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THE EFFECT OF ENVIRONMENTAL COSTS, CARBON EMISSION DISCLOSURE, AND GCG ON TAX AVOIDANCE

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Abstract
Tax avoidance is one of the strategies commonly employed by companies to legally minimize their tax burden. At the same time, increasing demands for social and environmental responsibility have encouraged companies to pay greater attention to environmental costs, carbon emission disclosure, and the implementation of good corporate governance in their operations. This study aims to examine the effect of environmental costs, carbon emission disclosure, and good corporate governance on tax avoidance in energy sector companies listed on the Indonesia Stock Exchange during the 2020–2024 period. The research employed a quantitative approach using secondary data obtained from financial statements, annual reports, and sustainability reports. The sample was selected using purposive sampling with a total of 85 observations. Data were analyzed using panel data regression with EViews 14, and the Random Effect Model (REM) was selected as the most appropriate model. The results indicate that environmental costs have a significant negative effect on tax avoidance. Meanwhile, carbon emission disclosure and good corporate governance have no significant effect on tax avoidance. These findings suggest that higher environmental costs reflect a company's commitment to social and environmental responsibility, thereby reducing tax avoidance practices, while carbon emission disclosure and good corporate governance have not become determining factors in tax avoidance policies among energy sector companies.
Keywords: Carbon emission disclosure; Energy sector; Environmental costs; Good corporate governance; Tax avoidance

INTRODUCTION

In today's increasingly competitive global business environment, management is required to make strategic decisions to achieve organizational objectives. One of the primary indicators of corporate success is the ability to generate optimal profits. Profit represents the difference between revenues earned and expenses incurred during a particular accounting period (Pessak et al., 2021). Consequently, companies continuously strive to improve cost efficiency in order to maximize profitability.

Among various operational costs, taxation constitutes one of the most significant expenditures because it directly affects corporate cash outflows. Effective tax management can enhance cost efficiency and improve corporate profitability (Wasesaa et al., 2022). From the government's perspective, however, tax revenue serves as the primary source of national income, financing public development and improving social welfare. Tax revenues are derived from compulsory contributions paid by both individual and corporate taxpayers. Nevertheless, tax avoidance remains a common phenomenon across many countries, including Indonesia (Sipayung et al., 2024).

Tax avoidance refers to corporate efforts to minimize tax liabilities by exploiting legal loopholes within existing tax regulations. According to Nurhaliza et al. (2025), corporate tax compliance is influenced by the surrounding social environment. Companies are more likely to comply with tax obligations when other firms within the same environment also demonstrate high levels of compliance. Conversely, when tax non-compliance becomes common practice, companies may be encouraged to adopt similar strategies to protect their economic interests.

One of the strategies frequently employed to reduce tax liabilities is increasing deductible expenses that lower taxable income. Hasanah & Faisol (2023) explain that companies may legally reduce their tax burden by recognizing certain expenses, thereby decreasing reported taxable income. In this context, expenditures associated with corporate environmental responsibility represent one type of expense that may influence tax avoidance practices.

Environmental costs reflect a company's commitment to fulfilling its environmental and social responsibilities. Previous studies suggest that corporate social responsibility (CSR) activities are associated with tax avoidance practices. Wardani & Pricillia (2019) reported that CSR positively affects tax avoidance, as measured by the Cash Effective Tax Rate (CETR). Similarly, Hidayati & Fidiana (2017) found that increased CSR activities may create greater opportunities for tax avoidance because CSR expenditures can be recognized as deductible expenses for tax purposes. In contrast, A. Susanto & Veronica (2022) concluded that CSR negatively influences tax avoidance aggressiveness, indicating that companies with stronger CSR performance tend to exhibit higher levels of tax compliance.

Besides environmental costs, carbon emission disclosure has become increasingly important due to growing demands for environmental transparency and accountability. Raudhah & Kusumawardani (2025) found that environmental disclosure in sustainability reports, including carbon emission disclosure, positively affects tax avoidance. Their findings indicate that broader carbon emission disclosure is associated with a greater tendency for companies to engage in tax avoidance. Conversely, Kusdiono & Prasasyaningsih (2021) concluded that CSR disclosure, including information on carbon emissions, negatively affects tax avoidance, suggesting that companies with greater transparency regarding their environmental and social responsibilities tend to demonstrate higher tax compliance.

The implementation of Good Corporate Governance (GCG) is expected to enhance transparency, accountability, and managerial oversight, thereby reducing opportunistic behavior, including tax avoidance. However, previous empirical findings remain inconsistent. Maulana & Mujiyati (2021) found that independent commissioners, as a proxy for GCG, positively influence tax avoidance. In contrast, Nihayah & Oktaviani (2022) reported a negative relationship, indicating that more effective oversight by independent commissioners reduces the likelihood of tax avoidance.

These inconsistent findings reveal a significant research gap regarding the effects of environmental costs, carbon emission disclosure, and Good Corporate Governance on tax avoidance. This study extends the research conducted by Nabilah & Rusdi (2025), which examined the effects of green accounting and CSR disclosure on tax avoidance. Unlike previous studies, this research employs environmental costs as a proxy for corporate environmental responsibility, carbon emission disclosure as a specific measure of environmental transparency, and Good Corporate Governance as an additional explanatory variable. Furthermore, the study focuses on energy sector companies listed on the Indonesia Stock Exchange during the 2020–2024 period.

The energy sector was selected because it has substantial environmental impacts and therefore faces greater pressure to implement environmental responsibility initiatives, disclose carbon emissions, and adopt sound corporate governance practices. These characteristics make the sector particularly relevant for examining the relationship between environmental costs, carbon emission disclosure, Good Corporate Governance, and tax avoidance.

Accordingly, this study aims to provide empirical evidence regarding the effects of environmental costs, carbon emission disclosure, and Good Corporate Governance on tax avoidance among energy sector companies listed on the Indonesia Stock Exchange during the 2020–2024 period.

LITERATURE REVIEW

Agency Theory

Agency Theory, introduced by Jensen & Meckling (1976), explains the contractual relationship between shareholders (principals) and managers (agents). Under this relationship, principals delegate decision-making authority to agents to manage the company with the objective of maximizing shareholders' wealth. However, differences in interests between the two parties often give rise to agency conflicts, particularly when managers prioritize personal interests over those of shareholders (Susanto & Indrabudiman, 2023).

In the context of taxation, agency conflicts may arise when management seeks to reduce corporate tax burdens through tax avoidance strategies to increase after-tax profits, while shareholders and other stakeholders expect the company to fulfill its social responsibilities and comply with applicable regulations. Therefore, the implementation of Good Corporate Governance (GCG) is essential to mitigate agency conflicts through effective monitoring mechanisms (Irmalasari et al., 2022; Ilham & Efendi, 2024).

Signaling Theory

Signaling Theory suggests that every corporate action conveys information that external stakeholders may use to evaluate a firm's condition and future prospects (Ilham & Efendi, 2024). The theory emerged as a means of reducing information asymmetry between management and external parties, particularly investors.

Corporate signals may take various forms, including transparent financial reporting, sustainability disclosures, product quality, and corporate social responsibility initiatives (Widhiatmoko & Sucipto, 2025). Comprehensive disclosure sends positive signals regarding a company's performance, credibility, and long-term prospects.

Within the context of this study, environmental costs, carbon emission disclosure, and corporate tax policies represent important signals reflecting a company's commitment to sustainable business practices and regulatory compliance.

Stakeholder Theory

Stakeholder Theory argues that corporate sustainability depends not only on shareholders but also on various stakeholder groups, including governments, employees, customers, suppliers, local communities, and the environment (Yasah et al., 2024; Irawan & Muarifah, 2020).

According to this theory, companies should consider the interests of all stakeholders by implementing adequate environmental and social responsibility programs. One manifestation of this responsibility is the allocation of environmental expenditures and the disclosure of carbon emissions in sustainability reports. High-quality environmental disclosure enhances stakeholders' trust and support, thereby contributing to sustainable corporate performance (Irmalasari et al., 2022).

Tax Avoidance

Tax avoidance refers to a company's legal effort to minimize its tax liabilities by taking advantage of opportunities available within existing tax regulations (Rahman & Astuti, 2022; Hasanah & Faisol, 2023). Unlike tax evasion, which is illegal, tax avoidance involves tax planning strategies that remain within the legal framework.

In this study, tax avoidance is measured using the Cash Effective Tax Rate (CETR), calculated as the ratio of cash taxes paid to pre-tax income. CETR is considered an appropriate proxy because it reflects the actual amount of taxes paid by the company rather than merely accounting-based tax expenses (Mayndarto, 2022; Alafiah et al., 2022). A higher CETR indicates a lower level of tax avoidance.

Environmental Costs

Environmental costs are expenditures incurred as a consequence of corporate activities that affect the natural environment (Franciska et al., 2019). These expenditures reflect a company's commitment to environmental preservation and compliance with environmental regulations.

Environmental spending is widely regarded as an expression of corporate social responsibility that enhances corporate legitimacy and strengthens reputation among stakeholders (Hapsoro & Adyaksana, 2020). In this study, environmental costs are measured as the ratio of total environmental or CSR expenditures to profit before tax, following the measurement approach proposed by Sarlen & Norsita (2024).

Carbon Emission Disclosure

Carbon emission disclosure refers to the communication of information regarding greenhouse gas (GHG) emissions produced by a company as part of its environmental transparency and accountability (Salsabila & Aristantia, 2025). Such disclosure has become an essential component of sustainability reporting because it demonstrates corporate commitment to addressing climate change and mitigating environmental impacts arising from business operations (Wirawan & Setijaningsih, 2022).

This study measures carbon emission disclosure using the GRI Standards 305 framework, which comprises seven disclosure categories, such as Direct GHG emissions, Energy indirect GHG emissions, Other indirect GHG emissions, GHG emissions intensity, Reduction of GHG emissions, Emissions of ozone-depleting substances, and Other significant air emissions. The disclosure index is calculated by comparing the number of disclosed items with the total of seven disclosure items. Each disclosed item receives a score of one, while undisclosed items receive a score of zero (Apriliani et al., 2024; Bondan Khoesnadi & Carmel Meiden, 2025).

Good Corporate Governance

Good Corporate Governance (GCG) refers to a corporate governance system that regulates relationships among management, shareholders, and other stakeholders to ensure transparency, accountability, responsibility, independence, and fairness in corporate management (Syaiah et al., 2024).

The implementation of GCG is considered fundamental for ensuring long-term corporate sustainability while strengthening relationships with stakeholders (Asnita et al., 2025). In this study, GCG is proxied by the proportion of independent commissioners. Independent commissioners serve as an important monitoring mechanism that mitigates agency conflicts and encourages management to operate in accordance with sound governance principles, including decisions related to corporate taxation.

Previous Studies

Previous research examining the determinants of tax avoidance has produced inconsistent findings. Regarding environmental costs, several studies have reported that environmental and social responsibility activities negatively influence tax avoidance, indicating that companies with stronger environmental commitments tend to exhibit higher tax compliance (Wibawa et al., 2024; Wiliyanti et al., 2026). In contrast, Wardani & Pricillia (2019) found a positive relationship between CSR activities and tax avoidance, whereas Fauziah et al. (2025) and Nabilah & Rusdi (2025) concluded that environmental costs do not significantly affect tax avoidance.

Similarly, empirical findings concerning carbon emission disclosure remain inconclusive. Raudhah & Kusumawardani (2025), as well as Alkautsar et al. (2021), found that environmental disclosure—including carbon emission disclosure—positively affects tax avoidance, suggesting that companies may incorporate environmental initiatives into broader tax management strategies. Conversely, Kusdiono & Prasasyaningsih (2021) and Darma (2021) reported a negative relationship, indicating that greater environmental transparency encourages higher tax compliance. Meanwhile, Lestari & Munandar (2025) and Jenifer & Alfia (2023) concluded that environmental disclosure has no significant effect on tax avoidance.

Likewise, studies investigating Good Corporate Governance, represented by independent commissioners, have yielded mixed results. Maulana & Mujiyati (2021) found that independent commissioners positively affect tax avoidance, whereas Sarlen & Norsita (2024) demonstrated a negative relationship, suggesting that stronger monitoring mechanisms reduce tax avoidance practices. In contrast, Darma (2021), Yati (2023), and Kusdiono & Prasasyaningsih (2021) reported no significant relationship between GCG and tax avoidance.

These inconsistent findings indicate the existence of a research gap concerning the relationships among environmental costs, carbon emission disclosure, Good Corporate Governance, and tax avoidance. Therefore, this study seeks to address this gap by examining these relationships in energy sector companies listed on the Indonesia Stock Exchange between 2020 and 2024. The energy sector is selected because of its substantial environmental exposure, making it an appropriate context for investigating how environmental responsibility and corporate governance relate to tax avoidance behavior.

Research Hypothesis

Based on the theoretical framework and findings of previous studies, the following hypotheses are proposed:

H1: Environmental costs have a negative effect on tax avoidance.
H2: Carbon emission disclosure has a negative effect on tax avoidance.
H3: Good Corporate Governance has a negative effect on tax avoidance.

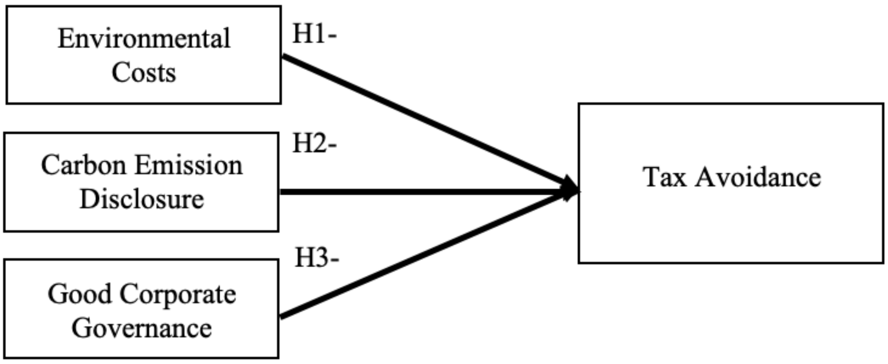

Figure 1 Research Framework

METHODS

This study employed a quantitative research approach using a descriptive research design. A research design provides the conceptual framework that guides researchers throughout the research process, from problem formulation to conclusion drawing (Rohanita & Aizah, 2025). Quantitative descriptive research is intended not only to describe the phenomenon under investigation but also to examine the relationships among variables based on empirical evidence (Rengkuan et al., 2023). Specifically, this study investigates the effects of environmental costs, carbon emission disclosure, and Good Corporate Governance on tax avoidance among energy sector companies listed on the Indonesia Stock Exchange (IDX).

The study utilized secondary data obtained from companies' financial statements, annual reports, and sustainability reports covering the period from 2020 to 2024. These documents were collected from the official website of the Indonesia Stock Exchange (www.idx.co.id) and the official websites of the respective companies. Since the dataset combines observations across firms and over multiple years, this study employed panel data, which integrates both cross-sectional and time-series dimensions to provide a more comprehensive analysis of changes in the research variables over time.

The study population comprised all energy sector companies listed on the Indonesia Stock Exchange during the 2020–2024 period. The energy sector was selected because of its strategic role in the Indonesian economy and its relatively high exposure to tax avoidance risks resulting from complex corporate structures and affiliated-party transactions, including transfer pricing practices (Apriani, 2025).

The research sample was selected using the purposive sampling technique based on several predetermined criteria.

Table 1 Sample Selection Criteria

No.	Kriteria	Jumlah
1.	Energy sector companies listed on the Indonesia Stock Exchange during 2020–2024	89
2.	Companies conducting Initial Public Offerings (IPO) after 2020	(23)
3.	Companies experiencing suspension or delisting during the observation period	(16)
4.	Companies that did not publish annual reports during 2020–2024	(11)
5.	Companies that did not disclose CSR or environmental costs in their annual or sustainability reports	(11)
	Final sample	28
	Outlier companies excluded	(11)
	Companies included in the final analysis	17
	Firm-year observations (2020–2024)	85

Source: Processed by the author, 2026

Based on these criteria, the final dataset consisted of 85 firm-year observations.

The dependent variable in this study is tax avoidance, measured using the Cash Effective Tax Rate (CETR). Tax avoidance refers to a company's legal effort to minimize tax liabilities by utilizing provisions available within the prevailing tax regulations (Lastyanto & Setiawan, 2022). Following Sarlen & Norsita (2024), CETR is calculated as the ratio of cash taxes paid to profit before tax. A higher CETR indicates a lower level of tax avoidance.

The independent variables consist of environmental costs, carbon emission disclosure, and Good Corporate Governance.

Environmental costs are measured as the ratio of total environmental or CSR expenditures to profit before tax, following the measurement proposed by Sarlen & Norsita (2024).

Carbon emission disclosure is measured using the GRI Standards 305 Emissions Disclosure Index, calculated by dividing the number of disclosed emission-related items by the total of seven disclosure items specified in GRI 305 (Apriliani et al., 2024; Bondan Khoesnadi & Carmel Meiden, 2025).

Good Corporate Governance is proxied by the proportion of independent commissioners, measured as the ratio of independent commissioners to the total number of members on the board of commissioners, following Sarlen & Norsita (2024).

Data analysis was performed using EViews 14. The analytical procedure consisted of descriptive statistical analysis to summarize the characteristics of the research data, followed by panel data model selection using the Chow Test, Hausman Test, and Lagrange Multiplier Test. Hypothesis testing was subsequently conducted using panel data regression analysis.

To ensure the validity of the regression model, several classical assumption tests were also performed, including the normality test, multicollinearity test, heteroscedasticity test, and autocorrelation test.

Finally, the proposed hypotheses were evaluated using the t-test (partial significance test), F-test (simultaneous significance test), and the adjusted coefficient of determination (Adjusted R^2) to assess the explanatory power of the regression model in explaining variations in tax avoidance.

RESULTS AND DISCUSSION

Results

Normality Test

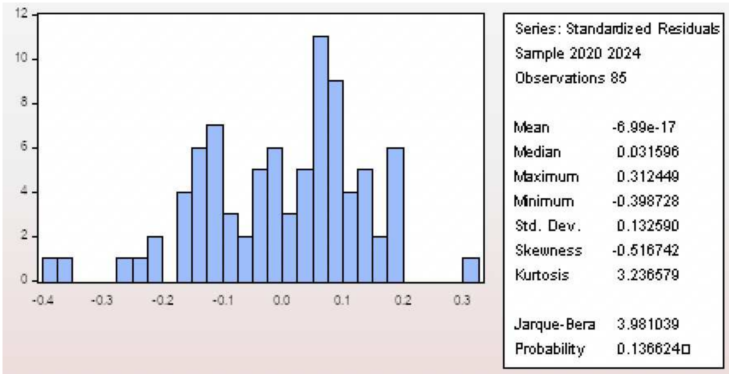

Figure 2 Normality Test Results

The normality test produced a probability value of 0.136624, which is higher than the significance level of 0.05. This result indicates that the residuals are normally distributed, implying that the normality assumption is satisfied. Therefore, the regression model is considered appropriate for subsequent statistical analyses.

Multicollinearity Test

Table 2 Multicollinearity Test Results

	X1	X2	X3
X1	1.000000	0.060708	0.303538
X2	0.060708	1.000000	-0.024362
X3	0.303538	-0.024362	1.000000

Source: Processed by the author, 2026

The correlation coefficients among the independent variables ranged from –0.0244 to 0.3035, all of which are substantially below the commonly accepted threshold of 0.85. These findings indicate that no multicollinearity exists among the explanatory variables. Consequently, the independent variables can be included simultaneously in the regression model without causing estimation bias.

Heteroscedasticity Test

Table 3 Heteroscedasticity Test Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.099170	0.034568	2.868889	0.0053
X1	0.079450	0.074917	1.060501	0.2921
X2	-0.026341	0.021847	-1.205684	0.2314
X3	0.033265	0.082037	0.405488	0.6862

Source: Processed by the author, 2026

The heteroscedasticity test was conducted using the Glejser method. All independent variables exhibit probability values greater than 0.05, indicating the absence of heteroscedasticity. Therefore, the regression model satisfies the homoscedasticity assumption, suggesting that the variance of the residuals remains constant across observations.

Autocorrelation Test

Table 4 Autocorrelation Test Results

R-squared	0,431510	Mean dependent var	0,063587
Adjusted R-squared	0,410455	S.D. dependent var	0,119115
S.E. of regression	0,091458	Sum squared resid	0,677537
F-statistic	20.49426	Durbin-Watson stat	1,393332
Prob(F-statistic)	0,000000		

Source: Processed by the author, 2026

The Durbin–Watson statistic was 1.393332. Based on 85 observations and three independent variables, the lower and upper critical values were dL = 1.5752 and dU = 1.7210, respectively. Since the calculated Durbin–Watson statistic is lower than the lower critical value (DW < dL), the model indicates the presence of positive autocorrelation.

Nevertheless, the selected regression model is the Random Effects Model (REM) estimated using the Generalized Least Squares (GLS) method. According to Gujarati & Porter (2009), GLS estimation accommodates both serial correlation and heterogeneity across cross-sectional units by transforming the variance-covariance matrix. Consequently, REM estimation is considered efficient despite the presence of autocorrelation under ordinary least squares (OLS), and the classical assumptions associated with OLS become less relevant

Panel Data Regression Model Selection

Chow Test

The Chow test yielded a Cross-section F probability of 0.0000, which is lower than the 5% significance level. Therefore, the Fixed Effects Model (FEM) is preferred over the Common Effects Model (CEM).

Table 5 Chow Test Results

Effects Test	Statistic	d.f.	Prob.
Cross-section F	6.591356	(16.65)	0.0000
Cross-section Chi-square	81.950481	16	0.0000

Source: Processed by the author, 2026

Hausman Test

The Hausman test produced a probability value of 0.1661, exceeding the 5% significance level. Accordingly, the Random Effects Model (REM) is considered more appropriate than the Fixed Effects Model.

Table 6 Hausman Test Results

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	5.078596	3	0.1661

Source: Processed by the author, 2026

Lagrange Multiplier Test

The Lagrange Multiplier test generated a Breusch–Pagan probability value of 0.0000 (less than 0.05), indicating that the Random Effects Model is preferable to the Common Effects Model.

Overall, the Chow, Hausman, and Lagrange Multiplier tests consistently indicate that the Random Effects Model (REM) is the most appropriate estimation model for this study.

Table 7 Lagrange Multiplier Test Results

	Test Hypothesis		
	Cross-section	Time	Both
Breusch-Pagan	34.89193 (0.0000)	1.445048 (0.2293)	36.33697 (0.0000)
Honda	5.906939 (0.0000)	-1.202102 (0.8853)	3.326822 (0.0004)
King-Wu	5.906939 (0.0000)	-1.202102 (0.8853)	1.566471 (0.0586)
Standardized Honda	6.684849 (0.0000)	-0.990304 (0.8390)	0.404769 (0.3428)
Standardized King-Wu	6.684849 (0.0000)	-0.990304 (0.8390)	-1.038282 (0.8504)
Gourieroux. et al.	--	--	34.89193 (0.0000)

Source: Processed by the author, 2026

Panel Data Regression Analysis

$$\text{Tax Avoidance} = 0{,}076021 + 0{,}843139(\text{EC}) + 0{,}008387(\text{CED}) + 0{,}117413(\text{GCG})$$

Coefficient of Determination (Adjusted R^2)

Table 8 Coefficient of Determination Test Results

R-squared	0.431510	Mean dependent var	0.063587
Adjusted R-squared	0.410455	S.D. dependent var	0.119115
S.E. of regression	0.091458	Sum squared resid	0.677537
F-statistic	20.49426	Durbin-Watson stat	1.393332
Prob (F-statistic)	0.000000		

Source: Processed by the author, 2026

The regression results indicate an Adjusted R^2 value of 0.410455, implying that environmental costs, carbon emission disclosure, and Good Corporate Governance jointly explain approximately 41.05% of the variation in tax avoidance. The remaining 58.95% is attributable to other factors not included in the regression model.

Simultaneous Significance Test (F-Test)

Table 9 F-Test Results

R-squared	0.431510	Mean dependent var	0.063587

Adjusted R-squared	0.410455	S.D. dependent var	0.119115
S.E. of regression	0.091458	Sum squared resid	0.677537
F-statistic	20.49426	Durbin-Watson stat	1.393332
Prob(F-statistic)	0.000000		

Source: Processed by the author, 2026

The F-test produced a probability value of 0.000000, which is below the 5% significance level. Accordingly, the null hypothesis is rejected, indicating that environmental costs, carbon emission disclosure, and Good Corporate Governance jointly exert a statistically significant effect on tax avoidance. This finding further demonstrates that the proposed regression model satisfies the goodness-of-fit criterion and is appropriate for explaining variations in corporate tax avoidance.

Partial Significance Test (t-Test)

Table 10 t-Test Results

Variabel	Coefficient	Std. Error	t-Statistic	Prob.
C	0.076021	0.055137	1.378775	0.1718
X1	0.843139	0.112673	7.483041	0.0000
X2	0.008387	0.039365	0.213055	0.8318
X3	0.117413	0.122038	0.962103	0.3389

Source: Processed by the author, 2026

The results indicate that environmental costs significantly and positively affect CETR ($p < 0.001$). Since a higher CETR represents lower tax avoidance, this finding implies that environmental costs have a significant negative effect on tax avoidance.

Conversely, carbon emission disclosure exhibits no statistically significant effect on tax avoidance ($p = 0.8318$). Likewise, Good Corporate Governance, proxied by the proportion of independent commissioners, does not significantly influence tax avoidance ($p = 0.3389$).

Discussion

The Effect of Environmental Costs on Tax Avoidance

The empirical results reveal that environmental costs have a significant negative effect on tax avoidance, thereby supporting the first hypothesis. This finding suggests that companies allocating greater resources to environmental initiatives tend to engage in lower levels of tax avoidance. Rather than serving as a mechanism for reducing taxable income, environmental expenditures appear to reflect genuine corporate commitment to environmental sustainability and social responsibility.

From the perspective of Agency Theory, these findings indicate that management prioritizes long-term corporate legitimacy over short-term financial gains derived from aggressive tax planning. Environmental expenditures are therefore implemented to create sustainable value for shareholders and stakeholders rather than to exploit tax-related opportunities.

The results are also consistent with Signaling Theory, which argues that environmental investments convey positive signals regarding corporate responsibility and long-term sustainability (Ningsih et al., 2022). Companies with greater environmental commitments are more likely to maintain ethical business practices, including higher levels of tax compliance.

Furthermore, Stakeholder Theory suggests that companies are accountable not only to shareholders but also to governments, local communities, customers, and environmental stakeholders. Consequently, firms investing substantially in environmental responsibility are expected to exhibit greater compliance with tax regulations.

These findings are consistent with previous studies conducted by Wibawa et al. (2024) and Wiliyanti et al. (2026), both of which reported that stronger environmental responsibility is associated with lower levels of tax avoidance.

The Effect of Carbon Emission Disclosure on Tax Avoidance

The empirical findings indicate that carbon emission disclosure has no significant effect on tax avoidance. Therefore, the second hypothesis is rejected.

Although carbon emission disclosure represents an important aspect of environmental transparency, the findings suggest that disclosure practices do not influence corporate tax planning decisions. Instead, companies appear to disclose carbon emissions primarily to comply with sustainability reporting requirements and to enhance corporate reputation.

According to Signaling Theory, carbon emission disclosure serves as a positive signal to investors regarding environmental responsibility. Similarly, Stakeholder Theory views such disclosure as a mechanism for satisfying the information needs of regulators, investors, and society.

However, the results indicate that environmental disclosure and taxation remain largely independent corporate policies. Companies may improve disclosure quality without altering their tax planning strategies.

These findings support those reported by Lestari & Munandar (2025) as well as Jenifer & Alfia (2023), who likewise found no significant relationship between carbon emission disclosure and tax avoidance.

The Effect of Good Corporate Governance on Tax Avoidance

The test results indicate that good corporate governance (GCG) has no significant effect on tax avoidance (Sig. 0.3389 > 0.05); therefore, the third hypothesis is rejected. This finding suggests that the implementation of GCG has not yet become a determining factor in corporate tax avoidance policies. According to agency theory, effective corporate governance mechanisms are expected to mitigate conflicts of interest between principals and agents while limiting opportunistic managerial behavior (Irmalasari et al., 2022). Furthermore, signaling theory posits that GCG serves as a positive signal of a company's management quality (Widhiatmoko & Sucipto, 2025), whereas stakeholder theory views GCG as a means of enhancing legitimacy and strengthening stakeholder trust (Yasah et al., 2024). However, the findings indicate that corporate tax decisions are influenced more by business considerations and financial strategies than by the corporate governance mechanisms implemented. These results are consistent with the studies of (Darma, 2021) and (Yati, 2023), which also found that good corporate governance does not significantly affect tax avoidance. This finding implies that the existence of corporate governance mechanisms, particularly independent commissioners, does not necessarily influence corporate decisions regarding tax avoidance.

CONCLUSION

Based on the findings of this study on energy sector companies listed on the Indonesia Stock Exchange during the 2020–2024 period, it can be concluded that environmental costs have a significant negative effect on tax avoidance. The greater the environmental costs incurred by a company, the lower its tendency to engage in tax avoidance. This finding is consistent with the studies conducted by Wibawa et al. (2024) and Wiliyanti et al. (2026). Carbon emission disclosure does not have a significant effect on tax avoidance. This indicates that carbon emission disclosure primarily serves as a means of fulfilling corporate social responsibility, complying with regulatory requirements, and enhancing corporate reputation rather than influencing tax avoidance practices. These findings are in line with those of Lestari

& Munandar (2025) as well as Jenifer & Alfia (2023). Likewise, good corporate governance does not significantly affect tax avoidance and, therefore, cannot yet be considered a determining factor in the tax policies of energy sector companies. This result is consistent with the findings of Darma (2021) and Yati (2023). From a practical perspective, the findings suggest that environmental costs are not used as a mechanism for tax avoidance, while carbon emission disclosure and good corporate governance have not yet become reliable indicators for assessing corporate tax avoidance practices. Furthermore, this study may serve as a reference for investors, tax authorities, and future researchers in developing further studies on tax avoidance.

Recommendations

This study has several limitations. First, the research object is limited to energy sector companies listed on the Indonesia Stock Exchange; therefore, the findings cannot be generalized to other industrial sectors. Second, the independent variables are limited to environmental costs, carbon emission disclosure, and good corporate governance, while the observation period covers only five years (2020–2024), which may not fully capture companies' long-term conditions and behavioral changes. Therefore, future research is recommended to expand the scope of the study by including companies from other industries, incorporating additional variables that may influence tax avoidance, such as profitability, leverage, firm size, and debt structure, and extending the observation period to produce findings that are more comprehensive, representative, and capable of capturing changes in corporate behavior over time.

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