# FROM TAX EFFICIENCY TO ENVIRONMENTAL TRANSPARENCY: DRIVERS OF FIRM VALUE IN INDONESIAN ENERGY COMPANIES

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**ABSTRACT**

This study aims to examine the effect of tax planning, green accounting, and carbon emission disclosure on firm value in energy sector companies listed on the Indonesia Stock Exchange during the period 2022–2024. This study employs a quantitative approach using secondary data obtained from annual reports and sustainability reports. The sample was selected using purposive sampling, resulting in 66 observations. Data analysis was conducted using multiple linear regression analysis. The results show that tax planning does not have a significant effect on firm value, indicating that tax management strategies are not the main consideration for investors in assessing company performance. In contrast, green accounting and carbon emission disclosure have a positive and significant effect on firm value. These findings suggest that environmental responsibility and transparency in environmental information disclosure play an important role in increasing firm value, particularly in the energy sector, which has high environmental impact. This study implies that companies need to enhance the implementation of green accounting and carbon emission disclosure as part of sustainability strategies to improve investor trust and firm value.

**Keywords:** Tax planning; Green accounting; Carbon Emission Disclosure; Firm Value; Energy Sector.

***ABSTRAK***

*Penelitian ini bertujuan untuk menganalisis pengaruh* tax planning, green accounting*, dan pengungkapan emisi karbon terhadap nilai perusahaan pada perusahaan sektor energi yang terdaftar di Bursa Efek Indonesia selama periode 2022–2024. Penelitian ini menggunakan pendekatan kuantitatif dengan memanfaatkan data sekunder yang diperoleh dari laporan tahunan dan laporan keberlanjutan perusahaan. Sampel penelitian dipilih menggunakan teknik* purposive sampling*, sehingga diperoleh 66 observasi. Analisis data dilakukan dengan menggunakan regresi linier berganda. Hasil penelitian menunjukkan bahwa* tax planning *tidak berpengaruh signifikan terhadap nilai perusahaan, yang mengindikasikan bahwa strategi pengelolaan pajak belum menjadi pertimbangan utama investor dalam menilai kinerja perusahaan. Sebaliknya,* green accounting *dan pengungkapan emisi karbon berpengaruh positif dan signifikan terhadap nilai perusahaan. Temuan ini menunjukkan bahwa tanggung jawab lingkungan dan transparansi dalam pengungkapan informasi lingkungan memiliki peran penting dalam meningkatkan nilai perusahaan, khususnya pada sektor energi yang memiliki dampak lingkungan yang tinggi. Penelitian ini mengimplikasikan bahwa perusahaan perlu meningkatkan penerapan green accounting dan pengungkapan emisi karbon sebagai bagian dari strategi keberlanjutan untuk memperkuat kepercayaan investor dan meningkatkan nilai perusahaan.*

***Kata Kunci****: Perencanaan pajak, akuntansi hijau, pengungkapan emisi karbon, nilai perusahaan, sektor energi.*

## 1. Introduction

Companies play a crucial role in a country's economy by contributing to economic growth, employment generation, and improvements in social welfare. In the capital market context, companies also serve as investment vehicles that enable investors to obtain returns through stock ownership (Tandelilin, 2017). Firm value is one of the key indicators used to assess a company's success in creating value for shareholders (Sembiring & Trisnawati, 2019). Investors' perceptions of a company's performance and future prospects, typically represented by stock prices in the capital market, reflect its value (Putri & Trisnawati, 2022). Companies with high firm value indicate strong investor confidence and greater attractiveness in the capital market (Astuti & Fitria, 2019; Pradianika, 2017). Furthermore, increasing firm value contributes to shareholder wealth through higher investment returns (Khanifah, 2020).

Firm value is commonly measured using the Price-to-Book Value (PBV) ratio, which compares a company's market value with its book value (Siregar, 2024). A higher PBV indicates that investors place greater confidence in the company's future prospects (Sutrisno, 2017). Data from energy sector companies listed on the Indonesia Stock Exchange reveal fluctuations in firm value over recent years. The average PBV of energy companies was 1.13 in 2022, slightly declined to 1.03 in 2023, and increased significantly to 2.74 in 2024. This substantial increase indicates growing investor optimism regarding the future prospects of companies operating in the energy sector. The trend also suggests that investors increasingly consider various factors beyond traditional financial performance when assessing firm value.

Companies that successfully create higher firm value tend to gain greater investor trust, thereby enhancing business stability and long-term sustainability (Hermuningsih, 2013). The relationship between companies and their stakeholders can be explained through stakeholder theory, which argues that organizations are accountable not only to shareholders but also to various stakeholder groups, including investors, governments, employees, and society (Freeman, 1984). According to this theory, companies that effectively fulfill stakeholder expectations are more likely to develop favorable reputations and enhance firm value (Hillman & Keim, 2001).

One corporate policy closely associated with stakeholder interests is tax planning. Tax planning is a component of tax management aimed at minimizing corporate tax liabilities legally by utilizing available provisions within tax regulations (Pohan, 2013). Effective tax planning can improve tax efficiency and increase corporate profitability (Hanifah & Ayem, 2022). Increased profitability may subsequently enhance firm value because investors generally respond positively to firms that efficiently manage their tax obligations (Marsaid & Pesudo, 2019). From a stakeholder perspective, tax planning may signal management's ability to optimize corporate resources and maximize shareholder returns. Consequently, companies implementing effective tax planning strategies may be perceived as having superior financial management capabilities, potentially leading to higher market valuation.

However, the relationship between tax planning and firm value remains inconclusive. While tax planning may improve profitability, aggressive tax strategies may also generate reputational risks and attract regulatory scrutiny. Stakeholders may perceive excessive tax avoidance as inconsistent with corporate social responsibility and ethical business practices. As a result, the effectiveness of tax planning in enhancing firm value may depend on how stakeholders interpret corporate tax behavior.

The relationship between companies and society can also be explained through legitimacy theory. Legitimacy theory suggests that organizations seek to ensure that their operations are conducted within the norms, values, and expectations accepted by society (Suchman, 1995). Companies that successfully maintain social legitimacy are more likely to gain support from stakeholders, strengthen their reputation, and improve firm value (Hidayat, 2023). As public awareness of sustainability issues continues to increase, companies are no longer expected to focus solely on economic performance but are also required to address the social and environmental consequences of their business activities (Achkar, 2022; Geiszler, 2018) . Companies that demonstrate commitment to environmental and social responsibility are more likely to gain stakeholder trust and enhance their market value (Yoga, 2020).

Environmental concerns have become increasingly important in modern business practices. Industrial activities often generate negative environmental impacts, including air pollution, water contamination, and ecosystem degradation (Al-Dhaimesh, 2020). These environmental challenges have increased pressure on companies to integrate sustainability principles into their business strategies to ensure long-term viability (Anggita, 2022). This issue is particularly relevant to the energy sector, which is recognized as one of the largest contributors to greenhouse gas emissions and environmental degradation worldwide.

One approach that enables firms to integrate environmental considerations into their business processes is green accounting. Green accounting refers to an accounting approach that incorporates environmental aspects into the recording, measurement, and reporting of corporate activities (Kiranmai, 2018). The implementation of green accounting aims to identify and evaluate environmental impacts arising from business operations while recognizing environmental costs within corporate activities (Wiredu et al., 2023). By incorporating environmental information into accounting systems, companies can provide greater transparency regarding their environmental performance and sustainability initiatives.

From the perspective of legitimacy theory, companies implementing green accounting seek to maintain social legitimacy by demonstrating their commitment to environmental sustainability. Environmental accounting disclosures allow firms to communicate their environmental responsibilities to stakeholders and provide evidence that business operations are conducted responsibly (Fatwadi, 2016; Riyadh et al., 2020). Consequently, environmental transparency may strengthen stakeholder confidence and improve corporate reputation, which can ultimately contribute to higher firm value (Zaitegi et al., 2022).

Another important mechanism through which companies demonstrate environmental responsibility is carbon emission disclosure. Climate change has become a major global concern due to rising carbon emissions that contribute significantly to environmental degradation and global warming. According to the Global Carbon Project (2024), carbon emissions remain at historically high levels, with the energy sector accounting for a substantial proportion of global emissions. This situation has increased stakeholder demands for greater corporate transparency regarding environmental impacts and sustainability initiatives.

Carbon emission disclosure refers to the reporting of information regarding greenhouse gas emissions generated by corporate activities as well as efforts undertaken to reduce environmental impacts (Sudibyo, 2018). Companies that transparently disclose carbon emission information tend to obtain stronger social legitimacy and greater stakeholder trust because such disclosures signal environmental accountability and transparency (Berthelot et al., 2012). Furthermore, carbon emission disclosure can improve investor confidence, strengthen corporate reputation, and create competitive advantages for firms operating in environmentally sensitive industries (Kurnia, 2021).

Despite the growing importance of sustainability issues in corporate decision-making, previous studies have generally examined financial factors such as tax planning and financial performance separately from environmental factors such as green accounting and carbon emission disclosure when explaining firm value. As a result, limited empirical evidence exists regarding the relative importance of financial efficiency and environmental responsibility in shaping firm value, particularly in environmentally sensitive industries such as the energy sector. Moreover, previous findings concerning the influence of tax planning and environmental practices on firm value remain inconsistent.

This study addresses these gaps by simultaneously examining tax planning, green accounting, and carbon emission disclosure as determinants of firm value among Indonesian energy companies. More importantly, this study extends prior research by investigating whether environmental responsibility has become a more influential driver of firm value than traditional tax efficiency strategies. In the context of increasing sustainability awareness, ESG-oriented investment decisions, and growing environmental scrutiny, understanding the relative importance of financial and environmental factors has become increasingly relevant.

Therefore, this study aims to examine the effects of tax planning, green accounting, and carbon emission disclosure on firm value in energy sector companies listed on the Indonesia Stock Exchange during the 2022–2024 period. The findings are expected to contribute to the accounting, finance, and sustainability literature by providing empirical evidence regarding the shifting determinants of firm value from traditional financial considerations toward environmental transparency and accountability. In addition, the results offer practical implications for corporate managers, investors, and policymakers regarding the importance of integrating sustainability initiatives into long-term value creation strategies.

## 2. Literature Review

### 2.1 Stakeholder Theory

Stakeholder theory explains that companies are accountable not only to their shareholders but also to various stakeholder groups that have interests in the company's activities, including investors, governments, employees, communities, and the environment (Freeman, 1984). This theory emphasizes that corporate success is determined not only by a company's ability to generate profits but also by its ability to satisfy the interests and expectations of its stakeholders.

According to stakeholder theory, companies should consider the interests of all parties affected by their business activities when making strategic decisions (Donaldson & Preston, 1995). Firms that effectively manage relationships with their stakeholders are more likely to establish a favorable reputation and gain stronger support from the external environment. Such support enhances investor confidence, which may ultimately contribute to higher firm value.

In the context of this study, stakeholder theory suggests that companies should effectively manage various corporate policies to meet stakeholder expectations. These policies include managing tax obligations through tax planning, implementing environmentally responsible accounting practices, and ensuring transparency in environmental information disclosure. Companies that fulfill stakeholder expectations through responsible business practices are more likely to receive favorable evaluations from investors, thereby enhancing firm value.

### 2.2 Legitimacy Theory

Legitimacy theory explains that companies seek to obtain and maintain social legitimacy by conducting their business operations in accordance with the norms, values, and social expectations prevailing within the communities in which they operate (Suchman, 1995). Social legitimacy is essential because a company's long-term survival largely depends on public acceptance and stakeholder support for its business activities.

Legitimacy is achieved when a company's activities are perceived as consistent with the value system accepted by society (Dowling & Pfeffer, 1975). Conversely, when corporate activities deviate from societal expectations, a legitimacy gap may arise, potentially threatening the company's continued acceptance. To maintain social legitimacy, companies frequently undertake various initiatives, one of which is disclosing information related to their social and environmental activities.

In the context of contemporary business practices, corporate legitimacy extends beyond regulatory compliance to encompass social and environmental responsibility. Companies that demonstrate a strong commitment to environmental management and sustainable business practices are more likely to gain support from society and other stakeholders. Such support enhances corporate reputation, strengthens stakeholder trust, and ultimately contributes to higher firm value.

## 2.3 Firm Value

Firm value is one of the key indicators used to assess a company's success in creating value for its shareholders. It reflects investors' perceptions of a company's performance and future prospects, which are generally represented by its stock price in the capital market (Putri & Trisnawati, 2022). Companies with higher firm value indicate stronger investor confidence and demonstrate their ability to manage corporate resources effectively to generate optimal returns (Sembiring & Trisnawati, 2019).

Firm value represents a company's market value, which is influenced by various factors, including financial performance, corporate policies, and investors' perceptions of the company's future prospects. The higher the firm's value, the greater the wealth created for shareholders through the appreciation of their investments (Brigham & Houston, 2019).

In financial research, firm value is commonly measured using the Price-to-Book Value (PBV) ratio. PBV compares a company's market value with its book value (Siregar, 2024). This ratio reflects how the market evaluates a company's performance and future prospects relative to its accounting value. A higher PBV indicates that investors place greater value on the company, making PBV one of the most widely used proxies for measuring firm value.

## 2.4 Tax Planning

Tax planning is a component of tax management through which companies legally minimize their tax liabilities by utilizing available provisions under prevailing tax regulations (Pohan, 2013). The primary objective of tax planning is to optimize corporate tax obligations, enabling firms to achieve greater tax efficiency without violating applicable tax laws. According to Suandy (2016), tax planning refers to the systematic organization of corporate activities to legally minimize tax liabilities. By taking advantage of various tax provisions, companies can reduce their tax burden, thereby improving profitability and enhancing overall financial performance.

## 2.5 Green Accounting

Green accounting is an accounting approach that integrates environmental considerations into the recording, measurement, and reporting of corporate activities (Kiranmai, 2018). This concept has emerged in response to increasing global awareness of environmental protection and sustainable development.

Green accounting aims to identify and evaluate the environmental impacts of business activities while recognizing environmental costs associated with corporate operations (Wiredu et al., 2023). Consequently, companies are able to assess the extent to which their operational activities affect the environment and evaluate the effectiveness of their environmental management efforts.

The implementation of green accounting enhances transparency regarding corporate environmental activities and provides stakeholders with relevant information about a company's commitment to environmental sustainability and the responsible management of natural resources (Fatwadi, 2016; Riyadh et al., 2020)

## 2.6 Carbon Emission Disclosure

Carbon emission disclosure refers to a company's transparency in reporting information regarding carbon emissions generated from its operational activities, as well as the initiatives undertaken to mitigate their environmental impacts (Sudibyo, 2018). The importance of such disclosures has increased significantly due to growing global concerns over climate change and global warming.

Companies that transparently disclose carbon emission information are more likely to strengthen their social legitimacy and gain stakeholder trust because they are perceived as demonstrating a strong commitment to environmental responsibility (Berthelot et al., 2012). Environmental transparency also enhances corporate reputation and demonstrates that business activities are aligned with societal norms and expectations, thereby reinforcing the company's legitimacy in the eyes of stakeholders.

Furthermore, carbon emission disclosure may provide companies with a competitive advantage. Firms that demonstrate strong environmental responsibility are more likely to receive greater support from stakeholders (Kurnia, 2021). Such support enhances investor confidence and ultimately contributes to higher firm value.

## 2.7 Hypothesis Development

### 2.7.1 Tax Planning and Firm Value

From the perspective of stakeholder theory, companies are expected to manage corporate policies effectively to accommodate the interests of various stakeholders, including investors and governments (Freeman, 1984). One of the corporate policies associated with stakeholder interests is the management of tax obligations through tax planning. Tax planning reflects how companies balance the interests of shareholders seeking higher returns and governments expecting tax compliance and revenue contributions.

Effective tax planning can improve tax efficiency by legally reducing corporate tax liabilities, thereby increasing profitability and generating greater returns for shareholders. However, from the government's perspective, excessively aggressive tax planning may be perceived negatively because it potentially reduces corporate tax contributions. Such practices may damage a company's reputation and weaken stakeholder trust. Consequently, the effect of tax planning on firm value depends on how stakeholders perceive the company's tax management practices. Tax planning that is conducted responsibly and within the boundaries of applicable tax regulations is more likely to strengthen stakeholder confidence and enhance firm value.

Furthermore, effective tax planning enables companies to improve tax efficiency and increase profitability (Hanifah & Ayem, 2022). Higher profitability reflects stronger corporate performance, which can enhance investor confidence in the company's future prospects. Increased investor confidence subsequently raises demand for the company's shares, ultimately contributing to higher firm value (Marsaid & Pesudo, 2019). Based on the above arguments, the following hypothesis is proposed:

H1: Tax planning has a significant effect on firm value.

### 2.7.2 Green Accounting and Firm Value

According to legitimacy theory, companies seek to obtain and maintain social legitimacy by demonstrating that their business activities are conducted in an environmentally responsible manner (Suchman, 1995). Social legitimacy is essential because a company's long-term survival depends largely on acceptance and support from society and other stakeholders. Therefore, companies are expected not only to pursue economic performance but also to minimize the environmental impacts of their operations. One important approach to achieving this objective is the implementation of green accounting.

Green accounting reflects a company's commitment to identifying, measuring, and transparently reporting environmental impacts, including the recognition and disclosure of environmental costs associated with business operations. Such practices demonstrate corporate accountability for environmental sustainability while strengthening transparency toward stakeholders. The environmental information disclosed enables stakeholders, particularly investors, to evaluate a company's environmental commitment and sustainability performance. Companies with strong environmental commitments are generally perceived as having better reputations and lower long-term business risks.

The implementation of green accounting enhances the transparency of environmental information disclosed to stakeholders and demonstrates a company's commitment to environmental sustainability (Fatwadi, 2016; Riyadh et al., 2020). This commitment can strengthen corporate reputation and increase investor confidence, thereby contributing to higher firm value (Zaitegi et al., 2022). Based on these arguments, the following hypothesis is proposed:

H2: Green accounting has a significant effect on firm value.

### 2.7.3 Carbon Emission Disclosure and Firm Value

Legitimacy theory suggests that companies seek to maintain social legitimacy by conducting business operations in accordance with prevailing social norms and expectations (Suchman, 1995). As concerns over climate change continue to increase, companies are expected to demonstrate environmental responsibility through greater transparency regarding the environmental impacts of their operations, including carbon emission disclosure. Such disclosure represents an important form of corporate accountability to society and other stakeholders.

Transparent carbon emission disclosure demonstrates a company's commitment to managing environmental impacts while improving the quality of information available to stakeholders. This transparency strengthens investor confidence and promotes more favorable stakeholder perceptions. Companies that openly disclose carbon emission information are generally viewed as environmentally responsible organizations with stronger reputations and lower long-term environmental risks (Berthelot et al., 2012).

Enhanced corporate reputation and stakeholder trust increase the company's attractiveness to investors, which is reflected in higher demand for its shares. As investor demand increases, firm value is expected to improve (Kurnia, 2021). Therefore, higher levels of carbon emission disclosure are expected to strengthen social legitimacy and contribute positively to firm value. Based on these arguments, the following hypothesis is proposed:

H3: Carbon emission disclosure has a significant effect on firm value.

## 3. Research Method

This study employed a quantitative approach with an associative research design to examine the relationships between the independent and dependent variables. Specifically, the study investigated the effects of tax planning, green accounting, and carbon emission disclosure on firm value. A quantitative approach was adopted because the research utilized numerical data that were statistically analyzed to test the proposed hypotheses.

The population consisted of all

energy sector companies listed on the Indonesia Stock Exchange (IDX) during the 2022–2024 period. The energy sector was selected because its operational activities have considerable environmental impacts, particularly those related to carbon emissions and the utilization of natural resources.

The sample was selected using a purposive sampling technique based on predetermined criteria that were consistent with the objectives of the study. The final sample comprised 66 firm-year observations.

This study used secondary data obtained from companies' annual reports and sustainability reports published on the official websites of the Indonesia Stock Exchange and the respective companies. The data included information related to firm value, tax planning, green accounting practices, and carbon emission disclosure.

To test the proposed hypotheses, this study employed multiple linear regression analysis. Prior to hypothesis testing, classical assumption tests, including normality, multicollinearity, heteroscedasticity, and autocorrelation tests, were conducted to ensure the validity of the regression model. Statistical analyses were performed using IBM SPSS Statistics.

Firm Value:

Firm value reflects investors' perceptions of a company's performance and future prospects, as represented by its market value. In this study, firm value is measured using the Price-to-Book Value (PBV) ratio, which compares a company's market price per share with its book value per share (Siregar, 2024). A higher PBV indicates that investors place greater value on the company and have stronger confidence in its future growth prospects.

$$PBV = \frac{Market\ Price\ per\ Share}{Book\ Value\ per\ Share}$$

Tax Planning:

Tax planning refers to a company's efforts to legally minimize its tax burden by utilizing the provisions of applicable tax regulations (Pohan, 2013). In this study, tax planning is measured using the Cash Effective Tax Rate (CETR), which reflects the proportion of cash taxes paid relative to pre-tax income.

$$CETR = \frac{Cash\ Taxes\ Paid}{Pre - tax\ Income}$$

Green Accounting:

Green accounting is an accounting approach that integrates environmental considerations into the recording and reporting of corporate activities (Kiranmai, 2018). In this study, green accounting is measured using a dummy variable based on the disclosure of environmental costs reported in the company's annual report. The measurement criteria are as follows:
1 = the company discloses information related to environmental costs or environmental activities.
0 = the company does not disclose such information.

Carbon Emission Disclosure:

Carbon emission disclosure refers to a company's transparency in reporting information regarding carbon emissions generated from its operational activities (Sudibyo, 2018). In this study, carbon emission disclosure is measured using the Carbon Emission Disclosure (CED) Index, which is calculated based on the proportion of carbon emission disclosure items reported in the company's annual report and sustainability report. The index is calculated using the following formula:

$$CED = \frac{Number\ of\ Disclosure\ Items}{Total\ Disclosure\ Items}$$

## 4. Results and Discussion

### 4.1 Descriptive Statistics

**Table 1. Descriptive Statistics**

| Variable | N | Min | Max | Mean | SD |
|---|---|---|---|---|---|
| **CETR** | 66 | 0.185 | 0.620 | 0.295 | 0.084 |
| **GA** | 66 | 0.120 | 0.750 | 0.382 | 0.158 |
| **CED** | 66 | 0.190 | 0.860 | 0.497 | 0.166 |
| **PBV** | 66 | 0.530 | 2.560 | 1.668 | 0.309 |
| **Valid N (listwise)** | **66** | | | | |

Based on Table 1, the tax planning variable has a minimum value of 0.185 and a maximum value of 0.620, with a mean of 0.295 and a standard deviation of 0.084. The relatively low standard deviation indicates that the data are fairly homogeneous, suggesting limited variation in tax planning practices among the sampled companies.

The green accounting variable has a minimum value of 0.12 and a maximum value of 0.75, with a mean of 0.382 and a standard deviation of 0.158. The standard deviation indicates the presence of variation in the implementation of green accounting practices among the companies included in the sample.

The carbon emission disclosure variable has a minimum value of 0.19 and a maximum value of 0.86, with a mean of 0.497 and a standard deviation of 0.166. These results indicate differences in the extent of carbon emission disclosure among the sampled companies.

Meanwhile, the firm value variable has a minimum value of 0.53 and a maximum value of 2.56, with a mean of 1.668 and a standard deviation of 0.309. The results indicate that firm value varies across companies, reflecting differences in investors' market valuations during the observation period.

## 4.2 Classical Assumption Tests

**Table 2. Normality Test**

| | ***Unstandardized Residual*** | **Interpretation** |
|---|---|---|
| ***Asymp. Sig. (2-tailed)*** | 0,112 | Normally Distributed |

Based on the normality test results presented in Table 2, the Asymp. Sig. (2-tailed) value is 0.112. Since this value is greater than 0.05, it can be concluded that the residuals are normally distributed. Therefore, the regression model satisfies the normality assumption and is appropriate for further analysis. This finding indicates that the residuals are free from significant deviations from normality, allowing the regression model to produce reliable and unbiased estimates.

**Table 3. Multicollinearity Test**

| **Model** | **Tolerance** | **VIF** | **Interpretation** |
|---|---|---|---|
| **(Constant)** | – | – | – |
| **Tax Planning** | 0.912 | 1.096 | No Multicollinearity |
| **Green Accounting** | 0.865 | 1.156 | No Multicollinearity |
| **Carbon Emission Disclosure** | 0.842 | 1.188 | No Multicollinearity |

Based on the multicollinearity test results presented in Table 3, the tax planning variable has a tolerance value of 0.912 and a Variance Inflation Factor (VIF) value of 1.096. The green accounting variable has a tolerance value of 0.865 and a VIF value of 1.156, while the carbon emission disclosure variable has a tolerance value of 0.842 and a VIF value of 1.188.

All independent variables have tolerance values greater than 0.10 and VIF values lower than 10.00, indicating the absence of multicollinearity among the independent variables. Therefore, it can be concluded that the regression model is free from multicollinearity and is appropriate for subsequent regression analysis

**Table 4. Autocorrelation Test**

| **Model** | **n** | **dU** | **Durbin–Watson** | **4 − dU** | **Interpretation** |
|---|---|---|---|---|---|
| **1** | 66 | 1.642 | 1.812 | 2.358 | No Autocorrelation |

Based on the autocorrelation test results presented in Table 4, the Durbin–Watson (DW) statistic is 1.812. With a sample size (n) of 66 and three independent variables, the upper critical value (dU) is 1.642, resulting in a value of 4 − dU = 2.358. Since the Durbin–Watson statistic falls between dU and 4 − dU (1.642 < 1.812 < 2.358), it can be concluded that the regression model is free from autocorrelation. Therefore, the regression model satisfies the autocorrelation assumption and is considered appropriate for further regression analysis.

Table 5. Heteroscedasticity Test

| Variable | Sig. | Interpretation |
|---|---|---|
| (Constant) | 0.873 | – |
| Tax Planning | 0.128 | No Heteroscedasticity |
| Green Accounting | 0.764 | No Heteroscedasticity |
| Carbon Emission Disclosure | 0.241 | No Heteroscedasticity |

Based on the heteroscedasticity test results presented in Table 5, the tax planning variable has a significance value of 0.128, the green accounting variable has a significance value of 0.764, and the carbon emission disclosure variable has a significance value of 0.241. All independent variables have significance values greater than 0.05, indicating the absence of heteroscedasticity in the regression model. Therefore, the model satisfies the heteroscedasticity assumption and is appropriate for subsequent regression analysis.

## Model Fit Test

Table 6. F-Test Results

| Model | F | Sig. |
|---|---|---|
| Regression | 4.327 | 0.012 |

Based on Table 6, the regression model has an F-statistic of 4.327 with a significance value of 0.012, which is lower than the significance level of 0.05. These results indicate that the regression model is statistically significant and suitable for explaining firm value. Collectively, tax planning, green accounting, and carbon emission disclosure have a significant effect on firm value.

Table 7. Coefficient of Determination

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | 0.505 | 0.255 | 0.221 | 0.284 |

Based on Table 7, the Adjusted R Square value is 0.221, indicating that 22.1% of the variation in firm value can be explained by tax planning, green accounting, and carbon emission disclosure. The remaining 77.9% is explained by other factors not included in the regression model.

## Hypothesis Testing

Table 8. t-Test Results

| Variable | B | t | Sig. | Decision |
|---|---|---|---|---|
| (Constant) | 0.681 | 2.984 | 0.004 | – |
| Tax Planning | 0.018 | 0.521 | 0.604 | Not Supported |
| Green Accounting | 0.147 | 2.276 | 0.026 | Supported |
| Carbon Emission Disclosure | 0.193 | 2.641 | 0.011 | Supported |

Based on Table 8, the results of the t-test indicate that the tax planning variable has a regression coefficient of 0.018, a t-statistic of 0.521, and a significance value of 0.604, which is greater than the significance level of 0.05. These results indicate that tax planning does not have a significant effect on firm value. Therefore, Hypothesis 1 (H1), which proposes that tax planning affects firm value, is not supported. The green accounting variable has a regression coefficient of 0.147, a t-statistic of 2.276, and a significance value of 0.026, which is below the significance level of 0.05. These findings indicate that green accounting has a positive and significant effect on firm value. Therefore, Hypothesis 2 (H2), which proposes that green accounting affects firm value, is supported. Similarly, the carbon emission disclosure variable has a regression coefficient of 0.193, a t-statistic of 2.641, and a significance value of 0.011, which is lower than 0.05. These results indicate that carbon emission disclosure has a positive and significant effect on firm value. Therefore, Hypothesis 3 (H3), which proposes that carbon emission disclosure affects firm value, is supported. Overall, the findings suggest that green accounting and carbon emission disclosure have a significant positive effect on firm value, whereas tax planning does not have a significant effect on firm value.

## Effect of Tax Planning on Firm Value

The empirical results indicate that tax planning does not have a significant effect on firm value, as evidenced by a significance value of 0.604, which exceeds the 0.05 significance level. Therefore, Hypothesis 1 (H1) is not supported. These findings suggest that although tax planning is intended to optimize a company's tax burden, such strategies are not directly reflected in higher firm value. Consequently, the findings do not support stakeholder theory, which posits that corporate initiatives aimed at improving efficiency, including tax management, should enhance firm value. Investors may perceive that the benefits generated from tax planning are insufficient to materially improve the company's overall performance and market valuation.

Taxes represent one of the primary forms of corporate contribution to the government. Consequently, overly aggressive tax planning may generate negative perceptions among stakeholders (Djellaba, A. & Chelihi, 2021). Although tax planning can improve tax efficiency, investors may not necessarily perceive it as value-enhancing if it is considered inconsistent with corporate social responsibility principles (Huseynov & Klamm, 2020). Furthermore, information regarding tax planning is often not disclosed in sufficient detail in corporate financial reports, making it difficult for investors to assess whether tax-saving strategies generate meaningful economic benefits for the company (Hope et al., 2020). As a result, tax planning is unlikely to become a primary consideration in investment decisions or in determining firm value.

From a theoretical perspective, tax planning is a component of tax management that aims to legally minimize corporate tax liabilities by utilizing provisions within the applicable tax regulations (Pohan, 2013). Effective tax planning is expected to increase net income while demonstrating management's ability to efficiently manage corporate tax obligations, thereby creating value for investors and strengthening stakeholders' confidence in the company's performance (Hanifah & Ayem, 2022; Marsaid & Pesudo, 2019). However, in practice, the additional profits generated through tax planning may not be sufficiently substantial to influence investors' perceptions, particularly when the resulting tax savings are relatively small compared with the company's overall financial performance (Guenther et al., 2021).

These findings may also be explained by the increasingly stringent tax regulatory environment in Indonesia, which places greater emphasis on tax compliance. Consequently, companies tend to adopt relatively conservative tax planning strategies to minimize the risks of tax penalties, tax audits, and reputational damage. This limits firms' opportunities to implement more aggressive tax planning strategies that could significantly increase firm value. Accordingly, tax planning functions primarily as a compliance mechanism rather than as a strategic instrument for enhancing firm value.

The descriptive statistics further support this finding. The tax planning variable exhibits relatively low variability, as indicated by its standard deviation of 0.084. Although the minimum and maximum values range from 0.185 to 0.620, the relatively small standard deviation suggests that tax planning practices are fairly homogeneous across the sampled firms. Such limited variation reduces the explanatory power of tax planning in explaining differences in firm value.

In contrast, firm value demonstrates substantially greater variation among the sampled companies. Although differences in market valuation are evident, these variations are not accompanied by comparable differences in tax planning practices. This finding reinforces the conclusion that firm value is more strongly influenced by factors other than tax planning.

The findings of this study are consistent with those reported by Lewar & Adjareni (2022) and Sari & Ruliansyah (2023), who also found that tax planning does not significantly affect firm value. Collectively, these findings suggest that tax planning alone is insufficient to enhance firm value, as investors tend to place greater emphasis on other corporate attributes that are more transparent and directly reflect overall corporate performance.

**Effect of Green Accounting on Firm Value**

The empirical results indicate that green accounting has a positive and significant effect on firm value, as evidenced by a significance value of 0.026, which is lower than the 0.05 significance level. Therefore, Hypothesis 2 (H2) is supported. These findings suggest that the implementation of green accounting enhances firm value by demonstrating that corporate operations are aligned with societal norms and expectations regarding environmental sustainability. Such alignment strengthens corporate legitimacy, increases stakeholders' trust, and ultimately contributes to higher firm value.

These findings are consistent with legitimacy theory, which argues that organizations seek to obtain and maintain social legitimacy by conducting business activities that are consistent with prevailing societal norms, values, and expectations (Dowling & Pfeffer, 1975; Suchman, 1995). Social legitimacy is essential for corporate sustainability because firms rely on public acceptance to maintain their long-term operations (Suchman, 1995). When corporate activities are perceived as consistent with societal expectations, firms are more likely to gain stakeholder support, thereby enhancing their reputation and overall organizational performance (Dowling & Pfeffer, 1975).

The implementation of green accounting represents one of the strategies adopted by firms to strengthen social legitimacy through environmental accountability and transparency (Kiranmai, 2018; Wiredu et al., 2023). Green accounting enables companies to identify, measure, and disclose the environmental impacts of their business activities, thereby providing relevant environmental information to stakeholders (Fatwadi, 2016; Riyadh et al., 2020). Such transparency enhances stakeholder confidence and reinforces the company's reputation as an environmentally responsible organization (Zaitegi et al., 2022).

The legitimacy gained through the implementation of green accounting ultimately contributes to higher firm value. Companies that demonstrate strong environmental commitment are generally perceived more favorably by investors, particularly in response to the increasing global emphasis on sustainability (Achkar, 2022; Geiszler, 2018). Furthermore, firms that transparently disclose environmental information are often viewed as having lower business risks and stronger long-term growth prospects, making them more attractive to investors (Berthelot et al., 2012; Kurnia, 2021).

The findings also indicate that the implementation of green accounting in Indonesia remains at a relatively early stage, as reflected by the variation in its adoption across the sampled companies. This suggests that green accounting is still an emerging accounting practice in Indonesia and has not yet been implemented consistently across all firms.

The findings of this study are consistent with those reported by Al-Dhaimesh (2020), Chasbiandani et al., (2019), and Lusiana et al., (2021), who also found that green accounting has a positive effect on firm value. Collectively, these findings suggest that companies implementing green accounting are more likely to gain greater legitimacy from both society and investors, thereby enhancing firm value.

**Effect of Carbon Emission Disclosure on Firm Value**

The empirical results indicate that carbon emission disclosure has a positive and significant effect on firm value, as evidenced by a significance value of 0.011, which is below the 0.05 significance level. Therefore, Hypothesis 3 (H3) is supported. These findings suggest that a higher level of carbon emission disclosure contributes to greater firm value. This result indicates that corporate transparency in reporting environmental information has become an important factor in strengthening social legitimacy and enhancing stakeholders' confidence, ultimately leading to higher market valuation.

The findings are consistent with legitimacy theory, which posits that companies seek to obtain and maintain social legitimacy by disclosing relevant information regarding their operational activities, including their environmental impacts (Dowling & Pfeffer, 1975; Suchman, 1995). Carbon emission disclosure represents one form of corporate transparency that demonstrates a company's environmental responsibility and its commitment to aligning business operations with societal norms and expectations. By providing transparent information on carbon emissions, companies seek to assure stakeholders that the environmental impacts of their operations are being managed responsibly and sustainably.

Carbon emission disclosure also reflects a company's commitment to meeting stakeholders' expectations regarding environmental accountability and transparency, thereby strengthening social legitimacy and enabling stakeholders to better assess environmental risks. Companies that voluntarily disclose carbon emission information are generally perceived as having a stronger commitment to sustainability and more effective environmental risk management (Berthelot et al., 2012). This finding is particularly relevant for energy sector companies, whose operations are closely associated with greenhouse gas emissions and environmental impacts. As environmental, social, and governance (ESG) considerations continue to gain importance in investment decision-making, investors increasingly evaluate companies based on their environmental performance and disclosure practices. Consequently, transparent carbon emission disclosure serves as a positive signal of corporate accountability, enhances corporate reputation, strengthens investor confidence, and ultimately contributes to higher firm value (Kurnia, 2021). In this context, carbon emission disclosure functions not merely as a reporting requirement but also as a strategic instrument for improving market confidence and creating long-term corporate value.

Furthermore, the growing global concern over climate change and sustainable development has encouraged investors to place greater emphasis on carbon emission information when evaluating corporate performance. According to the Global Carbon Project (2024), global carbon emissions remain at a critically high level, increasing public and investor demand for greater corporate transparency regarding environmental impacts. Under these circumstances, companies that provide comprehensive and transparent carbon emission disclosures are more likely to gain stronger legitimacy from society and investors, thereby improving their competitive position and market valuation.

The findings of this study are consistent with those reported by Berthelot et al. (2012), Sudibyo (2018), and Kurnia (2021), who also found that carbon emission disclosure has a positive effect on firm value. These studies demonstrate that companies with higher levels of transparency in environmental disclosure tend to enjoy stronger corporate reputations and greater investor confidence, both of which contribute positively to firm value. Therefore, transparent carbon emission disclosure has evolved beyond a regulatory reporting practice and has become an important strategic tool for enhancing corporate value, particularly for companies operating in environmentally sensitive industries such as the energy sector.

## 5. Conclusion

This study aimed to examine the effects of tax planning, green accounting, and carbon emission disclosure on firm value among energy sector companies listed on the Indonesia Stock Exchange during the 2022–2024 period. The empirical findings reveal that tax planning does not have a significant effect on firm value, indicating that corporate tax planning practices are not a primary consideration for investors when evaluating company performance. In contrast, both green accounting and carbon emission disclosure have positive and significant effects on firm value. These findings suggest that environmental responsibility and transparency in environmental reporting have become important determinants of firm value, particularly in the energy sector, where business activities are closely associated with environmental impacts. Overall, the study demonstrates that environmental factors play a more substantial role than tax planning in enhancing firm value.

The findings provide important practical implications for energy sector companies. Firms are encouraged to strengthen the implementation of green accounting and improve the quality of carbon emission disclosure as part of their sustainability strategies. Given the high environmental exposure of the energy sector, greater transparency and accountability regarding environmental performance can enhance stakeholder trust, improve corporate reputation, and ultimately increase firm value. Furthermore, the findings indicate that investors are placing greater emphasis on environmental considerations when making investment decisions, highlighting the importance of integrating sustainability principles into corporate strategies.

This study also contributes to the existing literature by providing empirical evidence on the joint effects of tax planning, green accounting, and carbon emission disclosure on firm value within the Indonesian energy sector. By integrating stakeholder theory and legitimacy theory, the study offers a more comprehensive understanding of how financial and environmental factors collectively influence firm value.

Despite these contributions, this study has several limitations. The analysis is limited to energy sector companies listed on the Indonesia Stock Exchange during the 2022–2024 period and includes only three explanatory variables. Therefore, future research is encouraged to incorporate additional determinants of firm value, such as financial performance, corporate governance, and macroeconomic factors. Future studies may also extend the observation period and examine companies from other industrial sectors to improve the generalizability and comprehensiveness of the findings.

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