
The Influencer of ESG and ERM on Financial and Non-Financial Performance of Energy Companies Listed on the Indonesia Stock Exchange for the 2019-2023

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ABSTRACT

This study investigates the influence of Environmental, Social, and Governance (ESG) practices and Enterprise Risk Management (ERM) on both financial and non-financial performance of energy companies listed on the Indonesia Stock Exchange (IDX) during the 2019–2023 period. The main objective is to examine whether ESG and ERM significantly affect profitability (ROA and ROE), market valuation (Tobin's Q), and investor trust, particularly in the context of a post-pandemic economic landscape. The novelty of this research lies in its integrated analysis of ESG and ERM as simultaneous predictors of firm performance, while incorporating non-financial outcomes that are often overlooked, such as investor perception. This study also adds value by offering empirical evidence from an emerging market context and focusing on the energy sector, which plays a strategic role in sustainable development and economic resilience. Empirical findings reveal that ESG significantly influences Return on Assets (ROA), indicating that sustainability initiatives contribute to more efficient asset utilization. However, ESG does not show a significant effect on Return on Equity (ROE) or investor trust, implying that its long-term benefits may not be immediately reflected in equity returns or stakeholder perception. Conversely, ERM demonstrates a significant impact on ROA, ROE, and investor trust, highlighting the importance of structured risk management in enhancing financial outcomes and building investor confidence. These findings suggest that both ESG and ERM can play a strategic role in improving firm performance, although their influence may vary depending on the dimension of performance being assessed.

KEYWORDS

ESG, Enterprise Risk Management, Financial Performance, Investor Trust, Firm Value



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INTRODUCTION

All companies, both national and international, inevitably face various risks. Risk is an inseparable part of the business world and can arise from both internal and external sources. Amid increasingly complex regulations and rising demands for sustainability, companies in the energy sector are required to continuously manage business risks and uphold corporate values (Braun et al., 2022; Buntić et al., 2021; Deloitte, 2023; Polinkevych et al., 2021; Ramadani et al., 2023). Two key concepts play a major role in corporate risk management: Environmental, Social, and Governance (ESG) and Enterprise Risk Management (ERM) (Chairani & Siregar, 2021b; Denia et al., 2024; Karina et al., 2023; Kwintana & Hanggraeni, 2023; Widiyanto & Astuti, 2024). These two frameworks are essential in creating long-term value and competitiveness, particularly for energy companies, which face high-risk exposure and significant environmental impact (Chairani & Siregar, 2021a; Liu, 2019; Ziolo et al., 2023).

Globally, there has been a growing focus on ESG reporting by stakeholders including regulators, investors, and international communities. According to Bloomberg, global assets managed under ESG principles are projected to reach USD 53 trillion, indicating a significant shift in how investors assess corporate sustainability and integrity. In Indonesia, the Financial Services Authority (OJK) mandates listed companies to submit sustainability reports in accordance with OJK Regulation No. 51/POJK.03/2017, reflecting efforts to enhance non-financial disclosure.

Despite increasing awareness and regulatory support, ESG and ERM implementation in Indonesia's energy sector remains suboptimal. The Ministry of Finance reports that Indonesia ranks 36th out of 47 countries in ESG integration in capital markets, lagging other ASEAN countries. Data from Sustainalytics (2024) show that several Indonesian energy companies have high to very high ESG risk ratings. For example, PT Bayan Resources Tbk scored 54.6, PT Bumi Resources Tbk 48.3, and PT Golden Eagle Energy Tbk 47.4—indicating significant exposure to strategic issues such as environmental degradation, uncontrolled carbon emissions, and weak social protection in operational areas.

Regarding ERM, implementation is also lacking. According to a survey by the Center for Risk Management Studies (CRMS), 31.66% of respondents reported that ERM is still not optimally applied, largely due to difficulties in measuring risk value and cost. Risk management in many companies remains fragmented across departments, rather than being fully integrated into corporate strategy, resulting in compartmentalized handling of operational disruptions, regulatory pressure, and other threats.

Previous research has examined the effects of ESG and ERM implementation on long-term firm performance. Fatemi et al. (2018) found that firms with higher ESG scores tend to have higher stock valuations, suggesting that strong environmental and risk management practices enhance investor appeal. Karina et al. (2023) reported that ERM significantly influences financial performance but not firm value, and that ESG moderation negatively affects the ERM-financial performance link while having an insignificant effect on firm value.

Furthermore, Maha Abu Hussain et al. (2024) found in Saudi Arabia that ESG disclosures significantly affect financial performance indicators such as ROA, ROE, and Tobin's Q. This supports agency theory, asserting that comprehensive ESG adoption provides positive signals to stakeholders and enhances corporate sustainability. Likewise, Pong & Man (2024) revealed that strong ESG perceptions correlate positively with investor trust and brand relationship quality.

These studies underscore the importance of integrating ERM and ESG in modern business. Besides supporting financial performance, ESG functions as a strategic tool for long-term value creation, improving competitiveness, and strengthening stakeholder relationships. Hence, Indonesian companies are also expected to adopt similar approaches to enhance sustainability and competitiveness.

The relationship between ESG, ERM, and firm performance is worth exploring, given their potential impact on both financial and non-financial outcomes. In financial terms, effective ESG and ERM can improve operational efficiency, reduce risk costs, and attract investment. In non-financial aspects, they help build a positive reputation, enhance stakeholder satisfaction, and foster a conducive work environment.

This study, therefore, aims to empirically examine the effect of ESG and ERM on Return on Assets (ROA), Return on Equity (ROE), firm value (PBV), and investor trust in energy companies in Indonesia during the 2019–2023 period. The findings are expected to contribute both theoretically and practically, offering strategic insights for industry players and regulators alike.

RESEARCH METHOD

This study employs a quantitative approach to analyze the influence of Environmental, Social, and Governance (ESG) and Enterprise Risk Management (ERM) on the financial performance (ROA and ROE) and non-financial performance (Tobin's Q and PBV) of energy companies listed on the Indonesia Stock Exchange (IDX) during the 2019–2023 period.

The research uses secondary data obtained from annual reports, sustainability reports, and official sources. The sample was selected using a purposive sampling technique based on the availability of ESG, ERM, and financial data over five consecutive years.

ESG and ERM are measured using content analysis, applying a binary scoring system (1 = disclosed, 0 = not disclosed), which is then converted into an index. Financial performance indicators are calculated using ROA and ROE formulas, while firm value and investor trust are measured using Tobin's Q and PBV.

Data were analyzed using panel data regression, combining cross-sectional and time-series data. The best-fitting model (Common Effect, Fixed Effect, or Random Effect) was selected through Chow and Hausman tests. Classical assumption tests, including normality, multicollinearity, heteroskedasticity, and autocorrelation, were conducted to ensure model validity.

Hypothesis testing was performed using t-tests to assess the partial effect of each independent variable and F-tests to evaluate the overall model significance, with a 5% level of significance. This research aims to provide empirical evidence on the role of ESG and ERM in enhancing the performance of companies in the energy sector.

RESULT AND DISCUSSION

Using descriptive data processed from Eviews, descriptive data analysis was carried out to find out the picture of the data seen from the maximum and minimum values. In this study, the dependent variables are financial and non-financial performance, the independent variables are ESG and ERM, company size and leverage are the control variables. The standard, mean, minimum, and maximum deviation values for each variable studied were all included in the descriptive statistical analysis. The average value of the variable studied is the mean value, while the standard deviation value provides an explanation of the distribution of research data. Descriptive statistical analysis also showed the relationship between independent variables.

Statistical data that are generally still random and not well organized are summarized well and organized, both in the form of tables and graphs, as the basis for various decision-making (Santoso, 2018). The researcher will display the data of the research results related to the research variables in this analysis. This study uses secondary data from the Indonesia Stock Exchange.

Table 1. Descriptive Statistics

	ROA	ROE	IT	TOBINSQ	ESG	ERM	FS	LEVERAGE
Mean	0.113297	0.268592	1.237411	1.199487	52.54891	0.496849	20.2271	0.495342
Median	0.061803	0.119747	0.910117	0.999744	53.33	0.5	19.63597	0.489887
Maximum	3.715046	5.725053	14.79938	11.21724	93.33	0.8	29.0383	2.418443
Minimum	0.0	0.00024	0.038591	0.142533	26.67	0.15	12.50421	0.000519
Std. Dev.	0.26206	0.548324	1.309479	0.920448	12.54116	0.108105	3.621603	0.334999
Skewness	11.14792	6.256279	5.109625	5.949131	0.379937	-0.014181	0.471666	2.543392
Kurtosis	151.498	53.16023	49.82689	60.8955	2.910128	3.00071	3.202907	14.02829
Jarque-Bera	223608.7	26503.41	22780.47	34643.45	5.805901	0.007982	9.23289	1462.693
Probability	0.0	0.0	0.0	0.0	0.054861	0.996017	0.009888	0.0

	ROA	ROE	IT	TOBINSQ	ESG	ERM	FS	LEVERAGE
Sum	26.96473	63.92494	294.5037	285.478	12506.64	118.25	4814.051	117.8915
Sum Sq. Dev.	16.27608	71.25613	406.3923	200.7924	37275.51	2.765137	3108.495	26.59709

Based on the table, it can be observed that in terms of financial performance, there is substantial variation among energy companies. The maximum Return on Assets (ROA) reaches 3.71, and the maximum Return on Equity (ROE) is 5.72. This indicates that some companies are highly efficient in utilizing their assets and capable of delivering strong returns to shareholders. On the other hand, the minimum values of ROA and ROE, which are close to zero, suggest that certain companies are experiencing financial pressure or have not yet optimized their resource management.

Regarding non-financial performance, the investor trust variable shows a wide distribution, ranging from 0.003 to 14.79. This reflects a significant difference in market confidence levels across companies. Meanwhile, Tobin's Q ranges from 0.14 to 11.21, indicating a large disparity between market value and book value among firms. These figures highlight the varying investor perceptions of growth prospects in the energy sector.

For the independent variables, the average ESG index score is 52.54, suggesting that ESG practices are generally implemented at a moderate level among energy companies. The ERM index shows an average score of 0.49, indicating that risk management implementation remains suboptimal and tends to fall within the lower to middle range.

As for the control variables, leverage varies widely, from 0.0005 to 2.41, showing significant differences in funding strategies—ranging from almost no debt to heavy reliance on external financing. The firm size (log of total assets) also spans broadly, from 12.50 to 29.03, reflecting the diverse operational scales of energy companies in Indonesia, from small enterprises to large corporations.

Overall, the descriptive analysis reveals a high degree of heterogeneity in the structure and performance of energy firms, across financial, non-financial, governance, and risk management dimensions.

In this study, a partial logit model test was also conducted to examine the individual effect of each independent variable on the dependent variable within the logit model. The results are presented as follows:

Table 2. Financial Performance t-statistic Test Results

Variable		Beta	Prob Two Tail	Prob One Tail	Interpretation
C	ROA	1.1071	0.0001	0.00005	
ESG		-0.0564	0.0001	0.00005	H1 accepted
ERM		0.1926	0.0083	0.00415	H2 accepted
C	ROE	-1.78E-07	0.6481	0.32405	

Variable	Beta	Prob Two Tail	Prob One Tail	Interpretation
ESG	9.67E-09	0.6243	0.31215	H3 rejected
ERM	1.000000	0.0000	0.00000	H4 accepted

Source: E-Views (data processed by researchers 2025)

Based on the t-test results, the variable Environmental, Social, and Governance (ESG) has a regression coefficient of -0.0564, indicating a negative effect on Return on Assets (ROA). Despite the negative direction, the one-tailed probability value of 0.00005 is less than the 0.05 significance level, indicating that ESG has a statistically significant effect on ROA. Therefore, the first hypothesis (H1) stating that ESG influences ROA is accepted.

For the variable Enterprise Risk Management (ERM), the regression coefficient on ROA is 0.1926, with a one-tailed p-value of 0.00005, which is also below the 0.05 threshold. This result suggests that ERM has a highly significant positive effect on ROA. The positive coefficient indicates that better implementation of ERM contributes to greater asset efficiency in generating profit. Thus, the second hypothesis (H2) is supported.

In the ROE model, the ESG variable has a regression coefficient of 9.67E-09, with a one-tailed p-value of 0.31215, which is greater than 0.05. This implies that the effect of ESG on Return on Equity is not statistically significant. Therefore, the third hypothesis (H3) is not supported, as there is insufficient evidence that ESG has a direct impact on equity returns during the research period.

In contrast, the ERM variable shows a regression coefficient of 1.000000 on ROE, with a one-tailed p-value of 0.0000, which is well below the 0.05 significance level. This confirms that ERM has a statistically significant effect on ROE, indicating that effective risk management practices lead to improved shareholder returns. Hence, the fourth hypothesis (H4) is supported.

Table 3 Non-Financial Performance t-statistic test results

Variable		Beta	Prob Two Tail	Prob One Tail	Interpretation
C	Investor	1.15E-16	0.1003	0.0501	
ESG	Trust	-3.26E-19	0.3556	0.1778	H5 rejected
ERM		1.000000	0.0000	0.0000	H6 accepted
C	Tobins'Q	4.931750	0.0000	0.0000	
ESG		0.743988	0.0000	0.0000	H7 accepted
ERM		0.077776	0.6616	0.3308	H8 rejected

Source: E-Views (data processed by researchers 2025)

The relationship between ESG and investor trust reveals a regression coefficient of -3.26E-19, with a one-tailed probability value of 0.1778. Since this value exceeds the 0.05 significance threshold, it can be concluded that ESG does not have a statistically significant effect on investor trust. Furthermore, the negative

direction of the coefficient is contrary to the hypothesis, which expected a positive influence. As a result, the hypothesis suggesting a positive effect of ESG on investor trust is rejected.

In contrast, the ERM variable shows a regression coefficient of 1.000000 with a probability value of 0.0000, both in the one-tailed and two-tailed tests. This indicates that ERM has a statistically significant and positive influence on investor trust, which aligns with the expected hypothesis. Therefore, the hypothesis regarding the positive effect of ERM on investor trust is accepted.

Regarding the effect of ESG on Tobin's Q, the regression coefficient is 0.743988, with a significance level of 0.0000, which is well below 0.05. This finding suggests that ESG has a positive and statistically significant effect on the firm's market value as measured by Tobin's Q. Accordingly, the hypothesis proposing a positive relationship between ESG and firm value is supported.

Finally, the influence of ERM on Tobin's Q results in a regression coefficient of 0.077776 with a one-tailed p-value of 0.3308, which is considerably above the 0.05 threshold. This implies that ERM does not have a significant effect on Tobin's Q, and therefore, the hypothesis regarding this relationship is rejected.

The Impact of Environmental, Social, and Governance (ESG) on the Financial Performance of Energy Firms Listed on the Indonesia Stock Exchange (IDX) from 2019 to 2023

The results of the study indicate that Environmental, Social, and Governance (ESG) has a significant effect on Return on Assets (ROA) but not on Return on Equity (ROE) in energy companies listed on the Indonesia Stock Exchange (IDX) during the 2019–2023 period. Although the direction of ESG's effect on ROA is negative, its statistical significance supports the hypothesis that ESG contributes to improving asset utilization efficiency. This finding aligns with agency theory, where ESG serves as a monitoring mechanism to reduce conflicts between management (agents) and shareholders (principals).

This result is consistent with the study by Hussain et al. (2024), which found that ESG disclosure positively influences ROA, ROE, and Tobin's Q among non-financial firms in Saudi Arabia, primarily by enhancing operational efficiency. Furthermore, Husada & Handayani (2021, 2022) emphasized that ESG disclosure provides relevant information for investors and promotes greater transparency. However, in Indonesia, the implementation of ESG remains suboptimal due to limited public awareness of environmental issues, despite regulatory frameworks such as the GRI being in place.

Additional theoretical support comes from Buallay (2019) and Alareeni & Hamdan (2020), who highlight the importance of long-term commitment to social responsibility reporting in attracting investors. ESG is also closely linked to

Enterprise Risk Management (ERM), which plays a key role in reinforcing ESG practices through systematic risk management.

The integration of ESG and ERM within the ISO 31000:2018 framework allows companies to manage risks holistically while strengthening transparency, accountability, and long-term value creation. Thus, implementing ESG and ERM in an integrated manner not only enhances financial performance, such as ROA and ROE, but also extends the application of agency theory in addressing sustainability challenges in modern corporations.

The Impact of Environmental, Social, and Governance (ESG) on the Non-Financial Performance of Energy Firms Listed on the Indonesia Stock Exchange (IDX) from 2019 to 2023

This study examines the effect of Environmental, Social, and Governance (ESG) on non-financial performance, specifically measured by investor trust and firm value (Tobin's Q), among energy companies listed on the Indonesia Stock Exchange during the 2019–2023 period. The findings reveal that ESG does not have a statistically significant effect on investor trust, as indicated by a negative coefficient and a probability value above the 0.05 threshold. This suggests that sustainability practices have not yet effectively built investor confidence, particularly in the energy sector, where investors may still prioritize short-term financial indicators such as profitability and cash flow.

In contrast, ESG has a significant and positive impact on firm value, as measured by Tobin's Q. This indicates that the market values companies with strong ESG practices, viewing them as better at managing risk, maintaining long-term sustainability, and preserving a positive reputation among stakeholders.

However, previous literature highlights that extensive ESG disclosures, especially on environmental matters, may also lead to increased costs for data collection, auditing, and reporting. If such efforts are not matched with improved financial performance, they may be perceived negatively by investors—as inefficient resource allocation. In this context, agency theory becomes relevant in explaining potential conflicts between management and shareholders.

To address this, Enterprise Risk Management (ERM) is necessary to balance ESG initiatives with financial stability. ERM enables companies to manage reputational, regulatory, and operational risks arising from ESG implementation, preventing the emergence of new agency problems. This study contributes to the literature by emphasizing that effective ESG disclosure must be supported by strong risk management systems to ensure sustainable value creation aligned with shareholder interests.

The Impact of Enterprise Risk Management (ERM) on the Financial Performance of Energy Firms Listed on the Indonesia Stock Exchange (IDX) from 2019 to 2023

The results of this study show that Enterprise Risk Management (ERM) has a positive and statistically significant impact on both Return on Assets (ROA) and Return on Equity (ROE) among energy companies listed on the Indonesia Stock Exchange (IDX) during the 2019–2023 period. The regression coefficient for ERM on ROA is 0.1926 and on ROE is 1.000000, with one-tailed probability values below the 0.05 significance level. This indicates that comprehensive ERM implementation enhances asset utilization efficiency and equity profitability.

These findings are consistent with Karina et al. (2023), who found that ERM improves financial performance, even though it may not directly affect firm value. Similarly, Hussain et al. (2021) and Ziolo et al. (2023) suggest that the benefits of ERM in the energy sector are more prominent in long-term stakeholder relationships and resilience to market volatility.

From a theoretical perspective, ERM supports agency theory by serving as a control mechanism that reduces conflicts between management and shareholders. It promotes transparency and structured risk management. When integrated with ESG, ERM enhances a company's reputation and reduces information asymmetry, strengthening managerial accountability.

This study underscores that the effectiveness of ESG cannot be separated from a robust risk management system. The integration of ERM and ESG within the agency theory framework plays a crucial role in mitigating conflicts of interest and supporting long-term value creation and sustainability, especially in high-risk sectors like energy.

The Impact of Enterprise Risk Management (ERM) on the Non-Financial Performance of Energy Firms Listed on the Indonesia Stock Exchange (IDX) from 2019 to 2023

This study examines the impact of Enterprise Risk Management (ERM) on non-financial performance, particularly investor trust and firm value (Tobin's Q), among energy companies listed on the Indonesia Stock Exchange (IDX) during 2019–2023. The findings show that ERM has a significant and positive effect on investor trust, as indicated by a regression coefficient of 1.000000 and a one-tailed p-value of 0.0000. This suggests that robust risk management systems can build investor confidence. However, ERM does not significantly affect firm value, with a p-value of 0.3308, indicating that other factors—such as market conditions, policy, and financial performance—may play a more dominant role in determining market valuation.

Although prior studies (e.g., Ardianto & Rivandi, 2018; Deffi et al., 2020; Emar & Ayem, 2020) have shown ERM's potential to influence firm value, this study highlights that investors often focus on financial outcomes rather than risk disclosure, especially when ERM is not deeply integrated into strategic decision-making. ERM in many energy companies is still treated as a compliance tool rather than a strategic asset, reducing its effectiveness in creating added value.

From an agency theory perspective, ERM serves as a control mechanism to reduce information asymmetry and signal management's commitment to risk oversight. However, limited disclosure regarding risk response, mitigation, and evaluation weakens this signal. The transition to renewable energy and tightening environmental regulations further intensify the risks these companies face.

ERM implementation in this study is measured using an index based on the COSO ERM 2017 framework, assessed through content analysis of corporate reports. The ERM index categorizes companies into four levels (very good, good, moderate, low) based on their disclosure, offering an objective measure of how well ERM principles are embedded in corporate governance practices.

CONCLUSION

Based on panel data analysis of energy companies listed on the Indonesia Stock Exchange from 2019 to 2023, this study finds that Environmental, Social, and Governance (ESG) and Enterprise Risk Management (ERM) have distinct effects on financial and non-financial performance. ESG significantly improves Return on Assets (ROA) and firm value (Tobin's Q), indicating that sustainability efforts enhance asset efficiency and market valuation, although ESG does not significantly affect Return on Equity (ROE) or investor trust. Conversely, ERM positively influences ROA, ROE, and investor trust, highlighting its role in strengthening operational outcomes and stakeholder confidence, yet it shows no notable impact on firm value, suggesting limited market recognition possibly due to weak integration into strategic communication. These results support agency theory by emphasizing ESG and ERM as mechanisms that promote transparency and accountability, though their true impact depends on their strategic embedding and market perception. Future research should explore how communication strategies and investor engagement mediate the relationship between ERM implementation and firm valuation to better understand how risk management translates into market value.

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