JDA | Jurnal Dinamika Akuntansi
Vol. 17, No. 2, 2025, pp. 195-210

p-ISSN 2085-4277 | e-ISSN 2502-6224
http://journal.unnes.ac.id/nju/index.php/jda

Carbon Emissions Disclosure in Moderating Managerial Ownership and Political Connections towards Tax Aggressiveness

Vrencia Liviana Benny[1], Elfina Astrella Sambuaga[1] ✉, Kenny Fernando[2], Budi Kurniawan[2]

[1]Department of Accounting, Universitas Pelita Harapan, Jalan M.H. Thamrin Boulevard No.1100, Indonesia
[2]Department of Accounting, Sampoerna University, L'Avenue Building Pasarminggu, Indonesia

DOI: http://dx.doi.org/10.15294/jda.v17i2.21686

Submitted: February 24th, 2025 Revised: August 15th, 2025 Accepted: August 15th, 2025 Published: September 30th, 2025

Abstract

Purposes: This study aims to provide empirical evidence on Carbon Emissions Disclosure (CED) in mediating the relationship between Managerial Ownership and Political Connections, namely Managerial Characteristics, towards Tax Aggressiveness in Indonesia.

Methods: The analysis was conducted on companies listed on the Indonesia Stock Exchange during 2019-2022, excluding the financial, technology, and property sectors.

Findings: The results show that Managerial Ownership significantly influenced Tax Aggressiveness as the managers with ownership tend to be more aggressive in reducing taxes to increase profits. However, Political Connections do not affect substantially Tax Aggressiveness behavior. CED negatively impacted tax payments but did not moderate the relationship between Managerial Ownership or Political Connections toward Tax Aggressiveness.

Novelty: The study uniquely observes how companies and managers respond to these nascent regulations, even before full implementation, and highlights the emerging role of carbon emissions disclosure as a new factor influencing corporate tax strategies, providing specific insights from the Indonesian setting. This research presents significant novelty by investigating the relationship between managerial characteristics (managerial ownership and political connections) and tax aggressiveness, specifically moderated by carbon emissions disclosure, within the unique context of Indonesia's newly implemented and evolving carbon regulations. The study uniquely observes how companies and managers respond to these nascent regulations, even before full implementation, and highlights the emerging role of carbon emissions disclosure as a new factor influencing corporate tax strategies, providing specific insights from the Indonesian setting

Keywords*:* Carbon Emissions Disclosure, Managerial Ownership, Political Connections, Tax Aggressiveness.

How to cite (APA 7th Style)

Benny, V. L., Sambuaga, E. A., Fernando, K., & Kurniawan, B. (2025). Carbon Emissions Disclosure in Moderating Managerial Ownership and Political Connections towards Tax Aggressiveness. *Jurnal Dinamika Akuntansi, 17*(2), 195-210. http://dx.doi.org/10.15294/jda.v17i2.21686.

Corresponding author (✉)
E-mail: elfina.sambuaga@uph.edu

INTRODUCTION

Indonesia, ranked the worst pollution intensity in the world as of August 2023, has strengthened regulations to control carbon emissions produced by companies (Koesmawardhani, 2023). These regulations include the purchase of permits through carbon credits or payments for carbon taxes. The carbon credit system has been approved and enacted in Indonesia in collaboration with the Indonesia Stock Exchange (IDX) (Asia.Nikkei.Com, 2023). Despite the enforcement of carbon tax policies since 2022, their implementation has not been optimal (Tjoanto & Tambunan, 2022).On the bright side of this implementation, the companies could compensate for such expenses by reducing their tax payment within the fiscal year. Regardless of potential incentives, the implementation of carbon emission regulations poses a challenge to these managers as they seek ways to reduce company expenses, including tax savings (Geng et al., 2021).

Optimizing shareholders' wealth is one of the management's objectives. A study found that managers with Managerial Ownership are focused on increasing company profits, they often utilize the expense of environmental compliance to benefit their performance (Labatt & White, 2007a) . In line with the government, managers must comply with regulations regarding carbon tax payments and carbon credits to limit CO2 emissions (Yu et al., 2021).

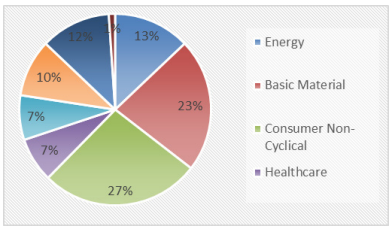

Figure 1: Business Sectors Disclosing Carbon Emissions,
Source: The Processed Secondary Data (2024)

Over the past two years before the obligation of Indonesian companies to disclose their Carbon emissions, The voluntary Carbon Emissions Disclosure was done revealing a proactive approach even before the regulations were enforced. Looking at Figure 1, from 2019 to 2020, companies in the Consumer Non-Cyclical and Basic Material sectors frequently disclosed their carbon emissions,

Examining the impact of Political Connections on tax behavior. Figure 2 shows that 89% of the board of commissioners and 11% of the board of directors in Indonesian companies have Political Connections. These connections are measured by whether managers hold or have held positions in the political world (Agustina et al., 2022). The involvement of politicians in the business world does not guarantee compliance with government regulations, as many politicians are reluctant to implement carbon emission regulations due to their perceived inadequacy (Dyarto & Setyawan, 2021; Yu et al., 2021)

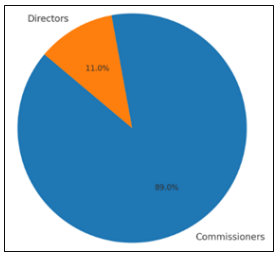

Figure 2: Composition of Managerial Positions with Political Connections.
Source: The Processed Secondary Data (2024)

Research shows that Managerial Ownership can positively influence Tax Avoidance Behavior (Cabello et al., 2019; (Tanko et al., 2022; Deef et al., 2021), while Political Connections can both positively and negatively affect Tax Aggressiveness, depending on the context (Firmansyah et al., 2022; Maharani & Baroroh, 2019;Shen et al., 2019; Chen et al., 2019;Latifatul et al., 2023; Tsai et al., 2021;Iswari et al., 2019). The implementation of carbon taxes and credits has prompted companies to adopt strategies to minimize expenses, including tax avoidance (Geng et al., 2021; Yu et al., 2021).

In conclusion, this research aims to examine the extent to which Managerial Characteristics, specifically Managerial Ownership and Political Connections, that affect Tax Aggressiveness in the context of Carbon Emission Disclosure. While previous studies have explored the influence of managerial characteristics on tax behavior, they have largely overlooked how these relationships unfold under the specific pressure of environmental regulations, such as carbon taxes and carbon credit systems. To date, limited empirical evidence is available on how these internal managerial factors interact with external regulatory demands in shaping corporate tax strategies. This study is important as it highlights the tension between corporate obligations to comply with carbon emission regulations and managerial interests in minimizing tax burdens. Although carbon tax and carbon credit policies have been introduced, their implementation remains suboptimal. In this context, companies tend to seek cost-efficiency alternatives, including engaging in tax aggressiveness strategies. Therefore, this research addresses a clear gap in the literature by focusing on how internal managerial dynamics influence tax decisions in response to evolving environmental policies in Indonesia.

According to stakeholder theory, managers need to actively participate in maintaining good relationships with the environment and society to obtain returns in the future. According to this theory, maintaining good relationships with shareholders, suppliers, customers, employees, and specific communities can enhance the progress and success of the company in the future. Rezaee et al., (2019) stated that stakeholder theory is used to maximize the company's value in the future and becomes one of the important values for the sustainability of a business. Company expenses that prioritize environmental and social conditions are among the least desired by managers and do not have a direct impact on the company's sustainability in the short term. Rahman et al., (2020) mentioned in their research that the green economy is an example of the implementation of stakeholder theory, where the green economy is an effort made by companies to preserve the environment and social health through environmental conservation and empowerment actions. The creation of carbon emission regulations is a tangible example of environmental conservation actions that managers must undertake to maintain good relationships with the government and society. This is also stated in the research conducted by Saha et al., (2021), which mentioned that the existence of Carbon Emission Disclosure (CED) impacts the reduction of carbon emissions produced by companies each year and provides a good reputation for the company in the eyes of the public. Companies that adopt environmental conservation efforts gain more trust from investors. This may be because investors will place more trust in companies that have a good reputation in the eyes of the public, and the environmental conservation activities undertaken by the company cause investors to believe that the company will be far from legal cases that could harm the company's value in the future.

According to Widyanto et al., (2019), Managerial Ownership of its company shares will encourage managers to provide reliable reporting to avoid legal risks that may arise from management errors in the decision-making process. However, Cabello et al., (2019) mentioned in their research that this does not cover the managers' desire to increase company profits and take all necessary measures to save expenses, including efforts to save on tax payments. This is proven by research results showing that managers with managerial ownership will strive to engage in tax avoidance within the company. Tanko et al., (2022) also added that the higher the level of managerial ownership in a company, the more managers will strive to save on tax payments. This

is supported by the agency theory concept presented by Jensen & Meckling (1976) , where tax payments increase the agency cost that occurs, so managers need to reduce the amount of tax payments to maximize the company's profit value. Tanko et al., (2022) also added that managerial ownership is carried out by the company to position managers as investors, so managers have a strong desire to maximize the company's profit value. Managers who own some shares in the company will maximize their performance to increase the company's profit value. Managers' aggressive behavior in tax payments is an effort by managers who position themselves as investors to increase the profit from a business.

H_1: Managerial Ownership in the company has a positive effect on the level of Tax Aggressiveness.

Tax avoidance is commonly done by managers. However, Tax avoidance activities become more aggressive with Political Connections in the company. Managers with Political Connections will have a different attitude compared to managers who have no connections. Agustina et al., (2022) stated that managers with Political Connections generally do not comply with implemented regulations, believing that the company has a lower risk of being audited. Every board of directors and board of commissioners will strive to increase the company's profits, but those with Political Connections will leverage their connections to achieve this Firmansyah et al., (2022). For this reason, companies with Political Connections are generally less transparent in financial reporting and do not fear audits due to government protection (Latifatul et al., 2023). The board of directors and board of commissioners with Political Connections will use their political background to achieve company strategies. The implementation of strategies to maximize profit levels can be realized through aggressive tax behavior. Therefore, the more the board of directors and commissioners have political backgrounds, the greater the likelihood of tax avoidance.

H_2: Political Connections in the company have a positive effect on the level of Tax Aggressiveness.

The implementation of carbon emission regulations, which impose costs on each carbon emission produced by companies, can cause a shock reaction among company management. This is a natural reaction to the implementation of carbon emission regulations that increase company expenses. Carbon emissions themselves have become a very significant economic indicator compared to other economic indicators (Sun et al., 2019). This is supported by Labatt & White, (2007), who stated that the implementation of carbon emission regulations leads to competitive actions by companies to continue growing and increasing profits, even though companies need to increase expenses related to carbon emission payments. Indonesia is a country that greatly prioritizes community interests over personal interests. Studies by Geng et al., (2021) and Yu et al., (2021) have proven that the implementation of carbon emission regulations influences the increase in tax avoidance behavior. This is because companies reduce tax payments to manage the high expenses during that period. Regarding the disclosure of carbon emissions, it is known that companies always seek alternatives to reduce increasing expenses. In this case, the disclosure of carbon emissions and their regulations add to the company's expenses. Thus, it can be stated that there is potential for companies to reduce carbon emission costs through tax avoidance activities.

H_3: The amount of Carbon Emissions Disclosure in a company has a positive effect on the level of Tax Aggressiveness.

Rezaee et al. (2019) stated that managers in Asia tend to consider the benefits of activities that support environmental sustainability for the company's profit and continuity. This causes managers to only fulfill their responsibilities in complying with carbon emission regulations minimally. The implementation of government regulations related to carbon emission payments will trigger rejection from shareholders who do not want additional expenses, as shareholders fundamentally desire to increase the company's profits (Dyarto & Setyawan, 2021). Before the

carbon emission regulations were issued, rejection of these regulations was anticipated in the book by Labatt & White, (2007), which explained that the issuance of carbon emission regulations would face various rejections from many parties. Managers who own company shares have a strong reason to reduce expenses, but expenses related to carbon emission payments are government regulations stipulated by law. Therefore, managers will try to reduce other expenses, including tax payments. It can be stated that managers always strive to maximize the company's profit value, and managers will make greater efforts if they own company shares. Thus, the emergence of regulations related to carbon emission payments becomes a problem that needs to be addressed seriously by managers. Managers who position themselves as shareholders will feel significantly disadvantaged by the existence of carbon emission regulations. Therefore, one-way managers can address this is through Tax Aggressiveness behavior.

H_4: The amount of Carbon Emissions Disclosure strengthens the positive effect of Managerial Ownership on Tax Aggressiveness.

Many politicians in Indonesia are involved in business. Wardana et al., (2022) stated that 50% of DPR (House of Representatives) members are skilled entrepreneurs in Indonesia. It was also mentioned that there was opposition during the planning of carbon tax implementation aimed at large companies in Indonesia. This opposition came from politicians who were not ready to face the problems arising from the implementation of carbon emission costs and their impact on business, institutions, and political interests (Dyarto & Setyawan, 2021). A study by Yu et al., (2021) stated that local governments abroad are still lenient in enforcing carbon emission regulations on local entrepreneurs. It was also mentioned that Political Connections influence the increase in tax avoidance behavior by companies with the implementation of carbon emission regulations. Therefore, managers with Political Connections will strive to reduce company expenses by minimizing tax payments, as government regulations are difficult to ignore by management. The controversies among politicians indicate that managers with political backgrounds do not favor the implementation of carbon emission regulations. Thus, managers will address this issue through Tax Aggressiveness behavior.

H_5: The amount of Carbon Emissions Disclosure strengthens the positive effect of Political Connections on Tax Aggressiveness.

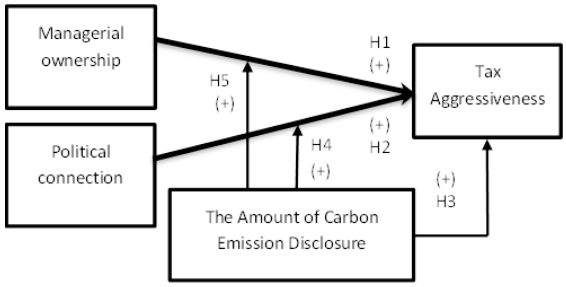

Figure 3: Conceptual Framework

METHODS

The population for this study comprises all companies listed on the Indonesia Stock Exchange (IDX), excluding those in the financial sector, with observational data collected from the period 2019-2022. The research period of 2019-2022 was selected primarily due to data availability and the nascent stage of carbon emission regulations in Indonesia. Companies began voluntarily disclosing carbon emissions from 2019, even before formal regulations made it mandatory, and the study specifically sought firms with complete financial and sustainability reports for this timeframe, excluding the financial sector. The decision to conclude the study in 2022 was driven by the fact that Indonesia's carbon emission regulation, including the carbon tax, was newly implemented in 2022 via the Harmonization of Tax Regulations Law (UU HPP).

Researchers aimed to observe corporate responses and strategies leading up to and immediately following this initial regulatory enforcement, noting that the rules were still very new and resulted in limited prior disclosure data. The research data utilizes both secondary data and hand-collected data from S&P Capital IQ, annual reports, and Sustainability Reporting published by companies. The criteria are as follows:

Table 1: Criteria for Selecting Observation Material

No.	Description	Total
1	Observations of companies listed on the IDX	620
2	Companies that did not publish complete financial statements during the period 2019 - 2022	(83)
3	Companies that experienced losses during the period 2019 - 2022	(144)
4	Companies that did not issue a sustainability report including information on GHG emissions	(292)
5	Companies that received tax benefits	(8)
	Total companies used for research observations	93
	Total observations used in the research for the period 2019 - 2022	372

Source: The Processed Secondary Data (2024)

Initially, 620 companies listed on the Indonesia Stock Exchange in the sectors of energy, basic materials, consumer non-cyclical, healthcare, industrials, consumer cyclical, infrastructure, transportation & logistics, properties & real estate, and technology were collected. This study excludes the financial sector due to different reporting standards compared to other sectors, and the property & real estate and technology sectors because they have not disclosed the amount of carbon emissions produced. This study excludes companies that did not publish complete financial statements during the period 2019 - 2022, finding that 83 companies did not publish complete financial statements either through the IDX or on their official websites. This study also excludes companies that experienced losses during the period 2019 - 2022, as these companies are not required to pay taxes and can compensate for losses to avoid paying taxes for up to 5 years. Therefore, 144 companies experienced losses during the period 2019 - 2022, with many companies suffering losses during the pandemic in 2020.

This study excludes companies that did not publish sustainability reports, especially those that did not disclose the amount of carbon emissions produced during the period 2019 - 2022. A total of 292 companies did not meet this criterion, as Indonesia had not set carbon emission rules before 2022, so many companies did not disclose carbon emissions during the period 2019 - 2021. This study also excludes 8 companies that received tax benefits during the period 2019 - 2022. Tax benefits can occur for many reasons, including the return of excess tax payments. Therefore, the number of companies that can be used for observation is 93, with observations conducted during the period 2019 - 2022, resulting in a total of 372 observations.

The sector most frequently used as observation material for the research comes from the consumer non-cyclicals sector, which includes companies engaged in providing life necessities such as beverages, food, staples, tobacco, and household products. The consumer non-cyclicals sector typically has factories for producing the goods sold, so the disclosure of carbon emissions is widely applied in companies in this sector. The second most frequently used sector for observation is the basic materials sector, which includes the production of paper, paint, chemicals, wood, plastic, nickel, and other basic materials. The biggest challenge in conducting this research is finding companies that regularly disclose the total carbon emissions produced during the period 2019 - 2022. Thus, the researcher found 93 companies that disclosed the total amount of carbon emissions, summarized in a pie chart in

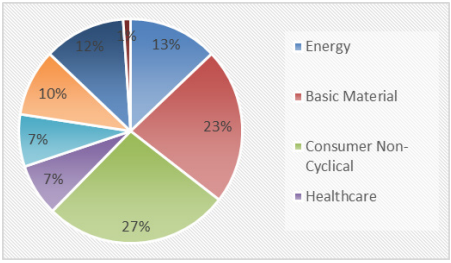

Figure 4. Business Sectors Disclosing Carbon Emissions,
Source: The Processed Secondary Data (2024)

Another interesting aspect of this research is the influence of Political Connections in the companies being observed. It is believed that Political Connections among company managers can have certain effects on company progress, one of which is the effectiveness of Tax Aggressiveness activities conducted by the company. Therefore, the researcher created a pie chart to see which business sectors have the most involvement in politics.

Based on the pie chart in Figure 6, the sector with the most political involvement is the consumer non-cyclical sector, which generally operates in the field of daily necessities such as food, beverages, staples, and household needs. The relationship between Political Connections in the consumer non-cyclicals sector is very likely to occur if we consider that this sector is generally owned by conglomerates, and there is a possibility that Political Connections are used in various ways to obtain permits that facilitate operational activities.

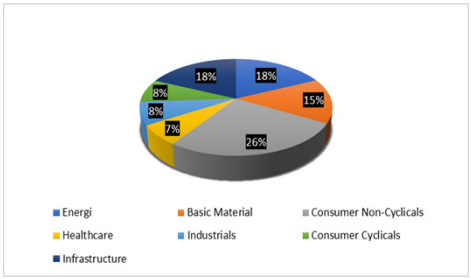

Figure 5: Distribution of Political Connections by Business Sector,
Source: The Processed Secondary Data (2024)

The involvement of the healthcare sector in politics is very small compared to other sectors, as healthcare company managers are usually medical professionals and researchers, so not many have Political Connections.

3.2 Variables measurements

Table 2: List and Indicator of Measurement of Variables

Research Variable	Indicator of Measurement	Reference
	Dependent variable	
Tax Aggressiveness (CETR)	$\frac{Cash\ Tax\ Paid}{Total\ pretax\ accounting\ income}$	(Prastiwi & Walidah, 2020)
	Independent variable	
Management ownership (MO)	$\frac{Total\ shares\ of\ Manager}{Total\ shares\ outstanding}$	(Tanko et al., 2022a)
Political Connection (POL)	A dummy variable (1 if there is a political connection, 0 if otherwise)	(Agustina et al., 2022)

Research Variable	Indicator of Measurement	Reference
	Moderating variable	
Carbon Emission (LnCO2)	$CO2 = LN\ (Ton\ Co2)$	(Sun et al., 2019)
	Control variable	
Profitability (ROA)	$\frac{Earning\ After\ Tax}{Total\ Assets}$	(Sofiana et al., 2019)
SIZE	$LN\ (Total\ Asset)$	(Irawan & Novitasari, 2021)
Leverage (LEV)	$\frac{Total\ Debt}{Total\ Assets}$	(Dini & Fau, 2022)
Capital Intensity (CI)	$Log(Total\ Assets)$	(Mahardika & Irawan, 2022)
Period of Carbon Emission Regulation Implementation (PdCO2)	A dummy variable (1 if the carbon emission regulations have been implemented in that year, 0 if otherwise)	
Period of Covid-19 (PdCOV)	A dummy variable (1 if the year affected by the Covid-19 pandemic, 0 if otherwise)	

Source: The Processed Secondary Data (2024)

The dependent variable in this study uses CETR to observe Tax Aggressiveness. This study uses the Cash Effective Tax Rate (CETR) to measure Tax Aggressiveness. A high CETR value indicates effective tax payment and low Tax Aggressiveness, while a low CETR value indicates high Tax Aggressiveness. CETR is calculated by dividing tax payments by pre-tax earnings. The independent variables in this study consist of Managerial Ownership and Political Connections. Managerial Ownership is measured by the number of shares owned by management divided by the total shares outstanding. Political Connections are measured using a dummy variable, where 1 indicates the presence of Political Connections and 0 indicates the absence of Political Connections. The amount of carbon emissions is used as a moderating variable (Carbon Emissions Disclosure). The Carbon emissions are then measured in tons and expressed in natural log (LN).

Control variables include Return on Assets (ROA), measured by net income divided by total assets; Size, measured by total assets in natural log (LN); Leverage, measured by the Debt Ratio (total debt divided by total assets); Capital Intensity, measured by fixed assets divided by total assets; and the periods of carbon emission regulation implementation and Covid-19, both measured using dummy variables.

The following is the research models that are be used to support the research:

$$CETRi,t = \alpha0 + \beta1\ MOi,t + \beta2\ POLi,t + \beta3 LnCO2i,t + \beta4\ MOxLnCO2i,t + \beta5\ POLxLnCO2i,t + \beta6\ ROAi,t + \beta7\ SIZEi,t + \beta8\ LEVi,t + \beta9\ CIi,t + \beta10\ PdCO2i,t + \beta10\ Covi,t + \varepsilon \quad \ldots\ldots\ldots\ldots\ldots\ldots (1)$$

$$CETRi,t = \alpha0 + \beta1\ MOi,t + \beta2\ POLi,t + \beta3\ LnCO2i,t + \beta4\ MOxLnCO2i,t + \beta5\ POLxLnCO2i,t + \beta6\ ROAi,t + \beta7\ SIZEi,t + \beta8\ LEVi,t + \beta9\ CIi,t + \beta10\ PdCO2i,t + \beta10\ PdCOVi,t + \varepsilon \quad \ldots\ldots\ldots\ldots\ldots\ldots (2)$$

RESULTS AND DISCUSSION

Descriptive statistics and diagnostics checking

Table 3: Presents the Results of Descriptive Statistical Analysis.

Variable	Obs	Mean	Std. Dev	Min	Max
CETR	372	0.329	0.259	0.0007	1.051
MO	372	0.061	0.157	0	0.894
POL	372	0.550	0.497	0	1
LnCO2	372	11.19	3.510	0.595	21.78
ROA	372	0.086	0.089	0.0001	0.6
SIZE	372	15.95	1.581	10.8	19.83
LEV	372	0.425	0.188	0.065	0.858
CI	372	0.394	0.223	0.0039	0.886
PdCO2	372	0.250	0.433	0	1
PdCOV	372	0.750	0.433	0	1

Source: The Processed Secondary Data (2024)

The CETR variable has a minimum value of 0.0007, a maximum value of 1.051, and an average value of 0.329. This indicates that the observed companies effectively paid taxes with an average value of 32.9%. The MO variable shows that, on average, 6% of company shares in Indonesia are owned by company managers. The minimum Managerial Ownership value is 0% because some companies' shares are not owned by the managers, while the maximum value is 89.4%. The POL variable represents Political Connections held by managers, proxied by a dummy variable, with a minimum value of 0 and a maximum value of 1. The average value of Political Connections held by managers is 55%, indicating that more than half of the companies in Indonesia have managers involved in politics. The skewness value of the variable is -0.238, which is below ±3, and the kurtosis value is 1.056, below 10, indicating that the deviation of the political connection variable is still categorized as normal.

The LnCO2 variable represents the amount of carbon emissions produced by companies in tons. The minimum value of carbon emissions is 0.595, and the maximum value is 21.78. The average value of total disclosed carbon emissions is 11.14. The ROA variable represents the profitability level of companies, with a minimum value of 0.019%, a maximum value of 60.2%, and an average value of 8.6%, indicating that the average company in Indonesia only utilizes 8% of its assets to generate profit.

The SIZE variable represents the size of a company through its total assets. The minimum value is 10.86, the maximum value is 19.83, and the average value is 15.95, indicating that the total assets of companies in Indonesia do not vary significantly. The LEV variable represents the leverage ratio, comparing the company's debt to its total assets. The minimum value is 6.5%, the maximum value is 85.8%, and the average value is 42.5%, indicating that the average company in Indonesia has a debt proportion of 42.5% of its total assets.

The CI variable represents capital intensity, which compares the company's fixed assets to its total assets. The minimum value is 0.39%, the maximum value is 85.8%, and the average value is 39.45%, indicating that the average company in Indonesia has a fixed asset proportion of 39.45% of its total assets. The PdCO2 variable represents the period of carbon emission regulation implementation in Indonesia, proxied by a dummy variable, with a minimum value of 0 and a maximum value of 1. The average value of the PdCO2 variable is 0.25, reflecting that carbon emission regulations were only implemented starting in 2022. The skewness value of the PdCO2 variable is 1.154, below ±3, and the kurtosis value is 2.33, below 10, indicating that the deviation of the PdCO2 variable is still categorized as normal.

The PdCOV variable represents the period affected by the Covid-19 pandemic in Indonesia, proxied by a dummy variable, with a minimum value of 0 and a maximum value of 1. The

average value of the PdCOV variable is 0.75, reflecting that the Covid-19 pandemic affected the period from 2020 to 2022, meaning 75% of the study observations were affected by the Covid-19 pandemic.

This study did not find any multicollinearity issues from the correlation test results, as the coefficient values between independent variables did not exceed 0.8 (Table 4). Therefore, the researcher assumes that the correlation test results between the variables studied do not have any multicollinearity issues and are safe for further analysis tests.

Table 4: Presents the Results of the Correlation Test

No.	Var.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1)	CETR	1.000									
(2)	MO	-0.073	1.000								
		0.158									
(3)	POL	0.038	-0.178***	1.000							
		0.457	0.000								
(4)	LnCO2	-0.006	-0.135***	0.345***	1.000						
		0.894	0.008	0.000							
(5)	ROA	-0.275***	-0.037	0.177***	-0.094*	1.000					
		0.000	0.467	0.000	0.068						
(6)	SIZE	0.090*	-0.338***	0.397***	0.521***	-0.050	1.000				
		0.081	0.000	0.000	0.000	0.336					
(7)	LEV	0.236***	-0.183***	0.171***	0.222***	-0.248***	0.393***	1.000			
		0.000	0.000	0.000	0.000	0.000	0.000				
(8)	CI	-0.139***	-0.199***	-0.055	-0.0008	-0.145***	0.086*	0.123**	1.000		
		0.006	0.000	0.288	0.9883	0.004	0.096	0.017			
(9)	PdCO2	-0.011	-0.004	0.062	0.027	0.117**	0.059	-0.023	-0.042	1.000	
		0.822	0.925	0.229	0.594	0.023	0.251	0.649	0.418		
(10)	PdCOV	-0.128**	-0.016	0.050	0.038	0.048	0.050	-0.020	-0.032	0.333***	1.000
		0.013	0.749	0.336	0.459	0.353	0.330	0.696	0.531	0.000	

*** p<0.01, **p<0.05, *p<0.1

Source: The Processed Secondary Data (2024)

Tables 5 and 6 present the t-test results for each variable tested in the study. Model 1, presented in Table 5, shows the t-test results without the inclusion of the moderating variable. The LnCO2 variable in Model 1 is displayed as one of the main independent variables. In contrast, Model 2, shown in Table 6, presents the moderating variable in the form of an interaction between the LnCO2 variable and the POL variable, as well as the interaction between the LnCO2 variable and the MO variable

Table 5 : Presents the Result of Hypotheses Test for Model 1

$CETR_{i,t} = \alpha 0 + \beta 1\ MO_{i,t} + \beta 2\ POL_{i,t} + \beta 3\ LnCO2_{i,t} + \beta 4\ ROA_{i,t} + \beta 5\ SIZE_{i,t} + \beta 6\ LEV_{i,t} + \beta 7\ CI_{i,t} + \beta 8\ PdCO2_{i,t} + \beta 9\ PdCOV_{i,t} + \varepsilon$							
CETR	Sign (expected)	Coef.	Std. err	t-value	p-value	Sig. (one-tailed)	Hypothesis' Summary
MO	+	-0.153	0.086	-1.77	0.039	**	Accepted H1

POL	+	0.031	0.028	1.13	0.130		Rejected H2
LnCO2	+	-0.008	0.004	-2.13	0.017	**	**Accepted H3**
ROA	+	-0.835	0.149	-5.59	0.000	***	
SIZE	+	0.006	0.010	0.60	0.273		
LEV	+	0.241	0.073	3.27	0.000	***	
CI	+	-2.610	0.057	-4.56	0.000	***	
PdCO2	+	0.035	0.030	1.19	0.118		
PdCOV	+	-0.083	0.030	-2.77	0.003	**	
Prob>f = 0.0000 *R-squared* = 0.1831 *Adj R-squared* = 0.1628 Variabel = 9 *Number of Obs.* = 372 **** p<0.01, **p<0.05, *p<0.1*							

Source: The Processed Secondary Data (2024)

Table 6 : Presents the Result of the Hypotheses Test for Model 2

$CETR_{i,t} = \alpha 0 + \beta 1\ MO_{i,t} + \beta 2\ POL_{i,t} + \beta 3\ LnCO2_{i,t} + \beta 4\ MOxLnCO2_{i,t} + \beta 5\ POLxLnCO2_{i,t} + \beta 6\ ROA_{i,t} + \beta 7\ SIZE_{i,t} + \beta 8\ LEV_{i,t} + \beta 9\ CI_{i,t} + \beta 10\ PdCO2_{i,t} + \beta 10\ PdCOV_{i,t} + \varepsilon$							
CETR	Sign (expected)	Coef.	Std. err	t-value	p-value	Sig. (one-tailed)	Hypothesis' Summary
MO	+	-0.460	0.281	-1.63	0.051	*	
POL	+	-0.043	0.092	-0.47	0.320		
LnCO2	+	-0.015	0.006	-2.19	0.014	**	
MOxLnCO2	+	0.030	0.026	1.12	0.131		Rejected H4
POLxLnCO2	+	0.006	0.008	0.84	0.199		Rejected H5
ROA	+	-0.829	0.151	-5.46	0.000	***	
SIZE	+	0.006	0.010	0.64	0.260		
LEV	+	0.245	0.074	3.30	0.000	***	
CI	+	-2.67	0.057	-4.66	0.000	***	
PdCO2	+	0.035	0.030	1.19	0.118		
PdCOV	+	-0.083	0.030	-2.77	0.003	**	
Prob>f = 0.0000 *R-squared* = 0.1869 *Adj R-squared* = 0.1621 Variabel = 11 *Number of Obs.* = 372 **** p<0.01, **p<0.05, *p<0.1*							

Source: The Processed Secondary Data (2024)

Discussion

The Influence of Managerial Ownership on Tax Aggressiveness

The MO variable has a coefficient of -0.153 and a p-value of 0.039, indicating that the MO variable has a negative influence on the CETR variable with a 5% significance level. The hypothesis test results suggest that the extent of managerial ownership in a company influences the increase in Tax Aggressiveness, consistent with the research by Cabello et al., (2019) and Tanko et al., (2022). They state that the higher the managerial ownership in a company, the more managers strive to

save on tax payments to maximize company profits. Company managers who own shares in their company will work harder to maximize the profits desired by investors, as they also experience the same feelings as investors. Managers who own shares hope to receive rewards from rising stock prices or dividends obtained through increased company profits. This aligns with agency theory, which suggests that the conflicts between owners (principals) and management (agents) can be mitigated if managers position themselves as owners (principals) (Jensen & Meckling, 1976). Therefore, granting shares is one-way companies address conflicts between managers (agents) and owners (principals). Managers who position themselves as shareholders will do everything to maximize the profits desired, including engaging in Tax Aggressiveness.

The Influence of Political Connections on Tax Aggressiveness

The POL variable has a coefficient of 0.031 and a p-value of 0.130, indicating that the POL variable does not significantly influence the CETR variable. The hypothesis test results suggest that Political Connections do not influence Tax Aggressiveness behavior. This is contrary to the researchers' hypothesis, which believed that managers with Political Connections would use their connections to gain early tax information, enabling them to utilize gray areas for more mature tax avoidance strategies (Firmansyah et al., 2022). The hypothesis results also contradict the upper echelon theory proposed by Hambrick & Mason, (1984), which states that the board of commissioners and directors will utilize all their backgrounds as important tools in decision-making. The researchers believe that Political Connections are a crucial background for the board of commissioners and directors in decision-making and company strategy achievement. The hypothesis test results, which indicate that Political Connections do not influence Tax Aggressiveness, may be because Political Connections in Indonesian companies are more common among commissioners than directors. This finding aligns with the research by Lestari et al., (2019). Figure 4.3 shows that 89% of commissioners have Political Connections, compared to only 11% of directors. The directors are responsible for implementing strategies to achieve company success, while the commissioners oversee operational activities. Therefore, the influence of Political Connections would be more significant if held by directors. Future research should consider narrowing the scope of Political Connections held by managers.

The Influence of Carbon Emissions on Tax Aggressiveness

The LnCO2 variable has a coefficient of -0.008 and a p-value of 0.017, indicating that the LnCO2 variable negatively influences the CETR variable. The hypothesis test results suggest that carbon emissions impact the increase in Tax Aggressiveness by companies. Before 2022, some companies voluntarily disclosed carbon emissions, but the disclosure of carbon emissions gained attention with the implementation of carbon regulations, which aim to reduce the harmful environmental impact of carbon emissions. Labatt & White, (2007) noted that carbon emissions increased with the Industrial Revolution in the late 1900s, indicating a link between carbon emissions and economic progress. According to the Stakeholder Theory, managers must consider the interests of all parties affected by company operations, including the community and environment, which are most harmed by increased carbon emissions. Thus, managers must comply with government regulations on carbon emissions. The imposition of carbon regulations forces managers to find ways to cut costs, including through Tax Aggressiveness. Geng et al., (2021) and Yu et al., (2021) found that carbon regulations increase Tax Aggressiveness, aligning with the hypothesis that carbon emissions prompt managers to reduce company expenses, including through Tax Aggressiveness. Although carbon regulations were only implemented in 2022, the researchers measured carbon emissions from 2019-2022, finding a pattern of tax avoidance associated with Carbon Emissions Disclosures. The amount of carbon emissions becomes a strategy for companies to increase Tax Aggressiveness.

The Influence of Carbon Emissions in Moderating Managerial Ownership and Tax Aggressiveness

The MO variable has a coefficient of -0.46 and a p-value of 0.051. Before the interaction variable, the MO variable had a coefficient of -0.153 and a p-value of 0.039, while the LnCO2 variable had a coefficient of -0.015 and a p-value of 0.014. Before the interaction variable, the LnCO2 variable had a coefficient of -0.008 and a p-value of 0.017. Thus, the interaction variable combining MO and LnCO2 does not influence the CETR variable, indicating it does not affect Tax Aggressiveness. The hypothesis test results suggest that carbon emissions do not moderate the relationship between managerial ownership and Tax Aggressiveness. This contradicts the initial hypothesis, which posited that managers' resistance to carbon regulations would lead to Tax Aggressiveness to reduce company expenses (Labatt & White, 2007). Managers with shares have strong reasons for Tax Aggressiveness, as they must comply with government regulations, even minimally (Rezaee et al., 2019). Despite the hypothesis test results not aligned with the initial hypothesis, the researchers found a reasonable explanation: carbon regulations were only implemented in April 2022 with the Harmonization of Tax Regulations Law (UU HPP) and strengthened by IDX Indonesia's carbon credit trading rules in September 2023. Thus, the recent implementation of carbon regulations makes it reasonable that carbon emissions do not yet moderate the relationship between managerial ownership and Tax Aggressiveness. The control variable results, indicating that the period of carbon regulation implementation does not affect Tax Aggressiveness, support this. Therefore, the recent implementation of carbon regulations has not influenced the relationship between managerial ownership and Tax Aggressiveness.

The Influence of Carbon Emissions in Moderating Political Connections and Tax Aggressiveness

The POL variable has a coefficient of -0.043 and a p-value of 0.320. Before the interaction variable, the POL variable had a coefficient of 0.031 and a p-value of 0.130, while the LnCO2 variable had a coefficient of -0.015 and a p-value of 0.014. Before the interaction variable, the LnCO2 variable had a coefficient of -0.008 and a p-value of 0.017. Thus, the interaction variable combining POL and LnCO2 does not influence the CETR variable, indicating it does not affect Tax Aggressiveness. The hypothesis test results suggest that carbon emissions do not moderate the relationship between Political Connections and Tax Aggressiveness. This contradicts the initial hypothesis, which posited that carbon emissions would influence politically connected managers to use their connections for more aggressive tax avoidance. Wardana et al., (2022) noted that 50% of DPR members are major entrepreneurs in Indonesia, suggesting managers have Political Connections that could be used in tax strategy. Despite the hypothesis test results not aligning with the initial hypothesis, the researchers found a reasonable explanation: carbon regulations were only implemented in April 2022 with the Harmonization of Tax Regulations Law (UU HPP) and strengthened by IDX Indonesia's carbon credit trading rules in September 2023. Thus, the recent implementation of carbon regulations makes it reasonable that carbon emissions do not yet moderate the relationship between Political Connections and Tax Aggressiveness. The control variable results, indicating that the period of carbon regulation implementation does not affect Tax Aggressiveness, support this. Therefore, the recent implementation of carbon regulations has not influenced the relationship between Political Connections and Tax Aggressiveness.

CONCLUSIONS

Carbon emission regulations have a significant impact on tax aggressiveness behavior in Indonesian companies. First, the research found that managerial ownership tends to encourage more aggressive tax avoidance. Managers who hold shares in their companies are more likely to seek ways to reduce tax expenses in order to maximize profits and shareholder value. Second, although it was initially expected that Political Connections would significantly influence tax aggressiveness, the findings show otherwise. In many cases, political ties are more commonly associated with commissioners than with directors, which may explain why their direct influence

on tax strategy is less evident. The study also shows that companies with higher levels of carbon emissions tend to engage in more aggressive tax avoidance. This suggests that stricter environmental regulations may indirectly prompt companies to seek cost-saving measures, including through tax strategies. However, the level of carbon emissions does not moderate the relationship between either managerial ownership or political connections and tax aggressiveness. In other words, while carbon emissions influence tax behavior, they do not appear to strengthen or weaken the role of managerial or political factors. This study acknowledges certain limitations that warrant consideration. A key limitation lies in the absence of specific controls for the change in Indonesia's corporate income tax rate, which was reduced from 25% to 22% beginning in 2022. This fiscal adjustment may have influenced corporate tax behaviour, particularly in shaping firms' responses to tax incentives and their overall tax planning strategies. Future research is advised to incorporate such fiscal policy variations as controls to offer a more comprehensive and contextually grounded understanding of corporate tax aggressiveness in the face of evolving regulatory and economic environments.

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