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The Impact of Carbon Emission Disclosure and Tax Incentives on Firm Value: Evidence from Energy Sector Companies Listed on the Indonesia Stock Exchange (2022-2024)

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Abstract. This study examines the effect of carbon emission disclosure and tax incentives on firm value in energy sector companies listed on the Indonesia Stock Exchange during the 2022–2024 period. Amid increasing global pressure for sustainable business practices and climate change mitigation, companies are encouraged to enhance environmental transparency and optimize fiscal policies to improve their market performance. This research adopts a quantitative approach with an explanatory design. The sample consists of 39 energy sector companies, resulting in 117 observations selected through purposive sampling. Secondary data were obtained from annual reports, sustainability reports, and financial statements. Carbon emission disclosure was measured using the Carbon Emission Disclosure Checklist, tax incentives were proxied by tax benefits relative to total assets, and firm value was measured using Tobin's Q. The data were analyzed using multiple linear regression. The results indicate that carbon emission disclosure has a positive and significant effect on firm value, tax incentives also have a positive and significant effect on firm value, and both variables simultaneously influence firm value. These findings suggest that environmental transparency and effective utilization of tax incentives are positively perceived by investors as signals of corporate commitment to sustainability and financial efficiency. This study contributes to the literature on sustainability accounting, taxation, and corporate finance, and provides practical insights for companies, investors, and policymakers in promoting sustainable business practices to enhance firm value.

Keywords: *Carbon Emission Disclosure, Tax Incentives, Firm Value, Sustainability, Energy Sector*.

A. INTRODUCTION

Climate change is now a major worldwide concern that requires comprehensive policy responses, particularly through fiscal and regulatory instruments aimed at reducing greenhouse gas (GHG) emissions. One of the most widely discussed instruments is carbon pricing, including carbon taxes, which function not only as environmental control mechanisms but also as sources of state revenue to support sustainable development. According to recent global reports, a significant proportion of GHG emissions remains insufficiently priced, indicating the need for more effective policy implementation (Greenhouse, Emissions 2023). Furthermore, global carbon pricing revenues have continued to increase, reflecting the growing importance of fiscal instruments in transitioning toward a low-carbon economy (Bank 2023).

In response to these challenges, companies are increasingly required to enhance environmental transparency, particularly through carbon emission disclosure. Carbon emission disclosure reflects the extent to which companies report information regarding their greenhouse gas emissions and environmental impacts as part of sustainability reporting practices. This disclosure is often measured using standardized frameworks for instance the Carbon Disclosure Project (CDP) adapted Carbon Emission Disclosure Checklist (Widiawati and Hidayati 2024). Theoretically, Carbon disclosure has a close relationship with stakeholder expectations and legitimacy theory, whereby businesses reveal environmental information to win over the public and keep their social license to function (Budiman et al. 2024).

In addition to environmental transparency, fiscal policies such as tax incentives play an essential role in encouraging sustainable corporate behavior. Tax The purpose of incentives is to lessen the financial load of companies and promote investments in environmentally friendly technologies and operations. Empirical studies suggest that effective carbon policies depend not just on institutional capability but also on regulatory design and corporate readiness to integrate carbon accounting systems into financial reporting (Prasetia, Masruri, and Asvariwangi 2025). Moreover, the integration of carbon accounting into corporate reporting has been recognized as a crucial element in achieving net-zero emission targets and improving corporate accountability (Correani et al. 2023).

The Harmonization of Pricing Regulations Law Number 7 of 2021 officially introduced the carbon pricing policy in Indonesia., marking a significant step toward climate change mitigation through fiscal measures (Astuti and Muna 2025). Despite this progress, the implementation of carbon tax policies still faces several challenges. Reports indicate that the energy and industrial sectors contribute more than 75% of national emissions, yet only a small portion of these emissions is currently subject to carbon taxation (Kementerian Keuangan Republik Indonesa 2024). Additionally, many companies have not yet developed adequate monitoring, reporting, and verification (MRV) systems, which hinders effective policy implementation (Institute for Essential Services Reform 2024).

From an accounting perspective, the readiness of companies to adopt carbon accounting practices remains limited. Studies show that only a small percentage of public companies have integrated carbon accounting systems into their financial reporting, while most still record environmental costs in a general manner without specific recognition of carbon-related obligations (PricewaterhouseCoopers 2024). This gap between regulatory frameworks and corporate reporting practices creates an implementation gap that affects both compliance and the quality of financial reporting (Harefa et al. 2024). Furthermore, International innovations like the Carbon Border Adjustment Mechanism (CBAM) highlight the risks faced by developing countries in aligning their regulatory and accounting systems with international standards (Sherriff and Ecdpm 2024).

Previous studies in Indonesia have primarily focused on carbon tax policies from either a public policy or legal perspective, without explicitly linking regulatory aspects to corporate accounting practices and firm value (Wahyuni, 2023). This indicates a research gap, particularly in examining how environmental disclosure and fiscal incentives simultaneously influence company worth. According to signaling theory, both disclosures of carbon emissions and tax incentives can be interpreted as positive signals by investors, reflecting corporate commitment to sustainability and financial efficiency, which ultimately affects market valuation (Nurjanah et al. 2021).

Studies carried out by Mahadianto et al. (2024) shows that improving public trust and the efficacy of fiscal policy depend heavily on tax compliance and transparency. Therefore, in the framework of this study, using tax incentives and disclosing carbon emissions are seen as business compliance with fiscal and environmental laws that might have a beneficial impact on firm value. This study aims to investigate how the firm value of energy sector companies listed on the Indonesia Stock Exchange between 2022 and 2024 is impacted by tax incentives and carbon emission disclosure. In order to provide a thorough knowledge of how sustainability practices and fiscal policies affect investor perceptions and corporate value, this research takes an integrated approach by merging environmental, fiscal, and financial viewpoints. In addition to offering useful insights for businesses, investors, and legislators in advancing sustainable business practices, it is predicted that the study's findings will advance our understanding of corporate finance, taxation, and sustainability accounting.

B. LITERATURE REVIEW

1. Legitimacy Theory

According to legitimacy theory, businesses always work to make sure that their activities are seen as conforming to social norms and values. Businesses employ carbon emission disclosure as a tactical instrument to establish credibility and uphold public confidence in the context of environmental challenges. Businesses try to show accountability and match their operations with social expectations for sustainability by revealing environmental information (Budiman et al. 2024). In relation to carbon taxation, legitimacy theory suggests that firms are more likely to increase transparency in emission reporting to comply with regulatory requirements and avoid negative public perception.

2. Institutional Theory

Regulations, industry standards, and stakeholder expectations are examples of external forces that shape organizational behavior, according to institutional theory. Companies tend to adopt environmental reporting practices, including carbon disclosure, due to coercive, normative, and mimetic pressures from regulators and the market (Budiman et al. 2024). The introduction of carbon tax policies further strengthens these pressures, encouraging firms to integrate carbon accounting systems into their reporting frameworks. As a result, institutional forces contribute significantly to raising the caliber of and consistency of environmental disclosures.

3. Carbon Disclosure Theory

Carbon disclosure theory focuses on the importance of transparency in reporting carbon emissions as part of corporate accountability. Disclosure of carbon emissions shows how committed a business is to environmental responsibility and sustainability. It includes information on emission levels, reduction strategies, and climate-related risks and opportunities (Andrian, Murwaningsari, and Sudibyo 2023). In practice, carbon disclosure is commonly measured using frameworks such as the Carbon Emission Disclosure Checklist, which evaluates the completeness of information disclosed by firms (Widiawati and Hidayati 2024). Effective disclosure enhances corporate credibility and reduces information asymmetry between management and stakeholders.

4. Carbon Tax and Fiscal Policy Framework

By putting a monetary price on carbon output, a carbon tax is a fiscal tool intended to lower greenhouse gas emissions. Institutional preparedness, corporate compliance, and regulatory design all affect how effective carbon tax schemes are (Zhang et al. 2023). According to empirical data, carbon pricing mechanisms such as carbon taxes and emission trading schemes significantly reduce emissions; these impacts are more pronounced in emerging nations like Asia (Ahmad, M., Li, X. F., & Wu 2024).

Law Number 7 of 2021 about the Harmonization of Tax Regulations establishes the legislative foundation for carbon taxes in Indonesia. This policy seeks to increase state revenue while supporting initiatives to mitigate climate change (Astuti and Muna 2025). However, challenges remain in terms of implementation, including limited coverage of emission sources and inadequate corporate readiness in emission reporting systems (Institute for Essential Services Reform 2024).

5. Tax Incentives

Tax incentives are government policies designed to reduce the tax burden of companies and encourage investment in specific sectors or activities, including environmentally sustainable practices. These incentives may take the form of tax allowances, tax holidays, or other fiscal benefits that improve corporate financial performance. From a financial perspective, tax incentives contribute to increased profitability, improved cash flow, and operational efficiency.

Conceptually, tax incentives can be categorized into several dimensions: (1) tax burden efficiency, reflected in reduced effective tax rates; (2) utilization of fiscal policies, such as green investment incentives; (3) financial performance impact, including higher net income and cash flow; and (4) sustainability support, through investments in environmentally friendly technologies. As a moderating factor, tax incentives can increase the correlation between environmental disclosure and business value since companies that perform well financially are more likely to receive favorable market reactions.

6. Firm Value (Tobin's Q)

The market's assessment of a company's overall performance and future is reflected in its firm value. Tobin's Q, which contrasts a company's market value with the replacement cost of its assets, is one of the most popular metrics for assessing corporate value. Since the market values the company more than its book value, a Tobin's Q value greater than one denotes strong investor confidence (Dzahabiyya, Jhoansyah, and Danial 2020).

According to signaling theory, corporate disclosures both financial and non-financial serve as signals to investors in evaluating firm performance and sustainability. Environmental disclosures, such as carbon emission reporting, are considered non-financial signals that indicate a company's commitment to sustainable practices. Similarly, tax incentives reflect financial efficiency and effective resource management. Both factors are expected to positively influence firm value by enhancing investor confidence (Nurjanah et al. 2021).

7. Carbon Emission Disclosure

The degree to which businesses disclose data about their greenhouse gas emissions is known as carbon emission disclosure environmental impact. It includes quantitative data on emission levels, qualitative descriptions of environmental policies, and strategies for emission reduction. This disclosure is an essential component of sustainability reporting and is increasingly demanded by investors and regulators. The measurement of carbon emission disclosure typically involves multiple dimensions, including transparency of emission data, climate strategy, emission reduction performance, risk and opportunity analysis, and environmental governance (Widiawati and Hidayati 2024). Higher levels of disclosure indicate stronger corporate commitment to environmental responsibility and are associated with improved corporate reputation and stakeholder trust.

C. METHOD

Data analysis includes to evaluate the study hypotheses, descriptive statistics, multiple linear regression analysis, and traditional assumption tests (normality, multicollinearity, heteroscedasticity, and autocorrelation) were used. In hypothesis testing, the explanatory power of the model is evaluated using the coefficient of determination (R2), t-tests for partial effects, and F-tests for simultaneous effects (Ade Risna Sari, Joko Suryono, Henik Al Husnawati, Marzuki 2025). The sample is chosen using purposive sampling based on certain criteria, such as companies that regularly publish annual or sustainability reports, disclose carbon emission

information, and provide complete financial data. Companies in the energy industry with high levels of greenhouse gas emissions make up the population. A total of 39 companies were selected, resulting in 117 observations.

The study uses secondary data from financial statements, sustainability reports, and annual reports that are accessible on the official IDX website and business websites. Through the identification and extraction of pertinent information from these reports, data gathering was carried out utilizing a documentation approach. The Carbon Emission Disclosure Index is used to quantify carbon emission disclosure (Widiawati & Hidayati 2024), Tobin's Q is used to calculate business value, and tax advantages in relation to total assets serve as a proxy for tax incentives (Dzahabiyya, Jhoansyah, and Danial 2020). Data analysis includes to evaluate the study hypotheses, descriptive statistics, multiple linear regression analysis, and traditional assumption tests (normality, multicollinearity, heteroscedasticity, and autocorrelation) were used. In hypothesis testing, the explanatory power of the model is evaluated using the coefficient of determination (R^2), t-tests for partial effects, and F-tests for simultaneous effects.

D. RESULT AND DISCUSSION

The descriptive statistical analysis offers a summary of the distribution of the research variables business valuation, tax incentives, and carbon emission disclosure. The results are shown in Table 1.

Table 1. Descriptive Statistics

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Carbon Emission Disclosure	117	.259	1.000	.65444	.183754
Tax Incentives	117	.002	.104	.02183	.018275
Company Value	117	1.512	3.623	2.46032	.416516
Valid N (listwise)	117				

Source: Primary Data Processed, 2026

According to Table 1, businesses have provided a comparatively large amount of information about carbon emissions, with an average value of 0.65444. This implies that businesses in the energy sector are becoming more conscious of the significance of environmental openness. However, tax incentives have a very low average value of 0.02183, suggesting that while fiscal incentives are available, their use is still restricted among businesses. In the meantime, the average company value as determined by Tobin's Q is 2.46032, which is higher than one, suggesting that investors generally view these companies as having good market performance and great growth potential. Table 2 displays the results of the Kolmogorov-Smirnov normalcy test:

Table 2. Normality Test

One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		117
Normal Parametersa,b	Mean	.0000000
	Std. Deviation	.16738533
Most Extreme Differences	Absolute	.055
	Positive	.055
	Negative	-.042
Test Statistic		.055
Asymp. Sig. (2-tailed)		.200[c,d]

a. Test distribution is Normal.
b. Calculated from data.
c. Lilliefors Significance Correction.
d. This is a lower bound of the true significance.

Source: Primary Data Processed, 2026

The regression model satisfies the normality requirements since the significance value of 0.200 (> 0.05) shows that the residuals are regularly distributed. Additionally, Table 3's multicollinearity test results indicate that there is no multicollinearity problem because all independent variables have tolerance values greater than 0.10 and VIF values equal to 1.000.

Table 3. Multicollinearity Test

Coefficients[a]

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	Carbon Emission Disclosure	1.000	1.000
	Tax Incentives	1.000	1.000

a. Dependent Variable: Company Value

Source: Primary Data Processed, 2026

All variables have significance values larger than 0.05 according to the Glejser technique's heteroscedasticity test in Table 4, indicating that heteroscedasticity is not present in the model.

Table 4. Heteroscedasticity Test (Glejser)

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.131	.034		3.820	.000
	Carbon Emission Disclosure	-.017	.048	-.033	-.354	.724
	Tax Incentives	.769	.482	.148	1.596	.113

a. Dependent Variable: ABSRES

Source: Primary Data Processed, 2026

Additionally, the regression model has no autocorrelation, as shown by Table 5's Durbin-Watson value of 1.992, which is near to 2. Table 5 displays the multiple linear regression analysis's findings.

Table 5. Multiple Linear Regression

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.066	.061		17.390	.000
	Carbon Emission Disclosure	1.740	.085	.768	20.392	.000
	Tax Incentives	11.729	.858	.515	13.670	.000

a. Dependent Variable: Company Value

Source: Primary Data Processed, 2026

One way to express the regression equation is: $Y=1.066+1.740X_1+11.729X_2$

These results demonstrate that both tax incentives and Firm value is positively and statistically significantly impacted by carbon emission disclosure. The coefficient of determination (R^2) is also displayed in Table 6 below:

Table 6. Coefficient of Determination (R^2)

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.916	.839	.836	.168847	1.992

a. Predictors: (Constant), Tax Incentives, Carbon Emission Disclosure
b. Dependent Variable: Company Value

Source: Primary Data Processed, 2026

The independent variables account for 83.9% of the variation in firm value, with additional factors outside the model influencing the remaining 16.1%, according to the R2 result of 0.839. The results of this study show that disclosure of carbon emissions significantly and favorably affects corporate value. According to the legitimacy theory, companies attempt to match their operations with society expectations, is supported by this outcome to maintain legitimacy. By disclosing carbon emissions, firms demonstrate accountability and environmental responsibility, thereby strengthening their reputation and public trust. This result is also in line with signaling theory, which holds that investors receive a favorable signal about a company's long-term viability when environmental information is voluntarily disclosed and lower risk profile. Investors tend to interpret higher transparency as an indication of better governance and future performance, leading to increased firm valuation. These findings are consistent with earlier research, including (Kurnia, Nur, and Putra 2021), and (Maria Ellita Ovina 2024), It discovered that increased transparency and legitimacy brought about by carbon emission disclosure greatly increase firm worth.

Additionally, the findings show that tax incentives significantly and favorably affect firm value. This result implies that enhancing corporate financial performance is significantly influenced by fiscal policies. Tax incentives reduce the effective tax burden, increase profitability, and enhance cash flow, which ultimately contribute to higher firm value. From the perspective of institutional theory, companies respond to regulatory frameworks and government policies by optimizing available incentives to maintain competitiveness. The ability to utilize tax incentives efficiently reflects managerial capability and financial strategy, which are positively perceived by investors. This result is in line with earlier studies showing that government support systems and financial efficiency are significant factors in determining corporate value.

The high R2 value of 83.9% indicates that tax incentives and carbon emission disclosure have a relatively substantial combined impact on firm value. This implies that environmental and regulatory variables, in addition to financial ones, have an impact on corporate value. The increasing significance of ESG factors in investment choices is reflected in the combination of sustainable practices and financial efficiency. Businesses that successfully use tax incentives while maintaining transparency in their environmental reporting are seen as more responsible, productive, and forward-thinking. Both market valuation and investor confidence are raised by this perception. These results align with research conducted by (Pan, Liu, and Zhou 2024) and (Correani et al. 2023) which emphasize the importance of integrating carbon accounting and environmental reporting into corporate strategy to improve firm performance and accountability.

Overall, the findings support the strategic role that tax incentives and carbon emission disclosure play in raising company value in the energy industry. Fiscal incentives increase financial efficiency, while environmental openness boosts investor confidence and business legitimacy. These elements work together to significantly increase firm value, emphasizing how crucial it is to match financial strategies with sustainability practices in the age of the green economy transition.

E. CONCLUSION

This study aims to determine how tax incentives and carbon emission disclosure affect the firm value of energy sector companies listed on the Indonesia Stock Exchange between 2022 and 2024. The empirical study's findings demonstrate that disclosure of carbon emissions significantly and favorably affects corporate value. According to this research, businesses that offer more thorough and transparent information about their carbon emissions typically see an

increase in investor confidence and a higher market valuation. The outcome is consistent with legitimacy theory and signaling theory, which highlight the value of openness in building public confidence and communicating favorable signals to the market about a business's sustainability performance.

Furthermore, tax incentives are additionally discovered to significantly and favorably impact business value. This suggests that the utilization of fiscal incentives contributes to improving financial efficiency by reducing tax burdens and increasing profitability, which in turn enhances firm value. The finding is consistent with institutional theory, where companies respond to regulatory frameworks and government policies by optimizing available incentives to strengthen their competitive position and financial performance.

Furthermore, tax incentives and disclosure of carbon emissions both have a major impact on corporate value at the same time, suggesting that fiscal policy and environmental transparency work in tandem to influence market views. The high coefficient of determination demonstrates that both variables are strong predictors of firm value, emphasizing how crucial it is to incorporate sustainable practices with financial strategies when making business decisions.

Overall, this study demonstrates that environmental responsibility and efficient use of fiscal policies have an impact on business value in the energy sector in addition to financial performance. Therefore, as part of their strategic efforts to increase firm value, corporations are encouraged to optimize tax incentives and improve the quality of carbon emission disclosure. These results also have significant ramifications for regulators and legislators when creating economic and environmental laws that promote sustainable company practices and boost consumer trust.

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