



# Impact of Corporate Social Responsibility, Profitability, Leverage, and Capital Intensity on Tax Aggressiveness: The Moderating Role of Firm Size in Indonesian Manufacturing Sector



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**Abstract:** In Indonesian manufacturing, the evasion of tax obligations presents a formidable challenge, diminishing the potential tax revenues accruing to the state. Rooted in agency theory, this investigation seeks to empirically elucidate the interrelations between corporate social responsibility (CSR), profitability, leverage, capital intensity, and corporate tax aggressiveness, with an emphasis on the moderating influence of firm size. Through a causal design and quantitative analysis, this examination scrutinizes data from 66 manufacturing entities listed on the Indonesia Stock Exchange over the period 2018 to 2022. The analysis, employing panel data regression techniques, demonstrates that CSR exerts a negative influence on tax aggressiveness, whereas profitability and capital intensity are positively associated with such behavior. Leverage, however, is not found to significantly affect tax aggressiveness. Furthermore, firm size is observed to negatively moderate the relationship between CSR and tax aggressiveness while positively moderating the relationship between both profitability and capital intensity with tax aggressiveness. The moderating effect of firm size on the leverage-tax aggressiveness nexus, however, remains non-significant. These findings underscore the complex dynamics influencing tax aggressiveness and suggest a need for stringent regulatory oversight and enforcement against aggressive tax avoidance tactics deployed by manufacturing firms. Recommendations include the establishment of clearer definitions of unauthorized tax avoidance practices, the imposition of severe penalties for non-compliance, and the enhancement of international collaboration to combat tax avoidance. This study not only contributes to the scholarly discourse on tax aggressiveness but also offers pragmatic insights for policymakers aimed at curtailing practices that undermine state revenue.

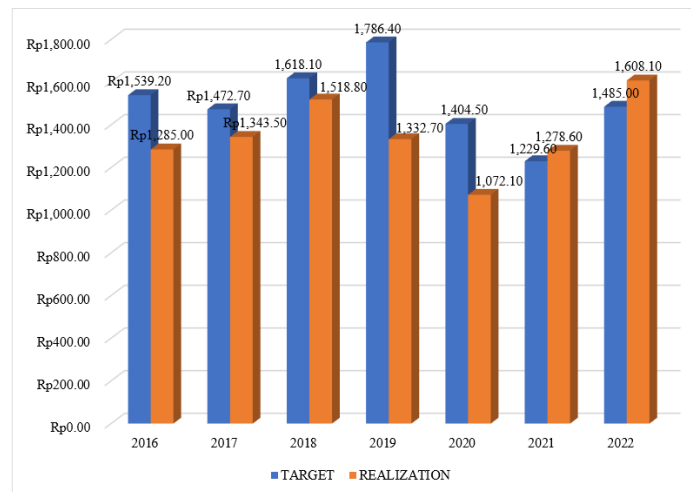
**Keywords:** Tax aggressiveness; Corporate social responsibility (CSR); Profitability; Leverage; Capital intensity; Firm size

**JEL Classification:** H26; H29

## 1. Introduction

Tax aggressiveness is a strategic approach employed by organizations to reduce their tax liabilities (Lembut & Oktariani, 2023). Taxes levied on earned income may present a financial obligation or liability for the organization (Manurung, 2019). Tax avoidance is estimated to cost the global economy Rp6,046 trillion, or \$427 billion, as reported by the Tax Justice Network (CNN Indonesia, 2020). On the other hand, it is estimated that tax evasion in Indonesia costs the country \$4.86 billion, or IDR68.7 trillion, per year (Sukmana, 2020). This is accomplished by means of funds being concealed in tax sanctuary countries. The target revenue from the tax sector is increased annually by the Indonesian government. Nevertheless, the government consistently fails to receive the intended

amount in tax revenue. Figure 1 illustrates the contrast between the real tax income and the defined tax revenue target in the State Budget (APBN, 2023).



**Figure 1.** Objective and achievement of tax revenue in the trillions of IDR between 2016 and 2023

Note: This figure was prepared by the authors.

According to the data presented, tax revenue was most substantially below target in 2019. This gap serves as an indication that business entities might employ tax avoidance tactics. While not all instances of exploiting loopholes constitute regulatory violations, the frequency at which a company implements such strategies is indicative of the more assertive nature of its tax avoidance practices (Suyanto & Supramono, 2012). There is a widespread prevalence of tax aggressiveness among numerous industries, including manufacturing. The manufacturing sector in Indonesia is a significant generator of tax revenue, consistently surpassing its previous year's contribution (Puspita et al., 2020).

Large corporations with complex financial structures and high transaction volumes comprise the manufacturing sector (Ramadhani & Sulistyowati, 2020), rendering them vulnerable to aggressive tax avoidance. As an illustration, in 2019, British American Tobacco (BAT), a globally recognized cigarette corporation, employed strategies to evade taxes. The Justice Network (TJN) has revealed that BAT was implicated in tax evasion involving \$700 million in low and middle-income countries, including Indonesia. To evade tax obligations, BAT transferred revenues from Indonesia through its subsidiary, PT. Bentoel Internasional Investama Tbk (RMBA), which could have resulted in an annual loss of US\$14 million in tax revenue for Indonesia (Amri et al., 2019).

Companies may choose to implement assertive tax strategies in an effort to diminish their income tax obligations to the federal government (Fitriani & Indrati, 2023). One of the most substantial barriers to augmenting state revenue is characterized by this (Labunets & Mayburov, 2022). The majority of businesses engage in tax aggressiveness through the implementation of accounting practices that reduce tax liability in an indirect manner. Apriyanti & Arifin (2021) posit that there exists a correlation between this behavior and CSR, as well as financial indicators such as capital intensity, profitability, and leverage, which are influential in corporate taxation strategies and may have an effect on the extent of tax evasion.

Yanti & Hartono (2019) define profitability as the capacity of an organization to produce financial gains. Profitable corporations will incur greater tax obligations due to the increased taxable income they generate. This encourages businesses to employ aggressive tax planning strategies in order to maximize net profit after taxes. The utilization of debt or financing to cover fixed expenses is referred to as corporate leverage (Asraf & Desda, 2020; Sulistyowati & Yulianto, 2015; Yulianto, 2017). As a form of tax aggressiveness, companies that employ substantial leverage are more prone to paying interest on debt in order to mitigate their tax obligations. The investment in fixed assets by the company is denoted by its capital intensity (Maulana et al., 2018). Companies with high capital intensity can depreciate more of their assets, which allows them to deduct a greater amount of expenses from their taxable income. According to Lanis & Richardson (2012), CSR activities can affect corporate tax policy. CSR is a firm's commitment to operate ethically and responsibly (Col & Patel, 2019). Companies that prioritize social responsibility tend to maintain their reputation and are more compliant with tax regulations, thus minimizing the possibility of tax aggressiveness. CSR is regarded as an advantageous objective and is appreciated by a wide range of stakeholders, such as shareholders, creditors, employees, local communities, and governments across the board (Yahaya & Apochi, 2021).

The purpose of this research is to determine how CSR, profitability, leverage, and capital intensity influence tax aggressiveness. The inclusion of firm size as a moderating variable in this investigation is relatively novel,

considering the paucity of prior research in this area. Firm size is classified into three levels, namely large, medium, and small (Raga et al., 2023). Firm size can affect how companies complete their tax obligations.

A considerable body of research has been devoted to examining the issue of tax aggressiveness. Laguir et al. (2015) assert that CSR exerts an adverse influence on tax aggressiveness, as the degree of tax aggressiveness decreases in correlation with the degree of corporate social dimensions. Businesses that engage in a greater number of CSR initiatives will exercise greater caution when executing aggressive tax strategies (Lanis & Richardson, 2012), because companies try to build good relationships with stakeholders (Fitri & Munandar, 2018). By presenting empirical evidence, Andariesta & Suryarini (2023) substantiate the claim that tax aggressiveness is diminished in proportion to the scale of the firm and the extent of its CSR disclosures. The research conducted by Jaffar et al. (2021) indicates that tax aggressiveness is positively influenced by profitability. Highly profitable corporations are more inclined to participate in assertive tax strategies (Lanis & Richardson, 2012). Agency theory incentivizes agents to enhance corporate earnings, so the tendency to tax aggressiveness will increase (Puspita et al., 2020). Meanwhile, Amiah (2022) provides evidence that the level of profit generated by a large firm can affect the high practice of corporate tax avoidance. A number of studies, including those conducted by Fauzan et al. (2019), declare that corporations may use debt as a means to achieve tax savings. The reliance of the organization on its creditors will result in interest expense, thereby mitigating the tax liability (Raudhatul & Sa'Adah, 2022). When leverage increases, the effective tax rate (ETR) value also tends to increase (Rani et al., 2018). According to Suyanto & Kurniawati (2022), firm size acts as a moderator of the relationship shown above. Utomo & Fitria (2020) demonstrate that as a firm's size increases, so do the resources it can employ to mitigate its tax liability. Tax aggressiveness increases when capital intensity increases (Apriyanti & Arifin, 2021). Depreciation will be incurred by all fixed assets and reflected as depreciation costs in the financial statements of the company (Kalbuana et al., 2020). Consequently, a greater propensity for tax aggressiveness will be associated with a higher level of fixed asset intensity (Fitriani & Indrati, 2023).

However, contrary to this, studies by Apriyanti & Arifin (2021) and Makhfudloh et al. (2018) state that the absence of a correlation between tax aggressiveness and CSR could be due to the incomplete representation of the actual situation in the CSR report. Likewise, research that provides contradictory results shows that the level of company profitability will not affect tax aggressiveness (Kusuma & Maryono, 2022). Tax aggressiveness is a very risky activity, so managers will not take risks that will damage the company's good name and will have an impact on its business activities in the long term (E.G. & Murtanto, 2021). Margie & Habibah (2021) assert that very profitable businesses will always comply with tax payments. Zainuddin et al. (2022) prove that the level of leverage cannot affect tax avoidance. A greater leverage ratio signifies a greater reliance on external debt financing by the organization (Yanti & Hartono, 2019). However, managers are more inclined to eliminate the debt obligation rather than exploit it for tax evasion purposes (Pratama, 2017). The size of capital intensity cannot affect corporate tax avoidance (Jaffar et al., 2021; Maulana et al., 2018; Zainuddin et al., 2022). Meanwhile, Fitri & Munandar (2018) did not find empirical support for the idea that firm size is a mediator in the correlation between CSR, profitability, and leverage and tax aggressiveness because companies that have large and small sizes possess an equal opportunity to engage in tax aggressiveness. Maulana et al. (2018) also did not show a correlation between the level of capital intensity and the level of tax avoidance with moderation of firm size because the company will carry out the most appropriate policy to maintain its survival. The objective of these studies is to enhance the efficiency and effectiveness of the tax system in accordance with the development of the business sector. Therefore, the importance of this research for further research in filling the previous literature gap regarding corporate tax aggressiveness.

This study was driven by inconsistent findings from prior research on the level of corporate tax aggressiveness and the persistent problem of tax dodging in Indonesian corporations. Given the presence of these contradictions, additional study is necessary to substantiate the findings derived from prior studies and reassess whether CSR has an adverse impact on tax aggressiveness. Does tax aggressiveness exhibit a positive correlation with profitability, leverage, and capital intensity? Can the scale of a firm have a negative moderating effect on its CSR when it comes to tax aggressiveness? Does the scale of a firm have a positive effect on its profitability, leverage, and capital intensity in relation to tax aggressiveness? This study focuses on the manufacturing companies listed on the Indonesia Stock Exchange (IDX) between 2018 and 2022, which is different from previous studies. In order to ascertain the relevance of the findings to the present economic conditions, this specific time frame was chosen. The expected results of this study project are to provide economic players, investors, managers, and company owners with information and insights regarding tax aggressiveness. Additionally, future scholars with an interest in the same topic may find our findings to be informative.

Differences of interest can arise between shareholders and managers, the government, and the company itself when tax aggressiveness is applied (Maharani & Baroroh, 2019). Shareholders want to maximize the return on their investment, while managers seek higher compensation for running the company. Conversely, companies want to minimize tax payments, while the government wants to collect as much revenue as possible. This clash of objectives creates a conflict of interest, as defined by Jensen & Meckling (1976) as a situation where one party (the principal, such as shareholders) employs another party (the agent, such as managers), who requires decision-

making authority. To understand tax aggressiveness in this study, we shall adopt an agency theory perspective. This theory highlights the inherent conflict of interest arising from information asymmetry between the principal and the agent (Winedar & Harymawan, 2023). Zhang et al. (2022) stated that the type and intensity of agency conflict determine tax aggressiveness.

CSR signifies the dedication of an organization to advancing social issues, individual development, environmental protection, and employee well-being (Iloma & Chukwu, 2023). A company's robust CSR implementation can be seen as a measure of its performance. Generally, corporations that actively engage in CSR practices exhibit the least amount of tax aggressiveness. Such corporations are more likely to exhibit transparency in their tax payments and demonstrate social responsibility by complying with relevant regulations. Studies by Fitri & Munandar (2018), Fitriani & Indrati (2023), and Laguir et al. (2015) support this claim by demonstrating that tax aggressiveness is typically lowest among organizations that actively engage in CSR practices.

**Hypothesis 1 (H1):** The CSR of a business negatively influences its tax aggressiveness.

Profitabilities are predicated on the ability of entities to generate revenue during the period of time that is being considered profitable (Raga et al., 2023). As a company's income increases, the amount of tax it owes also rises. As a result, the corporation may adopt a more proactive stance in its efforts to minimize tax obligations, which could potentially spike levels of tax aggressiveness among businesses. Jaffar et al. (2021), Lanis & Richardson (2012), and Puspita et al. (2020) have all conducted research that establishes a positive correlation between corporate tax aggressiveness and profitability.

**Hypothesis 2 (H2):** The profitability of a business positively influences its tax aggressiveness.

The ratio of debt or loans utilized to fund business operations is referred to as leverage (Setyawan et al., 2019). Corporate loans or debts incur interest expenses that affect the company's taxable income. This may result in a reduction in tax liability, potentially motivating companies to increase their debt levels to reduce their tax liabilities. This creates an incentive for aggressive tax strategies. Studies by Fauzan et al. (2019), Lanis & Richardson (2012), and Raudhatul & Sa'Adah (2022) support this idea that there is a positive correlation between leverage and corporate tax aggressiveness.

**Hypothesis 3 (H3):** The leverage of a business positively influences its tax aggressiveness.

Capital intensity refers to the ratio of a company's fixed assets to its total assets; this statement reflects the fixed asset investments made by the company (Kalbuana et al., 2020). Organizations that possess substantial quantities of fixed assets may experience advantageous depreciation expenses. Depreciation is a non-cash expense that reduces taxable income, potentially motivating firms to adopt aggressive tax strategies to further decrease their tax burden. Research by Apriyanti & Arifin (2021), Fitriani & Indrati (2023), and Kalbuana et al. (2020) shows that capital intensity has a positive effect on tax aggressiveness.

**Hypothesis 4 (H4):** The capital intensity of a business positively influences its tax aggressiveness.

A tendency exists for larger corporations that disclose a great deal regarding their CSR to be less aggressive with regard to taxation (Andariesta & Suryarini, 2023). As a company grows, its responsibility to maintain a good reputation in the community increases, which may incentivize it to undertake a broader range of CSR initiatives. In this context, firm size acts as a balancing or reducing factor for the positive effect of CSR on tax aggressiveness, which can lead companies to be less aggressive in reducing taxes. According to research by Andariesta & Suryarini (2023), firm size has a negative moderating effect on the connection between CSR and tax aggressiveness.

**Hypothesis 5:** Firm size negatively moderates tax aggressiveness and CSR.

The term "firm size" is employed to characterize the magnitude of an organization in terms of operational activities and revenue (Mahdiana & Amin, 2020). As a company grows, its profit typically increases, leading to a higher amount of tax owed. Larger companies may demonstrate a greater propensity for tax aggressiveness because they have the resources and capabilities to utilize various strategies to reduce their tax burden. Thus, firm size can influence a company's tax planning strategy based on its level of profitability. Research by Amiah (2022) shows that firm size positively moderates tax aggressiveness and profitability.

**Hypothesis 6 (H6):** Firm size positively moderates tax aggressiveness and profitability.

A ratio describing the composition of a company's debt is known as leverage (Zainuddin et al., 2022). The amount of leverage a company utilizes often increases proportionally with its size. Larger companies may require more capital to support their growing operational activities. Increased leverage leads to higher interest costs, which can decrease taxable income and potentially increase the company's profit. This situation can incentivize companies to implement tax-aggressive strategies. This suggests that the firm size factor affects corporate tax planning strategies related to their debt level. Research by Suyanto & Kurniawati (2022) indicates that firm size has a positive moderating effect on the connection between leverage and tax aggressiveness.

**Hypothesis 7 (H7):** Firm size positively moderates tax aggressiveness and leverage.

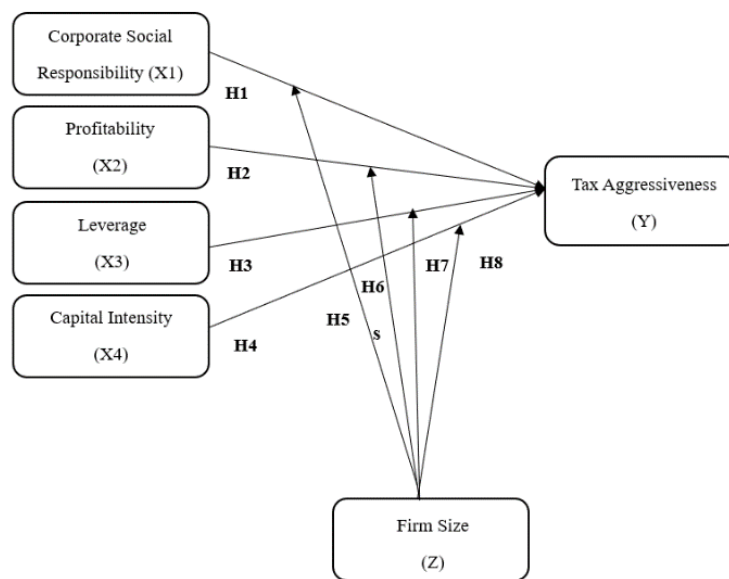
Larger companies, typically defined by the total amount of assets they own, often have a higher asset base (Zhang et al., 2022). As a company grows, its asset depreciation expense also increases. This depreciation expense is a non-cash expense that reduces taxable income, potentially motivating companies to adopt aggressive tax strategies to further decrease their tax burden. That means firm size reinforces or magnifies the effect of capital intensity on tax aggressiveness. In this context, the larger the firm, the stronger the relationship between capital

intensity and tax aggressiveness. Research by Utomo & Fitria (2020) shows that firm size positively moderates tax aggressiveness and capital intensity.

According to the findings of a study conducted by Fitri & Munandar (2018), Lanis & Richardson (2012), and Laguir et al. (2015), CSR adversely affects tax aggressiveness. Andariesta & Suryarini (2023) provide support that the scale of a firm has a negative influence on the link between tax aggressiveness and CSR. According to the findings of Jaffar et al. (2021), Lanis & Richardson (2012), and Puspita et al. (2020), profitability has a beneficial impact on tax aggressiveness. Amiah (2022) provides evidence demonstrating that the correlation between profitability and tax aggressiveness is moderated by the firm's size. Fauzan et al. (2019), Raudhatul & Sa'Adah (2022), and Rani et al. (2018) have demonstrated that leverage has a favorable impact on tax aggressiveness. According to Suyanto & Kurniawati (2022), the size of the firm acts as a moderator of the relationship shown above. There is evidence that corporate scale has a favorable influence on capital intensity and tax aggressiveness, as demonstrated by Utomo & Fitria (2020). Additionally, Apriyanti & Arifin (2021), Kalbuana et al. (2020), and Fitriani & Indrati (2023) demonstrate that capital intensity has a positive effect on tax aggressiveness. Contrary to this, several studies (Apriyanti & Arifin, 2021; Makhfudloh et al., 2018; Pramana & Wirakusuma, 2019) found no correlation between CSR and tax aggressiveness. Similarly, scholarly inquiries have yielded conflicting results regarding the relationship between leverage and tax avoidance, as well as profitability and capital intensity (E.G. & Murtanto, 2021; Jaffar et al., 2021; Kusuma & Maryono, 2022; Margie & Habibah, 2021; Maulana et al., 2018; Pratama, 2017; Yanti & Hartono, 2019; Zainuddin et al., 2022). Meanwhile, Fitri & Munandar (2018) did not find empirical support for the idea that firm size is a mediator in the correlation between CSR, profitability, leverage, and tax aggressiveness. Maulana et al. (2018) also did not show a correlation between the level of capital intensity and the degree of tax avoidance with moderation of firm size.

**Hypothesis 8 (H8):** Firm size positively moderates tax aggressiveness and capital intensity.

The following Figure 2 illustrates the conceptual model in this study.



**Figure 2.** Conceptual model

Note: This figure was prepared by the authors.

## 2. Methodology

### 2.1 Data and Sample Collection

This study utilizes a quantitative causal methodology to analyze data from the annual reports of manufacturing companies that were publicly listed on the Indonesia Stock Exchange (IDX) between 2018 and 2022. The document analysis method was used for data collection. The data obtained includes information on CSR practices, profitability level, leverage structure, capital intensity, and the level of corporate tax aggressiveness. Documentation was conducted through the study of annual reports, financial reports, and CSR activity reports published by the manufacturing companies. The study's population comprises 233 manufacturing enterprises that were listed on the IDX from 2018 to 2022. Gaining insight into the tax techniques employed by manufacturing companies can assist the government in refining tax policies to enhance the effectiveness of tax revenue collection.



This is because manufacturing companies play a significant role in contributing to government tax income. The manufacturing sector in Indonesia is a significant generator of tax revenue; as per the Ministry of Finance (2023), 27.3% of total tax revenue is derived from the manufacturing sector. The sample for this study was determined via purposive sampling, which involves selecting individuals based on certain criteria that are relevant to the research aims. Within this particular framework, the sample was chosen from firms that were officially listed and publicly traded on the Indonesia Stock Exchange (IDX) between the years 2018 and 2022. In addition, only companies with financial reporting periods ending on December 31 of each year were considered. Researchers also selected companies that did not record losses during the study period, as well as companies that publicly publish CSR reports. By employing the purposive sampling method, which is based on these criteria, it is expected that the selected sample can represent the population well and provide relevant information pertaining to the variables under investigation. Data analysis was conducted through the use of the panel data regression analysis method using EViews (Econometric Views) software version 12. Table 1 describes the sampling process.

**Table 1.** Criteria for excluding companies from the sample

No.	Criteria	Total
	Population	233
1	Non-publicly traded manufacturing enterprises in Indonesia from 2018 to 2022.	(68)
2	Organizations that have not yet published their annual reports for the years 2018 to 2022	(10)
3	Companies with financial reporting periods not ending on December 31st of each year	(2)
4	Companies that do not use Indonesian Rupiah (IDR) for financial statements	(28)
5	Companies with no consecutive profits during the 2018 – 2022 period	(58)
6	Companies that refrain from publishing CSR reports	(1)
	Sample	66
	Period	5
	Total Sample (66x5)	330

## 2.2 Variable Measurement

This research utilizes three categories of variables: the dependent (y), the independent (x), and the moderating variables (z). Tax aggressiveness is the dependent variable, CSR, profitability, leverage, and capital intensity are the four independent variables. Firm size is the moderating variable that can help understand whether the impact of the independent variable on the dependent variable varies depending on the size of the company. The following measures serve as the basis for the measurement of all variables in Table 2.

**Table 2.** Indicator variables

Indicator Variables	Indicator Variables
Tax Aggressiveness	$ETR = (\text{income Tax Expense}) / (\text{Profit Before Tax})$
CSR	$CSR_{li} = \sum X_{yi} / n_i$
Profitability	$ROA = (\text{Net Income After Tax}) / (\text{Total Assets}) \times 100\%$
Leverage	$DER = (\text{Total Liabilities}) / (\text{Total Equity})$
Capital Intensity	$CIR = (\text{Total Fixed Assets}) / (\text{Total Assets})$
Firm Size	$\text{Size} = \ln (\text{Total Assets})$

In this study, data analysis was conducted using EViews 12 software. The analysis process begins with a descriptive statistical test, which is used to provide an overview of the observed data characteristics. Next, a panel data regression model was built, which included the Chow test and Hausman test to assess the regression model's fit. Following this, classical assumption tests were performed, such as the heteroscedasticity test and the multicollinearity test, to ensure that the regression model's fundamental assumptions are satisfied. Panel Data Regression Analysis, a regression technique that permits the estimation of the regression model using panel data, was applied next. Finally, hypothesis testing was performed, utilizing the t-test to assess the significance of the regression coefficients and the Coefficient of Determination (R<sup>2</sup>) test to determine the extent to which the dependent variable's variability is explained by the regression model. With this set of analytical techniques, the research can provide a comprehensive understanding of the relationship between the observed variables.

## 3. Results

### 3.1 Test of Descriptive Statistics

The tax avoidance variable (Y) provided by the ETR has a range of -1.2218 (low) to 0.9712 (high), with a median of 0.234950, a mean value of 0.231762 (or 23.1762%), and a standard deviation of 0.165575. CSR (X1):

The CSR score (CSRLi) represents this variable, which shows a range of values from -0.0220 (low) to 0.6813 (high). 0.219800 is its median value, while 0.170152 is its standard deviation. The mean value is 0.269060 (or 26.9060%). Profitability (X2): measured using return on assets (ROA), this variable ranges from 0.0001 (low) to 0.4468 (high). 0.066050 is its median value, while 0.075291 is its standard deviation. The mean is 0.84146, which is equivalent to 84.146%. Leverage (X3): provided by Debt-to-Equity Ratio (DER), this variable ranges from 0.0025 (low) to 5.4426 (high), with a median of 0.514600 and a mean of 74.3927 (or 74.3927%), while 0.752424 is its standard deviation. Capital intensity (X4): using the Capital Intensity Ratio (CIR) as a proxy, this variable ranges from 0.0003 (low) to 0.7810 (high), with a median of 0.382800; 0.377777 (or 37.777%) is the mean value; and 0.203020 is its standard deviation. Moderating variable: Firm Size (Z) has a range of 25.95470 (low) to 33.6552 (high), with a median of 28.64675. 28.84520 (or 2884.520%) is the mean value, while 1.596103 is its standard deviation. Table 3 describes the result of descriptive statistics analysis.

**Table 3.** Descriptive statistics

	Y	X1	X2	X3	X4	X5
Mean	0.231762	0.269060	0.084146	0.743927	0.377777	28.84520
Median	0.234950	0.219800	0.066050	0.514600	0.382800	28.64675
Maximum	0.971200	0.681300	0.446800	5.442600	0.781000	33.65520
Minimum	-1.221800	0.022000	0.000100	0.002500	0.000300	25.95470
Std. Dev.	0.165575	0.170152	0.075291	0.752424	0.203020	1.596103
Skewness	-2.509363	0.603614	1.921099	3.047793	-0.060497	0.748281
Kurtosis	30.10481	2.257127	7.686877	15.80239	2.232430	3.248229
Jarque-Bera	10448.06	27.62733	505.0278	2764.539	8.302297	31.64308
Probability	0.000000	0.000001	0.000000	0.000000	0.015746	0.000000
Sum	76.48150	88.78980	27.76820	245.4960	124.6665	9518.915
Sum Sq. Dev.	9.019583	9.525116	1.865018	186.2607	13.56048	838.1418
Observations	330	330	330	330	330	330

Note: It was prepared by the authors.

### 3.2 Model of Panel Data Regression

**Test of Chow:** The chi-square and cross-section  $F$  probability values are both below 0.05 (0.0000), indicating that the fixed-effects model is the most suitable option. Further investigation will be undertaken using the Hausman test.

**Hausman Test:** The findings indicate that the random probability value for the cross-section is below 0.05 (0.0258). As a result, the fixed effect model is the most suitable option to implement. Table 4 illustrates Chow test result, and Table 5 shows Hausman test result.

**Table 4.** Chow test result

Redundant Fixed Effects Tests			
Equation: Untitled			
Test cross-section fixed effects			
Effects Test	Statistic	d.f.	Prob.
Cross-section F	3.494589	(65,255)	0.0000
Cross-section Chi-square	210.206110	65	0.0000

Note: It was prepared by the authors.

**Table 5.** Hausman test result

Correlated Random Effects – Hausman Test			
Equation: Untitled			
Test cross-section random effects			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	12.749843	9	0.0258

Note: This was prepared by the authors.

### 3.3 Test of Classical Assumptions

**Test for Multicollinearity:** The correlation value of each variable in the sample is less than 0.80. This signifies that the sample satisfies the condition for multicollinearity. Additionally, the regression model exhibits no multicollinearity issues.

**Heteroscedasticity Test:** The heteroscedasticity test using the Glejser method produces probability values all

greater than 0.05. As a result, it is possible to deduce that the regression model exhibits no signs of heteroscedasticity. Table 6 describes Multicollinearity test result, and Table 7 describes Heteroscedasticity test result.

**Table 6.** Multicollinearity test result

	X1	X2	X3	X4	X1Z	X2Z	X3Z	X4Z	Z
<b>X1</b>	1.000000	-0.009619	0.042277	0.023699	0.693916	-0.002097	0.059684	0.049947	0.255564
<b>X2</b>	-0.009619	1.000000	0.009292	-0.081677	-0.007277	0.697337	-0.074100	-0.074100	0.118586
<b>X3</b>	0.042277	0.009292	1.000000	0.062656	0.060817	0.026541	0.083873	0.083873	0.189250
<b>X4</b>	0.023699	-0.081677	0.062656	1.000000	0.032238	-0.078964	0.695013	0.695013	0.106667
<b>X1Z</b>	0.693916	-0.007277	0.060817	0.032238	1.000000	0.005064	0.065661	0.065661	0.344344
<b>X2Z</b>	-0.002097	0.697337	0.026541	-0.078964	0.005064	1.000000	-0.066845	-0.066845	0.174688
<b>X3Z</b>	0.059684	0.021510	0.696539	0.070029	0.083062	0.041689	0.095871	0.095871	0.244315
<b>X4Z</b>	0.049947	-0.074100	0.083873	0.695013	0.065661	-0.066845	1.000000	1.000000	0.188403
<b>Z</b>	0.255564	0.118586	0.189250	0.106667	0.344344	0.174688	0.188403	0.188403	1.000000

Note: It was prepared by the authors.

**Table 7.** Heteroscedasticity test result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.861904	0.795962	-1.082846	0.2799
X1	0.179336	0.506720	0.353915	0.7237
X2	-3.745456	2.451681	-1.527709	0.1278
X3	0.009629	0.141799	0.067905	0.9459
X4	0.967497	1.146093	0.844170	0.3994
Z	0.031626	0.027796	1.137678	0.2563
X1Z	-0.006475	0.017763	-0.364528	0.7158
X2Z	0.122216	0.085131	1.435624	0.1523
X3Z	-0.000398	0.004774	-0.083319	0.9337
X4Z	-0.030309	0.039112	-0.774935	0.4391

Note: It was prepared by the authors.

### 3.4 Analysis of Panel Data Regression

This research employs a fixed-effects model. The equation for the relationship between the variables is as follows:

$$ETR = 3,381 - 0,899CSRli + 3,717ROA - 0,014DER + 5,768CIR + 3,841SIZE - 1,373CSRli \times SIZE + 0,407ROA \times SIZE + 0,001DER \times SIZE + 0,186CIR \times SIZE + y$$

The dependent variable (Y) will have a value of 3.381 when every independent variable is set to zero. The value 3.381 represents the consistency of this particular value. The CSR variable (CSRli) of -0.899 shows that CSR and tax aggressiveness are negatively correlated. This indicates that the business's tax aggressiveness will decline by -0.899 for every one unit increase in the CSR variable. The profitability variable (ROA) of 3.717 shows that profitability and tax aggressiveness are positively correlated. This indicates that the business's tax aggressiveness will increase by 3.717 for every one unit increase in the profitability variable. The leverage variable (DER) of -0.014 shows that leverage and tax aggressiveness are negatively correlated. This indicates that the business's tax aggressiveness will decline by -0.014 for every one unit increase in the leverage variable. The capital intensity variable (CIR) of 5.768 shows that capital intensity and tax aggressiveness are positively correlated. This indicates that the business's tax aggressiveness will increase by 5.768 for every one unit increase in the capital intensity variable.

The connection between tax aggressiveness and CSR is moderated by firm size (CSRli×SIZE), with a moderation effect of -1.373. When firm size is considered as a moderating variable, there is a -1.373 reduction in the impact of CSR on tax aggressiveness. The variable describing firm size (ROA x SIZE) has a coefficient of 0.407, indicating that it moderates the association between tax aggressiveness and profitability. From this finding,



we may deduce that as the size of the firm increases, the impact of profitability on tax aggressiveness also increases by a factor of 0.407. A moderation effect of firm size (DER×SIZE) of 0.001 is observed in the relationship between leverage and tax aggressiveness. Based on the results of this research, as firm size increases, the positive correlation between leverage and tax aggressiveness is found to be moderated by a factor of 0.001. With a value of 0.186, firm size (CIR×SIZE) moderates the relationship between the amount of capital intensity and the amount of aggressiveness tax. Given that firm size acts as a moderating element, this indicates that the positive impact of capital intensity on tax aggressiveness will increase by 0.186.

### 3.4.1 Hypothesis test

#### Test T (Partial)

The probability value of CSR (X1) is 0.0011, which is less than 0.05. The calculated t value of negative 3.369694 exceeds the value of negative 1.967223 from the t table. Therefore, we can accept H1, indicating a negative influence of the CSR variable on tax aggressiveness. Considering that the profitability probability value (X2) is 0.0000, which is below 0.05, the t value of 4.222289 obtained through calculation exceeds the essential t value (from the t table) of 1.967223. Therefore, we can accept H2, indicating a positive influence of the profitability variable on tax aggressiveness. The probability value of 0.9611 associated with leverage (X3) is greater than the threshold of 0.05. The calculated t value of -0.048875, less than through calculation, exceeds the essential t value (from the t table) of 1.967223. As a result, a decline in H3 suggests that the leverage variable has no discernible effect on tax aggressiveness. Capital intensity (X4) has a probability value of 0.0131, which is below 0.05. The computed t value of 2.498102 exceeds the critical t-value as specified in the t table. significant 1.967223. Therefore, we can infer that H4 receives support, suggesting a positive correlation between tax aggressiveness and the capital intensity variable.

The probability value of firm size with CSR (X1Z) is 0.0091, which is less than 0.05. The calculated t value of negative 2.660701 is greater than the critical t value of negative 1.967223. The allowed value of H5 indicates that the correlation between tax aggressiveness and CSR does exhibit a negative relationship with firm size. The probability value of firm size with profitability (X2Z) is 0.0184, which is less than 0.05. The calculated t value of 2.373533 is greater than the t table value of 1.967223. The allowed value of H6 indicates that the correlation between tax aggressiveness and profitability does exhibit a positive relationship with firm size. The value of 0.9051 for the probability of firm size with leverage (X3Z) is greater than 0.05. The t value of 0.11933, which was computed, is less than the critical t-value of 1.967223. This is how one could assert that the rejection of H7 indicates that the correlation between tax aggressiveness and leverage does not exhibit a positive relationship with firm size. The probability that capital intensity (X4Z) influences the magnitude of a company is 0.0192, which is below 0.05. The t value of 2.357087, which was computed, exceeds the critical t value of 1.967223. The allowed value of H8 indicates that the correlation between tax aggressiveness and capital intensity does exhibit a positive relationship with firm size. Table 8 describes T test result.

**Table 8.** T test result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.380581	1.429354	2.365111	0.0218
X1	-0.899170	0.266840	-3.369694	0.0011
X2	3.717302	0.880400	4.222289	0.0000
X3	-0.013963	0.285690	-0.048875	0.9611
X4	5.768365	2.309100	2.498102	0.0131
Z	3.841487	0.978374	3.926400	0.0002
X1Z	-1.373113	0.516072	-2.660701	0.0091
X2Z	0.407103	0.171518	2.373533	0.0184
X3Z	0.001148	0.009619	0.119333	0.9051
X4Z	0.185741	0.078801	2.357087	0.0192

Note: It was prepared by the authors.

**Table 9.** Coefficient of Determination (R2) test result

Cross-Section Fixed (Dummy Variables)			
R-squared	0.914523	Mean dependent var	2.808583
Adjusted R-squared	0.888222	S.D. dependent var	2.796962
S.E. of regression	0.935115	Akaike info criterion	2.910406
Sum squared resid	79.57396	Schwarz criterion	3.584049
Log likelihood	-145.6243	Hannan-Quinn criter	3.183975
F-statistic	34.77178	Durbin-Watson stat	1.988605
Prob (F-statistic)	0.000000		

Note: It was prepared by the authors.

### **Determination Coefficient (R<sup>2</sup>)**

The adjusted R-squared value is 0.888222, or 88.8222%. This value of the Coefficient of Determination shows that about 88.8222% of the independent variable (X) is capable of elucidating the variability observed in the dependent variable (Y). Unaccounted residual values could potentially be attributed to extra variables that were not accounted for in the current research technique. The value is 11.1778%. Table 9 describes Coefficient of Determination (R<sup>2</sup>) test result.

## **4. Discussion**

### **4.1 Tax Aggressiveness and CSR**

According to the data, CSR has a detrimental impact on the tax aggressiveness of manufacturing companies listed on the IDX from 2018 to 2022. H1 is therefore permissible. This is due to the correlation between heightened CSR disclosure and diminished tax aggressiveness demonstrated by an organization. Generally, businesses that engage in CSR demonstrate a greater commitment to social responsibility and are willing to pay taxes in accordance with applicable regulations. This discovery aligns with the findings of studies carried out by Laguir et al. (2015), which demonstrate that corporations engaged in CSR initiatives pertaining to human resources, human rights in the workplace, and community involvement exhibit a lower likelihood of engaging in tax aggressiveness. Companies that prioritize CSR are likely to exercise caution while engaging in aggressive tax practices (Lanis & Richardson, 2012), because companies try to build good relationships with stakeholders (Fitri & Munandar, 2018). In contrast to the findings (Makhfudloh et al., 2018; Apriyanti & Arifin, 2021; Pramana & Wirakusuma, 2019), which posit that no correlation exists between tax aggressiveness and CSR, this may be due to the fact that the CSR data presented in the report may not entirely reflect the true state of affairs.

### **4.2 Tax Aggressiveness and Profitability**

According to the data, profitability positively influences the tax aggressiveness of IDX-listed manufacturing companies between 2018 and 2022. Thus, H2 can be allowed. This is because an increase in corporate profits will lead to the same increase in tax liabilities. As a result, organizations will exhibit higher levels of tax aggressiveness through proactive efforts to minimize tax liabilities. This discovery aligns with the findings of studies carried out by Jaffar et al. (2021) that the strategy is appropriate in managing its tax planning. According to Lanis & Richardson (2012), corporations that make a profit are more inclined to participate in aggressive tax practices, and Puspita et al. (2020) provide evidence that this aligns with agency theory, which promotes agents to engage in tax aggressiveness. However, contrary to the research of Kusuma & Maryono (2022), the level of firm profitability will not affect tax aggressiveness. Tax aggressiveness is a very risky activity, so managers will not take risks that will damage the company's good name and will have an impact on its business activities in the long term (E.G. & Murtanto, 2021). Margie & Habibah (2021) state that organizations with a high level of profitability will consistently adhere to tax obligations.

### **4.3 Tax Aggressiveness and Leverage**

According to the data, leverage does not affect the tax aggressiveness of IDX-listed manufacturing companies between 2018 and 2022. Thus, H3 is rejected. This is due to the fact that the level of corporate leverage does not affect corporate behavior and is not the main driver of aggressive tax tactics. Neither the high nor the low level of corporate debt has any effect on the likelihood of the firm engaging in aggressive tax tactics. In line with agency theory that managers act in accordance with their personal interests rather than the interests of shareholders, managers tend to focus on managing the company's debt and financial risks rather than efforts to avoid taxes. This discovery aligns with the findings of studies carried out by Zainuddin et al. (2022) that the level of leverage cannot affect tax avoidance. The higher the leverage ratio value, the higher the amount of funding from third-party debt used by the company (Yanti & Hartono, 2019); therefore, managers will choose to eliminate the debt burden rather than use it as a tax avoidance tool (Pratama, 2017). However, contrary to the research of Fauzan et al. (2019), firms can employ debt as a means to achieve tax benefits. The company's reliance on creditors will result in interest expenses, hence decreasing the tax burden (Raudhatul & Sa'Adah, 2022). When leverage increases, the ETR value also tends to increase (Rani et al., 2018).

### **4.4 Tax Aggressiveness and Capital Intensity**

According to the data, capital intensity positively influences the tax aggressiveness of IDX-listed manufacturing companies between 2018 and 2022. Thus, H4 can be allowed. This is due to the fact that businesses with a high fixed asset count typically have high depreciation expenses, which lower their total tax obligations. Businesses are

encouraged to adopt an aggressive tax strategy as a result. This discovery aligns with the findings of studies carried out by Apriyanti & Arifin (2021) that tax aggressiveness increases when capital intensity increases. Depreciation costs, which are incurred by the company and are reflected in its financial statements, are incurred by all fixed assets (Kalbuana et al., 2020). Consequently, a firm's propensity for tax aggressiveness will be proportional to the intensity of its fixed assets (Fitriani & Indrati, 2023). In contrast, Zainuddin et al. (2022), Maulana et al. (2018), and Jaffar et al. (2021) have dissented from the notion that corporate tax avoidance is unrelated to the magnitude of capital intensity.

#### **4.5 Moderation of Firm Size in the CSR and Tax Aggressiveness Relationship**

According to the data, firm size has a negative impact on the relationship between leverage and tax aggressiveness in IDX-listed manufacturing companies between 2018 and 2022. Thus, H5 can be allowed. This is because larger companies will be more dependent on extensive CSR implementation to maintain their good reputation in the community; consequently, the level of corporate tax aggressiveness will be reduced. This discovery aligns with the findings of studies carried out by Andariesta & Suryarini (2023) that large firm sizes and large CSR disclosures will reduce the level of tax aggressiveness. Conversely, this finding contradicts the research of Fitri & Munandar (2018), which failed to identify any empirical evidence in favor of the notion that the magnitude of a firm mediates the relationship between tax aggressiveness and CSR.

#### **4.6 Moderation of Firm Size in the Profitability and Tax Aggressiveness Relationship**

The data suggests that between 2018 and 2022, the relationship between profitability and tax aggressiveness in IDX-listed manufacturing companies might be positively influenced by firm size. Thus, H6 can be allowed. This is due to the fact that an increase in the firm's profit margin will inevitably result in a greater tax liability that needs to be remitted. Large firms typically have the ability to use their significant revenues to reduce the amount of taxes they are legally compelled to pay, which demonstrates the company's assertive tax aggressiveness. This discovery aligns with the findings of studies carried out by Amiah (2022), which suggest that the extent to which corporate tax avoidance is prevalent can be influenced by the level of profit generated by a sizable organization. Nevertheless, this contradicts the findings of Fitri & Munandar (2018), who failed to identify any empirical evidence that supports the hypothesis that the magnitude of a firm mediates the relationship between tax aggressiveness and profitability.

#### **4.7 Moderation of Firm Size in the Leverage and Tax Aggressiveness Relationship**

The data suggests that from 2018 to 2022, the correlation between leverage and tax aggressiveness in manufacturing companies listed on the IDX is not positively influenced by firm size. Thus, H7 can be rejected. This is because to finance their operational activities, larger companies usually rely on a larger amount of debt financing, resulting in a higher level of leverage. However, firms with large amounts of debt are less likely to take unnecessary risks and protect themselves from aggressive tax behavior. As a result, organizations that possess a significant degree of leverage will exercise greater prudence and diligence when it comes to handling their tax obligations. This discovery aligns with the findings of studies carried out by Fitri & Munandar (2018), which found no empirical support for the idea that firm size is a mediator in the correlation between leverage and tax aggressiveness because companies that have a large or small size have equal opportunities to conduct tax aggressiveness. However, it is contrary to the research of Suyanto & Kurniawati (2022) that firm size acts as a moderator of the relationship shown above.

#### **4.8 Moderation of Firm Size in the Capital Intensity and Tax Aggressiveness Relationship**

The data suggests that between 2018 and 2022, the relationship between capital intensity and tax aggressiveness in IDX-listed manufacturing companies might be positively influenced by firm size. Thus, H8 can be allowed. This can be attributed to the magnitude of assets that the organization possesses. increases along with the increase in firm size, which also causes an increase in the depreciation expense on these assets. Companies typically use tax aggressiveness to reduce their tax liabilities because this can reduce the overall tax burden they are obligated to bear. This discovery aligns with the findings of studies carried out by Utomo & Fitria (2020) that the larger a firm is, the greater its capital and asset intensity will be, so the greater the resources that the company can utilize to reduce its tax burden. However, it is contrary to the research of Maulana et al. (2018), which does not show a correlation between the level of capital intensity and the level of tax avoidance with moderation of firm size, because the firm will carry out the most appropriate policy to maintain its survival.

## 5. Conclusions

From 2018 to 2022, the purpose of this study is to examine the tax aggressiveness of manufacturing firms listed on the Indonesia Stock Exchange (IDX) with respect to CSR, profitability, capital intensity, and leverage. This analysis considers the moderating effect of firm size. Tax aggressiveness positively correlates with capital intensity and profitability, whereas CSR has the opposite effect. Nevertheless, leverage is irrelevant to proactive tax planning. A negative correlation is observed between the level of corporate tax aggressiveness and social responsibility; this relationship is influenced by the moderating factor of firm size. On the other hand, the correlation between tax aggressiveness and profitability is positively moderated by the size of the firm. There is no moderating effect of firm size on the correlation between tax aggressiveness and leverage. Firm size, on the other hand, positively moderates the relationship between capital intensity and tax aggressiveness. Throughout the study period, an increase or decrease in tax rates, the introduction of new tax incentives, or changes in general economic policy may also have an impact on the relationship.

Several limitations in this study need to be considered by future researchers to produce more accurate findings. First, the research period is relatively short—only five years—which may not fully capture the long-term impact. The generalizability of the findings or conclusions derived from this study may be restricted as a result. Second, the research sample is limited to manufacturing companies listed on the Indonesia Stock Exchange (IDX). This indicates that the findings or conclusions drawn from this study cannot be directly applied to companies outside the manufacturing industry listed on the Indonesia Stock Exchange. Given the unique nature of each industry, it would be wise for researchers in the future to lengthen the time they keep tabs on tax aggressiveness, broaden their focus to include non-manufacturing industries like banking, services, and finance, and introduce additional independent variables. Third, the research focus is limited to certain independent variables, thus limiting the understanding of the relationship between other independent variables that may also have an important contribution to tax aggressiveness. We advise future researchers to consider adding relevant independent variables for a more comprehensive understanding.

This research suggests that companies review their tax strategies to ensure that they comply with all applicable tax laws and to reduce unnecessary tax risks. This will help companies avoid tax aggression. Additionally, given that manufacturing companies often engage in aggressive tax avoidance to increase after-tax profits, it is anticipated that the government will augment oversight and enforcement of such practices. This could include setting clear boundaries on what constitutes unauthorized tax avoidance practices and imposing strict sanctions on violators, and it is important for policymakers to increase international cooperation in combating tax avoidance. Furthermore, to reduce tax aggressiveness, the government can follow up by issuing tax regulations or providing tax incentives to companies that implement accountable and transparent financial procedures.

## Data Availability

The data used to support the research findings are available from the corresponding author upon request.

## Conflicts of Interest

The authors declare no conflict of interest.

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