



The Effects of Capital Intensity and Good Corporate Governance on Tax Avoidance with Firm Size as A Moderating Variable

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ABSTRACT

This study aims to analyse and empirically examine the effects of capital intensity and good corporate governance on tax avoidance in energy sector companies listed on the Indonesia Stock Exchange, with firm size as a moderating variable. This study uses a quantitative approach and secondary data obtained from the annual financial reports of energy sector companies for the 2021-2024 period. The sample was selected using purposive sampling. Based on the sampling criteria, 34 companies were selected as the research sample. The data were analysed using multiple linear regression and moderated regression. The results show that capital intensity has a significant effect on tax avoidance, whereas good corporate governance does not. The moderation test indicates that firm size does not moderate the effect of capital intensity on tax avoidance, but does moderate the effect of good corporate governance on tax avoidance. These findings indicate that fixed asset investment plays an important role in corporate tax strategies, while the effectiveness of institutional monitoring in controlling tax avoidance depends on firm size.

1. INTRODUCTION

Taxes constitute the largest component of state revenue; therefore, the government requires all citizens and business entities to comply with their tax obligations (Latofah & Harjo, 2020). According to Article 1 paragraph (1) of Law Number 16 of 2009 concerning General Provisions and Tax Procedures, tax is a mandatory contribution owed to the state by individuals or entities based on statutory regulations. In Indonesia, taxes contribute approximately 80% of total state revenue, making them a vital component of the State Revenue and Expenditure Budget (APBN) (Budiman & Gumawang, 2025). The government has implemented various optimization measures to increase tax revenue. However, these efforts do not always proceed without obstacles. One major challenge arises from the differing interests of the government and taxpayers, which often encourage taxpayers to reduce the amount of tax payable. Differences in interests between the government and taxpayers often encourage companies to minimize tax

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payments through tax avoidance practices. Tax avoidance refers to legal efforts undertaken by companies to reduce tax liabilities by utilizing loopholes or weaknesses in tax regulations without violating applicable laws (Julianty et al., 2023). Although legally permissible, tax avoidance is considered detrimental to the government because it can reduce state revenue.

Tax avoidance refers to a legal strategy used by taxpayers to reduce their tax obligations by utilizing provisions within tax regulations (Safitri & Rizal, 2023). Although this practice is legally permitted, the government still regards it as undesirable because it may reduce state revenue. Therefore, tax avoidance is an important issue that deserves further examination (Julianty et al., 2023).

Tax avoidance has become an urgent issue for the state. It is estimated that annual losses from tax avoidance practices are largely attributable to corporations, which account for approximately 80% of the losses, while the remainder comes from individual taxpayers (Wardani et al., 2020). According to the Tax Justice Network, tax avoidance practices in Indonesia cause substantial losses each year. The findings indicate that most losses originate from corporations, whereas individual taxpayers contribute a much smaller share. Table 1 presents Indonesia's tax ratio for the 2021-2024 period.

Table 1. Indonesia Tax Ratio for the 2021-2024 Period

Year	Gross Domestic Product	Actual Tax Revenue	Tax Ratio
2021	Rp16.970,80	Rp1.547	9.1%
2022	Rp19.588,10	Rp2.034,55	10.38%
2023	Rp20.892,40	Rp2.154,2	10.31%
2024	Rp22.138,00	Rp2.231,8	10.8%

Source: Ministry of Finance of the Republic of Indonesia (2024).

Table 1 shows the development of Indonesia's nominal Gross Domestic Product (GDP), actual tax revenue, and tax ratio from 2021 to 2024. In general, Indonesia's nominal GDP increased consistently from Rp16,970 trillion in 2021 to Rp22,138 trillion in 2024, reflecting the post-COVID-19 economic recovery (Badan Pusat Statistik, 2025). In line with the increase in GDP, actual tax revenue also grew from Rp1,547 trillion in 2021 to Rp2,231 trillion in 2024. However, Indonesia's tax ratio remained relatively low, ranging from 9.1% to 10.8% of GDP during the period. This indicates that the state's capacity to collect taxes has not been fully optimized relative to the size of the national economy (Kementerian Keuangan, 2024).

Several corporate tax avoidance cases have also occurred. PT Bhakti Agung Propertindo Tbk (BAPI) was alleged to have submitted inaccurate tax reports, causing state losses of Rp2,907,426,172 (Ditjen Pajak, 2024). Another case involved PT Adaro Energy Tbk, which was alleged to have used transfer pricing through its subsidiary in Singapore to reduce its tax burden (Wahyuningsih & Zenabia, 2025). This practice was estimated to have reduced tax payments by up to USD 125 million and attracted public and tax authority attention (Detik Finance, 2019).

Tax avoidance is influenced by both internal and external company factors. Capital intensity, as an internal factor, is related to investment in fixed assets that generate depreciation expenses and may reduce taxable income (Wahyuni et al., 2023). Good corporate governance, as a governance-related factor, plays a role in regulating relationships among stakeholders and controlling managerial practices (Hasanah et al., 2023). In addition, firm size may affect the complexity of tax strategies implemented by companies (Aini & Kartika, 2020).

Previous studies have reported inconsistent findings. Sari & Haq (2025) and Sari & Indrawan (2022) found that capital intensity has a positive effect on tax avoidance. In contrast, Nabila & Kartika (2023) found that capital intensity has a negative effect on tax avoidance, whereas Aini & Kartika (2020) and Julianty et al. (2023) found that capital intensity has no effect on tax avoidance. With respect to good corporate governance, Setyawan (2021) and Kurniawan et al. (2024) found a positive effect on tax avoidance, while Purbowati (2021) and

Yudistira et al. (2024) found a negative effect. These results also differ from Etika & Taufiqurohman (2023), who stated that good corporate governance does not affect tax avoidance.

Several studies have also examined the moderating role of firm size. Julianty et al. (2023) and Padilah et al. (2024) stated that firm size does not moderate the effect of capital intensity on tax avoidance. Conversely, Nabila & Kartika (2023) and Tarigan & Sari (2025) found that firm size can moderate this relationship. In addition, Rahmad et al. (2025) found that firm size moderates the effect of good corporate governance on tax avoidance, whereas Hendrianto (2020) found that firm size does not moderate the effect of good corporate governance on tax avoidance.

Based on the inconsistent findings of previous studies regarding the effects of capital intensity and good corporate governance on tax avoidance, with firm size as a moderating variable, this study empirically examines the issue. This research develops the study of Kurniawan et al. (2024). Unlike the previous study, this research focuses on energy sector companies listed on the Indonesia Stock Exchange for the 2021-2024 observation period. The purpose of this study is to examine and analyze the effects of capital intensity and good corporate governance on tax avoidance, with firm size as a moderating variable, in energy sector companies during 2021-2024. This study is expected to provide theoretical benefits by enriching accounting and taxation literature based on agency theory. It is also expected to provide practical implications for management, investors, and supervisory bodies in improving corporate governance quality and promoting more transparent and accountable tax policies in the energy sector.

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Agency Theory

Jensen & Meckling (1976) explain agency theory as a contractual relationship between principals and agents. Principals are parties that delegate authority, such as shareholders, owners, or investors, whereas agents are parties entrusted with that authority, such as company managers. Principals delegate decision-making authority to agents with the expectation that agents will act and make decisions that align with the principals' interests (Kusumadani & Rahayuningsih, 2023). However, when ownership and management are separated, agency problems may arise because agents who manage business operations have access to more complete information than principals, creating information asymmetry between the two parties (Julianty et al., 2023).

Agency theory also assumes that both principals and agents act based on self-interest. Conflicts of interest may arise when both parties seek to maximize company performance. Principals expect decisions that maximize company performance and success, whereas agents may choose decisions that are relatively safe and minimize risk in order to maintain favorable performance evaluations (Kusumastuti & Ghozali, 2020). Information asymmetry and opportunistic behavior may lead agents to withhold complete information from principals to maximize their own benefits (Gultom, 2021). In this context, management may engage in tax avoidance to increase company profits and meet stakeholder expectations for optimal profitability. This action may also be undertaken to demonstrate good managerial performance and to show continuous improvement in management performance from year to year (Tahar & Rachmawati, 2020).

Tax Avoidance

According to Pohan (2022), tax avoidance is a strategy legally undertaken by taxpayers by utilizing loopholes, ambiguities, or weaknesses in applicable tax regulations. The objective is to reduce the amount of tax payable without violating established legal provisions. In other words, this practice is carried out through specific strategies or techniques that remain within the boundaries of lawful taxation rules.

In addition, Fadhilah in Gultom (2021) states that, according to the Organization for Economic Cooperation and Development (OECD), tax avoidance has three main characteristics. First, it contains an artificial element, namely the creation of arrangements solely for tax purposes. Second, it involves the use of legal loopholes in tax laws for purposes that differ from the intention of lawmakers. Third, it may involve tax consultants who assist taxpayers with confidential strategies so that the arrangements are not easily detected.

The Effect of Capital Intensity on Tax Avoidance

Capital intensity reflects the proportion of a company's investment in fixed assets, such as buildings, machinery, and production equipment. Ownership of fixed assets generates depreciation expenses that can reduce taxable income and consequently decrease tax payable (Cahyadi & Tjahjono, 2025). Based on agency theory, managers as agents tend to optimize after-tax profit for principals by utilizing accounting policies that remain within applicable regulations, including tax avoidance practices (Widiantono & Marinda, 2024). Companies with high capital intensity generally have greater opportunities to utilize depreciation expenses as a strategy to reduce taxable income. This argument is supported by Sari & Haq (2025), Susan & Faizal (2023), and Sahara (2022), who found that capital intensity has a positive effect on tax avoidance.

H1: Capital intensity has a positive effect on tax avoidance.

The Effect of Good Corporate Governance on Tax Avoidance

Good Corporate Governance (GCG) is a corporate governance system designed to regulate and control the relationship between management and shareholders to ensure that the company is managed transparently, accountably, and in accordance with stakeholder interests. The implementation of GCG is intended to minimize agency conflicts and improve the effectiveness of managerial supervision. In this study, GCG is proxied by institutional ownership, which reflects the proportion of company shares owned by institutional investors such as banks, insurance companies, and investment institutions.

Based on agency theory, institutional ownership is expected to strengthen monitoring mechanisms over management behavior because institutional investors generally possess greater experience, resources, and incentives to supervise managerial decisions, including corporate tax policies (Tarmizi & Perkasa, 2022). Stronger institutional supervision is expected to encourage management to optimize corporate tax planning strategies within legal boundaries in order to improve company profitability and shareholder returns. This argument is supported by Sudirman & Marsudi (2025) and Etika & Taufiqurohman (2023), who found that good corporate governance has a positive effect on tax avoidance.

H2: Good corporate governance has a positive effect on tax avoidance.

The Effect of Capital Intensity on Tax Avoidance Moderated by Firm Size

Firm size reflects the scale and operational capacity of a company. Larger companies generally possess more assets, more complex operational activities, and more structured financial management systems compared to smaller companies. In the context of agency theory, larger companies tend to face greater pressure to maintain profitability and shareholder expectations, thereby encouraging management to implement more efficient tax planning strategies, including tax avoidance.

Companies with high capital intensity and large operational scale generally have greater flexibility in utilizing depreciation expenses arising from fixed asset ownership to reduce taxable income. Large companies also tend to have more adequate resources, tax experts, and financial planning systems that enable management to optimize the utilization of fixed assets as part of tax strategy implementation (Aini & Kartika, 2020). This argument is supported by Nabila & Kartika (2023) and Tarigan & Sari (2025), who found that firm size strengthens the effect of capital intensity on tax avoidance.

H3: Firm size moderates the effect of capital intensity on tax avoidance.

The Effect of Good Corporate Governance on Tax Avoidance Moderated by Firm Size

Firm size may strengthen the relationship between good corporate governance and tax avoidance because larger companies generally have more complex organizational structures and greater tax responsibilities. Large companies are also more likely to face pressure from shareholders to maintain profitability and operational efficiency, including efficiency in tax payments.

Based on agency theory, larger companies tend to require stronger governance mechanisms to supervise managerial decisions. Institutional investors in large companies usually possess greater influence in directing management policies, including tax planning strategies. As company size increases, institutional ownership may become more effective in influencing management decisions related to tax avoidance because large companies generally have more sophisticated financial systems and more complex tax planning practices (Ayem & Titania, 2024). This argument is supported by Putri et al. (2020) and Safitri & Oktris (2023), who found that firm size strengthens the relationship between good corporate governance and tax avoidance.

H4: Firm size moderates the effect of good corporate governance on tax avoidance.

3. RESEARCH METHOD

Research Design

This study uses a causal associative quantitative approach to identify the causal relationship between independent variables and the dependent variable in the presence of a moderating variable (Sugiyono, 2023). This study empirically examines the effects of capital intensity and good corporate governance on tax avoidance, with firm size as a moderating variable, in energy sector companies listed on the Indonesia Stock Exchange (IDX) during the 2021-2024 period.

The data used in this study are quantitative data. The data source is secondary data obtained from annual financial reports of energy sector companies published on the official IDX website (www.idx.co.id) and on the official websites of the respective companies.

The population of this study consists of all 91 energy sector companies listed on the Indonesia Stock Exchange (IDX) during the 2021-2024 period. The sample was determined using purposive sampling, which is a sample selection method based on specific criteria (Ghozali, 2021). This method was selected because it is appropriate for the quantitative research design and the availability of data required for the analysis.

Research Variables and Operational Definitions

Tax Avoidance

According to Pohan (2022), tax avoidance is a legal effort to avoid taxes by utilizing loopholes or grey areas in taxation regulations to reduce tax payable without violating applicable provisions. In this study, tax avoidance is proxied by the Cash Effective Tax Rate (CETR), which compares cash paid for taxes with profit before tax. This measurement follows the method used by Asih & Darmawati (2021).

$$\text{CETR} = (\text{Tax Payments} / \text{Profit Before Tax}) \times 100\% \times (-1)$$

Capital Intensity

Capital intensity is a ratio that indicates the proportion of fixed assets, such as machinery, equipment, and property, to a company's total assets (Aini & Kartika, 2020). In this study, capital intensity is measured by comparing total fixed assets with total company assets.

$$\text{CI} = \text{Total Fixed Assets} / \text{Total Assets}$$

Good Corporate Governance

Good Corporate Governance (GCG) is a monitoring and control mechanism implemented to improve the quality of corporate management so that it operates effectively and responsibly (Purbowati, 2021). In this study, GCG is proxied by institutional ownership. Institutional ownership is measured as the percentage of shares owned by institutional parties that have a role in the company's decision-making process, including commissioners and directors (Ridwan & Pekerti, 2022).

$$KI = (\text{Number of institutionally owned shares} / \text{Number of outstanding shares}) \times 100\%$$

Firm Size

Firm size reflects the total assets owned by an entity and is used to classify companies based on their operational scale. Companies with larger assets generally have a greater capacity to generate profits. Higher profit levels may increase the attention of tax authorities toward a company's tax obligations. Along with the larger tax burden borne by the company, this condition may encourage companies to implement tax avoidance strategies to reduce their tax liabilities (Nabila & Kartika, 2023).

$$\text{Firm Size} = \text{Total Assets}$$

4. RESULTS

Descriptive Statistical Analysis

Table 2
Results of Descriptive Statistical Analysis

	Descriptive Statistics				
	N	Minimum	Maximum	Mean	Std. Deviation
Capital Intensity (X1)	128	0.002	0.844	0.26377	0.235409
Good Corporate Governance (X2)	128	0.100	0.981	0.65301	0.202524
Tax Avoidance (Y)	128	-0.952	-0.003	-0.30473	0.223937
Firm Size (Z)	128	27.620	32.758	29.98496	1.369287
Valid N (listwise)	128				

Source: Processed research data (2026).

Based on Table 2, the descriptive statistics for 128 observations for each variable are presented. Tax Avoidance (Y) has a minimum value of -0.952 and a maximum value of -0.003, with a mean of -0.30473 and a standard deviation of 0.223937. Capital Intensity (X1) has a minimum value of 0.002 and a maximum value of 0.844, with a mean of 0.26377 and a standard deviation of 0.235409. Good Corporate Governance (X2) has a minimum value of 0.100 and a maximum value of 0.981, with a mean of 0.65301 and a standard deviation of 0.202524. Firm Size (Z) has a minimum value of 27.620 and a maximum value of 32.758, with a mean of 29.98496 and a standard deviation of 1.369287.

Classical Assumption Tests

Normality Test

Table 3
Normality Test Results
One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		128
Normal Parameters ^{a,b}	Mean	0.000000
	Std. Deviation	0.21253728
Most Extreme Differences	Absolute	0.102

	Positive	0.067
	Negative	-0.102
Test Statistic		0.102
Asymp. Sig. (2-tailed)		0.002 ^c
Monte Carlo Sig. (2-tailed)	Sig.	0.131 ^d
	99% Confidence Interval	Lower Bound
		Upper Bound
		0.122
		0.140
a. Test distribution is Normal.		
b. Calculated from data.		
c. Lilliefors Significance Correction.		
d. Based on 10000 sampled tables with starting seed 2000000.		

Source: Processed research data (2026).

Based on Table 3, the normality test results show an Asymp. Sig. value of 0.002, which is below 0.05 and conventionally indicates that the data are not normally distributed. However, the Monte Carlo significance value of 0.131 is greater than 0.05, indicating that the residuals can be considered normally distributed. Therefore, the Monte Carlo result is considered more representative for assessing residual normality in this study.

Multicollinearity Test

Table 4
Multicollinearity Test Results

		Coefficients ^a					Collinearity Statistics	
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Tolerance	VIF
		B	Std. Error	Beta				
1	(Constant)	0.490	0.466		1.052	0.295		
	Capital Intensity (X1)	0.179	0.085	0.188	2.110	0.037	0.911	1.098
	Good Corporate Governance (X2)	0.075	0.096	0.068	0.781	0.436	0.969	1.032
	Firm Size (Z)	-0.030	0.015	-0.182	-2.006	0.047	0.886	1.129

a. Dependent Variable: Tax Avoidance (Y)

Source: Processed research data (2026).

Based on Table 4, the multicollinearity test results, as indicated by the tolerance and Variance Inflation Factor (VIF) values, show that all independent variables have tolerance values greater than 0.10 and VIF values below 10. These results indicate that there is no multicollinearity among the independent variables in the regression model, so each variable can explain the dependent variable independently.

Heteroscedasticity Test Scatterplot Test

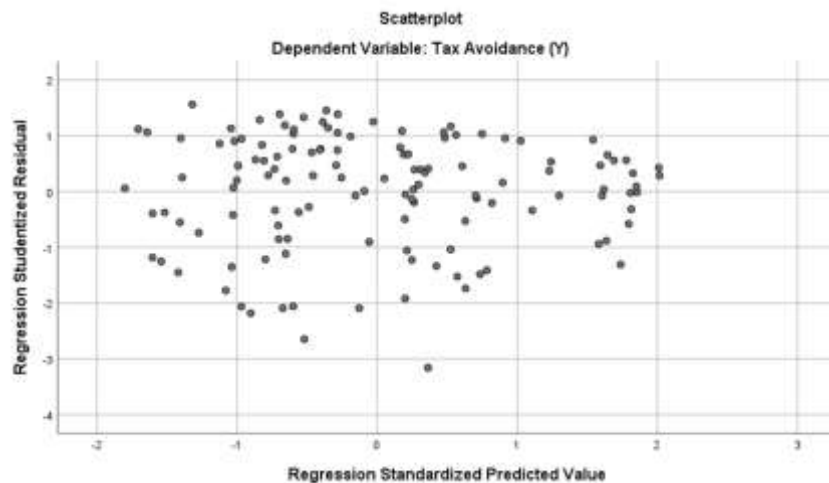


Figure 1
Scatterplot Test Results

Source: Processed research data (2026).

Based on Figure 1, the scatterplot test results show no specific pattern; the points are randomly distributed above and below zero on the Y-axis. This indicates that heteroscedasticity does not occur in the regression model.

Autocorrelation Test

Table 5
Autocorrelation Test Results

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.315 ^a	0.099	0.077	0.215093	1.555

a. Predictors: (Constant), Firm Size (Z), Good Corporate Governance (X2), Capital Intensity (X1)
b. Dependent Variable: Tax Avoidance (Y)

Source: Processed research data (2026).

Based on Table 5, the Durbin-Watson value is 1.555. With 128 observations and three independent variables ($k = 3$), the Durbin-Watson table values are $dL = 1.6638$, $dU = 1.7596$, $4 - dL = 2.3362$, and $4 - dU = 2.2404$. Because the Durbin-Watson value is below dU , the model indicates autocorrelation. To address this issue, the Cochrane-Orcutt procedure was applied, as shown below.

Cochrane-Orcutt Test

Table 6
Cochrane-Orcutt Test Results

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.220 ^a	0.049	0.041	0.20859823	1.947

a. Predictors: (Constant), Lag_e
b. Dependent Variable: Unstandardized Residual

Source: Processed research data (2026).

Based on Table 6, the Cochrane-Orcutt test produces a Durbin-Watson value of 1.947, which lies between dU (1.7596) and $4 - dU$ (2.2404). Therefore, it can be concluded that autocorrelation is no longer present in the model.

Multiple Linear Regression Analysis

Table 7
Multiple Linear Regression Analysis Results

		Coefficients ^a				
		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
Model		B	Std. Error	Beta		
1	(Constant)	-0.435	0.068		-6.425	0.000
	Capital Intensity (X1)	0.229	0.082	0.241	2.790	0.006
	Good Corporate Governance (X2)	0.107	0.096	0.097	1.117	0.266

a. Dependent Variable: Tax Avoidance (Y)

Source: Processed research data (2026).

Based on Table 7, the multiple linear regression analysis results produce the following regression equation:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \varepsilon$$

$$Y = -0,435 + 0,229X_1 + 0,107X_2$$

Notes:

Y = Tax Avoidance

α = Constant

β = Regression coefficient

X_1 = Capital Intensity

X_2 = Institutional Ownership

ε = Error

Based on the regression equation, the constant value of -0.435 indicates that if capital intensity and good corporate governance are equal to zero, tax avoidance is predicted to be -0.435. The capital intensity coefficient is 0.229 with a significance value of 0.006, which is below 0.05. Thus, capital intensity has a positive and significant effect on tax avoidance. The good corporate governance coefficient is 0.107 with a significance value of 0.266, which is greater than 0.05. Thus, good corporate governance has no significant effect on tax avoidance.

Hypothesis Testing

Coefficient of Determination Test (R^2)

Table 8
Coefficient of Determination Test Results

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.265 ^a	0.070	0.055	0.217681

a. Predictors: (Constant), Good Corporate Governance (X2), Capital Intensity (X1)

Source: Processed research data (2026).

Based on Table 8, the coefficient of determination shows that capital intensity and good corporate governance explain only 7% of the variation in tax avoidance, as indicated by the R Square value. This finding indicates that 93% of the variation in tax avoidance is explained by other factors not included in the research model. The relatively low coefficient of determination suggests that tax avoidance practices may be influenced by other variables outside the model, such as profitability, leverage, liquidity, and corporate tax policies. The F-test significance value of 0.011 indicates that capital intensity and good corporate governance jointly affect tax avoidance because the value is below 0.05.

Partial Test (t-Test)**Table 9**
t-Test Results

		Coefficients^a				
		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
Model		B	Std. Error	Beta		
1	(Constant)	-0.435	0.068		-6.425	0.000
	Capital Intensity (X1)	0.229	0.082	0.241	2.790	0.006
	Good Corporate Governance (X2)	0.107	0.096	0.097	1.117	0.266

a. Dependent Variable: Tax Avoidance (Y)

Source: Processed research data (2026).

Based on Table 9, the first hypothesis (H1) states that capital intensity has a positive effect on tax avoidance. The regression results show a t-statistic of 2.790 for capital intensity, with a p-value of 0.006. Because the p-value is below 0.05, there is statistical evidence that capital intensity has a positive effect on tax avoidance. Thus, H0 is rejected and H1 is accepted. The second hypothesis (H2) states that good corporate governance has an effect on tax avoidance. The regression results show a t-statistic of 1.117 for good corporate governance, with a p-value of 0.266. Because the p-value is above 0.05, there is no statistical evidence that good corporate governance affects tax avoidance. Thus, H0 is accepted and H2 is rejected.

Moderated Regression Analysis**Table 10**
Moderated Regression Analysis Results

		Coefficients^a				
		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
Model		B	Std. Error	Beta		
1	(Constant)	-0.407	0.068		-6.011	0.000
	Capital Intensity (X1)	-2.786	2.116	-2.929	-1.317	0.190
	Good Corporate Governance (X2)	2.673	0.921	2.417	2.901	0.004
	X1*Z	0.101	0.072	3.080	1.399	0.164
	X2*Z	-0.087	0.031	-2.327	-2.806	0.006

a. Dependent Variable: Tax Avoidance (Y)

Source: Processed research data (2026).

Based on Table 10, the moderated regression analysis produces the following model equation:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_1 * Z + \beta_4 X_2 * Z + \varepsilon$$

$$Y = -0,407 - 2,786 + 2,673 + 0,101 - 0,087 + \varepsilon$$

Notes:

Y	= Tax Avoidance
α	= Constant
β	= Regression coefficient
X_1	= Capital Intensity
X_2	= Institutional Ownership
Z	= Firm Size
$\beta_3 X_1 * Z$	= Interaction between Capital Intensity and Firm Size

$\beta_4 X_2 * Z$ = Interaction between Good Corporate Governance and Firm Size
 ε = Error

Based on Table 11, the third hypothesis (H3) states that firm size moderates the effect of capital intensity on tax avoidance. The moderated regression results show a t-statistic of 1.399 for the interaction between capital intensity and firm size ($X_1 \times Z$), with a p-value of 0.164. Because the p-value is above 0.05, firm size does not moderate the effect of capital intensity on tax avoidance. Thus, H0 is accepted and H3 is rejected. The fourth hypothesis (H4) states that firm size moderates the effect of good corporate governance on tax avoidance. The moderated regression results show a t-statistic of -2.806 for the interaction between good corporate governance and firm size ($X_2 \times Z$), with a p-value of 0.006. Because the p-value is below 0.05, firm size moderates the effect of good corporate governance on tax avoidance. Thus, H0 is rejected and H4 is accepted.

DISCUSSION

The Effect of Capital Intensity on Tax Avoidance

The multiple linear regression results show that the first hypothesis (H1) is accepted because capital intensity has a positive and significant effect on tax avoidance. This finding indicates that capital intensity reflects the level of company investment in fixed assets, such as buildings, machinery, and production equipment. Investment in fixed assets generates depreciation expenses that can reduce taxable income and, consequently, reduce the company's tax burden (Cahyadi & Tjahjono, 2025). In the context of agency theory, management as an agent seeks to maximize after-tax profit for the principal by using accounting policies that remain within legal boundaries, including tax avoidance practices (Widianto & Marinda, 2024). This finding is consistent with Sari & Haq (2025), Susan & Faizal (2023), and Sahara (2022), who stated that capital intensity has a positive effect on tax avoidance.

The Effect of Good Corporate Governance on Tax Avoidance

The multiple linear regression results show that the second hypothesis (H2) is rejected because good corporate governance has no significant effect on tax avoidance. High or low levels of institutional ownership are not proven to influence tax avoidance in the companies studied. Theoretically, companies are accountable to shareholders; therefore, institutional investors are expected to protect the interests and welfare of capital owners (Dewi & Oktaviani, 2021). However, the regression results contradict agency theory, which states that institutional ownership functions as an effective monitoring mechanism over management behavior. The presence of institutional investors does not necessarily ensure effective control over policies adopted by management. In addition, institutional ownership in energy sector companies may function more as a formality of ownership structure rather than as an effective monitoring mechanism over tax policies implemented by management. Institutional investors may prioritize company profitability and long-term financial performance instead of directly supervising tax compliance practices. Furthermore, tax policy decisions are generally strategic and technical in nature, so they tend to remain under management authority rather than under direct institutional investor control. As a result, the presence of institutional ownership is not necessarily capable of limiting or influencing corporate tax avoidance practices. If monitoring is not implemented effectively, opportunities for tax avoidance may still occur. This finding is consistent with Dewi & Oktaviani (2021), Aulia & Purwasih (2022), and Ridwan & Pekerti (2022), who stated that good corporate governance has no effect on tax avoidance.

The Effect of Capital Intensity on Tax Avoidance Moderated by Firm Size

The moderated regression results show that the third hypothesis (H3) is rejected because firm size does not moderate the effect of capital intensity on tax avoidance. The tendency of companies to engage in tax avoidance at either high or low levels of capital intensity is more strongly influenced by costs arising from investment in and utilization of fixed

assets. These costs are more closely related to operational activities and fixed asset utilization than to firm size (Julianty et al., 2023). Therefore, both large and small companies may still engage in tax avoidance practices when they possess high levels of fixed assets that generate depreciation expenses capable of reducing taxable income.

This finding indicates that firm size does not necessarily strengthen or weaken the relationship between capital intensity and tax avoidance because depreciation policies and fixed asset utilization are generally determined by operational needs and company asset management strategies rather than by company scale. This finding is consistent with Julianty et al. (2023) and Padilah et al. (2024), who stated that firm size does not moderate the effect of capital intensity on tax avoidance.

The Effect of Good Corporate Governance on Tax Avoidance Moderated by Firm Size

The moderated regression results show that the fourth hypothesis (H4) is accepted because firm size moderates the effect of good corporate governance on tax avoidance. This indicates that larger companies tend to face greater tax obligations and more complex financial activities, which may encourage management to implement more strategic tax planning policies, including tax avoidance practices.

In large companies, institutional investors generally have stronger influence and more effective monitoring capabilities over managerial decisions, including decisions related to tax strategies. Larger companies also tend to have more sophisticated financial systems and more complex governance structures, enabling institutional ownership to play a more significant role in influencing tax-related policies. As a result, firm size strengthens the relationship between good corporate governance and tax avoidance. This finding is consistent with Putri et al. (2020) and Safitri & Oktris (2023), who stated that firm size moderates the effect of good corporate governance on tax avoidance.

5. CONCLUSION

This study finds that capital intensity has a positive and significant effect on tax avoidance in energy sector companies listed on the Indonesia Stock Exchange during the 2021-2024 period. This indicates that the greater the proportion of fixed assets owned by a company, the more likely the company is to engage in tax avoidance by utilizing depreciation expenses. In contrast, good corporate governance, proxied by institutional ownership, does not have a significant effect on tax avoidance. In the moderation analysis, firm size does not moderate the effect of capital intensity on tax avoidance, but it does moderate the effect of good corporate governance on tax avoidance. This suggests that the effectiveness of institutional monitoring may depend on company size.

LIMITATION

This study has several limitations. First, it uses only two independent variables and one moderating variable, namely capital intensity, good corporate governance proxied by institutional ownership, and firm size as the moderating variable. Second, this study focuses only on the energy sector, with a four-year observation period from 2021 to 2024.

Future research is recommended to extend the observation period and add other variables that may affect tax avoidance, such as profitability, leverage, liquidity, and other relevant factors. The use of control variables and alternative tax avoidance proxies is also recommended to improve the robustness and explanatory power of the research model.

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