



EFFECT OF ENVIRONMENTAL, SOCIAL, AND GOVERNANCE DISCLOSURE ON FIRM VALUE WITH PROFITABILITY MODERATION IN ENERGY COMPANIES LISTED ON IDX 2021-2024

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ABSTRACT

This research aims to analyze the effect of environmental, social, and governance (ESG) disclosure on firm value, proxied by Tobin's Q, with the profitability ratio proxied by the return on equity ratio (ROE) serving as a moderating variable. The data used in this research are secondary data, including financial statements, annual reports, and sustainability reports published by the companies. The sample comprises 60 observations selected through purposive sampling from energy-sector firms listed on the Indonesia Stock Exchange for the 2021–2024 period. This quantitative study employs a multiple linear regression with a random effects model (REM). The tests were performed using EViews 13. The results indicate that ESG disclosure has no effect on firm value, while the profitability ratio proxied by ROE has a positive and significant effect on firm value.

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INTRODUCTION

In recent decades, globalization has significantly influenced various aspects of life, particularly in the economic sector, requiring companies to continuously adapt in order to remain competitive and sustain their performance. One of the primary objectives of firms is to enhance firm value, as it reflects the company's overall performance and future prospects in the eyes of investors (Aydoğmuş, Gülay, dan Ergun 2022; Brealey, Myers, dan Marcus 2023). However, the pursuit of profit maximization often encourages companies to exploit natural resources excessively, especially in industries with high environmental impact. Such practices can lead to environmental degradation and negatively affect surrounding communities (Safriani dan Utomo 2020). Environmental issues such as climate change, air pollution, and ecosystem damage have become increasingly critical and represent major global challenges. The energy sector, particularly fossil fuel industries such as coal, has received significant attention due to its contribution to environmental damage. Coal combustion is responsible for a substantial portion of global carbon dioxide (CO₂) emissions, accounting for more than 40% of total emissions from energy use (International Energy Agency 2021). In Indonesia, coal plays a crucial role as a primary energy source and contributes significantly to national economic growth. However, it also generates considerable environmental and social impacts, including greenhouse gas emissions and public health risks (Centre for Research on Energy and Clean Air 2023; Kementerian Energi dan Sumber Daya Mineral 2021).

These conditions have increased global awareness of the importance of sustainable development, which aims to meet present needs without compromising the ability of future generations to meet their own needs (Brundtland Report 1987). Sustainability has become a central issue discussed worldwide, driven by concerns over energy crises, climate change, and environmental degradation caused by human activities (Armstrong dan Taylor 2020; Aydoğmuş, Gülay, dan Ergun 2022). In response, the concept of Environmental, Social, and Governance (ESG) has emerged as a framework for evaluating corporate sustainability practices. ESG disclosure provides insights into how companies manage environmental impacts, fulfill social responsibilities, and implement good governance practices (Friede, Busch, dan Bassen 2015). Increasingly, investors consider ESG performance as an important factor in investment decisions, as it reflects a company's long-term sustainability and risk management capabilities (Tjahjadi dan Soewarno 2021).

The implementation of ESG practices is believed to enhance firm value by improving transparency, strengthening stakeholder trust, and supporting sustainable business strategies. According to stakeholder theory, companies are not only responsible for maximizing shareholder wealth but also for addressing the interests of broader stakeholders (Alisjahbana dan Murniningtyas 2018). Furthermore, integrating sustainability practices into business operations can improve profitability and strengthen a company's competitive position in the market (Tarmuji, Maelah, dan Habibah 2016). Despite the growing importance of ESG, previous empirical studies have shown inconsistent results regarding its impact on firm value. Some studies find that ESG disclosure positively affects firm value, while others report no significant or even negative relationships (Al Anshari 2025; Intan Putri Devianti 2025; Putu dan Devi 2024; Rahelliamelinda dan Handoko 2024). These inconsistencies indicate the existence of a research gap that requires further investigation.

This study is motivated by the need to clarify the relationship between ESG disclosure and firm value, particularly in the Indonesian context. The energy sector is selected as

the focus of this research due to its significant environmental and social impact, as well as its strategic importance to the national economy (Hidayat dan Supriandi 2024; Tsujino et al. 2016). The novelty of this research lies in the inclusion of profitability, proxied by Return on Equity (ROE), as a moderating variable in examining the relationship between ESG disclosure and firm value. This framework is built upon recent empirical evidence by Pradana dan Wijayanti (2024), which demonstrates that financial performance significantly moderates the outcomes of ESG implementation in a broader ASEAN context. By incorporating profitability, this study aims to provide a more comprehensive understanding of whether financial performance strengthens or weakens the effect of ESG disclosure on firm value. Additionally, this study focuses on energy sector companies listed on the Indonesia Stock Exchange during the 2021–2024 period, which remains relatively underexplored in previous research. Based on this background, the main issue addressed in this study is whether ESG disclosure influences firm value and how profitability moderates this relationship. Specifically, this study examines the effects of environmental, social, and governance disclosures on firm value, as well as the moderating role of profitability in shaping these relationships.

LITERATURE REVIEW AND DEVELOPMENT OF A HYPOTHESIS

Signaling Theory

Signaling theory explains how information disclosed by management serves as a signal to external parties, particularly investors, regarding the firm's condition and quality. Information asymmetry between management and investors can be reduced through credible disclosures, allowing investors to better evaluate company performance (Jogiyanto 2014). Signals conveyed by companies may be interpreted as either positive or negative. Positive signals, such as transparent disclosure and good corporate practices, can increase investor confidence and attract investment. In this context, Environmental, Social, and Governance (ESG) disclosure represents a non-financial signal that reflects a firm's commitment to sustainability and responsible business practices (Jecky dan Suparman 2021; Purba 2023). Thus, ESG disclosure can influence investor perception and ultimately affect firm value.

Stakeholder Theory

Stakeholder theory emphasizes that companies are not solely responsible for maximizing shareholder wealth but must also consider the interests of various stakeholders, including employees, communities, government, and the environment. Companies that fulfill stakeholder expectations tend to achieve better long-term performance and sustainability (Alisjahbana dan Murniningtyas 2018).

The implementation of ESG practices reflects a company's effort to balance economic, social, and environmental responsibilities. By addressing stakeholder interests, firms can enhance their legitimacy and reputation, which in turn contributes to increased firm value. Therefore, ESG disclosure becomes an important mechanism for communicating accountability to stakeholders.

Firm Value

Firm value represents the market's perception of a company's performance and future prospects. It is an important indicator for investors in making investment decisions. A higher firm value indicates better company performance and greater investor confidence (Widyasari, Suhadak, dan Husaini 2015). Firm value is often associated with market-based measures, as investors consider factors such as profitability, growth potential, and corporate transparency. Companies with high firm value are generally more adaptable to market changes and have stronger long-term sustainability (Depari dan Wahyudi

2016; Umam dan Hartono 2019). Therefore, understanding the factors influencing firm value, including ESG disclosure and profitability, is crucial.

Hypothesis Development

Based on the research problems, theoretical framework, and prior studies, this study formulates several hypotheses. A hypothesis represents a temporary answer to the research problem that requires empirical testing to verify its validity (Sugiyono 2015). The hypotheses in this study are developed based on signaling theory and stakeholder theory.

Environmental Disclosure and Firm Value

Environmental disclosure reflects a company's responsibility toward environmental sustainability. The information disclosed plays an important role in building a positive corporate reputation and increasing investor interest (Wicaksono et al. 2021). From a signaling perspective, environmental disclosure can be interpreted as a positive signal that strengthens investor confidence. Investors perceive environmental responsibility as an indicator of long-term business sustainability (Nugrahani, Nuryaningtyas, dan Handono 2022).

In line with stakeholder theory, companies are expected to consider the interests of stakeholders, including the environment and society, rather than focusing solely on internal objectives. Prior studies show that environmental disclosure positively affects firm value (Ahmad et al. 2021; Firmansyah et al. 2021).

H₁: Environmental disclosure has a positive effect on firm value.

Social Disclosure and Firm Value

Social disclosure provides information about how companies fulfill their social responsibilities toward stakeholders. It enhances corporate reputation, attracts investors, and strengthens relationships with stakeholders (Uyun, Noviyanti, dan Primasari 2024). From a signaling perspective, social disclosure serves as a positive signal that encourages investment decisions.

Consistent with stakeholder theory, companies must meet stakeholder expectations, including social responsibilities. Social disclosure reduces perceived social risks and ensures business continuity (Masruroh dan Makaryanawati 2020). Empirical evidence also shows that social disclosure positively influences firm value (Aydoğmuş, Gülay, dan Ergun 2022; Yu dan Xiao 2022).

H₂: Social disclosure has a positive effect on firm value.

Governance Disclosure and Firm Value

Governance disclosure reflects the implementation of good corporate governance principles. Effective governance aligns stakeholder interests and supports the achievement of corporate objectives (Kurniasari, Wibowo, dan Wijaya 2017). It also protects investor rights, enhances risk management, and supports sustainable performance (Sitanggang dan Ratmono 2019).

Good governance reduces uncertainty and increases investor confidence in the company's future prospects (Pratiwi et al. 2024). Therefore, governance disclosure is perceived as a positive signal of transparency and accountability. Prior studies confirm that governance disclosure positively affects firm value (Ahmad et al. 2021; Aydoğmuş, Gülay, dan Ergun 2022).

H₃: Governance disclosure has a positive effect on firm value.

Profitability and Firm Value

Profitability, proxied by Return on Equity (ROE), reflects the company's ability to generate returns from shareholders' equity. A higher ROE indicates more efficient use of capital and stronger financial performance. High profitability tends to increase stock prices and attract investors (Satar dan Jayanti 2020). Furthermore, robust profitability plays a critical role in shaping a firm's capital structure decisions, which signals financial stability to external stakeholders (Lanjarsih dan Wijayanti 2016).

From a signaling perspective, profitability provides a positive signal regarding firm performance. A high ROE also indicates effective and efficient management of capital, which enhances shareholder wealth (Andriani, Kusumastuti, dan Hernando 2022). Empirical studies show that profitability positively affects firm value (Faradila dan Effendi 2023; Listyawati dan Kristiana 2020).

H₄: Profitability has a positive effect on firm value.

Environmental Disclosure, Profitability, and Firm Value

Environmental disclosure is an important aspect of sustainability practices, especially in industries with significant environmental impacts such as the energy sector. It provides positive signals regarding the company's commitment to sustainable business practices.

However, the effect of environmental disclosure on firm value depends on the company's financial condition. High profitability indicates that the company can implement environmental initiatives without compromising financial performance. Therefore, profitability strengthens the positive impact of environmental disclosure on firm value.

H₅: Profitability moderates the effect of environmental disclosure on firm value.

Social Disclosure, Profitability, and Firm Value

Social disclosure reflects the company's responsibility toward stakeholders, including employees and the community. It enhances corporate image and investor trust. However, its impact on firm value depends on profitability.

Companies with high profitability are better able to sustain social programs without affecting financial performance. This strengthens investor confidence that social initiatives are aligned with long-term business strategies.

H₆: Profitability moderates the effect of social disclosure on firm value.

Governance Disclosure, Profitability, and Firm Value

Governance disclosure emphasizes transparency and accountability in corporate management. It helps reduce agency problems and ensures sustainable business practices.

The effectiveness of governance disclosure is influenced by profitability. Firms with high profitability are more credible in implementing governance practices consistently. Conversely, low profitability may reduce investor confidence, even when governance disclosure is present.

H₇: Profitability moderates the effect of governance disclosure on firm value.

RESEARCH METHOD**Research Design**

This study employs a quantitative research design with a descriptive approach. Quantitative research is based on the positivism paradigm and aims to test previously formulated hypotheses using statistical analysis (Sugiyono, 2015). The study uses

secondary data obtained from official sources such as the Indonesia Stock Exchange (IDX) and company websites. The analysis method applied is multiple linear regression and panel data regression to examine the effect of independent variables on the dependent variable. In this study, firm value is the dependent variable, while Environmental, Social, and Governance (ESG) disclosures are the independent variables. Profitability, proxied by Return on Equity (ROE), acts as a moderating variable. The unit of analysis consists of energy sector companies listed on the Indonesia Stock Exchange (IDX) during the 2021–2024 period, with a total population of 66 companies.

Operational Variables

This study includes one dependent variable, three independent variables, and one moderating variable. Firm Value is measured using Tobin's Q, reflecting market perceptions of company performance (Indrarini 2019). Environmental Disclosure is measured based on the proportion of disclosed items to 31 indicators under GRI 300 standards. Social Disclosure is measured using the proportion of disclosed items to 36 indicators under GRI 400 standards. Governance Disclosure is measured using the proportion of disclosed items to 13 indicators under GRI 2 standards. Profitability (ROE) measures the company's ability to generate net income from equity (Hery 2017). All variables are measured using a ratio scale.

Population and Sampling Technique

The population includes all energy sector companies listed on the IDX during 2021-2024 (Sugiyono 2015). The sampling technique used is purposive sampling based on specific criteria, including: 1) Companies consistently listed during 2021-2024; 2) Availability of complete financial and annual reports; 3) Publication of sustainability reports based on GRI standards; 4) No equity deficiency; 5) No net losses during the observation period.

This study uses quantitative secondary data obtained from financial statements, annual reports, and sustainability reports accessed through the IDX website and official company websites. Data collection is conducted using the documentation method by reviewing financial reports, annual reports, and sustainability reports. Supporting data are also obtained from books, journals, and other relevant literature (Sugiyono, 2015).

Data Analysis Method

The study applies quantitative data analysis, including descriptive statistics and panel data regression. Panel data combines time series and cross-sectional data (Basuki & Prawoto, 2022). All analyses are conducted using EViews 13. Descriptive statistics provide an overview of the data through mean, minimum, maximum, and standard deviation values (Ghozali 2018). The regression models used are:

1. Main Model:

$$TQ = \alpha + \beta_1 ENV + \beta_2 SOC + \beta_3 GOV + e$$

2. Moderation Model:

$$TQ = \alpha + \beta_1 ENV + \beta_2 SOC + \beta_3 GOV + \beta_4 ROE + \beta_5 (ROE \times ENV) + \beta_6 (ROE \times SOC) + \beta_7 (ROE \times GOV) + e$$

Panel Data Regression Models

Three panel regression approaches are used: Common Effect Model (CEM) using Ordinary Least Squares (OLS), Fixed Effect Model (FEM) using Least Square Dummy Variable (LSDV) and Random Effect Model (REM) using Generalized Least Squares (GLS) (Ghozali, 2018). Model selection is conducted using the Chow test, Hausman test, and Lagrange Multiplier test (Ghozali, 2018). To ensure valid regression results, several

classical assumption tests are conducted (Ghozali, 2018): 1) Normality Test (Jarque-Bera); 2) Multicollinearity Test (correlation < 0.9); 3) Heteroscedasticity Test (Glejser test); 4) Autocorrelation Test (Durbin-Watson test). Hypothesis testing includes: 1) Coefficient of Determination (R^2) to measure explanatory power; 2) F-test to examine simultaneous effects; 3) t-test to examine partial effects; 4) All tests use a significance level of 0.05 (Ghozali, 2018).

RESULT AND DISCUSSION

This study examines the effect of Environmental, Social, and Governance (ESG) disclosure on firm value, with profitability as a moderating variable, in energy sector companies listed on the Indonesia Stock Exchange (IDX) during the 2021–2024 period. In accordance with Law No. 40 of 2007 on Limited Liability Companies and Financial Services Authority Regulation No. 51/POJK.03/2017, public companies in Indonesia particularly those operating in natural resource-based industries are required to implement social, environmental, and governance responsibilities through sustainability reporting. These regulations highlight the importance of sustainability practices, especially for companies with high ESG-related risks. This study aims to provide empirical evidence on how ESG disclosure and profitability influence investor perceptions of firm value.

During the observation period, there were 66 energy sector companies listed on the IDX. However, only firms that met specific criteria were selected as the sample to ensure the relevance and validity of the results. The sampling technique used was purposive sampling based on five predetermined criteria. As a result, 18 companies were initially selected, but 3 companies were excluded due to outlier data, leaving the final sample for analysis.

Descriptive Statistics Analysis

Descriptive statistics describe the characteristics of variables (TQ, ENV, SOC, GOV, ROE) using mean, maximum, minimum, and standard deviation.

Table 1. Descriptive Statistics Results

	TQ	ENV	SOC	GOV	ROE
Mean	0.915985	0,624194	0,630556	0,785897	0,187544
Maximum	1.323010	1,000000	1,000000	1,000000	0,614958
Minimum	0.513030	0,064516	0,055556	0,076923	0,000845
Std. Dev.	0.196337	0,281897	0,262543	0,319239	0,148725

Tobin's Q (Dependent Variable): The mean is 0.915985 with a standard deviation of 0.196337, indicating relatively homogeneous data. Since the average is below 1, most firms are considered undervalued, suggesting weaker investor confidence. The highest value (1.323010) was recorded by PT Indo Tambangraya Megah Tbk. in 2022, while the lowest (0.513030) was by PT Wintermar Offshore Marine Tbk. in 2021.

Environmental Disclosure (ENV): Measured based on GRI 300, ENV has a mean of 0.624194 and a standard deviation of 0.281897, indicating fairly homogeneous distribution. The maximum value (1.000000) was achieved by PT ABM Investama Tbk. (2022) and PT Indo Tambangraya Megah Tbk. (2023–2024), while the minimum (0.064516) was recorded by PT IMC Pelita Logistik Tbk. (2021). Higher ENV scores reflect better environmental transparency.

Social Disclosure (SOC): Based on GRI 400, SOC shows a mean of 0.630556 and a standard deviation of 0.262543, indicating homogeneous data distribution. The highest value (1.00000) was achieved by PT Indo Tambangraya Megah Tbk. (2023–2024) and PT Bukit Asam Tbk. (2022–2024), while the lowest (0.055556) was recorded by PT IMC Pelita Logistik Tbk. (2021). Higher SOC values indicate stronger transparency in social responsibility.

Governance Disclosure (GOV): Measured using GRI 2, GOV has a mean of 0.785897 and a standard deviation of 0.319239, suggesting relatively homogeneous data. The maximum value (1.00000) was achieved by 10 companies across 2021–2024 (31 observations), while the minimum (0.076923) was recorded by PT Elnusa Tbk., PT Medco Energi Internasional Tbk., and PT Wintermar Offshore Marine Tbk. in 2021. Higher GOV scores indicate stronger commitment to good corporate governance.

Return on Equity (ROE): As a proxy for profitability, ROE has a mean of 0.187544 and a standard deviation of 0.148725, indicating relatively high variation. The highest value (0.614958) was recorded by PT Indo Tambangraya Megah Tbk. in 2022, while the lowest (0.000845) was by PT Wintermar Offshore Marine Tbk. in 2021. Higher ROE reflects better company performance in generating profits from equity.

Regression Model Selection

Panel data regression can be estimated using three approaches: Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM). To determine the most appropriate model, the Chow test, Hausman test, and Lagrange Multiplier (LM) test were applied. Chow Test: Both direct and moderating effect results show probabilities below 0.05, indicating that the Fixed Effect Model (FEM) is more appropriate than CEM.

Table 2. Chow Test Results (Direct Effect)

Effects Test	Statistic	d.f.	Prob.
Cross-section F	3.454735	(14,41)	0.0010
Cross-section Chi-square	46.750285	14	0.0000

Table 3. Chow Test Results (Moderating Effect)

Effects Test	Statistic	d.f.	Prob.
Cross-section F	2.513421	(14,38)	0.0122
Cross-section Chi-square	39.326635	14	0.0003

Hausman Test: The probability values for both direct (0.4817) and moderating effects (0.7640) are above 0.05, suggesting that the Random Effect Model (REM) is more suitable than FEM.

Table 4. Hausman Test Results (Direct Effect)

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	3.474991	4	0.4817

Table 5. Hausman Test Results (Moderating Effect)

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	4.135578	7	0.7640

Lagrange Multiplier Test: The Breusch-Pagan probabilities for both direct (0.0013) and moderating effects (0.0231) are below 0.05, confirming that REM is preferred over CEM.

Table 6. Lagrange Multiplier Test Results (Direct Effect)

	Test Hypothesis		
	Cross-section	Time	Both
Breusch-Pagan	10.28694 (0.0013)	1.259803 (0.2617)	11.54674 (0.0007)

Table 7. Lagrange Multiplier Test Results (Moderating Effect)

	Test Hypothesis		
	Cross-section	Time	Both
Breusch-Pagan	5.159895 (0.0231)	1.025784 (0.3112)	6.185679 (0.0129)

Since the Hausman and LM test results are consistent, the Random Effect Model (REM) is selected as the most appropriate model for this study. Further analysis proceeds with classical assumption tests.

Classical Assumption Tests

Classical assumption tests typically include normality, multicollinearity, heteroskedasticity, and autocorrelation tests. In this study, only normality, multicollinearity, and heteroskedasticity tests were conducted. The autocorrelation test was not performed because the selected model is the Random Effect Model (REM), where intercepts vary across cross-sectional units while slopes remain constant over time. Conducting an autocorrelation test under this model may lead to biased indications. The results of these tests are presented accordingly.

Normality Test: The Jarque-Bera test was used to assess whether residuals are normally distributed. The probability values for both direct effect (0.492322) and moderating effect (0.370663) are greater than 0.05, indicating that the residuals are normally distributed. Thus, the regression model satisfies the normality assumption.

Multicollinearity Test: This test examines correlations among independent variables. Since all correlation values are below 0.9 in both direct and moderating effect models, there is no indication of multicollinearity. Therefore, the model is free from strong inter-variable correlations.

Heteroskedasticity Test

The results show that residual variances are constant (homoskedastic). In the direct effect model, the residuals remain within the acceptable range, while in the moderating effect model, all probability values exceed 0.05. This confirms that no heteroskedasticity problem exists. Overall, the regression model meets all classical assumptions, including normality, no multicollinearity, and homoskedasticity.

Regression Estimation Results

The regression model in this study involves three independent variables and one moderating variable, thus it is classified as a panel data regression model, as explained by Sugiyono (2015).

Table 8. Results of the Direct Effect Regression Equation Analysis

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.915985	0.031257	29.30499	0.0000
ENV	1.70E-07	1.74E-07	0.978637	0.3320
SOC	-1.24E-07	1.63E-07	-0.762806	0.4488
GOV	-6.84E-08	7.62E-08	-0.898303	0.3729
ROE	7.18E-07	1.50E-07	4.781903	0.0000

Table 9. Results of the Moderating Effect Regression Equation Analysis

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.941318	0.031160	30.20923	0.0000
ENV	6.19E-09	1.78E-07	0.034687	0.9725
SOC	-8.49E-09	1.66E-07	-0.051200	0.9594
GOV	-7.48E-08	9.20E-08	-0.813400	0.4197
ROE	9.45E-07	1.72E-07	5.478182	0.0000
ENVxROE	-1.22E-06	1.08E-06	-1.129580	0.2638
SOCxROE	-1.22E-06	1.04E-06	-1.175835	0.2450
GOVxROE	6.93E-07	7.92E-07	0.874312	0.3860

The regression equations are obtained as follows:

$$TQ = 0.915985191911 + 1.69805381029e-07*ENV - 1.24265084263e-07*SOC - 6.84172487453e-08*GOV + 7.17995941925e-07*ROE + e \dots\dots\dots(1)$$

$$TQ = 0.941318004666 + 6.1862566016e-09*ENV - 8.48524412002e-09*SOC - 7.4841819486e-08*GOV + 9.44551648761e-07*ROE - 1.21738611527e-06*ENVxROE - 1.21927647749e-06*SOCxROE + 6.92564723577e-07*GOVxROE + e \dots\dots\dots(2)$$

Notes:

TQ : Tobin's Q (firm values)
 ENV : *Environmental*
 SOC : *Social*
 GOV : *Governance*
 ROE : *Return on equity ratio*
 ENVxROE : *Environmental moderated Return on equity ratio*
 SOCxROE : *Social moderated Return on equity ratio*
 GOVxROE : *Governance moderated Return on equity ratio*
 e : *Error*

Coefficient of Determination (R²)

The R² test measures how well the independent variables explain the dependent variable. The adjusted R² for the direct effect model is 0.306 (30.64%), indicating that ESG disclosure and ROE explain 30.64% of firm value (Tobin's Q), while the remaining 69.36% is explained by other factors. After including the moderating effect, the adjusted R² increases to 0.372 (37.15%), showing an improvement of 6.51% in explanatory power.

Table 10. Results of the Direct Effect Coefficient of Determination (R²)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.915985	0.031257	29.30499	0.0000
ENV	1.70E-07	1.74E-07	0.978637	0.3320
SOC	-1.24E-07	1.63E-07	-0.762806	0.4488
GOV	-6.84E-08	7.62E-08	-0.898303	0.3729
ROE	7.18E-07	1.50E-07	4.781903	0.0000
R-squared				0.353448
Adjusted R-squared				0.306426

Table 11. Results of the Moderating Effect Coefficient of Determination (R²)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.941318	0.031160	30.20923	0.0000
ENV	6.19E-09	1.78E-07	0.034687	0.9725
SOC	-8.49E-09	1.66E-07	-0.051200	0.9594
GOV	-7.48E-08	9.20E-08	-0.813400	0.4197
ROE	9.45E-07	1.72E-07	5.478182	0.0000
ENVxROE	-1.22E-06	1.08E-06	-1.129580	0.2638
SOCxROE	-1.22E-06	1.04E-06	-1.175835	0.2450
GOVxROE	6.93E-07	7.92E-07	0.874312	0.3860
R-squared				0.446107
Adjusted R-squared				0.371545

Simultaneous Significance Test (F-Test)

The F-test results show that both models are statistically significant. The direct effect model has an F-statistic of 7.516659 ($p = 0.000066$), while the moderating model has an F-statistic of 5.982993 ($p = 0.000039$). Since all probability values are below 0.05, ESG and ROE jointly have a significant effect on firm value, and the regression model is considered appropriate and reliable.

Table 12. Direct Effect Simultaneous Significance Test (F-Test)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.915985	0.031257	29.30499	0.0000
ENV	1.70E-07	1.74E-07	0.978637	0.3320
SOC	-1.24E-07	1.63E-07	-0.762806	0.4488
GOV	-6.84E-08	7.62E-08	-0.898303	0.3729
ROE	7.18E-07	1.50E-07	4.781903	0.0000
F-statistic				7.516659
Prob(F-statistic)				0.000066

Table 13. Moderating Effect Simultaneous Significance Test (F-Test)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.941318	0.031160	30.20923	0.0000
ENV	6.19E-09	1.78E-07	0.034687	0.9725
SOC	-8.49E-09	1.66E-07	-0.051200	0.9594
GOV	-7.48E-08	9.20E-08	-0.813400	0.4197
ROE	9.45E-07	1.72E-07	5.478182	0.0000
ENVxROE	-1.22E-06	1.08E-06	-1.129580	0.2638
SOCxROE	-1.22E-06	1.04E-06	-1.175835	0.2450
GOVxROE	6.93E-07	7.92E-07	0.874312	0.3860
F-statistic				5.982993
Prob(F-statistic)				0.000039

Partial Significance Test (t-test)

The partial significance test, or t-test, is conducted to determine the effect of each independent variable on firm value. In this study, the significance level for the t-test is set at 0.05. This means that an independent variable is considered to have a significant effect on firm value if its probability value is less than 0.05.

Table 14. Direct Effect Partial Significance Test (t-test)

Variable	Coefficient	Std. Error	t-Statistic	Prob.	Ket.
C	0.915985	0.031257	29.30499	0.0000	-
ENV	1.70E-07	1.74E-07	0.978637	0.3320	Not Significant
SOC	-1.24E-07	1.63E-07	-0.762806	0.4488	Not Significant
GOV	-6.84E-08	7.62E-08	-0.898303	0.3729	Not Significant
ROE	7.18E-07	1.50E-07	4.781903	0.0000	Significant

Based on the t-test results in Table 14, the partial effects of the independent variables on firm value can be summarized as follows, environmental, social, and governance (ESG) disclosures do not have a significant effect on firm value. This is indicated by their probability values, which are all above 0.05, leading to the rejection of Hypotheses 1, 2, and 3. In contrast, profitability, measured by return on equity (ROE), has a positive and significant effect on firm value, as its probability value is below 0.05. Therefore, Hypothesis 4 is accepted.

Table 15. Moderating Effect Partial Significance Test (t-test)

Variable	Coefficient	Std. Error	t-Statistic	Prob.	Ket.
C	0.941318	0.031160	30.20923	0.0000	-
ENV	6.19E-09	1.78E-07	0.034687	0.9725	Not Significant
SOC	-8.49E-09	1.66E-07	-0.051200	0.9594	Not Significant
GOV	-7.48E-08	9.20E-08	-0.813400	0.4197	Not Significant
ROE	9.45E-07	1.72E-07	5.478182	0.0000	Significant
ENVxROE	-1.22E-06	1.08E-06	-1.129580	0.2638	Not Significant
SOCxROE	-1.22E-06	1.04E-06	-1.175835	0.2450	Not Significant
GOVxROE	6.93E-07	7.92E-07	0.874312	0.3860	Not Significant

Based on the t-test results, profitability (measured by return on equity/ROE) does not significantly moderate the relationship between ESG disclosures and firm value.

Specifically, ROE fails to moderate the effects of environmental, social, and governance disclosures on firm value, as all probability values are above 0.05. Therefore, Hypotheses 5, 6, and 7 are rejected.

Interpretation

Based on the multiple regression analysis using the Random Effect Model (REM), two regression equations were obtained.

$$TQ = 0.916 + 1.70E-07*ENV - 1.24E-07*SOC - 6.84E-08*GOV + 7.18E-07*ROE + e \dots\dots\dots(1)$$

In the first model, the constant indicates that firm value (Tobin's Q) remains at approximately 0.916 when ESG disclosures and ROE are held constant. Environmental disclosure has a positive effect on firm value, while social and governance disclosures have negative effects. Profitability (ROE) shows a positive effect on firm value.

$$TQ = 0.9413 + 6.19E-09*ENV - 8.49E-09*SOC - 7.48E-08*GOV + 9.45E-07*ROE - 1.22E-06*ENVxROE - 1.22E-06*SOCxROE + 6.93E-07*GOVxROE + e \dots\dots\dots(2)$$

In the second model (with moderation), the constant increases slightly to about 0.9413. The moderating role of profitability (ROE) on ESG disclosures shows mixed directions: it weakens the effects of environmental and social disclosures (negative coefficients) and strengthens the effect of governance disclosure (positive coefficient). However, these moderating effects are relatively small.

Discussion

The results show that environmental, social, and governance (ESG) disclosures together with profitability (ROE) explain about 30.64% of firm value (Tobin's Q), increasing to 37.15% when moderation is included. Additionally, all variables jointly have a significant effect on firm value based on the F-test, indicating that the model is statistically valid.

However, individually, ESG disclosures do not significantly affect firm value. Environmental disclosure has no significant impact, suggesting that investors in Indonesia's energy sector do not yet consider environmental responsibility a key determinant of market valuation. This finding is consistent with prior studies (Aydoğmuş, Gülay, dan Ergun 2022; Conca et al. 2021; Intan Putri Devianti 2025), but contradicts signalling theory, as environmental information fails to act as a meaningful signal for investors. It also does not fully support stakeholder theory, as such disclosures are perceived more as regulatory compliance than value creation.

Similarly, social disclosure shows a negative but insignificant effect on firm value. Investors tend to perceive social activities as non-value-adding or merely compliance-driven, even though they may improve corporate image. This aligns with studies by Wijayanti et al. (2020), Ahmad et al. (2021), Conca et al. (2021), and Firmansyah et al. (2021), but contradicts findings that social disclosure enhances firm value (Aydoğmuş, Gülay, dan Ergun 2022; Yu dan Xiao 2022).

For governance disclosure, the results also indicate a negative and insignificant relationship with firm value. Investors appear to view governance disclosures as administrative compliance with varying quality, rather than as a strong differentiating factor. This finding supports Firmansyah et al. (2021), Conca et al. (2021), and Yu & Xiao (2022), but contrasts with studies suggesting a positive impact (Ahmad et al. 2021; Rahelliamelinda dan Handoko 2024).

In contrast, profitability (ROE) has a positive and significant effect on firm value, confirming that investors prioritize financial performance. This supports signalling theory, where higher profitability serves as a strong positive signal regarding future returns and shareholder wealth (Faradila dan Effendi 2023; Listyawati dan Kristiana 2020).

Regarding moderation effects, ROE does not significantly strengthen the relationship between ESG and firm value. It weakens (but does not significantly change) the negative effects of environmental and social disclosures and has no significant impact on governance disclosure. These findings are consistent with Dorothy & Endri (2024) and Rahmah et al. (2024), suggesting that profitability does not enhance the value relevance of ESG in the energy sector.

From a theoretical perspective, these results indicate that signalling theory is only supported by profitability, while ESG disclosures fail to function as effective signals. Similarly, stakeholder theory is not strongly supported, as ESG disclosures have not yet translated into tangible value perceived by investors.

One key explanation is that Indonesian investors still focus primarily on traditional financial and technical analysis. Many prioritize short-term price movements or financial indicators such as profitability, revenue growth, and capital structure. Behavioral factors like fear of missing out (FOMO) also drive investment decisions, reducing attention to ESG information. As a result, ESG disclosures are often overlooked and perceived merely as compliance rather than strategic value drivers.

CONCLUSION

Conclusions

This study aims to examine the effect of environmental, social, and governance (ESG) disclosures, moderated by profitability measured by return on equity (ROE), on firm value. The research focuses on energy sector companies listed on the Indonesia Stock Exchange (IDX) during the 2021–2024 period, with a total sample of 60 observations. Based on the analysis conducted, the following conclusions are drawn Environmental disclosure has no effect on firm value, Social disclosure has no effect on firm value, Governance disclosure has no effect on firm value. Profitability (ROE) has a positive and significant effect on firm value. Profitability (ROE) does not moderate the relationship between environmental disclosure and firm value. Profitability (ROE) does not moderate the relationship between social disclosure and firm value. Profitability (ROE) does not moderate the relationship between governance disclosure and firm value.

Limitations

Based on the analysis, this study has several limitations: 1) The sample is limited to energy sector companies listed on the IDX from 2021 to 2024 that consistently publish sustainability reports in accordance with GRI standards; 2) The independent variables in this study explain only 37.15% of the variation in firm value, meaning that 62.85% is influenced by other factors not included in the model.

Suggestions for Future Research

Based on the findings and limitations, several recommendations are proposed to improve future research and ESG implementation in Indonesia: 1) Future studies are expected to expand the sample by including companies from different sectors on the IDX and extending the research period; 2) Future research should include additional independent variables to better explain firm value, such as firm characteristics (e.g., age and size), dividend policy, and other relevant factors; 3) Companies are encouraged to consistently implement ESG practices and disclose them in accordance with applicable standards while maintaining strong financial performance. This is important to support sustainable development and long-term business continuity; 4) The government and regulatory authorities are expected to establish a unified sustainability reporting standard and promote ESG adoption across all business sectors, not only for publicly listed companies, to ensure broader and more consistent commitment to sustainability.

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