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Article

Assessing the Impact of Financial Risk and Ownership Structure on ESG Disclosure: Insights from the Energy Sector in Indonesia

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Abstract

Purpose - This study aims to investigate the influence of financial risk and ownership structure on the level of environmental, social, and governance (ESG) disclosure in the energy sector in Indonesia. The research addresses the gap in ESG literature by integrating financial performance indicators and shareholding composition into a unified disclosure model. **Research methodology** - A quantitative research design was employed using purposive sampling of 69 firm-year observations from energy companies listed on the Indonesia Stock Exchange between 2020 and 2023. ESG disclosure was measured using the Nasdaq ESG indicators. Multiple linear regression was used to analyze the relationship between return on assets (ROA), managerial, institutional, and foreign ownership, and a dummy variable representing the COVID-19 period. **Findings** - The results indicate that only institutional ownership significantly and positively influences ESG disclosure. ROA, managerial ownership, foreign ownership, and the COVID-19 dummy variable do not have significant effects. **Research limitations** - Binary scoring applied to ESG disclosures may limit the extent or quality of disclosure. The follow-up time is only 3 years. **Practical implications** - The results indicate that institutional investors may be effective enforcers of ESG considerations, particularly in high-environmental-impact industries. **Originality/Value** - This research fills a literature gap by employing Nasdaq ESG indicators in an emerging market setting, with a focus on energy companies in the aftermath of the pandemic.

Keywords: ESG disclosure; financial risk; ownership structure; energy sector; Indonesia

1. Introduction

In recent time many financial markets across the globe have been considering the importance of the environmental, social, and governance (ESG) factors while making investment decisions (Almeyda & Darmansya, 2019). ESG considerations have become key factors for institutional and retail investors to evaluate corporate sustainability and the degree of its risk exposure. This tilt had encouraged companies to overhaul their ESG profiles, out of a need to satisfy stakeholders and attract long-term capital. Investment institutions including asset managers and pension funds now routinely consider ESG performance of companies in making investment decisions.

Many academics now agree that it is not just a matter of social conscience but it has a close relationship with the financial health and risk management of an organization (Kim & Li, 2021). The Indonesia Stock Exchange (IDX) has responded by introducing the ESG Leader Index to assess firms with exemplary ESG practices, financial soundness, and market liquidity. The energy sector, a cornerstone of Indonesia's capital market due to its resource-based economy, has drawn particular

attention. However, this sector is also a primary contributor to environmental degradation. In 2019 alone, 11 oil and gas companies were sanctioned for environmental violations (Amelia, 2019), reinforcing public perception that energy firms often conflict with sustainable development goals (Baraputri, 2023).

ESG has become a tool to address such risks, offering transparency in social, ethical, and environmental responsibilities (Kim & Li, 2021). In Indonesia, ESG disclosures are found to increase firm visibility and legitimacy, especially in non-financial sectors (Chairani & Zuraida, 2021). Cross-country studies affirm that board independence and sustainability reporting positively influence ESG transparency (Elafify, 2021), while in India, ESG performance correlates with firm efficiency and executive compensation (Lunawat & Lunawat, 2022; Rath et al., 2020).

Ownership structure has also been highlighted as a determinant of ESG reporting behavior. While managerial ownership may diminish transparency to protect self-interests (Juhmani, 2013), institutional ownership is often linked with enhanced compliance and governance oversight (Velte, 2020). Foreign investors, influenced by global sustainability norms, tend to demand clearer ESG disclosures.

Additionally, COVID-19 served as a shock to market behavior, intensifying the relevance of firm-level risk and resilience. Sembiring & Ferikawita.M, (2023) demonstrates that anomalies in market behavior during the pandemic were influenced by firm size and risk, suggesting ESG disclosures may similarly respond to external crises. Similarly, Istianingsih & Suraji, (2020) underline the role of strategic resource management and intellectual capital in improving business outcomes under challenging conditions.

In recent BMEE literature, the intersection of financial risk and sustainability is receiving more scholarly attention. González-Bueno et al., (2025) model portfolio optimization under ESG and volatility considerations in Colombia, revealing the interdependence between financial risk exposure and ESG frameworks. Survilaitė-Venskienė & Stankevičienė, (2024) analyze sectoral credit risk under ESG disclosure regimes, finding ownership concentration to moderate disclosure sensitivity. (Kozhuharov et al., 2024) demonstrate that foreign ownership and institutional pressure are key triggers for ESG transparency, particularly in transitional economies.

Despite these advances, most studies treat ESG disclosure separately from financial risk perspectives, or neglect ownership structure as a mediating governance tool especially in emerging market contexts. Prior studies have not explicitly positioned financial risk, proxied by Return on Assets (ROA), as an integral explanatory factor within ESG disclosure behavior. This study aims to fill this research gap by examining how financial risk and ownership structure influence ESG disclosure in the Indonesian energy sector. The novelty of this research lies in integrating a financial risk perspective through ROA into the ESG framework, employing Nasdaq's 30 indicator ESG standard, and contextualizing findings within post-pandemic disclosures and sectoral environmental vulnerability.

2. Literature Review and Hypotheses Development

2.1. Financial Risk

Financial risk refers to the potential for a firm's financial performance to deviate from expected outcomes due to factors such as market volatility, leverage, or liquidity pressures. In the context of sustainability, financial risk increasingly encompasses risks arising from environmental regulation, social expectations, and governance failures. In this environment of increased stakeholder attention to ESG performance, financial risk is not only determined by conventional indicators such as earnings volatility, but also incorporates the risk of non-compliance or becoming embroiled in an ESG related controversy (Shi & Dow, 2025). Financial performance measures, like ROA, have been broadly used as a proxy for financial risk, mainly in empirical studies that aim to measure the impact of operational and strategic vulnerabilities of the firm (Qayoom & Chisti, 2025). Firms that have more financial risk have higher motivation to disclose ESG information as a protection of reputation, and

as a tool of risk control (Tian & Zhao, 2025). Additionally, in developing countries which have weak capital structures strong ESG transparency would be considered strategic response to high risk premium (Survilaitė-Venskienė & Stankevičienė, 2024).

2.2. Ownership Structure

Alternative formulations of these same concerns emphasize the way in which the ownership of the firm, that is, who the stockholders are, determines corporate transparency and governance. Managerial ownership could result in managerial entrenchment and information concealment, particularly when the executives are highly controlling, which would decrease the incentives for managers to disclose the ESG voluntarily (Juhmani, 2013). On the other hand, the institutional ownership typically applies positive governance pressure, inducing firms to embrace transparent practices for satisfying investors' and regulatory requirements (Velte, 2020). In particular, foreign ownership has been associated with higher ESG compliance, as foreign investors often require compliance with global sustainability standards (Kozhuharov et al., 2024). This association between concentrated ownership and ESG performance has also been found to differ between industries and governance systems, emphasising the need for context-specific examination when considering the impact of ownership on disclosure practices (Dasilas & Karanović, 2025). Companies with more widely held or noncontrolling blockholders are generally more sensitive to the requests of stakeholders and are more prone to disclose the information requested by the sustainability frameworks.

2.3. Environmental, Social, and Governance (ESG) Disclosure

ESG disclosure is a statement of commitment to transparency by a company in relation to its environmental footprint, social responsibility and governance policies. It serves to communicate with stakeholders as well as to legitimize and mitigate asymmetry of information (da Cunha et al., 2025). ESG reporting has gone from being a good corporate citizenship project to being a strategic need, especially under a broad set of global frameworks, which include the Global Reporting Initiative (GRI), Sustainability Accounting Standards Board (SASB), and sector-based indices, including the Nasdaq ESG Disclosure standards. Good ESG disclosure reduces the cost of capital, enhances investors' confidence, and serves as a signal of competence in risk management (Jafar, R., Basuki & Windijarto, 2024). Although firms in high-impact industries such as energy are increasingly under pressure for ESG disclosure, their level of actual disclosure is influenced by internal governance, financial health, and external ownership structure. The theoretical frames used to understanding why firms report ESG information to conform with societal expectations and diminish companies' reputational risk include stakeholder theory and legitimacy theory (Chairani & Zuraida, 2021; Elafify, 2021). Also in less developed economies, ESG transparency is mentioned as a means of distinguishing firms in conditions of competitive markets, where regulatory enforcement is varying, whereas market pressures are on the rise.

2.4. Financial Risk on ESG Disclosure

Financial risk is the hypothetical instability in an organization's financial position in terms of its liquidity, profitability, and solvency. Financial risk levels may instigate reputational risk, deteriorated investor confidence, and increasing interest costs. To address these difficulties, companies rely on ESG disclosure as a strategical signaling tools to reduce risk perception and enhance transparency (Shi & Dow, 2025). Stakeholder and legitimacy theories argue that under conditions of financial risk, companies have a strong incentive to exhibit social and environmental responsibility with a view to sustain their legitimacy and attract long-term capital (da Cunha et al., 2025).

(Qayoom & Chisti, 2025) Firms that have higher financial risk are likely to divulge more information related to ESG to establish trust and reduce perceived opaqueness of operations. It is also

in accordance with Tian & Zhao, (2025) that companies with high level of risk exposures to climate change and financial risk, manage to increase their ESG behaviour as part of their integrated overall risk management. Disclosure also acts as a volatility cushion, enabling stakeholders to read a more correct perception of risk. Therefore, it stands to reason, to suggest a flow of direction in which financial risk can stimulate more extensive ESG disclosure.

H1: *Financial risk has a positive effect on the level of Environmental, Social, and Governance (ESG) disclosure.*

2.5. Managerial Ownership on ESG Disclosure

Managerial ownership represents the shares held by the internal managers of the firm and is also able to affect significantly corporate disclosure behavior as well as the ESG disclosure practices. 3.1 Agency theory Managers who are also owners are expected to have their interests match those of the shareholders and therefore increase transparency and reduce managerial discretion (Kiran et al., 2024). Managerial stock ownership could drive executives to release more ESG information to keep investors' confidence, win long-term financing and avoid agency conflict.

More recent studies challenge the neutrality or even the negative effect of managerial ownership on ESG disclosure quality. For instance, Bayong et al. 2024 Managers' ownership contributes more than blockholders and even the state directorship in the emerging market to the ESG disclosure in the scores. Similarly, Kiran et al. (2024), the higher managerial ownership firms are likely to reduce financing disregard by proactively improving ESG disclosure and reducing capital costs. These results imply that managerial ownership serves as an internal governance tool to facilitate ESG transparency, particularly while external regulatory scrutiny is lax or nascent.

H2: *Managerial ownership has a significant positive effect on the level of Environmental, Social, and Governance (ESG) disclosure.*

2.6. Institutional Ownership on ESG Disclosure

Institutional ownership is also among the control as a dependent variable because the share ownership is the financial industry one. So as there is institutional shares, then the awareness of the environment is jacked up. Research examining institutional ownership's effect on disclosure of ESG shows that institutional ownership leads to improved ESG performance. This positive effect means that the higher the shares held by institutional ownership, the higher the ESG disclosure. Based on previous research, the second hypothesis is as follows:

H3: *The level of institutional ownership has a positive effect on the level of environmental, social, and governance disclosures*

2.7. Foreign Ownership on ESG Disclosure

Research that examines the effect of foreign ownership on ESG disclosure was conducted by (Ould Daoud Ellili, 2020), showing that it has a significant and positive effect on ESG disclosure. This study's results align with research conducted by (Al Amosh & Khatib, 2022) that foreign ownership has an important role in ESG disclosure. ESG practice was brought, and the idea came up from the international convention; that's why when ownership structure consists of foreign ownership then it is expected that the awareness of ESG will also be increased. This positive effect means that the higher the shares owned by foreign companies, the higher the ESG disclosure. Based on previous research, the third hypothesis is as follows:

H4: *The level of foreign ownership has a positive effect on the level of environmental, social, and governance disclosures*

3. Research Method

For the years 2020–2023, this study used secondary data culled from the annual reports of energy businesses traded on the Indonesia Stock Exchange (IDX) to conduct quantitative research. The energy sector is chosen because of its significant impact on the environment and its importance in relation to ESG disclosure. Organizations are chosen using a purposive selection approach if they fulfill certain inclusion requirements. These include being listed regularly during the observation period, submitting yearly reports with financial data and sustainability disclosures, and not having any extreme outliers or missing numbers. The study is based on a final sample of 69 firm-year data, which were selected using these criteria.

The research looks at how ownership structure and financial risk, which are independent factors, affect the amount of ESG disclosure using multiple linear regression analysis. Used multiple linear regression analysis, which is used when the objective is to estimate the relationship between one dependent variable and numerous independent variables concurrently (Gujarati & Porter, 2009; Wooldridge, 2013). This method also allows for the adjustment of confounders, left to vary in isolation alone. The model is estimated with SPSS statistical software 26.0. The multiple regression model is expressed as:

This research was carried out quantitatively with SPSS software. The multiple linear regression equation models used are as follows:

$$ESGi=\beta_0+\beta_1ROAi+\beta_2INSTOWNi+\beta_3MANOWNi+\beta_4COVIDi+\epsilon_i \quad (1)$$

This study's regression model is also to investigate the relationship between financial risk and ownership structure with ESG disclosure. In this form, ESG disclosure (Y) is the dependent variable and α_0 is the constant (or intercept). The independent variables are X_1 (ROA) as the financial risk variable proxy, X_2 (Institutional Ownership), and X_3 (Managerial Ownership). Last, X_4 is a dummy for the COVID year, constant to 1 in 2020 and 0 otherwise, to allow for period effects. The coefficients β_1 to β_4 denote the partial regression scores, which estimates the extent that each of the independent variables makes a unique contribution to a variation in ESG disclosure. Finally, ϵ is the error term, which accounts for the effect of other unobserved factors not covered by the model.

Based on Table 1 shown above, the variables used in this study were operationalized using well-established measurement approaches from prior literature. The dependent variable, ESG disclosure, is measured using 30 indicators drawn from the Nasdaq ESG Reporting Guide (Nasdaq, 2019), covering environmental, social, and governance dimensions equally. Each item is scored dichotomously with a value of 1 if disclosed and 0 otherwise. The main independent variable, financial risk, is proxied by Return on Assets (ROA), calculated as a percentage ratio of net income to total assets (Kumar & Firoz, 2022).

Table 1. Variable Measurements.

Variable	Data Coverage	Operationalization	Reference
Return on Assets (ROA)	Total assets and net income	Percentage of return on asset ratio	Kumar & Firoz (2022)
Institutional Ownership	Share ownership by institutions	Percentage of shares held by institutional investors	Velte (2020)
Managerial Ownership	Share ownership by management	Percentage of shares held by managers to total shares	Al Amosh & Khatib (2022)
Foreign Ownership	Share ownership by foreign investors	Percentage of shares held by foreign parties to total issued shares	Al Amosh & Khatib (2022)
ESG Disclosure	ESG dimensions: 10 indicators each for E, S, and G (30 total)	Dummy: 1 if the item is disclosed, 0 otherwise (see Appendix 1)	Nasdaq (2019)
Dummy COVID (Control)	Year of pandemic (2020)	Dummy: 1 for year 2020 (pandemic), 0 otherwise	Tampakoudis et al. (2021)

Ownership structure is measured using three indicators: institutional ownership, defined as the proportion of shares held by institutional investors (Velte, 2020); managerial ownership, representing the percentage of shares owned by internal management (Al Amosh & Khatib, 2022); and foreign ownership, calculated as the proportion of shares held by non-domestic investors (Al Amosh & Khatib, 2022). A control variable is introduced to capture the potential effects of the COVID-19 pandemic, measured through a dummy variable coded 1 for the year 2020 and 0 otherwise (Tampakoudis et al., 2021)

Based on Table 2 shown above, the ESG disclosure index used in this study is adapted from the Nasdaq ESG Reporting Guide (2019), which consists of 30 indicators equally distributed across three dimensions: environmental, social, and governance. Each dimension includes 10 specific disclosure items, such as greenhouse gas (GHG) emissions, energy intensity, and climate risk mitigation for environmental aspects; CEO pay ratio, gender diversity, and human rights for social aspects; and board independence, ethics and anti-corruption policies, and external assurance for governance aspects. These indicators comprehensively capture corporate sustainability practices and provide a structured basis for assessing ESG transparency across firms.

Table 2. ESG Itmes Disclosure from Nazdaq 2019.

Environmental	Social	Governance
E1. GHG Emissions	S1. CEO Pay Ratio	G1. Board Diversity
E2. Emissions Intensity	S2. Gender Pay Ratio	G2. Board Independence
E3. Energy Usage)	S3. Employee Turnover)	G3. Incentivized Pay
E4. Energy Intensity)	S4. Gender Diversity)	G4. CollectiveBargaining
E5. Energy Mix)	S5. Temporary Worker Ratio	G5. Supplier Code of Conduct
E6. Water Usage	S6. Non-Discrimination	G6.Ethics & Anti-Corruption
E7.Environmental Operations	S7. Injury Rate	G7. Data Privacy
E8. Climate oversight / Board	S8.Global Health &Safety	G8. ESG Reporting
E9.Climate Oversight/ Management	S9. Child & Forced Labor	G9. Disclosure Practices
E10.Climate Risk Mitigation	S10. Human Rights	G10. External Assurance

4. Result and Discussion

Table 3 shows the descriptive statistic for managerial ownership, a mean value 0,393. This value near the minimum and maximum value means that the data is averagely owned by managerial ownership. Institutional ownership has a mean value of 0,363, near the minimum value. It can be said that the data tend to be less owned by institutional ownership. Foreign ownership has a mean value 0,190, and this value is near the minimum value, meaning the data is less owned by foreign ownership. Control variable dummy covid, the value 1 is for a year of a pandemic or in 2020, from the data not shown that the data is dominant for the year non-pandemic covid-19. Return on asset with the mean value 0.080, near to the minimum, shows that the data are dominant with less ROA.

Table 3. Descriptive Statistics.

Variable	N	Minimum	Maximum	Mean	Std. Deviation
ROA	69	0.00	0.86	0.080	0.1195
Institutional Ownership	69	0.00	0.85	0.363	0.3047
Managerial Ownership	69	0.00	0.75	0.393	0.1426
Dummy COVID Year	69	0.00	1.00	0.275	0.4499
Foreign Ownership	69	0.00	0.97	0.190	0.2736
ESG Disclosure	69	0.17	0.73	0.545	0.1127

Source: Data Processes by IBM Statistic, 2025.

4.1. Coefficient of Determination (R2) Model

Because multiple linear regression analysis is used in this research, the Adjusted R Square value is shown. In the table below, you can see the outcomes of the test for the coefficient of determination:

The value of Adjusted R Square is 0.083, or 8.3%, as shown in Table 4. Eco-Social-Government disclosure, the dependent variable, may be explained by the independent variables ROA, foreign ownership, institutional ownership, managerial ownership, and D.Covid, which together account for 8.3% of the total. Concurrently, additional independent factors impacting the remaining 91.7% have not been investigated in this research.

Table 4. Deteminance (R2) Model.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	DW
1	0.388a	0,150	0.083	0.10800	1.087
a. Predictors : (constant), ROA,foreign ownership, institutional ownership, managerial ownership, D.Covid.					
b. Dependent Variable : ESG Disclosure					

Source: Data Processes by IBM Statistic, 2025.

Model Fit (Test F). The results of testing the hypothesis using the F test can be seen in the following table:

Based on Table 5, it can be seen that the significance value is 0.023. This indicates that $0,049 < 0,05$. So it can be concluded that ROA, independent foreign ownership, institutional ownership, managerial ownership, D.Covid simultaneously influence the dependent variable, namely Environmental, Social and Governance disclosures. As well as the variables in this study declared fit to be used or included in the research model.

Table 5. Test F.

Model		Sum of squares	df	Mean Square	F	Sig.
1	Regression	0.137	5	0,027	2,373	0.049b
	Residual	0,728	63	0,012		
	Total	0,865	68			
a. Predictors : (constant), ROA, foreign ownership, institutional ownership, managerial ownership, D.Covid.						
b. Dependent Variable: ESG Disclosure						

Source: Data Processes by IBM Statistic, 2025.

4.2. Partial Test Results (t Test)

The results of testing the hypothesis using the partial coefficient test (t test) can be seen in the following table:

Based on Table 6, the regression results provide the following conclusions.

Table 6. T Test.

Variable	Unstandardized Coefficients (B)	Std. Error	Standardized Coefficients (Beta)	t	Sig.
Constant	0.475	0.034	–	13.998	0.000
ROA	0.037	0.120	0.039	0.307	0.760

Variable	Unstandardized Coefficients (B)	Std. Error	Standardized Coefficients (Beta)	t	Sig.
Institutional Ownership	0.144**	0.057	0.388	2.521	0.014
Managerial Ownership	-0.137	0.102	-0.173	-1.345	0.183
Foreign Ownership	0.001	0.001	0.168	1.092	0.279
Dummy COVID	0.026	0.029	0.104	0.896	0.373
*Sig 10%					
** Sig 5%					
*** Sig 1 %					

Source: Data Processes by IBM Statistic, 2025.

Variable X1 (Return on Assets) has a significance value of 0.760, which is greater than 0.05, and a coefficient of 0.037. This indicates that ROA, as a proxy for financial risk, does not have a statistically significant effect on ESG disclosure. Therefore, **hypothesis 1 is rejected**.

Variable X2 (Managerial Ownership) shows a significance value of 0.183, which is also above the 0.05 threshold. Although the coefficient is negative (-0.137), the result is statistically insignificant, indicating that managerial ownership does not significantly influence ESG disclosure. Consequently, **hypothesis 2 is rejected**.

Variable X3 (Institutional Ownership) has a significance value of 0.014, which is below 0.05, and a positive coefficient of 0.144. This suggests that institutional ownership has a significant and positive effect on ESG disclosure. Hence, **hypothesis 3 is accepted**.

Variable X4 (Foreign Ownership) presents a significance value of 0.279, with a small positive coefficient of 0.001. Since the significance level exceeds 0.05, it can be concluded that foreign ownership does not significantly affect ESG disclosure. Thus, **hypothesis 4 is rejected**.

Variable X5 (Dummy COVID) has a significance value of 0.373 and a coefficient of 0.026. These results suggest that the presence or absence of the COVID-19 pandemic year (2020) does not have a significant impact on ESG disclosure practices among the observed companies.

4.3. Financial Risk on ESG Disclosure

The regression results indicate that financial risk, proxied by return on assets (ROA), does not have a significant influence on ESG disclosure. This finding stands in contrast to several prior studies that argue financial vulnerability increases a firm’s propensity to disclose sustainability-related information. For instance, Shi and Dow (2025) and da Cunha et al. (2025) emphasize that firms often utilize ESG disclosure as a strategic tool to mitigate reputational and financial risks during times of instability. Similarly, Qayoom and Chisti (2025) and Tian and Zhao (2025) found that firms with higher financial and climate-related risk exposure tend to enhance their ESG transparency as part of integrated risk management strategies.

The divergence in results may be attributed to contextual differences. In emerging markets like Indonesia, ESG frameworks remain underdeveloped, and market participants may not perceive ESG transparency as an effective risk mitigation mechanism. Additionally, the overall level of financial distress in the sampled firms may not have reached a critical threshold to prompt strategic ESG responses. It is also possible that firms under financial pressure focus their limited resources on survival or core operations rather than on voluntary disclosures. Therefore, this study does not support previous findings, suggesting that in the Indonesian energy sector, financial risk alone does not suffice as a determinant of ESG disclosure behavior.

4.4. Managerial Ownership on ESG Disclosure

The regression results show that managerial ownership does not have a significant influence on ESG disclosure, a finding that is consistent with previous studies by Al Amosh & Khatib, (2022), Juhmani, (2013), and Lagasio & Cucari, (2019). According to agency theory, when managers also serve as shareholders, their interests are presumed to align more closely with firm value maximization. However, in practice, managerial entrenchment can occur, wherein managers may deprioritize non-financial disclosures such as ESG if these are perceived to conflict with short-term financial targets or compensation structures. Moreover, ESG reporting is often viewed as a long-term strategic initiative, while managerial incentives are typically tied to short-term profitability, creating a misalignment that weakens the motivation to disclose. The descriptive statistics in this study also indicate that managerial ownership across the sample is relatively low, which may further reduce its influence over strategic corporate behavior, including disclosure practices.

In the context of emerging markets like Indonesia, where ESG enforcement mechanisms are still developing, managerial discretion tends to be less regulated. As a result, without formalized ESG mandates or shareholder pressure, managers may not perceive ESG disclosure as a priority. This suggests that managerial ownership, in the absence of strong external governance or incentive alignment, is unlikely to significantly shape ESG transparency.

4.5. Institutional Ownership on ESG Disclosure

The regression results show that institutional ownership has a statistically significant and positive effect on ESG disclosure, reinforcing the argument that institutional investors play a critical role in shaping firms' transparency behavior. This result is consistent with Velte, (2020) who suggested that institutional investors (mutual fund, insurance companies, pension funds) are sensitive to external governance regulation and that these investors monitor more carefully firms who engage in E, S, and G practices. It is also in line with previous studies establishing institutional ownership as a major factor behind the voluntary disclosure, since institutional shareholders have their fiduciary duties and long-term investment horizon (Jafar, R., Basuki & Windijarto, 2024; Kozhuharov et al., 2024).

Furthermore, the positive sign of institutional ownership in our analysis is consistent with the theoretical notion that highly-regulated firms operate as a conduit through which policy norms and stakeholder claims flow, especially in areas such as energy, where environmental considerations are prominent. In the case of institutional investors, they will push for ESG disclosure not just because it is a compliance-issue, but also a risk management tool to protect long-term value creation. This indicates that firms with relatively more extensive institutional ownership are more likely to engage in active ESG disclosure, which in turn bolsters their legitimacy and stakeholder connections in markets where sustainability performance continues to matter more than ever.

4.6. Foreign Ownership on ESG Disclosure

The test result shows that foreign ownership has no significant impact on ESG disclosure. This is contrary to the anticipation of previous research such as Al Amosh and Khatib's (2022) that have stressed that foreign investors bring home international standards of sustainability and encourage ESG reporting behaviour. The lack of such a relationship in this study can be due to the fact that the average level of foreign ownership of sampled firms are relative low, indicating little impact on strategy decision such as sustainability disclosure. Whereas foreign investors have minor ownership interest, effective governance expectations or sustainability practices enforcement capacity will therefore be weakened. Moreover, foreign investors, in less strict environments of ESG regulation enforcement, may concentrate on financial gains, portfolio spread or region diversification rather than on disclosing practices. These results suggest that in the Indonesian energy sector, foreign ownership alone does not suffice to drive ESG disclosure unless accompanied by substantial shareholding or regulatory frameworks that empower foreign influence.

4.7. Control Variable: Dummy COVID

The dummy variable for the COVID-19 year also shows no significant effect on ESG disclosure. This suggests that, despite the global disruption caused by the pandemic, it did not materially change disclosure behavior among the sampled firms. One explanation could be that firms viewed ESG disclosure as a long-term strategic commitment rather than a short-term reactive measure. Another possible reason is that the majority of the observation years fall outside of the peak pandemic year, thus diluting any pandemic-specific influence in the data.

5. Conclusion & Implications, Limitations and Further Research

The purpose of this research is to examine how the COVID-19 environment, ownership type (managerial, institutional, or foreign), and financial risk (as measured by ROA) affect ESG disclosure in Indonesian energy market participants. Considering that institutional investors are more likely to be subject to strict regulatory supervision, the findings show that they have a positive effect on ESG disclosure. This suggests that these investors will put pressure on corporations to disclose their sustainability efforts more openly. management ownership, financial risk, and foreign ownership were found to be non-significant, suggesting that the ESG practices of the selected enterprises are not significantly impacted by internal management incentives or the makeup of foreign shareholders. Because the dummy COVID-19 variable did not also provide a significant impact, it follows that companies' ESG disclosure practices were somewhat consistent throughout the epidemic.

Contributing to the existing literature on environmental, social, and governance (ESG) disclosure, this work theoretically integrates the post-COVID economic recovery context's ownership structure and financial risk roles into a single analytical model. Using ESG metrics that are based on Nasdaq (2019) also makes global sustainability standards more relevant and enhances measurement rigor. The importance of institutional investors in enhancing ESG reporting requirements is shown by this study, particularly in sectors like energy that are particularly vulnerable to environmental degradation. Companies would do well to increase their sustainability transparency by luring long-term institutional investors. "Regulators might also look to facilitate the participation of large financial institutions in support to achieve more widespread adoption of ESG standards across capital markets."

While this analysis has contributed to knowledge, several limitations need to be acknowledged. First, ESG disclosure measurement used a binary scoring system (1 = disclosed and 0 = not disclosed), which may have not fully represented the depth/quality of the information. In future, a more fine-grained content analysis through the sentence count, disclosure intensity, or text analytics could be an option to assess ESG reporting practices more holistically.

Second, the observation period is limited to three years (2020–2023), such that it may not capture the long-term implications of financial risk and ownership dynamics, particularly in the wake of the pandemic. We would like to advise researchers to continue the observation process for a minimum of 5 years in order to analyse the observed trend and structure developments more robustly. This study also concludes for internal company control variables. This framework can be further developed through the addition of external moderators such as government regulation, investor activism or media attention to extend understanding of ESG disclosure behavior.

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