THE EFFECT OF TAX PLANNING AND CARBON EMISSIONS DISCLOSURE ON FIRM VALUE WITH INDEPENDENT COMMISSIONERS AS A MODERATING VARIABLE (A STUDY ON ENERGY SECTOR COMPANIES LISTED ON THE INDONESIA STOCK EXCHANGE IN 2021–2023)

Nurmala[1], Mursidah[2*], Yunina[3], Rayyan Firdaus[4], Indrayani[5]

Faculty of Economics and Business, Malikussaleh University, Indonesia
*(mursidah@unimal.ac.id)

ABSTRAK

This study aims to determine the extent of the influence of Tax Planning and Carbon Emission Disclosure on Firm Value with Independent Commissioners as moderators in Energy Companies listed on the Indonesia Stock Exchange from 2021 to 2023. The population in this study is all energy sector companies listed on the IDX, totaling 83 companies, with a sample of 21 energy sector companies selected using Purposive Sampling technique, which is the selection of samples based on certain criteria. The data collection technique used in this study is documentation method. Data analysis is conducted using descriptive statistical analysis, estimation of panel data regression models, classical assumption tests, moderating regression analysis, and hypothesis testing. The selection of the panel data regression model consists of chow tests, hausman tests, and lagrange multiplier tests. The classical assumption test consists of normality test, multicollinearity test, and heteroscedasticity test. The hypothesis test consists of partial test (t-test) and coefficient of determination test (R^2). The research results show that tax planning and independent commissioners have a negative and significant effect on firm value, while carbon emission disclosure has a negative and insignificant effect on firm value. On the other hand, independent commissioners can moderate the effect of tax planning on firm value, but independent commissioners are unable to moderate the effect of carbon emission disclosure on firm value.

Keywords: Tax Planning, Carbon Emission Disclosure, Independent Commissioner, Company Value.

1. INTRODUCTION

The continuous development of globalization has driven the increasing intensity of competition in the business world, particularly in the energy sector, which plays a vital role in Indonesia's economy. Based on data from the Indonesia Stock Exchange, the energy sector experienced significant fluctuations, with a decline of -10.7% in 2023 compared to the 2021–2022 period. This condition highlights the urgency for companies to implement comprehensive management strategies, not only from a financial perspective but also covering environmental, social, and governance (ESG) aspects (IDX, 2023).

ISSN: 3047-969X
DOI : 10.29103/icofeb.v3i1.1246

According to Soetardjo and Nurmawati (2024), a company's value reflects investors' perceptions of the firm's performance, which is generally closely related to stock prices. When a company's stock price increases, it has the potential to maximize shareholders' welfare. In other words, the higher the stock price, the greater the level of prosperity received by shareholders. Based on records from the Indonesia Stock Exchange (IDX), most sectors weakened and their stock prices fell. The energy sector ranked the lowest, declining by 1.65%. However, there is a contradictory phenomenon in which several energy issuers, particularly those focusing on oil, coal, and gas, experienced a significant decline in performance.

Indonesia holds a highly strategic position in the energy context of Southeast Asia, thanks to the diversity of its energy resources, both fossil-based and non-fossil. As the fourth most populous country in the world, Indonesia's domestic energy consumption is projected to continue increasing. This creates both opportunities and challenges for issuers to enhance corporate value (Traction Energy Asia, 2020).

Tabel 1
PBV Value and Energy Sector Growth 2021–2023 in 5 Companies

Company Code	2021	2022	2023
PTBA	1,29	1,47	1,29
ADRO	17,3	19,25	10,34
MEDC	9,48	0,01	0,01
INDY	0,009	0,01	0,005
INCO	21,97	30,43	16,99

Processed Data: 2024

Based on the table above regarding PBV values and the growth of the energy sector from 2021 to 2023, it can be seen that several company values in the energy sector experienced quite significant fluctuations. Starting with the PBV value of PTBA, in 2021 (1.29%) it increased in 2022 (1.47%) but then declined in 2023 (1.29%). The PBV value of ADRO in 2021 (17.3%) then increased in 2022 (19.25%) and declined in 2023 (10.34%). The PBV value of MEDC in 2021 (9.48) experienced a very drastic decrease from 2022–2023 (0.01). INDY's PBV value in 2021 (0.009) increased in 2022 to (0.01) and then declined in 2023 to (0.005). Lastly, the PBV value of ADRO in 2021 was (21.97), increased in 2022 (30.43), and declined in 2023 to (16.99) (IDX, 2023).

Tax planning is a strategy to reduce or minimize tax liabilities payable to the

ISSN: 3047-969X
DOI : 10.29103/icofeb.v3i1.1246

government, so that the amount of tax paid does not exceed what is required (Kristanto, 2022:5). Research conducted by Anisran and Ma'wa (2023), as well as Tambahani et al. (2021), revealed that tax planning has a positive influence on firm value. Conversely, a study conducted by Febriane Wahidah (2019) showed that tax planning has a negative impact on firm value. Meanwhile, research by Muma and Habibah (2024) stated that tax planning has no effect on firm value.

Carbon Emission Disclosure (CED) is the practice of reporting and conveying information regarding carbon emissions generated from a company's operational activities. This practice has become increasingly important in line with rising global awareness of climate change issues and the implementation of stricter environmental regulations (Suyanto, 2023:55). Research conducted by Nisa (2023) shows that carbon emission disclosure has a positive and significant effect on firm value. Conversely, the findings of Rahmatania et al. (2024) reveal that carbon emission disclosure has a negative impact on firm value. Meanwhile, the study conducted by Anggita et al. (2022) concludes that carbon emission disclosure does not have a significant effect on firm value.

An independent commissioner is part of the board of commissioners. A commissioner is considered independent if he or she is expected to perform their duties objectively in the interest of the company, free from the influence of various parties whose interests may conflict with those of the company (Enda and Pandia, 2021).

2. LITERATURE REVIEW

2.1 The Effect of Tax Planning on Firm Value

Tax planning is one aspect of tax management that aims to legally save on tax payments without violating prevailing tax regulations. Its primary objective is to reduce the amount of tax payable by taxpayers. The smaller the amount of tax paid by a company, the greater the after-tax profit obtained, which in turn has an impact on increasing firm value. One strategy to maximize firm value is by optimally managing its tax burden (Angelina and Darmawan, 2021). Tax planning is carried out by structuring and engineering transactions within the company. However, according to Dewi et al. (2021), practices such as profit manipulation or resource shifting to suppress

ISSN: 3047-969X
DOI : 10.29103/icofeb.v3i1.1246

tax burdens are considered inappropriate and non-transparent in company operations, thus tax planning may have a negative impact on firm value (Effendi, 2023).

In a study by Ma'wa et al. (2023), it was found that tax planning has a positive effect on firm value. This finding is consistent with studies conducted by Suriawinata (2023) and Gea et al. (2021).

H1: Tax planning has a positive and significant effect on firm value in energy sector companies listed on the Indonesia Stock Exchange during the period 2021–2023.

2.2 The Effect of Carbon Emissions Disclosure on Firm Value

Hardiyansah et al. (2021) stated that companies that are more concerned about environmental conditions become more attractive to investors, which in turn affects their firm value. Investors are increasingly aware that business activities carried out by companies can have an impact on the environment. This growing awareness encourages companies not only to focus on profits but also to pay attention to environmental aspects (Lina et al., 2024).According to Lina et al. (2024), Indonesia was recorded in 2015 as one of the countries with the highest greenhouse gas emissions in the world, and it has demonstrated its commitment through the implementation of various regulations. Several regulations enforced in Indonesia include Law No. 17 of 2004 concerning the Ratification of the Kyoto Protocol, as well as Law No. 16 of 2016 concerning the Ratification of the Paris Agreement, which aim to reduce greenhouse gas emissions by 29% by 2030 (Cholida and Kawedar, 2020). Research conducted by Fiona Wiryawan (2023), Mulyadi et al. (2024), and Sausan Syahirah (2024) found that Carbon Emissions Disclosure has a positive effect on firm value.

H2: Carbon Emissions Disclosure has a positive and significant effect on firm value in energy sector companies listed on the Indonesia Stock Exchange during the period 2021–2023.

2.3 The Effect of Independent Commissioners on Firm Value

The relationship between independent commissioners and firm value shows that the presence of an independent board of commissioners has a significant positive influence on company performance. This is due to their role in supervising and directing

ISSN: 3047-969X
DOI : 10.29103/icofeb.v3i1.1246

management to minimize potential conflicts of interest between management and shareholders. The greater the proportion of independent commissioners on the board, the higher the level of transparency and accountability within the company, which ultimately shapes a positive perception among stakeholders. This leads to an increase in firm value as reflected in the Price to Book Value (PBV) ratio, where a higher number of independent commissioners reflects increased investor confidence in the company's performance and market prospects. These findings also emphasize the importance of implementing effective Good Corporate Governance (GCG), with independent commissioners as one of its key elements, serving as neutral supervisors and strategic assets in enhancing firm value (Rahmawati and Jaya, 2021). Research conducted by Rahmawati and Jaya (2021), as well as by Veny and Merry (2021), shows that the board of independent commissioners has a positive effect on firm value.

H3: Independent commissioners have a positive and significant effect on firm value in energy sector companies listed on the Indonesia Stock Exchange during the period 2021–2023.

2.4 The Effect of Independent Commissioners in Moderating Tax Planning on Firm Value

The role of the board of commissioners in carrying out its supervisory function is highly significant, where the composition of the board—particularly the presence of independent commissioners—can minimize fraud in financial reporting and enhance the effectiveness of oversight. This contributes to improving the quality of earnings reports, which ultimately supports the positive influence of tax planning on firm value (Martinus and Riduwan, 2022). Research presented by Suriawinata (2023) states that independent commissioners strengthen the positive relationship between tax planning and firm value. Similar findings were also obtained from studies conducted by Hendra (2020) as well as Khaoula and Moez (2019), which demonstrate that the presence of independent commissioners reinforces the positive effect of tax planning on firm value.

H4: Independent commissioners strengthen the positive influence of tax planning on firm value in energy sector companies listed on the Indonesia Stock Exchange during the period 2021–2023.

ISSN: 3047-969X
DOI : 10.29103/icofeb.v3i1.1246

2.5 The Effect of Independent Commissioners in Moderating Carbon Emissions Disclosure on Firm Value

Management has the responsibility to identify and minimize gaps in public trust toward the company, and one effort to achieve this is through the disclosure of Carbon Emissions Disclosure (CED). The implementation of this responsibility is monitored by the Independent Board of Commissioners (IBC) as part of Good Corporate Governance (GCG), so the presence of IBC is expected to optimize oversight in the implementation of CED strategies, which in turn will strengthen the positive impact of CED on enhancing firm value (Soetardjo and Nurmawati, 2024). Research conducted by Soetardjo and Nurmawati (2024) and Fiona Wiryawan (2023) indicates that the independent board of commissioners strengthens the positive influence of carbon emissions disclosure on firm value.

H5: Independent commissioners strengthen the positive influence between carbon emissions disclosure and firm value in energy sector companies listed on the Indonesia Stock Exchange during the period 2021–2023.

3. METHODOLOGY

3.1 Sample and Data

As of December 31, 2023, a total of 83 energy sector companies were listed on the Indonesia Stock Exchange (IDX). Due to differences in regulatory requirements and sustainability disclosure standards applied in previous studies, all energy sector companies that did not publish annual financial statements consecutively during the period 2021–2023, as well as those that did not implement tax planning and carbon emission disclosure systems in the same period, were excluded from the sample. The final sample consisted of 21 observations from 63 energy sector companies listed on the IDX in 2023 and prior years. This study uses secondary data with an observation period of three years (2021–2023), accessed through the IDX website and the respective companies. Data on firm value and tax planning were obtained from annual reports, while data on carbon emission disclosure and independent commissioners were collected from sustainability reports.

ISSN: 3047-969X
DOI : 10.29103/icofeb.v3i1.1246

3.2 Variable Measurement

In this study, financial performance is the dependent variable, while environmental, social, and governance (ESG) disclosure, sustainable growth rate, and investment decisions are the independent variables. The details of the variables are presented in Table 2 as follows:

Table 2
Pengukuran Variabel

No	Variabel	Indikator
1	Firm Value (Y)	PBV= Market Price per Share : Book Value per Share
2	*Tax Planning* (X1)	ETR= Tax exspense : Profit before tax
3	*Carbon Emissions Disclosure* (X2)	CED= Number of provisions disclosed : Number of provisions required to be disclosed
4	Independent Board o Commissioners (Z)	KI = Number of Independent Commissioners : Total Number of Board Commissioners

Source: (processed data, 2024)

3.3 Model Empiris

This study employs a multiple linear regression model using panel data to examine the effect of tax planning and carbon emission disclosure on firm value, with independent commissioners as a moderating variable.

4. RESULTS AND DISCUSSION

4.1 Descriptive Statistics

Table 3
Descriptive Statistics Analysis

Variabel	Y	X1	X2	Z
Mean	1.190356	0.287216	0.293651	0.448501
Median	0.795755	0.222322	0.222222	0.500000
Maximum	6.924768	1.887676	0.722222	0,833333
Minimum	0.064702	0.007937	0.111111	0.250000
Std. Dev	1.110522	0.273468	0.185450	0.116774
Observation	63	63	63	63

Source: (processed data *Eviews* 12 (2025)

Based on the data presented above, Table 3 shows the descriptive statistics. The dependent variable (Y), firm value, has a total of 63 observations. Variable Y has a mean

ISSN: 3047-969X
DOI : 10.29103/icofeb.v3i1.1246

of 1.190356. The maximum recorded value is 6.924768, observed in PT Batulicin Nusantara Maritim Tbk (BESS) in 2021. On the other hand, the minimum value is 0.064702, recorded in PT Dian Swastatika Sentosa Tbk (DSSA) in 2022, indicating the lowest boundary in this dataset. The standard deviation of 962.6685 suggests a considerable degree of variation in the data, meaning that the Y values are diverse and not all close to the mean. The independent variable, tax planning (X1), consists of 63 observations. Variable X1 has a mean of 0.287216. This indicates that the values of this variable are relatively low compared to variable Y. The maximum value recorded is 1.887676, found in PT MNC Energy Investments Tbk (IATA) in 2021, while the minimum value is 0.007937, observed in PT Wintermar Offshore Marine Tbk (WINS) in 2023. The standard deviation of 0.273468 indicates that the values in X1 vary considerably.

The independent variable (X2), carbon emission disclosure, has 63 observations. The mean for variable X2 is 0.293651. The maximum observed value is 0.722222, recorded for PT Bumi Resources Tbk in 2021, 2022, and 2023. Meanwhile, the minimum value of 0.111111 is found in PT Atlas Resources Tbk (ARII), PT Batulicin Nusantara Maritim Tbk (BESS), PT Sumber Global Energi Tbk (SGER), PT Ulima Nitra Tbk (UNIQ), and PT Wintermar Offshore Marine Tbk (WINS) in each year from 2021–2023, as well as PT MNC Energy Investments Tbk (IATA) in 2021–2022, PT Samindo Resources Tbk (MYOH), and PT RMK Energy Tbk (RMKE) in 2021. The standard deviation is 0.185450. The moderating variable (Z), independent commissioners, also has 63 observations. Variable Z has a mean of 0.448501. The maximum recorded value is 0.833333, observed in PT Dian Swastatika Sentosa Tbk (DSSA) in 2023, while the minimum value is 0.250000, observed in PT Indika Energy Tbk (INDY) and PT Semacom Integrated Tbk (SEMA), both in 2023. The standard deviation is 0.116774.

Uji Chow

Table 4
Chow Test Results

Effect Test	Statistic	d.f	Prob
Cross-section f	1.717474	(20,40)	0.0719
Cross-section Chi Square	39.053527	20	0.0066

Source: Processed Data, using EViews 12 (2025)

ISSN: 3047-969X
DOI : 10.29103/icofeb.v3i1.1246

Table 4 shows that the probability value of the cross-section fixed effect is 0.0066, obtained from the Fixed Effect Model regression. The result indicates that the probability value of the cross-section fixed effect is smaller than the 5% alpha level (0.0066 < 0.05), meaning that the selected regression model is the Fixed Effect Model (FEM). Since the chosen model is FEM, the next step is to proceed with the Hausman test.

Hausman Test

Table 5
Uji Hausman Test

Test summary	Chi-Sq Statistic	Chi-Sq.d.f	Prob
Cross-section random	3.859776	2	0.1452

Source: Processed Data, using EViews 12 (2025)

Table 5 shows that the probability value of the cross-section random effect is 0.1452, obtained from the Random Effect Model regression. The result indicates that the probability value of the cross-section random effect is greater than the 5% alpha level (0.1452 > 0.05), meaning that the selected regression model is the Random Effect Model (REM). Since the chosen model is REM, the next step is to proceed with the Lagrange Multiplier (LM) test.

Lagrange multiplier (LM) Test

Table 6
Lagrange Multiplier Test

	Cross-section	**Time**	**Both**
Breusch-Pagan	1.215065	1.144610	2.359675
	(0.2703)	(0.2847)	(0.1245)
Honda	1.102300	-1.069865	0.022935
	(0.1352)	(0.8577)	(0.4909)
King-Wu	1.102300	-1.069865	-0.687720
	(0.1352)	(0.8577)	(0.7542)
Standardized Honda	1.394921	-0.804535	-3.772486
	(0.0815)	(0.7895)	(0.9999)
Standardized King-	1.394921	-0.804535	-3274608

ISSN: 3047-969X
DOI : 10.29103/icofeb.v3i1.1246

	Cross-section	Time	Both
wu			
	(0.0815)	(0.7895)	(09995)
Gourieroux, et al	--	--	1.215065
			(0.2713)

Source: Processed Data, using EViews 12 (2025)

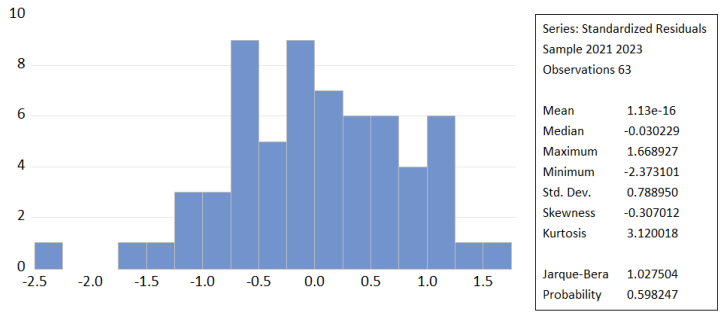
Based on Table 6 above, the probability value of the cross-section Breusch-Pagan test is 0.2703, obtained from the Common Effect Model regression. Since this value is greater than 0.05, the selected model is the Common Effect Model. Therefore, the best model chosen in this study is the Common Effect Model (CEM).

4.2 Correlation Analysis

Normality Test

From Figure 1, it can be seen that the probability value of the Jarque-Bera (J-B) statistic is 2.750101. Since the probability value p = 0.598247 > 0.05, it can be assumed that the normality assumption is satisfied.

Figure 1 Normality Test using the Jarque-Bera Test



Source: Processed Data, using EViews 12 (2025)

Multicollinearity Test

In this study, the presence or absence of multicollinearity symptoms can be seen in Table 4.5 for all independent variables. It is evident that all independent variables in this study have correlation values below 0.8, thus it can be concluded that the data of the research variables do not present multicollinearity problems.

ISSN: 3047-969X
DOI : 10.29103/icofeb.v3i1.1246

Tabel 7
Multicollinearity Test Result

	X1	X2
X1	1.000000	-0.121739
X2	-0.121739	1.000000

Source: Processed Data, using EViews 12 (2025)

Heteroskedastisitas Test

In Table 4.6 for all independent variables, it can be seen that all of them have probability values above 0.05. These results form the basis for the decision to accept H0 and reject H1, thus it can be concluded that the data of the research variables do not exhibit symptoms of heteroskedasticity.

Tabel 8
Heteroskedastisitas Test Result

Variabel	Prob	Limit	Description
X1	0.4029	>0.05	No heteroskedasticity occurred
X2	0.4746	>0.05	No heteroskedasticity occurred

Source: Processed Data, using EViews 12 (2025)

***Moderating Regression Analysis* (MRA)**

Tabel 9 *Moderating Regression Analysis (MRA)Result*

Dependent Variable: Y
Method: Panel Least Squares
Date: 06/17/25 Time: 20:38
Sample: 2021 2023
Periods included: 3
Cross-sections included: 21
Total panel (balanced) observations: 63

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.858934	0.305169	6.091486	0.0000
X1	-1.157905	0.499813	-2.316678	0.0240
X2	-1.144246	0.737036	-1.552496	0.1258

R-squared	0.104549	Mean dependent var	1.190356
Adjusted R-squared	0.074701	S.D. dependent var	1.110522
S.E. of regression	1.068238	Akaike info criterion	3.016347
Sum squared resid	68.46797	Schwarz criterion	3.118401
Log likelihood	-92.01492	Hannan-Quinn criter.	3.056485
F-statistic	3.502682	Durbin-Watson stat	1.337494
Prob(F-statistic)	0.036412		

Source: Processed Data, using EViews 12 (2025)

ISSN: 3047-969X
DOI : 10.29103/icofeb.v3i1.1246

Based on the table above, the following regression equation is obtained:

Y= 1.858934 -1.157905 (X1) -1.144264 (X2) +ε

From the regression equation above, the results can be explained as follows:

The constant value (α) is 1.858934, which represents the intercept or the condition when the firm value variable is not influenced by other variables, in this case tax planning (X1) and carbon emission disclosure (X2). If the independent variables remain constant or unchanged (equal to 0), then the firm value (Y) is 1.858934. The coefficient value of tax planning (X1) is -1.157905. This indicates a negative relationship between tax planning and firm value. For every 1% increase in tax planning, firm value decreases by -1.157905. The coefficient value of carbon emission disclosure (X2) is -1.144264. This indicates a negative relationship between carbon emission disclosure and firm value. For every 1% increase in carbon emission disclosure, firm value decreases by -1.144264

Tabel 10. Hasil MRA Model III

Dependent Variable: Y
Method: Panel Least Squares
Date: 06/17/25 Time: 20:40
Sample: 2021 2023
Periods included: 3
Cross-sections included: 21
Total panel (balanced) observations: 63

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4.465421	1.285510	3.473657	0.0010
X1	-8.512121	2.930120	-2.905042	0.0052
X2	-0.599485	2.841744	-0.210957	0.8337
Z	-5.819079	2.731879	-2.130065	0.0375
ZX1	15.95804	6.289231	2.537360	0.0139
ZX2	-0.542291	5.617322	-0.096539	0.9234

R-squared	0.231858	Mean dependent var	1.190356
Adjusted R-squared	0.164477	S.D. dependent var	1.110522
S.E. of regression	1.015094	Akaike info criterion	2.958233
Sum squared resid	58.73373	Schwarz criterion	3.162341
Log likelihood	-87.18433	Hannan-Quinn criter.	3.038509
F-statistic	3.440997	Durbin-Watson stat	1.729303
Prob(F-statistic)	0.008716		

Source: Processed Data, using EViews 12 (2025)

Based on the table above, the resulting regression equation is as follows:

Y= 4.465421 - 8.512121 (X1) – 0.599485 (X2) - 5.819079 (Z) + 15.95804 (ZX1) - 0.542291 (ZX2) +ε

ISSN: 3047-969X
DOI : 10.29103/icofeb.v3i1.1246

From the regression equation above, the results can be explained as follows:
The constant value (α) is 4.465421, which represents the intercept or the condition when the firm value variable is not influenced by other variables—namely tax planning (X1), carbon emission disclosure (X2), independent commissioners (Z), and the interaction variables (X1*Z) and (X2*Z). If the independent variables, the moderating variable, and the interaction variables remain constant or unchanged (equal to 0), then the firm value (Y) is 4.465421. The coefficient of tax planning (X1) is -8.512121. This indicates a negative relationship between tax planning and firm value. For every 1% increase in tax planning, firm value decreases by -8.512121. The coefficient of carbon emission disclosure (X2) is -0.599485. This indicates a negative relationship between carbon emission disclosure and firm value. For every 1% increase in carbon emission disclosure, firm value decreases by -0.599485. The coefficient of independent commissioners (Z) is -5.819079. This indicates a negative relationship between independent commissioners and firm value. For every 1% increase in independent commissioners, firm value decreases by -5.819079. The coefficient of the interaction variable (X1*Z) is 15.95804. This indicates a positive relationship between the interaction variable (X1*Z) and firm value. For every 1% increase in the interaction variable (X1*Z), firm value increases by 15.95804. The coefficient of the interaction variable (X2*Z) is -0.542291. This indicates a negative relationship between the interaction variable (X2*Z) and firm value. For every 1% increase in the interaction variable (X2*Z), firm value decreases by -0.542291.

Estimation Results of the Model

Table 11 presents the results of the regression analysis using the Common Effect Model (CEM), with tax planning and carbon emission disclosure as the independent variables. The output of the CEM model is as follows:

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DOI : 10.29103/icofeb.v3i1.1246

Table 11
Panel Data Regression Model Results

Dependent Variable: Y
Method: Panel Least Squares
Date: 06/17/25 Time: 20:40
Sample: 2021 2023
Periods included: 3
Cross-sections included: 21
Total panel (balanced) observations: 63

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4.465421	1.285510	3.473657	0.0010
X1	-8.512121	2.930120	-2.905042	0.0052
X2	-0.599485	2.841744	-0.210957	0.8337
Z	-5.819079	2.731879	-2.130065	0.0375
ZX1	15.95804	6.289231	2.537360	0.0139
ZX2	-0.542291	5.617322	-0.096539	0.9234

R-squared	0.231858	Mean dependent var	1.190356
Adjusted R-squared	0.164477	S.D. dependent var	1.110522
S.E. of regression	1.015094	Akaike info criterion	2.958233
Sum squared resid	58.73373	Schwarz criterion	3.162341
Log likelihood	-87.18433	Hannan-Quinn criter.	3.038509
F-statistic	3.440997	Durbin-Watson stat	1.729303
Prob(F-statistic)	0.008716		

Sumber : Data diolah dengan *Eviews* 12, tahun (2025)

4.3 Discussion

The Effect of Tax Planning on Firm Value

The estimation results for the tax planning variable show a regression coefficient of -8.512121, indicating that each one-unit increase in tax planning reduces firm value by 8.512121. With a t-test probability value of 0.0052 < 0.05, it can be concluded that tax planning has a negative and significant effect on firm value. Therefore, research hypothesis H1 is rejected. Based on these findings, tax planning has a negative and significant effect on firm value, which means that the higher the tax planning, the lower the firm value tends to be. This may be due to weak corporate governance, where management behaves opportunistically by prioritizing personal interests over shareholders' interests. This significant negative effect can be explained through agency theory, which highlights conflicts of interest between management (agents) and shareholders (principals). When management information lacks transparency, shareholders face harmful information asymmetry, reducing their trust in management and negatively affecting firm value. Thus, tax planning decisions that are not aligned with shareholder interests may be one of the factors explaining the decline in firm value (Kusumanegara et al., 2023). These results are consistent with previous studies conducted

ISSN: 3047-969X
DOI : 10.29103/icofeb.v3i1.1246

by Kusumanegara et al. (2023), Wahidah (2018), and Ketut et al. (2025), which found that tax planning has a negative and significant impact on firm value.

The Effect of Carbon Emission Disclosure on Firm Value

The estimation results for the carbon emission disclosure variable show a regression coefficient of -0.599485, indicating that each one-unit increase in carbon emission disclosure reduces firm value by 0.599485. With a t-test probability value of 0.8337 > 0.05, it can be concluded that carbon emission disclosure has a negative but insignificant effect on firm value. Therefore, research hypothesis H2 is rejected. This suggests a lack of stakeholder or managerial awareness of environmental issues and insufficient dissemination. In developing countries, there are limitations in voluntary carbon emission reporting, which calls for more proactive strategies to prevent carbon emissions rather than merely focusing on reducing existing emissions. Motivation and incentives are crucial to encourage companies in developing countries to disclose their carbon emissions data. In Indonesia, carbon emission disclosure is not yet mandatory, so companies often weigh the costs and benefits of disclosure. Legitimacy theory explains that companies need support and recognition from stakeholders; however, if carbon emission disclosure reveals high emission figures, the company's legitimacy in the public eye may be compromised, ultimately reducing firm value (Ananda Taqwa, 2024). This is consistent with previous research by Afnilia et al. (2023), who found a negative relationship between carbon emission disclosure and firm value, while Ananda Taqwa (2024) and Shafira (2024) found that carbon emission disclosure has a significant effect on firm value.

The Effect of Independent Commissioners on Firm Value

The estimation results for the independent commissioners variable show a regression coefficient of -5.819079, indicating that each one-unit increase in independent commissioners reduces firm value by -5.819079. With a t-test probability value of 0.0375 < 0.05, it can be concluded that the moderating variable of independent commissioners has a negative and significant effect on firm value. Therefore, research hypothesis H3 is rejected. This suggests that the greater the proportion of independent commissioners, the less objective their decision-making tends to be. Less objective decision-making may

ISSN: 3047-969X
DOI : 10.29103/icofeb.v3i1.1246

affect the company's stock price, thereby lowering firm value. Independent commissioners demonstrate that ineffective and suboptimal supervisory functions can negatively impact the company. Agency theory explains the dynamics between company owners (principals) and managers (agents), who often have different interests, which can trigger conflicts in corporate governance. The negative influence of independent commissioners on firm value indicates that although their presence is expected to reduce conflicts of interest through better supervision, their decision-making performance has not been optimal. This may lead to a lack of accountability and transparency from management, thereby reducing firm value (Rahmania, 2018). This is consistent with previous research conducted by Rahmania (2018), which examined the effect of independent commissioners on firm value and concluded that independent commissioners have a negative and significant impact on firm value.

Independent Commissioners as Moderators of the Effect of Tax Planning on Firm Value

The estimation results for the interaction between tax planning and independent commissioners show a regression coefficient of 15.958004. This indicates that each one-unit increase in independent commissioners enhances the effectiveness of tax planning's impact on firm value by 15.958004. This demonstrates that the role of independent commissioners can strengthen the relationship between tax management and firm value. With a t-test probability value of $0.0139 < 0.05$, it can be concluded that independent commissioners are able to moderate the effect of tax planning on firm value. Therefore, research hypothesis H4 is accepted. Independent commissioners reinforce the influence of tax planning on firm value by strengthening managerial oversight in implementing tax planning strategies that affect firm performance. Agency theory emphasizes that managers may have incentives to act in their own interests, which can harm shareholders. The presence of independent commissioners functions as an effective monitoring mechanism, ensuring that tax planning is carried out not only to minimize tax liabilities but also to enhance firm value (Ambara and Malau, 2023). This finding is consistent with the previous study by Ambara and Malau (2023), which examined the effect of tax planning on firm value with independent commissioners as moderators, and concluded that independent commissioners are able to moderate the relationship.

ISSN: 3047-969X
DOI : 10.29103/icofeb.v3i1.1246

Independent Commissioners as Moderators of the Effect of Carbon Emission Disclosure on Firm Value

The estimation results for the interaction between carbon emission disclosure and independent commissioners show a regression coefficient of -0.542291. This indicates that each one-unit increase in independent commissioners reduces the effectiveness of carbon emission disclosure's impact on firm value by 0.542291. This suggests that the role of independent commissioners may act as an impediment in the relationship between carbon emission disclosure and firm value. With a t-test probability value of 0.9234 > 0.05, it can be concluded that independent commissioners are unable to moderate the effect of carbon emission disclosure on firm value. Therefore, research hypothesis H5 is rejected. Legitimacy theory suggests that the number of commissioners on the board does not necessarily guarantee effective oversight. Although a larger number of independent commissioners may appear favorable within a company's structure, this does not always contribute to strengthening corporate legitimacy in the eyes of stakeholders. Without effective monitoring, carbon emission disclosure becomes suboptimal, preventing companies from leveraging disclosure to improve firm value and gain legitimacy from society. This indicates the importance of not only the quantity but also the quality of independent commissioners in carrying out their supervisory role (Wiryawan, 2023). This finding is consistent with the study by Wiryawan (2023), which examined the effect of carbon emission disclosure on firm value with independent commissioners as a moderating variable, and similarly concluded that independent commissioners are unable to moderate the effect of carbon emission disclosure on firm value.

5. CONCLUSION

Based on the analysis and discussion regarding the effect of tax planning and carbon emission disclosure on firm value with independent commissioners as a moderating variable (a study on energy companies listed on the Indonesia Stock Exchange for the period 2021–2023), and supported by the theories presented in the previous chapters, the conclusions are as follows:

1. Tax planning has a negative and significant effect on firm value. This indicates that ineffective tax planning strategies can reduce investors'

ISSN: 3047-969X
DOI : 10.29103/icofeb.v3i1.1246

perceptions of company performance, thereby leading to a decline in stock value. Therefore, companies need to manage their tax planning more effectively in order to enhance their market value.

2. Carbon emission disclosure has a negative and insignificant effect on firm value. This shows that the carbon emission disclosure carried out by companies has not been sufficient to convince investors of their commitment to environmental sustainability. Companies need to improve the transparency and quality of information related to carbon emission management in order to foster positive perceptions among stakeholders and, ultimately, increase firm value.
3. Independent commissioners have a negative and significant effect on firm value. This suggests that the presence of independent commissioners does not always increase investor confidence; in fact, it may create negative perceptions if they are deemed ineffective in carrying out their supervisory functions. Companies therefore need to regularly evaluate the role and performance of independent commissioners to ensure they truly contribute positively to firm value.
4. Independent commissioners are able to moderate the relationship between tax planning and firm value. This indicates that the presence of independent commissioners not only increases transparency in tax management but also strengthens managerial performance in planning taxes effectively. Thus, companies with active independent commissioners are better able to manage their tax obligations, which ultimately contributes positively to firm value in the eyes of investors.
5. Independent commissioners are not able to moderate the relationship between carbon emission disclosure and firm value. This shows that although independent commissioners are expected to improve corporate transparency and accountability, they have not yet been effective in encouraging carbon emission disclosures that could enhance firm value. Therefore, further evaluation of the role of independent commissioners is needed, as well as efforts to strengthen their supervisory function in the context of sustainability and environmental responsibility.

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DOI : 10.29103/icofeb.v3i1.1246

RECOMMENDATIONS

Based on the findings and conclusions above, the following recommendations are proposed: For Companies: It is suggested that companies consider enhancing their communication strategies and transparency with stakeholders. This can be achieved by formulating more proactive policies regarding the disclosure of carbon emissions information and tax planning practices. For Investors and Potential Investors: It is recommended not to rely solely on tax planning and carbon emission disclosure indicators when making investment decisions. Instead, they should also consider other factors such as operational performance, innovation, and long-term growth potential. For Future Researchers: It is suggested to include additional independent variables such as corporate governance, corporate social responsibility (CSR), and long-term financial performance. Examining these factors may provide deeper insights into how companies in the energy sector can enhance their firm value.

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