *A literature review of corporate governance.* Paper presented at the International Conference on E-business, management and Economics.

Khaq, N., & Sasongko, N. (2022). *The Effect of Earning Management on Carbon Emmision Disclosure with Corporate Governance as a Moderation Variable.* Paper presented at the International Conference on Economics and Business Studies (ICOEBS 2022).

Kılıç, M., Kuzey, C. J. I. J. o. C. C. S., & Management. (2018). The effect of corporate governance on carbon emission disclosures: Evidence from Turkey. *11*(1), 35-53.

Kuo, L., & Yi-Ju Chen, V. J. M. D. (2013). Is environmental disclosure an effective strategy on establishment of environmental legitimacy for organization? *, 51*(7), 1462-1487.

Lee, S. Y., Park, Y. S., Klassen, R. D. J. C. S. R., & Management, E. (2015). Market responses to firms' voluntary climate change information disclosure and carbon communication. *22*(1), 1-12.

Liao, L., Luo, L., & Tang, Q. J. T. B. a. r. (2015). Gender diversity, board independence, environmental committee and greenhouse gas disclosure. *47*(4), 409-424.

Naser, K., Al-Hussaini, A., Al-Kwari, D., & Nuseibeh, R. J. A. i. i. a. (2006). Determinants of corporate social disclosure in developing countries: the case of Qatar. *19*, 1-23.

Oktariani, N. W., & Mimba, N. J. E.-J. A. U. U. (2014). Pengaruh karakteristik perusahaan dan tanggung jawab lingkungan pada pengungkapan tanggung jawab sosial perusahaan. *6*(3), 402-418.

Okudo, A. G., Ndubuisi, A. J. I. J. o. C. R., & Review. (2021). Corporate governance and carbon disclosure practices of quoted manufacturing firms in Nigeria. *12*(07), 20420-20433.

Prado-Lorenzo, J.-M., & Garcia-Sanchez, I.-M. J. J. o. b. e. (2010). The role of the board of directors in disseminating relevant information on greenhouse gases. *97*, 391-424.

Prado-Lorenzo, J. M., Rodríguez-Domínguez, L., Gallego-Álvarez, I., & García-Sánchez, I. M. J. M. D. (2009). Factors influencing the disclosure of greenhouse gas emissions in companies world-wide. *47*(7), 1133-1157.

Pratiwi, D. N. J. J. I. A. D. B. (2018). Implementasi carbon emission disclosure di Indonesia. *13*(2), 101-112.

Prior, D., Surroca, J., & Tribó, J. A. J. C. g. A. i. r. (2008). Are socially responsible managers really ethical? Exploring the relationship between earnings management and corporate social responsibility. *16*(3), 160-177.

Rahmanita, S. A. J. A. J. A. I. (2020). Pengaruh Carbon Emission Disclosure Terhadap Nilai Perusahaan Dengan Kinerja Lingkungan Sebagai Variabel Pemoderasi. *6*(1), 54-70.

Sugiyono, D. (2013). Metode penelitian pendidikan pendekatan kuantitatif, kualitatif dan R&D.

Suhardjanto, D., Tower, G., & Brown, A. J. J. o. t. A.-P. C. f. E. A. (2008). Indonesian stakeholders' perceptions on environmental information. *14*(4), 2-11.

Wang, F., Xu, S., Sun, J., & Cullinan, C. P. J. J. o. E. S. (2020). Corporate tax avoidance: A literature review and research agenda. *34*(4), 793-811.

Ye, D., Deng, J., Liu, Y., Szewczyk, S. H., & Chen, X. J. J. o. C. F. (2019). Does board gender diversity increase dividend payouts? Analysis of global evidence. *58*, 1-26.

Yunus, S., Elijido-Ten, E., & Abhayawansa, S. J. M. A. J. (2016). Determinants of carbon management strategy adoption: Evidence from Australia's top 200 publicly listed firms. *31*(2), 156-179.

Zahri, R. M. (2019). Corporate governance supervision aspect and corporate characteristics on environment disclosure (case study in manufacturing companies in IDX 2012–2016 period). In *Business Innovation and Development in Emerging Economies* (pp. 124-133): CRC Press.