

DETERMINANTS OF TAX AVOIDANCE IN IDXCARBON ISSUERS WITH FIRM SIZE AS A MODERATOR



Aldhi Prasetyo Adji¹
Universitas Swadaya Gunung Jati, Cirebon, Indonesia
aldhi.122040093@ugj.ac.id

Arinal Muna²
Universitas Swadaya Gunung Jati, Cirebon, Indonesia
arinal.muna@ugj.ac.id

Abstract

The objective of this study is to examine the effect of profitability, leverage, and capital intensity on tax avoidance, with firm size serving as a moderating variable. The population includes companies with carbon projects listed on the Indonesia Carbon Exchange (IDXCARBON), encompassing both publicly listed entities and those in the Letter of Intent (LoI) stage. Using purposive sampling, a total of 48 observations from 8 companies were selected. Data analysis was conducted using Moderated Regression Analysis (MRA) via EViews 13 statistical software. The empirical results demonstrate that profitability has a significant negative effect on the cash effective tax rate (CETR), which implies an increase in tax avoidance. This suggests that higher profit levels incentivize management to act opportunistically in minimizing their tax burden. Conversely, leverage exhibits a significant positive effect on CETR (indicating lower tax avoidance), as strict monitoring from creditors pressures companies to maintain compliance and avoid aggressive tax strategies. Capital intensity shows a significant negative effect on CETR (indicating higher tax avoidance), meaning that firms utilize massive depreciation from their fixed assets as a legitimate tax shield. Furthermore, the findings reveal that firm size does not significantly moderate the effects of profitability, leverage, and capital intensity on tax avoidance. These results imply that internal economic incentives and external creditor monitoring universally dominate the tax decisions of carbon project companies, regardless of the firm's operational scale.

Keywords: Capital Intensity, Firm Size, IDXCARBON, Leverage, Profitability, Tax Avoidance

INTRODUCTION

The primary source of a country's growth stems from tax collection (Kementerian Keuangan, 2024), which can boost the country's economic growth. However, differences in perspective between the interests of corporate taxpayers and the government often lead to tax avoidance, which can impact the effectiveness of government revenue collection. Referring to the 2024 Budget Realization Report (LRA), state tax revenues were recorded at a very high level, reaching 97% to 100% of the target. This optimal aggregate achievement can essentially obscure indications of tax avoidance behavior if viewed solely from a macro perspective; however, this high level of state revenue does not necessarily guarantee the absence of tax avoidance practices at the corporate entity level. In the Indonesian context, the implementation of a self-assessment system allows taxpayers to calculate, pay, and report their own taxes, thereby creating opportunities for tax avoidance practices (Sadjiarto et al., 2020). In addition, growing awareness of sustainability and fiscal accountability issues is prompting companies to balance profit considerations with tax compliance (Davis-Nozemack, 2019; Yoon & Lee, 2021). The government then enhanced transparency by developing a national carbon trading platform, IDXCarbon, which requires companies to disclose their environmental activities and carbon emissions, thereby broadening the scope of public scrutiny of corporate governance (Souguir et al., 2024).

However, amid these calls for transparency, the phenomenon of tax-book differences is clearly evident among entities that have listed their carbon projects on IDXCarbon. As one of the major issuers marketing carbon credits from power plant projects, PT PLN Nusantara Power recorded an effective tax rate of 16.6% in 2023. However, indications of a tax-saving strategy appear far more aggressive when measured using a cash-based approach, where the company reported a very low Cash Effective Tax Rate (CETR) of just 2.96%. This figure confirms that the company's actual tax payments are significantly lower than the tax burden recorded in its financial statements.

A contradictory situation is actually found in another entity listed on IDXCarbon through a biogas co-firing project, namely PT Perkebunan Nusantara IV. Although it reported a similarly low effective tax rate (16.4%), this company actually reported a high cash tax payment (CETR) of 26.7%. This extreme inconsistency between the two issuers of these capital-intensive carbon projects demonstrates that profit and loss cannot serve as the sole benchmark for fiscal compliance. This phenomenon underscores the urgency of research utilizing the CETR proxy. The use of CETR aims to realistically assess how much cash companies actually pay to the state amid high demands for environmental transparency, while minimizing biases resulting from accrual policies.

The existence of this phenomenon of inconsistent tax payments raises questions about the fundamental factors influencing it. Companies involved in carbon projects exhibit a unique paradox that distinguishes their tax behavior from traditional sectors. Inherently, these firms are predominantly highly capital-intensive such as the previously mentioned power plants and biogas facilities - requiring massive investments that create strong economic incentives to utilize depreciation as a tax shield (Agency Theory). However, their participation in the IDXCarbon subjects them to intense public and regulatory scrutiny regarding environmental sustainability and corporate governance. According to Legitimacy Theory, this high visibility should deter aggressive tax avoidance, as such actions would be

perceived as 'greenwashing' and contradict their environmentally responsible image. Previous research indicates that financial characteristics such as profitability, leverage, and capital intensity are associated with a tendency toward tax avoidance (Elamer et al., 2024; Herlina et al., 2023; Widyastuti et al., 2022). However, for companies with carbon projects - whether already listed or still at the Letter of Intent (LoI) stage - the dynamics of these relationships may differ due to these dual pressures regarding transparency and environmental legitimacy (Geng et al., 2021). Existing literature has not adequately explained which force dominates the economic incentive to avoid taxes or the legitimacy pressure to comply-specifically within the newly established carbon market context.

Profitability reflects a company's ability to generate profits and is often linked to tax avoidance. High profit margins reflect a company's ability to engage in aggressive tax planning, but they also expose the company to public scrutiny that can deter tax avoidance efforts (Yoon & Lee, 2021). Leverage describes a company's capital structure, such that the higher the debt, the greater the interest expense, which can reduce taxable income (Elamer et al., 2024). Meanwhile, capital intensity reflects the amount of fixed assets used in operations; the larger the fixed assets, the higher the depreciation expenses, which can reduce tax liabilities (Souguir et al., 2024). Therefore, these three variables are key factors that could potentially influence a company's level of tax avoidance (Hendayana et al., 2024).

Company size plays a significant role in moderating the relationship between financial factors and tax avoidance. Larger companies typically possess stronger resources, organizational structures, and reputations, and thus tend to exercise greater caution in managing their taxes to maintain their public image and legitimacy (Gaertner et al., 2022). However, on the other hand, the large scale also offers greater opportunities for complex and efficient tax planning (Elamer et al., 2024; Hendayana et al., 2024). Research (Hendayana et al., 2024) indicates that firm size can moderate and amplify the effects of profitability and leverage on tax avoidance, but weaken the effect of capital intensity. Thus, firm size serves as a strategic factor that can explain variations in tax avoidance behavior among companies whose carbon projects are listed on the IDX Carbon.

Most previous studies have focused on LQ45 companies (Hendayana et al., 2024) or the manufacturing sector (Sofiamanan et al., 2023), meanwhile, studies specifically examining companies involved in carbon trading through IDXCarbon remain very limited. In fact, companies listed in the Indonesia Carbon Project List whether already listed or still in the Letter of Intent (LoI) stage possess unique characteristics, particularly regarding environmental transparency requirements, sustainability commitments, and capital-intensive asset structures since the launch of national carbon trading in 2023. The relationship between financial characteristics and tax avoidance in the context of sustainability and transparency policy pressures implemented through IDXCarbon represents a new research area that has not yet been extensively explored (Elamer et al., 2024; Souguir et al., 2024; Yoon and Lee, 2021). Therefore, the author offers a novel contribution by examining the effects of profitability, leverage, and capital intensity on tax avoidance among companies whose carbon projects are listed on the Indonesian Carbon Project List, and by testing the moderating role of firm size in these relationships.

Agency Theory

Agency theory was first proposed by, (Jensen & Meckling, 1976) to explain the relationship between principals and agents in business management. In this concept, owners

(principals) delegate their authority to managers (agents) to run the company's operations with the aim of maximizing corporate value. However, a conflict of interest arises because owners are focused on long-term well-being, while managers often prioritize personal interests such as bonuses, job security, or achieving short-term performance targets. This divergence in objectives leads to agency conflict. The difference in information held by managers and owners results in asymmetric information. Consequently, managers may adopt policies that are not fully aligned with the owners' interests, including in decision-making related to taxation.

One form of decision-making prone to agency conflict is tax avoidance. (Davis-Nozemack, 2019) explain that managers may exploit loopholes in tax regulations to reduce their tax burden in order to increase net income and demonstrate strong performance. Although tax avoidance is legal, this practice can lead to reputational risks, increased scrutiny from tax authorities, and agency costs. In this context, agency theory provides a conceptual foundation for explaining how financial characteristics such as profitability, leverage, and capital intensity can drive tax avoidance behavior. Profitability creates pressure to maintain earnings, leverage demands cash flow efficiency, and capital intensity provides room for managers to utilize depreciation to reduce taxes. Furthermore, firm size influences the level of oversight and complexity within a company, thereby potentially reinforcing or weakening the tendency toward tax avoidance. Thus, agency theory serves as the primary foundation for analyzing the relationships among variables in this study.

Legitimacy Theory

The concept of legitimacy theory was initially introduced by Dowling and Pfeffer (1975), who argued that organizations continuously seek to align their activities with the values and norms prevailing in society. They emphasized that legitimacy is a strategic resource that enables organizations to secure ongoing support from stakeholders. Furthermore, the theory has been subsequently developed by various researchers, including Suchman (1995), who defines legitimacy as a social condition that depends on the assessments of external parties, such as the public and regulators, regarding an organization's appropriateness within the prevailing normative framework. This theory emphasizes that a company's survival depends not only on economic performance but also on public acceptance of its operational activities. If there is a discrepancy between a company's actions and public expectations, a legitimacy gap may arise, which can lead to the withdrawal of support from stakeholders, operational restrictions, and even threats to the company's survival.

In the context of taxation, tax payments are viewed as a form of corporate social and ethical contribution to the state. Davis-Nozemack, (2019) emphasizes that tax avoidance is now regarded as a serious sustainability issue, in which aggressive tax avoidance is considered a violation of the social contract because it reduces state revenue for public development. Therefore, companies face social pressure not merely to comply with the law but also to act ethically. Souguir et al., (2024) add that companies often use tax compliance as a strategy to gain legitimacy and avoid accusations of mere greenwashing, particularly for companies with sensitive environmental issues.

In this study, Legitimation Theory is used to explain how firm characteristics influence tax decisions. Firms with high profitability and high capital intensity tend to have high visibility in the public eye, leading them to prioritize curbing tax avoidance practices to

maintain their reputation. Similarly, regarding leverage, pressure from creditors and investors compels companies to maintain a good creditworthiness image through fiscal compliance (Yoon & Lee, 2021). In this theory, firm size, used as a moderator, plays a crucial role; the larger a firm is, the greater the public scrutiny and regulatory oversight it faces (Geng et al., 2021). This necessitates that large firms exercise greater caution and tax compliance to maintain their operational legitimacy compared to smaller firms.

REVIEW OF LITERATURE

The Effect of Profitability on Tax Avoidance

Profitability reflects a company's ability to generate profits using its total assets. High profits increase a company's tax base, thereby creating an economic incentive for managers to implement tax avoidance strategies to reduce the tax burden and maintain the return expected by owners (Jensen & Meckling, 1976). Companies with high profitability characteristics typically possess larger assets, including access to tax consultants and robust accounting systems, making them more capable of devising tax-saving strategies (Dyrenge et al., 2006). From this perspective, profitability can drive tax avoidance practices as part of managerial cost-efficiency efforts.

However, Legitimation Theory offers a counterbalancing perspective. High profitability increases a company's visibility in the eyes of the public, investors, and regulators. Suchman (1995) asserts that legitimacy is attained when an entity's actions are perceived as proper and consistent with prevailing social norms. Companies reporting large profits are under intense scrutiny, where aggressive tax avoidance practices may be viewed as improper and in violation of social ethics (Davis-Nozemack, 2019). To prevent the occurrence of information asymmetry (legitimacy gap) that could threaten stakeholder support, highly profitable companies tend to exercise restraint and demonstrate higher tax compliance (Yoon & Lee, 2021). Thus, profitability can also reduce the tendency toward tax avoidance when the pressure to maintain legitimacy outweighs the incentive for tax savings.

Empirical research results show inconsistent relationships. Hendayana et al. (2024) and Widyastuti et al. (2022) support the agency assumption by stating that profitability has a positive effect on tax avoidance. Conversely, Ilmi and Wafiroh (2025) present results supporting the legitimacy perspective, namely that profitability has a negative effect on tax avoidance. On the other hand, Karlina and Wirajaya (2021) state that profitability has a significant effect, but the direction depends on specific firm characteristics. Thus, this indicates that the effect of profitability on tax avoidance is highly influenced by the firm's context, particularly the balance between tax efficiency incentives and reputational pressures. H₁: Profitability has an effect on tax avoidance.

The Effect of Leverage on Tax Avoidance.

Leverage is defined as the proportion of debt used in corporate financing. From the perspective of Agency Theory, the use of debt serves as a disciplinary mechanism for management. Jensen and Meckling (1976) explain that the existence of debt creates binding obligations to pay interest and principal, thereby reducing free cash flow that could potentially be misused by managers. This liquidity pressure creates an economic incentive for managers to pursue cash efficiency, one of which is through tax avoidance strategies. Additionally, interest expense can be utilized as a tax shield, which technically reduces the

company's tax burden (Faulkender & Smith, 2016). From this perspective, leverage encourages tax avoidance as an effort to maintain cash flow stability.

However, Legitimation Theory offers a different perspective regarding reputational risk. High debt levels reflect a company's significant reliance on external parties, specifically creditors. According to Suchman (1995), organization must maintain the perception that their act as "proper" to secure resource support. Creditors tend to avoid risk and exercise strict monitoring. Excessively aggressive tax practices may be viewed as risky actions that violate the principle of prudence, potentially undermining the company's legitimacy in the eyes of lenders (Gaertner et al., 2022). If this legitimacy is lost, the company risks facing financing difficulties as pressure from creditors may constrain managerial tax avoidance behavior.

Empirical results yield mixed findings. Hendayana et al. (2024) and Widyastuti et al. (2022) found that leverage has a positive effect on tax avoidance, supporting the argument that highly indebted firms engage in more aggressive tax avoidance to secure liquidity. Conversely, other studies indicate that leverage has no effect or a negative effect on tax avoidance due to the dominant role of creditor oversight (Oktari et al., 2024; Sulaeman & Surjandari, 2024). The inconsistency in these research results suggests that the relationship between leverage and tax avoidance remains an empirical debate that requires further testing, particularly in capital-intensive sectors.

H₂: Leverage has an effect on tax avoidance.

The Effect of Capital Intensity on Tax Avoidance.

Capital intensity can be measured by the ratio of fixed assets to a company's total assets. High capital intensity indicates a company with substantial fixed assets such as buildings, machinery, and infrastructure which generate periodic depreciation expenses. From a tax perspective, these depreciation expenses can serve as a deduction from taxable income, thereby functioning as a tax shield (Patin et al., 2020). The higher the value of an asset, the greater the opportunity to utilize depreciation policies to legally reduce tax liabilities.

Within the Agency Theory framework, fixed assets possess complex characteristics in accounting measurement and estimation, such as determining useful life and depreciation methods. This complexity provides managers with discretion in formulating accounting policies that can influence the company's tax burden (Jensen & Meckling, 1976). Managers can use the subjectivity of these accounting estimates to manage the amount of depreciation expense in order to minimize taxable income. This situation makes capital intensity a driving factor in tax avoidance practices through the exploitation of administrative loopholes in depreciation.

However, the perspective of Legitimation Theory offers a different view. Companies with high capital intensity are characterized by massive physical operational scale, which automatically increases the company's visibility in the eyes of the public and the government. Referring to Suchman (1995), companies with high visibility face greater pressure to demonstrate proper behavior in accordance with social norms. In capital-intensive carbon-emitting sectors, fixed assets are often associated with environmental impacts. To maintain legitimacy and avoid accusations of greenwashing, firms tend to be more compliant in paying taxes as compensation for their operational impacts (Souguir et al., 2024). Additionally, green investment assets often receive official fiscal incentives, thereby reducing managers' motivation to engage in aggressive tax avoidance that risks damaging the firm's reputation.

Empirical research results show a mixed relationship. Sofiamanan et al. (2023) and Widyastuti et al. (2022) found that capital intensity has a positive effect on tax avoidance, with depreciation utilized as a tax-reduction tool. Conversely, Herlina et al. (2023) stated that capital intensity has a negative effect on tax avoidance, indicating that the size of fixed assets is actually accompanied by increased oversight that limits tax avoidance. In contrast to these two findings, Hendayana et al. (2024) and Oktari et al. (2024) state that capital intensity does not have a significant effect on tax avoidance, indicating that the proportion of fixed assets is not always related to tax avoidance. This inconsistency indicates that capital intensity does not always influence tax avoidance due to the tug-of-war between the power of the tax shield (Agency) and the pressure for transparency (Legitimacy).

H₃: Capital intensity has an effect on tax avoidance.

The Role of Firm Size in Moderating the Effect of Profitability on Tax Avoidance.

Firm size reflects the scale of operations, organizational complexity, and the extent of a firm's exposure to the public and regulators. From an agency theory perspective, firm size has the potential to moderate the relationship between profitability and tax avoidance. Jensen and Meckling (1976) explain that large-scale firms possess complex organizational structures and high information asymmetry, which create opportunities for managers to engage in accounting maneuvers. When a firm exhibits high profitability, its large size provides the resources, tax expertise, and access to professional consultants necessary to implement massive tax-saving strategies. Larger companies exhibit greater efficiency in transforming profits into tax savings via tax planning.

Large companies face far stronger legitimacy pressures due to their high visibility. Suchman (1995) emphasizes that legitimacy depends on the public's perception of "fairness." Profitable large companies are under the microscope of media scrutiny, NGOs, and regulators. Aggressive tax practices by companies of this caliber carry a high risk of triggering public outrage and political sanctions (Gaertner et al., 2022). To maintain their image and stakeholder trust, large companies tend to be more compliant in paying taxes as a "political cost" to secure their operational legitimacy (Yoon & Lee, 2021). Under these conditions, firm size may actually weaken the relationship between profitability and tax avoidance.

Empirical results provide evidence of this moderating influence. Hendayana et al. (2024) and Oktari et al. (2024) state that firm size can amplify the effect of profitability on tax avoidance, indicating the dominance of resource capability. In contrast, other research indicates that at a certain size level, public supervision intensifies, consequently constraining tax aggressiveness (Sulaeman & Surjandari, 2024). These diverse findings confirm that firm size functions as a dynamic contextual variable, which can either amplify the incentive for tax savings (Agency) or constrain it through legitimacy pressures (Legitimacy). Therefore, firm size acts as a moderating variable that alters the relationship between profitability and tax strategy, without a predetermined direction.

H₄: Firm size moderates the effect of profitability on tax avoidance.

The Role of Firm Size in Moderating the Effect of Leverage on Tax Avoidance

Firm size reflects a company's economic capacity, operational complexity, and level of access to external financing sources. According to agency theory perspective, major corporations have solid reputations and collateral assets, granting them greater flexibility in obtaining debt compared to small firms. Jensen and Meckling (1976) explain that the

availability of these resources allows managers of large firms to design an optimal capital structure to maximize the tax shield from interest expenses (Faulkender and Smith, 2016). With abundant resources and access to expert tax consultants, large firms are able to utilize leverage more aggressively for tax efficiency. In this context, firm size has the potential to amplify the positive influence of leverage on tax avoidance.

However, the Legitimation Theory offers a counterargument through monitoring mechanisms. Large firms face significantly higher reputational risk exposure. Drawing on Suchman (1995) and the Political Cost Hypothesis, large firms that are overly aggressive in using debt for tax avoidance risk losing legitimacy in the eyes of creditors and the public. Creditors of large firms typically impose stricter covenants and monitoring to ensure borrower compliance. Gaertner et al. (2022) assert that this monitoring risk encourages large firms to be more cautious (conservative) in their tax strategies even though they have high debt levels. Under these conditions, firm size can actually weaken the relationship between leverage and tax avoidance due to the dominant pressure to maintain creditworthiness.

Several empirical studies indicate that firm size affects how leverage is utilized in tax strategies. (Hendayana et al., 2024; Oktari et al., 2024) found that firm size can strengthen the use of debt structures in tax strategies, highlighting the dominance of efficiency motives. Conversely, Sulaeman and Surjandari, (2024) state that firm size does not always significantly moderate the relationship between leverage and tax avoidance, or may even tend to limit tax aggressiveness. This inconsistency suggests that the role of firm size as a moderator depends heavily on the tension between the capacity to utilize tax shields (Agency) and the strictness of external oversight (Legitimacy). Consequently, this study posits that firm size will significantly interact with leverage, altering its effect on tax avoidance.

H₅: Firm size moderates the effect of leverage on tax avoidance.

The Role of Firm Size in Moderating the Effect of Capital Intensity on Tax Avoidance

Firm size reflects the extent of its economic resources, the complexity of its operational systems, and its ability to manage financial and accounting policies. Larger firms typically have higher fixed assets and more complex financial reporting policies, potentially granting them greater flexibility in managing depreciation policies as part of tax efficiency strategies (Patin et al., 2020). From the Agency Theory perspective, the complexity of fixed assets in large firms increases information asymmetry, providing managers with broader discretion to determine accounting estimates (such as economic life and residual value) that can be utilized to reduce taxable income (Jensen & Meckling, 1976). Therefore, firm size has the potential to strengthen the positive influence of capital intensity on tax avoidance because large firms have a better capacity to exploit depreciation loopholes.

However, the Legitimation Theory perspective offers the opposite view. Large firms with high fixed asset intensity have very high physical visibility, especially in infrastructure, energy, or environmental industries. Referring to Suchman (1995), this visibility requires firms to demonstrate proper behavior in accordance with social norms to maintain their operational legitimacy. (Souguir et al., 2024; Yoon & Lee, 2021)) emphasize that firms with high public exposure typically exercise greater caution in their tax policies. Aggressive tax avoidance efforts on conspicuous fixed assets can be viewed as exploitative actions that damage reputation. Thus, public scrutiny of large firms may weaken managers' tendency to use asset depreciation as a tax avoidance tool.

Empirical findings also reveal inconsistencies suggesting the presence of a moderating effect. Hendayana et al., (2024) found that firm size weakens the relationship between capital intensity and tax avoidance, supporting the argument that scrutiny of large firms limits the exploitation of fixed assets. Conversely, Ilmi and Wafiroh, (2025) found that firm size actually strengthens this relationship, indicating the dominance of managerial capacity in tax planning. On the other hand, Oktari et al. (2024) found that firm size does not play a significant role. This diversity of results suggests that in large firms, the influence of capital intensity becomes highly complex due to the ongoing tug-of-war between the capacity to exploit tax shields (Agency) and the necessity to respond to legitimacy pressures (Legitimacy). Thus, firm size is expected to moderate the relationship rather than solely strengthening it.

H₆: Firm size moderates the effect of capital intensity on tax avoidance.

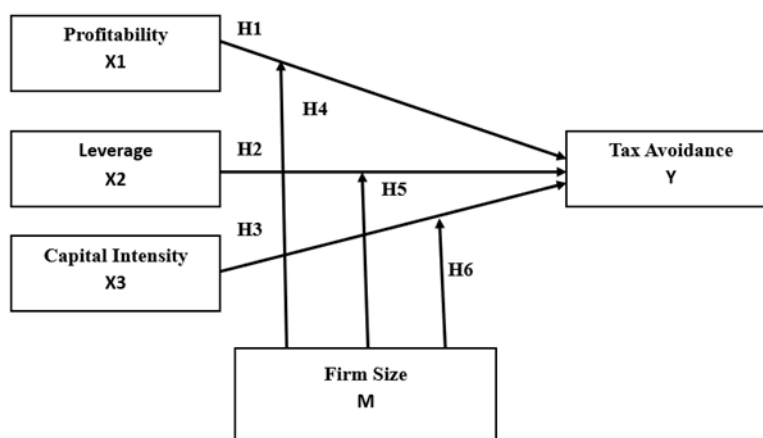


Figure 1.
Conceptual Framework

RESEARCH METHOD

This study aims to analyze the effect of the independent variables profitability, leverage, and capital intensity on the dependent variable, tax avoidance, with firm size serving as a moderating variable. This study uses secondary data, with the study population includes all companies with carbon projects listed in the Indonesian Carbon Project List (IDXCarbon) accessed via the official IDX link, whether they are listed or in the Letter of Intent (LoI) stage. The primary data was obtained through a review of official documents in the form of annual financial reports for the 2019–2024 period, accessed via the official website of the Indonesia Stock Exchange (www.idx.co.id) and the respective companies' official websites.

The sample selection method was based on purposive sampling using specific criteria (Sugiyono, 2017), as outlined in Table 1. Based on the selection results, 8 companies meeting the criteria were identified as the research sample, resulting in a total of 48 observations over the 6 year period (2019–2024).

Table 1
Sample Selection Criteria

No	Criteria	Total
1.	Companies whose carbon projects are registered in the Indonesia Carbon Credit List for Expression of Interest, including both listed projects and future issuances.	20
2.	Companies that did not publish annual reports during the 2019-2024 period.	(12)
3.	Companies eligible as samples.	8
4.	Total observation data (8 x 6 years).	48

Although the sample size is relatively small (48 observations from 8 companies), it is considered sufficient and strictly represents the specific population of carbon-related entities in Indonesia. The IDXCarbon is a newly established ecosystem; thus, the limited number of eligible companies is an inherent population constraint rather than a sampling flaw. From a statistical perspective, this sample size satisfies the minimum requirement for Moderated Regression Analysis (MRA). According to Hair Jr. et al. (2019), a multiple regression model requires a minimum of 5 observations per estimated parameter. The MRA model in this study estimates 7 parameters (three independent variables, one moderator, and three interaction terms). Therefore, the minimum required sample is 35 observations. With 48 observations derived from panel data - which combines cross-sectional and time-series dimensions to increase degrees of freedom - the data provide adequate statistical power for the estimation via EViews.

The limitations and measurement scales for each variable used in this study are presented in detail in Table 2. Hypothesis testing and data analysis were conducted using panel data regression with a Moderated Regression Analysis (MRA) approach (Gujarti & Potter, 2009), processed using EViews 13software.

Table 2
Variable Operational Measurements

No	Variable	Measurement	Scale	Reference
1	Tax Avoidance	$CETR = \frac{\text{Total Cash Taxes Paid}}{\text{Pre Tax Income}}$	Ratio	(Hendayana et al., 2024)
2	Profitability	$ROA = \frac{\text{Net Income}}{\text{Total Assets}} \times 100\%$	Ratio	(Darsani & Sukartha, 2021)
3	Leverage	$DER = \frac{\text{Total Debt}}{\text{Total Equity}}$	Ratio	(Karlina & Wirajaya, 2021)
4	Capital Intensity	$CI = \frac{\text{Net Fixed Assets}}{\text{Total Assets}}$	Ratio	(Sulaeman & Surjandari, 2024)
5	Firm Size	$SIZE = \ln(\text{Total assets})$	Ratio	(Hendayana et al., 2024)

Table 2 above summarizes the operational definitions and measurement procedures for each variable used in this study. Measurements were conducted using a ratio scale to provide accurate data for testing via panel data regression analysis. The dependent variable, Tax Avoidance, is proxied by the Cash Effective Tax Rate (CETR). Meanwhile, the independent variables comprising Profitability (ROA), Leverage (DER), and Capital Intensity (CI) were measured based on annual financial statement data. Additionally, Firm Size was measured using the natural logarithm of total assets and was positioned as a moderating variable to test whether firm size moderates the effect of the independent variables on the dependent variable.

This study employs two panel data regression models to test the proposed hypotheses. Model 1 is used to test the direct effect of the independent variables on the dependent variable, while Model 2 is a Moderated Regression Analysis (MRA) to test the effect of the independent variables on the dependent variable, with Firm Size serving as the moderator.

The equation models used are as follows:

Model 1 (Without Moderation):

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e$$

Model 2 (With Moderation/MRA):

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 M + \beta_5 (X_1 \cdot M) + \beta_6 (X_2 \cdot M) + \beta_7 (X_3 \cdot M) + e$$

Definition of Variables:

Y : Tax Avoidance (CETR)

a : Constant

B : Regression Coefficients

X₁ : Profitability (ROA)

X₂ : Leverage (DER)

X₃ : Capital Intensity (CI)

M : Firm Size (SIZE)

e : Error Term

RESULTS AND DISCUSSION

Descriptive Statistics Analysis

Before conducting the primary regression analysis, a descriptive statistical analysis is performed to provide a comprehensive overview of the data characteristics. The main purpose of this analysis is to outline the data distribution and dispersion by presenting the minimum, maximum, mean, and standard deviation values for each variable: Profitability, Leverage, Capital Intensity, Tax Avoidance, and Firm Size. This descriptive narrative serves to illustrate the general profile of the sampled companies, establishing a clear foundational understanding of the dataset prior to hypothesis testing.

Table 3.
Descriptive Statistics Results

	Profitability	Leverage	Capital Intensity	Tax Avoidance	Firm Size (Ln)	Firm Size (Real Rupiah Figures)
Mean	3.921667	0.568125	0.667083	0.240833	18.04854	294.641.562

Median	3.695000	0.495000	0.640000	0.185000	18.35000	96.681.225
Maximum	11.66000	2.110000	0.900000	0.970000	21.30000	1.772.375.266
Minimum	0.270000	0.040000	0.470000	0.020000	15.14000	3.751.229
Std. Dev.	2.722163	0.485267	0.120935	0.211054	1.820951	527.295.574
Observatio						48
ns	48	48	48	48	48	

Source: Processed secondary data (EViews 13, 2026)

Note: The firm size variable in the table is presented in LN form for regression purposes. The actual total assets range from Rp 3,751,229 to Rp 1,772,375,266 (in millions of Rupiah).

Based on Table 3, the analysis results show that all variables have the same number of observations ($N = 48$), indicating that the data used is consistent across all research variables. The tax avoidance variable has a minimum value of 0.020000 and a maximum of 0.970000, with a mean of 0.240833 and a standard deviation of 0.211054. The mean value indicates that, on average, the cash effective tax rate (CETR) among the sampled companies is approximately 24%. Furthermore, the standard deviation is relatively large and closely mirrors the mean, demonstrating significant differences in tax avoidance levels across the companies.

The profitability variable has a minimum value of 0.270000 and a maximum of 11.66000, with a mean of 3.921667 and a standard deviation of 2.722163. This indicates that, on average, the sample companies maintain a solid level of profitability; however, the high standard deviation shows there is significant variation among companies in terms of their profit generation capacity.

The leverage variable has a minimum of 0.040000 and a maximum of 2.110000, with a mean of 0.568125 and a standard deviation of 0.485267. The average value indicates that the companies generally possess moderate debt levels (around 56.8%), but the considerable maximum value and standard deviation suggest notable differences in financing structures, meaning some companies rely heavily on debt while others rely mostly on equity.

The capital intensity variable has a minimum of 0.470000 and a maximum of 0.900000, with a mean of 0.667083 and a standard deviation of 0.120935. This relatively small standard deviation suggests that the high proportion of investment in fixed assets across these companies is relatively homogeneous.

Meanwhile, the firm size variable, presented in Natural Logarithm (Ln) form, has a minimum value of 15.14000 and a maximum of 21.30000, with a mean of 18.04854 and a standard deviation of 1.820951. As detailed in the table, to provide a clearer picture of the actual company scale, the true total asset values before transformation have a minimum of Rp 3,751.229 and a maximum of Rp 1,772,375.266, with a mean of Rp 294,641.562 and a standard deviation of Rp 527,295.574 (in millions of Rupiah). This confirms that while the firm sizes in the sample are relatively large, there is considerable disparity in the actual scale of assets among the companies. Overall, among the ratio variables, profitability exhibits the greatest data variation, whereas capital intensity exhibits the most stable data across the companies in this sample.

Estimation and Selection of Panel Data Regression Models

The panel data regression model in this study was selected through several stages of testing to determine the model best suited to the data characteristics. Panel data is a combination of time series and cross-sectional data, so it has three possible estimation models: the Common Effect Model (CEM), the Fixed Effect Model (FEM), and the Random Effect Model (REM). Therefore, a series of model selection tests is required to obtain the most appropriate model capable of producing unbiased estimates.

Table 4.
Results of Panel Data Regression Model Selection

No	Panel Data Regression Selection Method	Significance Value	Probability Value	Results of Model Testing
1	Chow Test	CEM = > 0,05 FEM = < 0,05	0.0604	CEM
2	Lagrange Multiplier Test	CEM = > 0,05 REM = < 0,05	0.2246	CEM

Source: Processed secondary data (EViews 13, 2026)

Based on the testing results in Table 4, the Chow test shows a Cross-section Chi-square probability value of 0.0604 (with a Cross-section F p-value of 0.1469). Because this probability value exceeds the 0.05 significance level, H_0 is not rejected, indicating that there is no significant individual effect in this research data (Basuki, 2018). This condition demonstrates that the Common Effect Model (CEM) is more representative than the Fixed Effect Model (FEM).

Because the FEM was not selected, the Hausman Test is irrelevant to conduct, considering that the test specifically functions only to compare the suitability between the Fixed Effect and Random Effect models (Gujarti & Potter, 2009). Consequently, the model selection procedure proceeded to the next stage, namely the Lagrange Multiplier (LM) Test. The Breusch-Pagan Lagrange Multiplier (LM) test results show a probability value of 0.2246, which is greater than the 0.05 significance level. This means that there is no significant random effect in this model, indicating that the Random Effect Model (REM) is not superior to the Common Effect Model (CEM). Therefore, based on the overall model selection tests, the most appropriate regression model to utilize in this study is the Common Effect Model (CEM).

Classical Assumption Tests

Normality Test

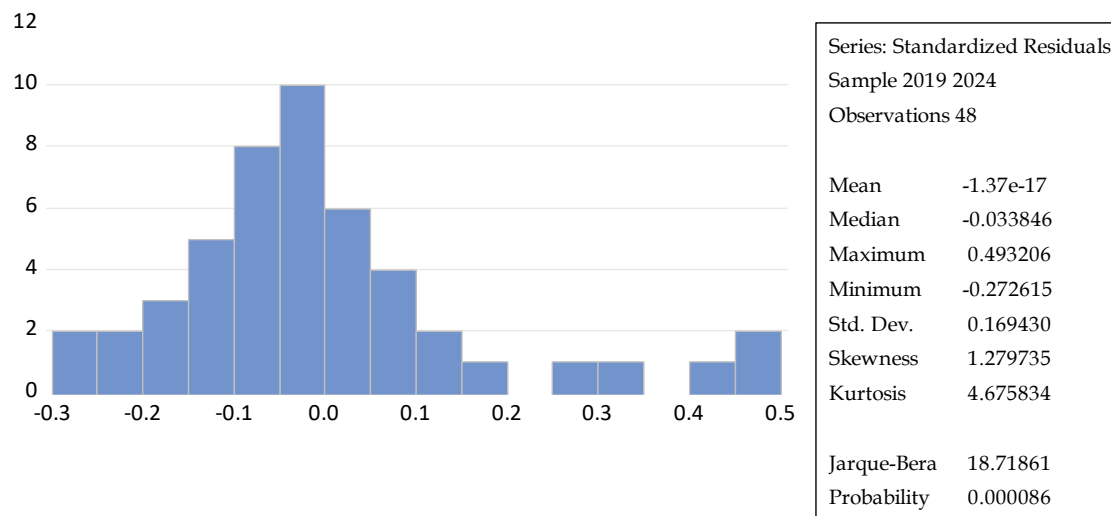


Figure 2.
Histogram of Normality Test

Source: Processed secondary data (EViews 13, 2026)

The normality test results in Image 2 show a Jarque-Bera value of 18.71861 with a probability of 0.000086. Since this value is less than 0.05, it is concluded that the data is not normally distributed. Consequently, to address this assumption violation and normalize the data distribution, it is essential to transform the data into a logarithmic (Log) form prior to proceeding with the regression analysis. It is important to note that all raw observations for profitability, leverage, capital intensity, and tax avoidance in this specific sample are strictly positive (with the lowest raw value being 0.11). Therefore, a direct logarithmic transformation (Log) was successfully applied without the need for constant adjustments.

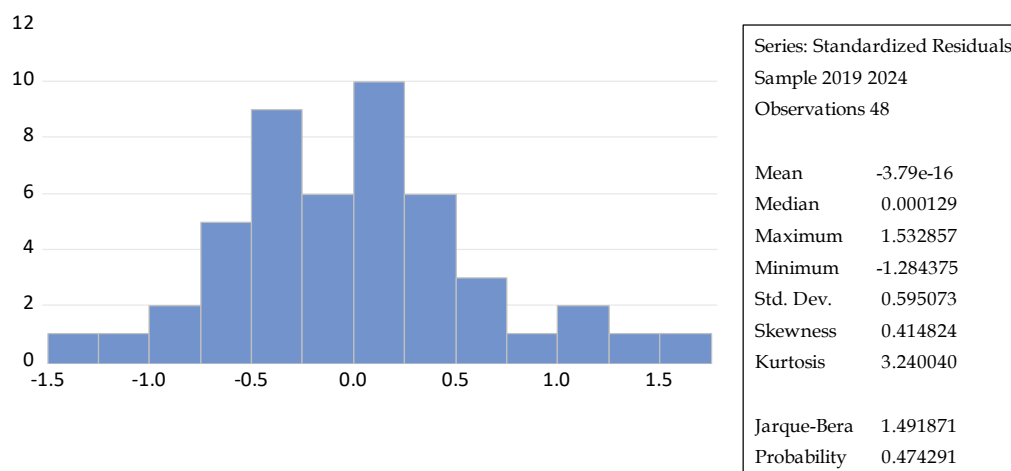


Figure 3.
Histogram of Normality Test after Log Transformation

Source: Processed secondary data (EViews 13, 2026)

The normality test results in Image 3 show a Jarque-Bera value of 1.491871 with a probability of 0.474291. Because the probability value is greater than 0.05, the residual data is considered to be normally distributed. Therefore, for further analysis (subsequent classical assumption tests and hypothesis testing), the model utilizing the transformed data (Log) is employed, as it has successfully satisfied the data normality requirement.

Multicollinearity Test

Table 5.
Multicollinearity Test

	Profitability	Leverage	Capital Intensity	Firm Size
Profitability	1.000000	-0.194482	-0.599482	-0.431372
Leverage	-0.194482	1.000000	0.036213	-0.148539
Capital Intensity	-0.599482	0.036213	1.000000	0.563556
Firm Size	-0.431372	-0.148539	0.563556	1.000000

Source: Processed secondary data (EViews 13, 2026)

Based on Table 5, the multicollinearity test conducted via a correlation matrix shows that all independent variables in the model have correlation coefficients of less than 0.80. As supported by Gujarti & Potter (2009), it is important to note that this threshold applies to the absolute value of the coefficients. The positive or negative signs attached to the values merely indicate the direction of the relationship whether directly or inversely proportional and do not alter the magnitude of the collinearity itself. The highest absolute correlation value is found between profitability and capital intensity at -0.599, followed by capital intensity and firm size at 0.563, and profitability and firm size at -0.431. Furthermore, the correlation between the leverage variable and profitability is -0.194, which is also well below the critical limit. Thus, it can be concluded that there are no symptoms of multicollinearity, indicating that the relationships between the independent variables do not exhibit high collinearity, and the regression model is reliable for further testing.

Heteroskedasticity Test

Table 6.
Heteroskedasticity Test

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.031616	0.008294	3.812061	0.0004
ROA	-0.002768	0.013355	-0.207259	0.8368
DER	0.001951	0.008706	0.224103	0.8237
CI	0.001223	0.064571	0.018940	0.9850
SIZE	0.069843	0.105155	0.664188	0.5101

Source: Processed secondary data (EViews 13, 2026)

Based on Table 6, the results of the heteroskedasticity test using the Glejser method show that the probability (Prob.) values for each independent variable are as follows: profitability = 0.8368, leverage = 0.8237, capital intensity = 0.9850, and the moderating variable, firm size = 0.5101. Since all p-values are greater than the 0.05 significance level, there is no indication of heteroskedasticity. This demonstrates that the residuals have a relatively constant variance, thereby fulfilling the classical assumption of homoskedasticity.

Autocorrelation Test

Table 7.
Autocorrelation Test

R-squared	0.673050	Mean dependent var	-1.864755
Adjusted R-squared	0.642636	S.D. dependent var	1.040709
S.E. of regression	0.622135	Akaike info criterion	1.987014
Sum squared resid	16.64325	Schwarz criterion	2.181931
Log likelihood	-42.68833	Hannan-Quinn criter.	2.060673
F-statistic	22.12965	Durbin-Watson stat	2.010435
Prob(F-statistic)	0.000000		

Source: Processed secondary data (EViews 13, 2026)

Based on Table 7, the test results show a Durbin-Watson (DW) value of 2.010. Because the DW value (2.010) lies between the DU value (1.721) and the $4 - DU$ value (2.279), which can be mathematically denoted as $1.721 < 2.010 < 2.279$, it can be concluded that there is no autocorrelation within the regression model.

Panel Data Regression Analysis

Table 8.
Panel Data Regression Analysis

Dependent Variable: CETR
Method: Panel Least Squares
Date: 01/28/26 Time: 15:57
Sample: 2019 2024
Periods included: 6
Cross-sections included: 8
Total panel (balanced) observations: 48

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.813851	0.134647	-13.47115	0.0000
ROA	-0.394801	0.155736	-2.535063	0.0153
DER	0.574043	0.115365	4.975894	0.0000
CI	-2.099273	0.761772	-2.755778	0.0088
SIZE	-2.292259	1.227486	-1.867442	0.0692
ROA*SIZE	0.595171	1.687449	0.352705	0.7262
DER*SIZE	2.270464	2.118902	1.071529	0.2904
CI*SIZE	0.359306	7.874250	0.045630	0.9638

Source: Processed secondary data (EViews 13, 2026)

Based on Table 8, the regression equation is formulated as follows::

$$Y = -1.814 - 0.395X_1 + 0.574 X_2 - 2.099X_3 + e$$

The results indicate that profitability (X1) has a significance value of 0.0153 (< 0.05) with a coefficient of B = -0,395, meaning profitability has a significant negative effect on tax avoidance. Leverage (X2) has a significance value of 0,0000 ($< 0,05$) with a coefficient of B

= 0,574, indicating that leverage has a significant positive effect on tax avoidance. Furthermore, capital intensity (X3) has a significance value of 0,0088 ($< 0,05$) with a coefficient of B = -2,099, demonstrating that capital intensity has a significant negative effect on tax avoidance.

Coefficient of Determination R^2

Table 9.
Coefficient of Determination R^2

R-squared	0.685960	Mean dependent var	-1.864755
Adjusted R-squared	0.631003	S.D. dependent var	1.040709
S.E. of regression	0.632180	Akaike info criterion	2.071728
Sum squared resid	15.98608	Schwarz criterion	2.383595
Log likelihood	-41.72147	Hannan-Quinn criter.	2.189583
F-statistic	12.48175	Durbin-Watson stat	2.134179
Prob(F-statistic)	0.000000		

Source: Processed secondary data (EViews 13, 2026)

Based on Table 9, the Adjusted R-Square value is 0.631003. This indicates that 63.1% of the variation in the dependent variable (tax avoidance) can be explained by the independent variables, while the remaining 36.9% is influenced by other factors outside the scope of this study.

Simultaneous Significance Test (F-Test)

Table 10.
Simultaneous Significance Test (F-Test)

F-statistic	12.48175
Prob(F-statistic)	0.000000

Source: Processed secondary data (EViews 13, 2026)

Based on Table 10, the F-statistic value obtained is 12.48175 with a probability of 0.0000 (< 0.05). This indicates that the regression model is fit for use and that the independent variables simultaneously exert a significant effect on tax avoidance.

Moderated Regression Analysis (MRA)

Table 11.
Moderated Regression Analysis (MRA)

Dependent Variable: CETR
Method: Panel Least Squares
Date: 01/28/26 Time: 15:57
Sample: 2019 2024
Periods included: 6
Cross-sections included: 8
Total panel (balanced) observations: 48

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.813851	0.134647	-13.47115	0.0000
ROA	-0.394801	0.155736	-2.535063	0.0153

DER	0.574043	0.115365	4.975894	0.0000
CI	-2.099273	0.761772	-2.755778	0.0088
SIZE	-2.292259	1.227486	-1.867442	0.0692
ROA*SIZE	0.595171	1.687449	0.352705	0.7262
DER*SIZE	2.270464	2.118902	1.071529	0.2904
CI*SIZE	0.359306	7.874250	0.045630	0.9638
R-squared	0.685960	Mean dependent var		-1.864755
Adjusted R-squared	0.631003	S.D. dependent var		1.040709
S.E. of regression	0.632180	Akaike info criterion		2.071728
Sum squared resid	15.98608	Schwarz criterion		2.383595
Log likelihood	-41.72147	Hannan-Quinn criter.		2.189583
F-statistic	12.48175	Durbin-Watson stat		2.134179
Prob(F-statistic)	0.000000			

Source: Processed secondary data (EViews 13, 2026)

Based on the Moderated Regression Analysis, the equation is formulated as follows:

$$Y = -1.814 - 0.395 X_1 + 0.574 X_2 - 2.099 X_3 - 2.292 M + 0.595 X_1 * M + 2.270 X_2 * M + 0.359 X_3 * M + e$$

The results of the analysis demonstrate that the primary independent variables, profitability (0.015), leverage (0.000), and capital intensity (0.009) each possess a significance value of less than 0.05, thereby confirming that they exert a partial significant effect on tax avoidance. Furthermore, the moderation testing reveals that the interaction variable of profitability and firm size has a significance value of 0.726, which exceeds the 0.05 threshold and indicates that firm size does not moderate the effect of profitability on tax avoidance. Similarly, the interaction between leverage and firm size shows a significance value of 0.290, suggesting that firm size fails to moderate the impact of leverage on tax avoidance. Finally, the interaction of capital intensity and firm size yields a significance value of 0.964, leading to the conclusion that firm size does not moderate the influence of capital intensity on tax avoidance.

The Effect of Profitability on Tax Avoidance

The empirical results indicate that profitability, proxied by return on assets (ROA), has a negative and significant effect on the cash effective tax rate (CETR), as indicated by a regression coefficient of -0.395, a t-statistic of 2.53, and a significance value of 0.0153. Given that CETR is an inverse proxy of tax avoidance (TA), this finding implies that higher profitability is associated with higher levels of TA. Therefore, H_1 is accepted.

From a theoretical perspective, this result is consistent with agency theory, which posits that managers (agents) are incentivized to maximize shareholders' wealth by improving after-tax returns. As profitability increases, firms face a higher tax burden, thereby strengthening managerial incentives to engage in tax minimization strategies. TA, in this context, becomes a rational mechanism to reduce cash outflows and enhance net income available to principals. Hence, the empirical evidence suggests that efficiency-driven motives

dominate reputational or compliance considerations, indicating that agency incentives play a more prominent role than legitimacy pressures in shaping corporate tax behaviour.

This finding is in line with Ilmi & Wafiroh (2025), who also document a negative relationship between profitability and CETR, indicating that firms with higher profitability tend to engage in more aggressive TA practices. The consistency of results across studies that employ CETR strengthens the robustness of the argument that profitability encourages tax minimization behaviour. In contrast, this study does not support Sari et al (2021), who finds that profitability has no significant effect on TA. The discrepancy suggests that the relationship between profitability and TA may be context dependent, potentially influenced by differences in sample characteristics, sectoral composition, or institutional environments. In some contexts, profitability may not be a primary determinant of tax behaviour, whereas in others, such as the present study, it plays a significant role. It is also important to note that while prior studies, such as Hendayana et al. (2024), report a relationship between profitability and TA, careful interpretation of the measurement proxy is required. When CETR is used, a negative coefficient should be interpreted as an increase in TA. Therefore, consistent interpretation of proxy direction is essential to avoid misalignment between statistical results and theoretical conclusions. Overall, these findings reinforce the view that profitability enhances firms' incentives to engage in TA, supporting the dominance of agency-based explanations over legitimacy considerations in this research context.

The Effect of Leverage on Tax Avoidance

positive effect on CETR, as indicated by a regression coefficient of 0.574, a t statistic of 4.97, and a probability value of 0.000. Given that a higher CETR reflects greater tax payments and thus lower TA, this finding implies that leverage has a significant negative effect on tax avoidance. Therefore, H_2 is accepted. These findings align with Ilmi and Wafiroh (2025), who found that external monitoring can reduce tax avoidance practices. From a theoretical perspective, the results supports Legitimacy Theory (Suchman, 1995). Companies with high debt are subject to strict monitoring by creditors, which creates pressure to maintain credibility and align corporate actions with acceptable norms. To preserve legitimacy and external trust, companies tend to avoid aggressive tax strategies that may be perceived as risky or opportunistic, particularly when such actions could threaten financial stability and damage their reputation in the eyes of creditors (Davis-Nozemack, 2019). Although agency theory suggests that leverage can incentives TA through liquidity pressures and tax shield benefits, the findings indicate that these incentives are not dominant in this context. Instead, the monitoring role of creditors appears to outweigh the tax-minimization motives associated with debt, thereby limiting managerial engagement in aggressive TA.

The relevance of these findings is particularly strong in the context of companies operating within the carbon ecosystem. The carbon project industry is capital-intensive and requires substantial investment in green technology infrastructure, to a high dependence on external financing. Companies are often bound by strict debt covenants increasing scrutiny from financial institutions that emphasize Environmental, Social, and Governance (ESG) principles. In this situation, aggressive tax behavior may not only trigger fiscal risks but also undermine a firm's creditworthiness and access to future funding. Consequently, companies tend to prioritize tax compliance as a strategic mechanism to maintain access to funding for their future sustainability projects.

The Effect of Capital Intensity on Tax Avoidance

Based on the tests conducted, a significant negative effect on CETR, which implies a positive relationship with Tax Avoidance (TA). This is indicated by a negative regression coefficient for CETR of -2.099. This means that the higher the fixed asset intensity, the lower the CETR value (indicating a high level of tax avoidance). Since the test results showed a p-value of 0.0088, which is lower than 0.05, H_3 is accepted. These research findings align with those of Sofiamanan et al. (2023). This phenomenon can be explained through Agency Theory (Jensen & Meckling, 1976), where managers act opportunistically by exploiting accounting policies related to fixed assets. Companies with substantial physical assets generate high depreciation expenses. Managers maximize the use of these depreciation expenses as a legitimate tax shield to reduce taxable income, thereby lowering cash tax payments without violating tax regulations.

In the context of companies listed in carbon related project on IDXCarbon, this finding is particularly relevant. These firms typically operate in capital-intensive, involving massive investments in tangible green infrastructure and decarbonization technologies. The substantial value of these physical assets naturally generates massive depreciation expenses. Rather than engaging in aggressive or non-compliant tax practice, firms tend to utilize depreciation as a legitimate tax planning mechanism. This approach allows companies to reduce their effective tax burden while maintaining compliance and preserving their sustainability-oriented reputation.

The Role of Firm Size in Moderating the Effect of Profitability on Tax Avoidance

Based on the results of the Moderated Regression Analysis (MRA), the interaction between Profitability and Firm Size has a significance value of 0.7262 (> 0.05). This indicates that H_4 is rejected, meaning that no empirical evidence was found that Firm Size moderates the effect of Profitability on Tax Avoidance. These research findings align with the findings of Sulaeman and Surjandari (2024). The non significance moderating effect suggest that the effect of profitability on tax avoidance practices tends to be consistent, regardless of whether the company size is large or small. In other words, firm size does not appear to strengthen or weaken how profitability affects corporate tax decision.

This phenomenon can be understood within the context of firms operating in the carbon project sector. Companies involved in carbon-related activities, both large and small, face similar economic incentives to manage tax burden efficiently in order to optimize after-tax profit and sustain project viability. As a result, the motivation to achieve tax efficiency is not differentiated by firm size. Furthermore, These findings imply that reputational pressure or public scrutiny, which is typically assumed to weigh more heavily on large companies, is not dominant enough to dampen management's economic incentives to achieve tax efficiency.

The Role of Firm Size in Moderating the Effect of Leverage on Tax Avoidance

Based on the test results, it was found that the interaction between Leverage and Firm Size has a significance value of 0.2904 (> 0.05). This indicates that H_5 is rejected, meaning that no empirical evidence was found that firm size moderates the effect of Leverage on Tax Avoidance. This finding supports the argument of Sulaeman and Surjandari (2024). but contradicts Hendayana et al. (2024). The absence of a moderating effect suggests that the influence of leverage on TA tends to be consistent across firms, regardless of their size. In other words, firm size does not appear to strengthen or weaken how debt levels affect

corporate tax behavior. This phenomenon, can be explain by the presence of strong external monitoring mechanisms. From a Legitimacy Theory, Suchman (1995), emphasize that organizations are pressured to align with societal and institutional expectation. Creditors (banks/investors) apply equally strict monitoring pressure to highly leveraged companies to guarantee the security of their funds. Therefore, the resource capacity possessed by large companies does not provide managers with additional flexibility to engage in more aggressive tax avoidance when debt levels increase.

In the carbon project financing ecosystem, this pattern becomes more evident. Financing for green infrastructure or carbon trading is often tied to strict schemes such as green financing or sustainability-linked loans. Financial institutions apply high compliance standards to all debtors in this sector indiscriminately, given the reputational risks involved if they are found financing fiscally or environmentally problematic entities. As a result, both large and medium-sized firms are subject to similar levels of scrutiny and discipline. Consequently, high leverage constraints managerial flexibility in engaging in TA, regardless of firm size. This explains why firm size does not function as a significant moderating variable in the relationship between leverage and TA.

The Role of Firm Size in Moderating the Effect of Capital Intensity on Tax Avoidance

Based on the test results, the interaction between Capital Intensity and Firm Size shows a significance value of 0.9638 (> 0.05). This indicates that H_6 is rejected, meaning that no empirical evidence was found that firm size moderates the effect of Capital Intensity on Tax Avoidance (TA). This finding is consistent with Oktari et al. (2024). The absence of a moderating effect suggests that relationship between capital intensity and TA does not differ between large and small firms. In other words, firm size does not create variation in how capital intensity influences corporate tax behavior.

This finding can be explained by the nature of capital intensity itself. The use of fixed assets generates depreciation expenses, which function as a tax shield in reducing taxable income. This mechanism is technical and depends primarily on the proportion of fixed assets owned by the firm, rather than on the overall scale of the company. As a result, firms with similar levels of capital intensity have comparable opportunities to utilize depreciation for tax efficiency, regardless of their size.

In the context of the carbon project industry, this pattern becomes more evident. Firms operating in this sector generally rely on capital-intensive infrastructure and technology to support decarbonization activities. Consequently, both smaller and larger firms share relatively similar asset structure, leading to a uniform capacity to benefit from depreciation as a tax saving mechanism. From an agency perspective, Jensen & Meckling (1976) suggest that managers are incentivized to maximize firm value, including through tax efficiency strategies. However, this incentive operates similarly across firms, further explaining why firm size does not appear to play a significant role in strengthening or weakening the relationship between capital intensity and TA.

CONCLUSION

Based on the analysis of the influence of profitability, leverage, and capital intensity on tax avoidance with firm size as a moderating variable among companies whose carbon projects are listed in the Indonesia Carbon Project List, this study concludes that these financial factors play an important role in shaping corporate tax strategies, though the

direction of their effects varies. Profitability was found to have a significant positive effect on tax avoidance. This indicates that companies with greater profit-generating capacity are more likely to engage in tax avoidance to maximize after-tax profits. This finding supports Agency Theory, which posits that managers act opportunistically to secure net profits and financial efficiency when profitability is high. Conversely, leverage was found to have a significant negative effect on tax avoidance. This means that high debt levels can actually make companies more compliant. This phenomenon aligns with Legitimacy Theory: strict monitoring and pressure from creditors force management to avoid high-risk tax strategies to maintain trust and secure green financing. On the other hand, capital intensity has a significant positive effect on tax avoidance. This indicates that the massive physical assets (green infrastructure) generate high depreciation expenses, which are optimally utilized by management as a legitimate tax shield to lower cash tax payments without violating regulations, supporting Agency Theory.

Furthermore, the study also finds that firm size does not significantly moderate the relationship between profitability, leverage, and capital intensity variables and tax avoidance. This suggests that firm size does not consistently strengthen or weaken these relationships. The results indicate that the influence of these variables tends to operate in a relatively consistent manner across firms, regardless of their scale. Therefore, tax behavior in carbon-related areas appears to be more strongly influenced by internal financial characteristics and operational structures than by firm size.

Despite the significant findings, this study has several limitations that should be acknowledged. First, the sample size is relatively small, comprising only 48 observations from 8 companies. This is due to the population being strictly restricted to companies with carbon projects listed on the IDXCarbon or in the Letter of Intent (LoI) stage. Because of the unique characteristics of this emerging sector, the findings may not fully represent the broader corporate environment in Indonesia, limiting the generalizability of the results to other industries. Second, this study relies exclusively on the Cash Effective Tax Rate (CETR) to measure tax avoidance. While CETR is a robust proxy for capturing actual cash tax payments, it may not fully capture more complex, non-cash tax planning strategies.

Based on the findings of this study, several recommendations can be proposed. First, for corporate management, particularly in firms engaged in carbon-related activities, it is important to balance tax efficiency with transparency and compliance. While profitability and capital intensity provide opportunities for tax planning, excessive tax minimization may create reputational and regulatory risks. Second, for investors and creditors, the results highlight the importance of monitoring mechanisms, as leverage is shown to constrain aggressive tax behavior. Third, for policymakers, the findings suggest that firm size may not be a sufficient indicator in assessing TA risk, and greater attention should be given to firms' financial characteristics. Finally, future research is encouraged to incorporate additional variables such as corporate governance or ESG performance, expand the research sample across different sectors to enhance the generalizability of the results, and utilize additional tax avoidance measures, such as the Effective Tax Rate (ETR) or Book-Tax Differences (BTD), to provide a more comprehensive assessment.

REFERENCES

- Basuki, A. T. (2018). *Ekonometrika pengantar (dilengkapi penggunaan eviews)*. Danisa Media.
- Darsani, P. A., & Sukartha, I. M. (2021). The effect of institutional ownership, profitability, leverage and capital intensity ratio on tax avoidance. *American Journal of Humanities and Social Sciences Research (AJHSSR)*, 1, 13–22.
- Davis-Nozemack, R. B. K. (2019). Tax avoidance as a sustainability problem tax avoidance as a sustainability problem. *Journal of Business Ethics*, June. <https://doi.org/10.1007/s10551-016-3162-2>
- Dowling, J., & Pfeffer, J. (1975). Organization Legitimacy: Social Values and Organizational Behavior. *Pacific Sociological Association*, 18(1), 122–136. <https://doi.org/10.2307/1388226>
- Dyreng, S. D., Hanlon, M., & Maydew, E. L. (2006). Long-run corporate tax avoidance. <https://doi.org/10.2308/accr.2008.83.1.61>
- Elamer, A. A., Boulhaga, M., & Ibrahim, B. A. (2024). Corporate tax avoidance and firm value: the moderating role of environmental, social, and governance (ESG) ratings. *Business Strategy & the Environment*, December 2022, 7446–7461. <https://doi.org/10.1002/bse.3881>
- Faulkender, M., & Smith, J. M. (2016). Taxes and leverage at multinational corporations. *Journal of Financial Economics*, 122(1), 1–20. <https://doi.org/10.1016/j.jfineco.2016.05.011>
- Gaertner, F. B., Glover, G., & Levine, O. (2022). A re-examination of firm size and taxes. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3928145>
- Geng, Y., Liu, W., Li, K., & Chen, H. (2021). Environmental regulation and corporate tax avoidance: a quasi-natural experiment based on the eleventh five-year plan in china. *Energy Economics*, 99, 105312. <https://doi.org/10.1016/j.eneco.2021.105312>
- Gujarti, D. N., & Potter, D. N. (2009). *Basic econometrics*. Douglas Reiner.
- Hair Jr., J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019). *Multivariate Data Analysis*. Annabel Ainscow. https://eli.johogo.com/Class/CCU/SEM/_Multivariate Data Analysis_Hair.pdf
- Hendayana, Y., Ramdhany, M. A., Pranowo, A. S., Rachmat, A. H., & Herdiana, E. (2024). Exploring impact of profitability, leverage and capital intensity on avoidance of tax, moderated by size of firm in LQ45 companies. *Cogent Business & Management*, 11(1). <https://doi.org/10.1080/23311975.2024.2371062>
- Herlina, A., Machdar, N., & Husadha, C. (2023). The effect of foreign ownership, capital intensity and transfer prices on tax avoidance with company 's size as moderator (case studies of industrials companies listed on the indonesian stock exchanges for the 2016-2021). *Jurnal Ilmiah Manajemen Ubhara*, 05(1), 231–242. <https://doi.org/10.31599/jimu.v5i02.2976>
- Ilmi, A. A., & Wafiroh, N. L. (2025). Financial determinants of tax avoidance: the moderating role of firm size. *Jurnal Ilmiah Akuntansi Dan Bisnis*, 10(1), 1–11. <https://doi.org/10.38043/jiab.v10i1.6110>
- Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3, 305–360. [https://doi.org/10.1016/0304-405X\(76\)90026-X](https://doi.org/10.1016/0304-405X(76)90026-X)

- Karlina, A., & Wirajaya, A. (2021). Profitabilitas, leverage, ukuran perusahaan, dan tax avoidance pada perusahaan sektor pertambangan. *E-Jurnal Akuntansi*, 1594–1605. <https://doi.org/10.24843/EJA.2024.v34.i06.p19>
- Kementerian Keuangan, R. I. (2024). *Laporan Keuangan Pemerintah Pusat 2024 (Audited)*.
- Oktari, N., Yantiana, N., & Noviaty, H. (2024). The influence of profitability , leverage, liquidity, and capital intensity on tax Avoidance with firm size as a moderating variable. *APPSAI Accounting Review*, 4(2). <https://doi.org/10.26418/apssai.v4i2.39>
- Taxation
- Patin, J.-C., Rahman, M., & Mustafa, M. (2020). Impact of total asset turnover ratios on equity returns: dynamic panel data analyses. *Journal of Accounting, Business and Management (JABM)*, 27(April). <https://doi.org/10.31966/jabminternational.v27i1.559>
- Sadjiarto, A., Hartanto, S., & Natalia Octaviana, S. (2020). analysis of the effect of business strategy and financial distress on tax avoidance. *Journal of Economics and Business*. <https://doi.org/10.31014/aior.1992.03.01.193>
- Sari, D., Wardani, R. K., Lestari, D. F., Sari, D., Wardani, R. K., & Lestari, D. F. (2021). The effect of leverage , profitability and company size on tax avoidance (an empirical study on mining sector companies listed on indonesia stock exchange period 2013-2019). *Turkish Journal of Computer and Mathematics Education*, 12(4), 860–868.
- Sofiamanan, N., Machmuddah, Z., & Natalisty, T. A. H. (2023). Profitability, capital intensity, and company size against tax avoidance with leverage as an intervening variable. *Journal of Applied Accounting and Taxation*, 8(1), 21–29. <https://doi.org/10.30871/jaat.v8i1.4821>
- Souguir, Z., Lassoued, N., Khanchel, I., & Bouzgarrou, H. (2024). Environmental performance and corporate tax avoidance: greenwashing policy or eco-responsibility ? the moderating role of ownership structure. *Journal of Cleaner Production*, 434(November 2023), 140152. <https://doi.org/10.1016/j.jclepro.2023.140152>
- Suchman, M. C. (1995). Managing legitimacy: strategic and institutional approaches. *Academy of Management*, 20(3), 571–610. <https://doi.org/10.2307/258788>
- Sugiyono. (2017). *Metode penelitian kuantitatif kualitatif dan r&d*.
- Sulaeman, A., & Surjandari, A. D. (2024). The influence of capital intensity, leverage, profitability, and corporate social responsibility on tax avoidance with firm size as a moderating variable. *Asian Journal of Economics, Business and Accounting*, 24(5), 433–442. <https://doi.org/10.9734/AJEBA/2024/v24i51320>
- Widyastuti, S. mustika, Meutia, I., & Bagas, A. (2022). The impact of leverage, profitability, capital intensity and corporate governance on tax avoidance. *Journal of Business and Economics*, 13–27. <https://doi.org/10.33019/ijbe.v6i1.391>
- Yoon, B., & Lee, J. (2021). The effect of ESG performance on tax avoidance - evidence from korea. *Sustainability (Switzerland)*, 1–16. <https://doi.org/10.3390/su13126729>