

The Role of Foreign Ownership and ESG Factors in Mitigating Fraudulent Financial Reporting: Evidence from the Energy Sector

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Abstract

Financial fraud continues to threaten financial market stability, particularly in the energy sector, where high capital intensity, complex transactions, and regulatory pressures increase the risk of fraudulent financial reporting (FFR). Although ESG disclosure has been promoted as a mechanism to strengthen corporate governance and reduce fraud risk, prior studies have produced inconsistent findings and have largely relied on composite ESG measures, leaving the distinct effects of each ESG dimension insufficiently understood. This study examines the effects of environmental, social, and governance disclosures on FFR and investigates whether foreign ownership strengthens these relationships in Indonesian energy companies. Using 98 observations from energy companies listed on the Indonesia Stock Exchange during 2022–2024, this study employs Moderated Regression Analysis (MRA). The results indicate that environmental and governance disclosures significantly reduce FFR, whereas social disclosure has no significant effect. Foreign ownership does not moderate the effects of the environmental and social dimensions but strengthens the effect of governance disclosure in reducing FFR, suggesting that foreign investors enhance governance effectiveness through stronger external monitoring. This study contributes to the literature by examining ESG dimensions separately rather than as a composite measure and by providing evidence on the role of foreign ownership as an external governance mechanism in mitigating fraudulent financial reporting in the Indonesian energy sector.

Keywords: ESG, Fraudulent Financial Report, and Foreign Ownership.

INTRODUCTION

Financial fraud remains a challenge to financial market stability worldwide, particularly in Southeast Asia. In Indonesia, the integrity of organizations in the public and private sectors continues to be threatened by fraudulent practices (Association of Certified Fraud Examiners Indonesia Chapter, 2025). Information contained in financial statements is often used by investors and creditors to evaluate a company's performance before making investment decisions (Wijaya & Kuang, 2023). However, fraudulent financial reporting (FFR) occurs when a company intentionally presents inaccurate or misleading financial information to portray better financial performance and influence stakeholders' decisions (Hascika et al.,

2024). According to (Kassem, 2022), fraud encompasses a wide range of misconduct, including financial statement fraud, corruption, asset misappropriation, and other fraudulent acts involving management as well as internal and external parties. Based on the Fraud Survey by Association of Certified Fraud Examiners Indonesia Chapter (2025), fraud remains a significant challenge in the Indonesian corporate environment, with corruption accounting for 47.6% of reported cases, followed by asset misappropriation (40.2%) and financial statement fraud (12.2%).

An example of fraudulent practices in Indonesia is the alleged corruption in oil and gas procurement at PT Pertamina Patra Niaga. The alleged corruption case began with a government mandate in late 2017 to supply and distribute fuel in 2018. During the 2018–2023 period, policy manipulation was alleged to have occurred through reductions in domestic refinery capacity and the rejection of crude oil from KKKS, which artificially increased import needs. These practices were accompanied by the use of non-transparent brokers, mark-up practices, and fuel specification manipulation (Affandi et al., 2025). The case came to public attention in 2024 and is being handled by the Indonesian Attorney General's Office. Seven suspects were identified in February 2025, with estimated state losses amounting to Rp 193.7 trillion. From a governance perspective, this case reflects weak accountability, transparency, and internal controls. These weaknesses were further exacerbated by conflicts of interest, low organizational integrity, and ineffective structural oversight, ultimately resulting in substantial state losses and a decline in public trust (Admojo et al., 2025).

Factors contributing to such manipulation are present across various industrial sectors but become more pronounced in sectors characterized by high financial pressure, complex transactions, and significant governance demands, such as the energy sector. The energy sector is characterized by commodity price volatility, substantial project financing needs, and complex cash flows, thereby increasing financial pressure that can drive aggressive financial reporting practices and heighten the risk of financial statement manipulation (Eirene & Diandra, 2026). Project complexity stemming from large-value contracts such as Production Sharing Contracts (PSCs) and Engineering, Procurement, and Construction (EPC) agreements, long-term financing, and regulatory intensity heightens the risk of inaccuracies when internal controls are ineffective (Nurkholik et al., 2024). Elevated capital intensity may heighten performance pressure and result in earnings management practices, such as expediting revenue recognition or avoiding expenses, particularly in situations with inadequate governance

(Miharsi et al., 2023). Additionally, the implementation of renewable energy technologies, such as solar panels, requires substantial initial investment and involves complex permitting processes and bureaucracy. The need for large-scale financing and the lack of comprehensive energy transition regulations remain major obstacles, resulting in limited adoption of renewable energy among companies (Vlaviorine & Widianingsih, 2023). These conditions further intensify incentives for aggressive financial reporting, making strong corporate governance essential to enhance transparency and oversight while mitigating the risks of financial misreporting and fraudulent financial reporting (Nurkholik et al., 2024).

The examples above demonstrate that weak internal controls and governance in the energy sector have implications beyond financial losses, highlighting the importance of corporate accountability and transparency. In response, ESG reporting has emerged as an important mechanism for strengthening corporate governance. Regulatory frameworks play an important role in shaping business behaviour and performance, particularly in the implementation of sustainable practices (Hakim & Fuad, 2024). In Indonesia, the Financial Services Authority (Otoritas Jasa Keuangan/OJK) strengthened ESG reporting requirements by issuing OJK Regulation No. 51/POJK.03/2017, which mandates financial services institutions, issuers, and public companies to prepare Sustainability Reports. The format and content of ESG disclosures in annual reports are further clarified in OJK Circular Letter No. 16/SEOJK.04/2021. These regulations promote greater ESG transparency, particularly in the energy sector, which faces significant sustainability risks (Aresteria et al., 2024). Globally, growing investor commitment to ESG is reflected in the Principles for Responsible Investment (PRI), with more than 5,300 financial institutions and assets under management exceeding USD 139 trillion by 2025. Moreover, over 90% of PRI signatories have integrated material ESG issues into their investment decisions (PRI Association, 2024, 2025). These developments indicate that ESG has become a global standard in investment practices, influencing corporate governance and capital market dynamics.

ESG reporting is intended to enhance corporate transparency, particularly regarding environmental, social, and governance performance. It expands the disclosure of non-financial information, enabling stakeholders to evaluate risks, operational impacts, and governance quality more comprehensively (Tian et al., 2025). External verification and adequate risk disclosure in ESG and financial reports can mitigate the potential for manipulation by strengthening independent oversight mechanisms and increasing corporate accountability

(Aresteria et al., 2024). Furthermore, strong governance supports the quality of ESG reporting, enhances transparency and investor trust, and serves as a protective mechanism against fraud (Abdurazzok & Widyaningsih, 2025). However, ESG disclosures do not always reflect a company's actual conditions, as there is a discrepancy between the information communicated to stakeholders and the company's actual performance (Lee & Raschke, 2023). Dependence on self-reported data increases the likelihood of reporting bias, as companies may emphasize favorable information while omitting existing shortcomings. This condition may not only lead to greenwashing practices but also indicate potential manipulation in reporting, thereby increasing the risk of fraudulent financial reporting (Galletta et al., 2024).

Several previous studies have shown inconsistent results regarding the impact of ESG on fraud risk. (Anggraini et al., 2025; Fairuz & Rofiqoh, 2025) found that ESG can mitigate fraud risk by improving transparency and governance. However, (Ningtias & Kusumaningsih, 2026) found that ESG has no significant effect on fraud because the resulting transparency is not necessarily effective in curbing opportunistic managerial behavior. These inconsistent findings suggest that the effectiveness of ESG in reducing fraud depends on a company's oversight mechanisms rather than occurring automatically. Foreign ownership is one such mechanism because it serves as an external monitoring mechanism that enhances managerial discipline and information transparency. Consequently, the effect of ESG practices on fraud is expected to be stronger in companies with higher levels of foreign ownership (Wu et al., 2022). This becomes increasingly relevant in the energy sector, which is one of the primary targets of foreign direct investment (FDI) due to its capital-intensive, large-scale, and strategic nature for the economy, resulting in relatively higher foreign investor involvement than in other sectors (Latief & Lefen, 2019). Furthermore, most previous studies still use composite ESG scores, which may potentially create a masking effect and obscure the influence of each ESG dimension. In practice, the environmental, social, and governance dimensions may operate through different mechanisms and exert varying levels of influence on the risk of fraudulent financial reporting (Berg et al., 2022; Gillan et al., 2021). Therefore, a disaggregated ESG approach is essential to identify which ESG dimension most significantly influences the risk of fraudulent financial reporting.

This study examines the effects of individual ESG dimensions on the risk of fraudulent financial reporting in energy companies and evaluates the moderating role of foreign ownership in these relationships. The novelty of this study lies in three main aspects. First, unlike prior

studies that predominantly employ a composite ESG score, this research investigates the environmental, social, and governance dimensions separately to identify their distinct effects on fraudulent financial reporting. Second, this study incorporates foreign ownership as an external monitoring mechanism that may strengthen the effectiveness of ESG disclosure in mitigating fraudulent financial reporting, thereby extending the application of agency theory within the ESG context. Third, this research focuses specifically on Indonesian energy companies, a sector characterized by high capital intensity, complex contractual arrangements, and intensive regulatory oversight, which remains relatively underexplored in the ESG–fraud literature.

By adopting a disaggregated ESG approach, this study aims to provide a more comprehensive understanding of how different ESG dimensions influence fraudulent financial reporting and how ownership structure interacts with those dimensions. The findings are expected to provide valuable implications for investors, creditors, and regulators in assessing the effectiveness of corporate governance and sustainability reporting practices. Furthermore, this study contributes to the existing literature by offering empirical evidence on the combined role of ESG dimensions and foreign ownership in reducing fraudulent financial reporting in the Indonesian energy sector, where governance quality and external monitoring are particularly critical due to the sector’s operational complexity and strategic importance.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Agency Theory

Agency theory explains the relationship between principals and agents. In a corporate setting, shareholders act as principals who delegate decision-making authority to managers (agents) to manage the company on their behalf (Jensen & Meckling, 1976). Agency conflicts arise when managers' decisions are not fully aligned with shareholders' interests. This conflict is exacerbated by information asymmetry, whereby managers possess more information than shareholders, creating opportunities for opportunistic behavior (Jensen & Meckling, 1976). This information imbalance can trigger opportunistic actions by management, including financial statement manipulation and other forms of personal gain (Ajaegbu & Mmayie, 2025). In this context, ESG can serve as a governance mechanism that enhances transparency and accountability, thereby mitigating moral hazard and reducing information asymmetry between management and shareholders (D. Z. Huang, 2022).

Furthermore, foreign ownership constitutes part of a company's ownership structure and functions as an external monitoring mechanism. Foreign investors tend to impose stricter governance standards and engage in more active oversight of management, thereby helping to curb opportunistic behavior and reduce the likelihood of fraudulent practices (D. Zhang & Cang, 2021).

Fraudulent Financial Report

Fraudulent financial reporting is a deceptive act that presents a company's financial condition inaccurately, for example, through the manipulation of revenue, assets, liabilities, or specific disclosures to influence perceptions of investors and stakeholders (Mohd Aripin et al., 2022). This practice is generally carried out by parties with access to the financial reporting process, ranging from top management to staff, by exploiting weaknesses in the internal control system (Mohd Aripin et al., 2022). Fraudulent financial reporting often occurs during periods marked by external pressures, such as performance targets or regulatory changes, and can have serious consequences, including a decline in market confidence, increased cost of capital, and losses for investors (Adhikari & Ragothaman, 2024). The Beneish M-Score, developed by Messod D. Beneish, is widely recognized as an effective analytical model for detecting potential earnings manipulation using publicly available financial statement information. It combines multiple financial ratios to identify unusual reporting patterns before fraud is formally detected, making it particularly suitable for empirical studies examining fraudulent financial reporting (Stoykova, 2025).

ESG

ESG disclosure is increasingly recognized as a governance mechanism that enhances corporate transparency, accountability, and monitoring, thereby reducing opportunities for fraudulent financial reporting. This role is particularly important in the energy sector, where companies face high environmental risks, intensive regulatory oversight, and substantial stakeholder scrutiny (Christianna et al., 2023). In addition, ESG practices can support stronger governance structures and more effective internal control systems, which could lessen the possibility of financial reporting fraud (Gen et al., 2022). The oversight of ESG disclosure quality also involves multiple stakeholders, including regulators, auditors, boards of directors, and investors (Arif et al., 2021). Evidence from studies across different market environments, including Asia, Europe, and several developing economies, suggests that variations in regulatory systems, transparency practices, and internal control quality can

shape the relationship between ESG and fraudulent financial reporting (Gen et al., 2022).

Environmental disclosure refers to the communication of information regarding a company's environmental impacts and practices, including greenhouse gas emissions, energy consumption, waste management, environmental compliance, and resource utilization, with the objective of enhancing transparency, accountability, and stakeholder confidence (Zirman et al., 2021). Environmental disclosure is particularly important in the energy sector because companies operate in environmentally sensitive industries characterized by intensive natural resource extraction, high carbon emissions, and strict environmental regulations, exposing them to greater scrutiny from regulators, investors, local communities, and environmental organizations (R. Zhang et al., 2025). From the perspective of Agency Theory, transparent environmental disclosure reduces information asymmetry between managers and stakeholders by enhancing monitoring and accountability, thereby limiting managers' opportunities to manipulate financial statements. Consequently, higher-quality environmental disclosure strengthens the credibility of corporate reporting, reduces reputational risk, and increases the likelihood that irregular reporting practices will be detected (Cai et al., 2024). Consistent with these theoretical arguments, previous studies have found that stronger environmental disclosure is associated with a lower likelihood of fraudulent financial reporting because greater transparency discourages opportunistic managerial behavior and strengthens corporate accountability (Anggraini et al., 2025). Therefore, the following hypothesis is proposed.

H1: Environmental disclosure has a negative effect on fraudulent financial reporting.

The social dimension of ESG encompasses a company's responsibilities toward employees, consumers, local communities, and other stakeholders affected by its operations, including labour rights, occupational health and safety, diversity and inclusion, human rights, community engagement, and product responsibility (Amaral et al., 2023). Social disclosure is particularly important in the energy sector because companies often operate in communities directly affected by resource extraction, power generation, and infrastructure development, making stakeholder trust and corporate accountability essential. From the perspective of Agency Theory, transparent social disclosure reduces information asymmetry between management and stakeholders by providing credible information regarding labour practices, community engagement, and employee welfare, thereby strengthening external monitoring and limiting managers' opportunities to engage in opportunistic behavior.

Consequently, stronger social disclosure enhances corporate reputation, increases stakeholder confidence, and facilitates greater public scrutiny, reducing the likelihood of fraudulent financial reporting (Asih et al., 2024). Consistent with these theoretical arguments, previous studies have reported that stronger social disclosure is associated with a lower risk of fraudulent financial reporting because greater transparency improves accountability and discourages opportunistic managerial behavior (Amaral et al., 2023). Therefore, the following hypothesis is proposed.

H2: Social disclosure has a negative effect on fraudulent financial reporting.

The governance dimension of ESG encompasses corporate governance mechanisms that promote accountability, transparency, ethical business conduct, regulatory compliance, shareholder rights protection, board independence, audit committees, risk management, and anti-corruption policies (Junxuan, 2025). Governance disclosure is particularly important in the energy sector because energy companies operate with complex organizational structures, capital-intensive investments, high-value contracts, and extensive regulatory oversight, thereby increasing agency conflicts and opportunities for managerial opportunism if effective governance mechanisms are lacking (Garsaa, 2025). From the perspective of Agency Theory, transparent governance disclosure reduces information asymmetry between managers and shareholders by strengthening monitoring mechanisms and enhancing managerial accountability. Consequently, stakeholders are better able to evaluate the effectiveness of corporate oversight, internal controls, and risk management, thereby limiting managers' opportunities to manipulate financial statements. Consistent with these theoretical arguments, previous studies have shown that companies with stronger governance disclosure are less likely to engage in fraudulent financial reporting because effective governance improves oversight and discourages opportunistic managerial behavior (Lamoza Ressidnarry & Sjarief, 2021; Rostami & Rezaei, 2022). Therefore, the following hypothesis is proposed.

H3: Governance disclosure has a negative effect on fraudulent financial reporting.

Foreign Ownership

Foreign ownership represents the percentage of company shares owned by foreign investors and is commonly considered an external monitoring mechanism that may improve managerial accountability (Murni & Serly, 2024). A higher proportion of foreign ownership

can affect managerial incentives as well as the quality of financial reporting by increasing monitoring effectiveness and minimizing information asymmetry. Foreign investors can improve external monitoring, potentially lowering the risk of fraud (Murni & Serly, 2024). However, Rostami & Rezaei (2022) argue that the impact of foreign ownership on fraudulent financial reporting varies depending on corporate governance quality, regulatory conditions, and the effectiveness of internal control systems.

Investor and public demands for the credibility of environmental data drive transparency through environmental disclosure, thereby strengthening stakeholder monitoring and increasing the likelihood of fraud being uncovered (R. Zhang et al., 2025). Public pressure not only encourages companies to disclose environmental information but also serves as an informal oversight mechanism that curbs greenwashing practices in environmental disclosure and encourages companies to take more substantive environmental actions rather than merely symbolic ones (Zhou & Chen, 2024). Furthermore, increased public attention to environmental issues has been shown to significantly curb greenwashing, particularly when government oversight and market pressure also intensify (Cao et al., 2025). Institutional ownership can serve as an effective monitoring mechanism by encouraging higher quality environmental disclosures, which in turn may limit opportunities for information manipulation and misleading reporting (Li et al., 2022; Yi et al., 2026)

H4: Foreign ownership strengthens the effect of environmental on fraudulent financial reporting.

Social disclosure transparency may help decrease information asymmetry between companies and stakeholders while also lowering reputational risk, particularly when the disclosed information is supported by independent verification mechanisms (Asih et al., 2024). The assurance offered by independent, respected, and proficient suppliers strengthens the credibility of sustainability reports for stakeholders, thereby reinforcing external oversight of the company (Xiao & Shailer, 2022). As the credibility and verifiability of social information increase, management's opportunities to conceal deviations or commit fraud become more limited.

H5: Foreign ownership strengthens the effect of social on fraudulent financial reporting.

Furthermore, the governance dimension reflects the quality of accountability,

reporting transparency and risk management systems integrated with corporate sustainability objectives, such that An effective governance framework can harmonize the interests of management and shareholders, thereby diminishing the probability of fraudulent financial reporting (Garsaa, 2025). Foreign ownership can improve the quality of financial reporting by encouraging the use of reputable auditors, promoting the implementation of international accounting standards, and reinforcing managerial monitoring and control systems (Yaojing et al., 2024). The monitoring of the quality of corporate transparency and reporting will be more stringent as a result of foreign ownership, which will result in an increase in the capacity of governance to regulate fraudulent activities.

H6: Foreign ownership strengthens the effect of governance on fraudulent financial reporting.

CONTROL VARIABLE

Return on Assets (ROA) reflects a company's profitability relative to its total assets and is related to operational pressures, managerial incentives, and financing capabilities. Variations in ROA can influence both the likelihood and the motivation for fraud. Therefore, it must be controlled to ensure that measured ESG effects are not distorted by differences in profitability across companies (Wang et al., 2024). Additionally, firm size is associated with resource availability, oversight levels, governance complexity, and exposure to fraud risk. Larger firms generally have more adequate resources to support governance practices, audits, and ESG reporting; however, higher organizational complexity can also increase the likelihood of fraud if governance mechanisms do not function effectively. Therefore, controlling for firm size is crucial to isolate the impact of ESG from variations in firm characteristics (Wedari & Shafadila, 2022).

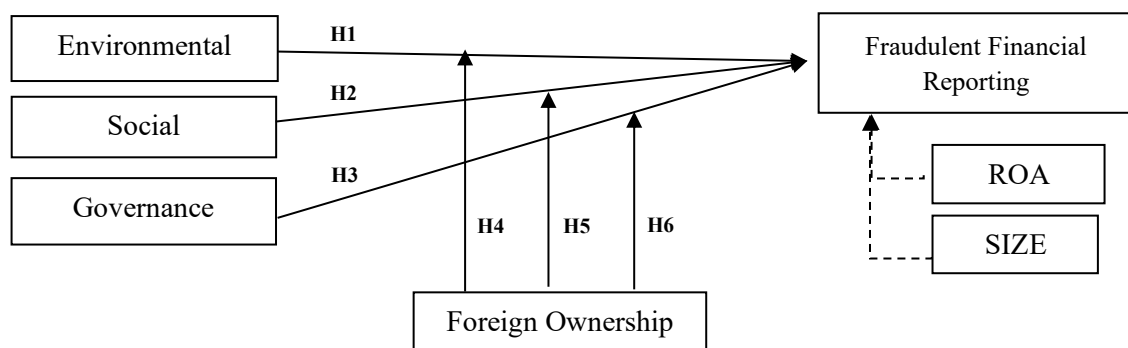


Figure 1
Conceptual Framework
Source: Developed by the authors

RESEARCH METHOD

The objective of this quantitative study is to empirically examine the influence of Environmental, Social, and Governance (ESG) factors on fraudulent financial reporting, as well as the role of foreign ownership in amplifying that influence. The data utilized is secondary, collected from audited financial statements and corporate sustainability reports accessible on the official websites of the companies and the Indonesia Stock Exchange (IDX). The research population consists of all companies listed on the IDX in 2022 and 2024. Participants in the research were selected through purposive sampling. These participants included businesses operating in the energy sector, those that publish sustainability reports, and those that adhered to the Global Reporting Initiative (GRI) requirements throughout the research. Because of its high capital intensity, major operational and environmental hazards, and vulnerability to changes in commodity prices and government regulations, the energy industry was selected as the sector of interest for its relevance to environmental, social, and governance (ESG) issues and potential fraud threats. Table 1 provides a comprehensive overview of the procedure for selecting samples.

Table 1
Research Sample

No.	Sample Criteria	Total Observations
1.	Energy sector companies listed on the IDX for the 2022-2024 period	273
2.	Companies that do not publish a sustainability repor	24
3.	Companies that do not use the GRI index in their sustainability reporting	139
Final Sample		112

Variable Measurement

In this study, the Beneish M-Score for fraud in financial reporting serves as the dependent variable. The purpose of this proxy is to identify instances of possible manipulation of financial statements by certain financial ratios that reflect the company's operational performance and activities linked to accruals. The following is the formula for the Beneish M-Score (Beneish, 1999):

$$M - Score = -4.84 + 0.920 DSRI + 0.528 GMI + 0.404 AQI + 0.892 SGI + 0.115 DEPI - 0.172 SGAI + 4.679 TATA - 0.327 LVGI$$

According to (Beneish, 1999), 8 ratios are used in the Beneish M-Score analysis model, as shown in Table 2.

Table 2
Ratios in the Beneish M-Score

Ratio	Measurement	Reference
<i>Days Sales in Receivables Index (DSRI)</i>	$\frac{\text{Account Receivable year } (t) / \text{Sales year } (t)}{\text{Account Receivable year } (t - 1) / \text{Sales year } (t - 1)}$ This ratio used to measure the likelihood of revenue manipulation through abnormal increases in receivables.	(Beneish, 1999)
<i>Gross Margin Index (GMI)</i>	$\frac{\text{Sales year } (t - 1) - \text{COGS year } (t - 1) / \text{Sales year } (t - 1)}{\text{Sales year } (t) - \text{COGS year } (t) / \text{Sales year } (t)}$ This ratio was used to measure a decline in gross profit margin, which may motivate management to engage in earnings manipulation.	(Beneish, 1999)
<i>Asset Quality Index (AQI)</i>	$\frac{1 - \text{Current Assets year } (t) + \text{PPE year } (t) / \text{Total Assets year } (t)}{1 - \text{Current Assets year } (t - 1) + \text{PPE year } (t - 1) / \text{Total Assets year } (t - 1)}$ This ratio is used to measure increases in non-productive or low-quality assets, which may indicate aggressive cost capitalization.	(Beneish, 1999)
<i>Sales Growth Index (SGI)</i>	$\frac{\text{Sales year } (t)}{\text{Sales year } (t-1)}$ This ratio is used to measure sales growth, where firms with high growth face greater pressure to sustain performance.	(Beneish, 1999)
<i>Depreciation Index (DEPI)</i>	$\frac{\text{Depreciation year } (t - 1) / \text{Depreciation year } (t - 1) + \text{PPE year } (t - 1)}{\text{Depreciation year } (t) / \text{Depreciation year } (t) + \text{PPE year } (t)}$ This ratio is used to measure changes in depreciation methods or policies, which may be used to increase earnings.	(Beneish, 1999)
<i>Sales, General, and Administrative Expenses Index (SGAI)</i>	$\frac{\text{SGA Expense year } (t) / \text{Sales year } (t)}{\text{SGA Expense year } (t - 1) / \text{Sales year } (t - 1)}$ This ratio used to assess operating cost efficiency, where an increase in costs may signal financial pressure.	(Beneish, 1999)
<i>Total Accruals to Total Assets (TATA)</i>	$\frac{(\text{Income from Operations } (t) - \text{Operating Cash Flow}(t))}{\text{Total Assets } (t)}$ This ratio measures a level of accruals, reflecting the extent to which earnings are underpinned by non-cash elements.	(Beneish, 1999)

<i>Leverage (LVGI)</i>	<i>Index</i>	$\frac{((Long\ Term\ Debt\ (t) + Current\ Liabilities\ (t))/Total\ asset\ (t))}{((Long\ Term\ Debt\ (t-1) + Current\ Liabilities\ (t-1))/Total\ asset\ (t-1))}$ (Beneish, 1999) This ratio measures changes in leverage, reflecting creditor pressure and the potential for manipulation to meet obligations.
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The M-Beneish Score is interpreted using a threshold of -2.22 , where a score greater than or close to -2.22 indicates a higher probability of financial statement manipulation, while a lower score indicates a. The use of this threshold is based on the classification model developed by (Beneish, 1999).

Environmental, Social, and Governance (ESG) performance is the independent variable in this research, assessed using ESG scores derived from the BGK Foundation indicators. The transparency of ESG disclosures, specifically the company's sustainability report, is assessed by these indicators. This measurement is consistent with the methodology employed by Renaldy & Rani (2025), which evaluates the transparency of ESG disclosures using 33 ESG indicators in accordance with the Global Reporting Initiative (GRI) framework for corporate sustainability reports. The score also indicates the company's comprehensive performance across environmental, social, and governance (ESG) factors (BGK Foundation, 2022). Furthermore, the score indicates the company's overall performance across governance, social, and environmental factors (BGK Foundation, 2022). The independent variables are measured as follows.

Tabel 3
ESG Disclosure Indicators (BGK Foundation)

Variable	Variable Definition	Indicator
Environmental Score (E)	The score reflecting the company's performance in environmental aspects, including emissions, energy compliance, resource efficiency, environmental use, and regulations (BGK Foundation, 2022).	Greenhouse gas emissions and emission intensity Energy utilization and intensity Energy consumption Water utilization Environmental management activities Climate oversight and governance Climate risk management Forestry-related CSR initiatives

Social Score (S)	The score reflects the company's performance in social dimensions, including its interactions with employees, customers, and the broader community, along with its commitment to fulfilling social responsibilities toward stakeholders (BGK Foundation, 2022).	CEO Pay Ratio Gender pay ratio Employee turnover Temporary worker ratio Non-discrimination Workplace Injury Rate Health & safety Child labor & forced labor Human rights . Social CSR
Governance Score (G)	The score reflecting the quality of corporate governance, including board structure, transparency, internal control systems, and managerial oversight practices (BGK Foundation, 2022)	Board diversity Board of independence Executive incentive policies Collective bargaining practices Supplier code of conduct Ethics and anti-corruption policies Data privacy protection ESG reporting practices Disclosure quality . External assurance . Tax transparency

Source: Adapted from BGK Foundation (2022)

Foreign ownership refers to the percentage of a company's outstanding shares held by foreign entities, including individuals, corporations, and governmental agencies. This research examines foreign ownership as a moderating element that can influence the degree and character of the association between governance-related factors and a company's performance or practices (Kastuti & Sebrina, 2023). Foreign ownership is measured by the ratio of shares owned by foreign investors to the total number of outstanding shares of the company, as expressed in the following formula:

$$\text{Foreign Ownership} = \frac{\text{Number of Shares Held by Foreign Investors}}{\text{Total Outstanding Share}}$$

The control variables in this research are Return on Assets (ROA) and firm size. ROA is a proxy for company profitability, measured by comparing net income to total assets using the formula:

$$\text{ROA} = \frac{\text{Net income}}{\text{Total Assets}}$$

Meanwhile, firm size used to reflect the size of the company, measured using the natural logarithm of total assets, with the formula:

$$\text{SIZE} = \text{Ln} (\text{Total Assets})$$

The control variables are firm size and return on assets (ROA) to reflect the possible impact of financial performance and company size on fraudulent financial reporting (Wang et al., 2024; Wedari & Shafadila, 2022). To test the proposed hypotheses, this research employs Moderated Regression Analysis (MRA) to investigate the relationship between EScore, SScore, and GScore and fraudulent financial reporting, with foreign ownership (FOR) included as a moderating factor through interaction variables for each ESG dimension. Prior to hypothesis testing, the regression model is evaluated using several classical assumption tests, namely normality, heteroscedasticity, and multicollinearity tests, as well as model fit assessment.

The moderated regression analysis used in this research follows the approach suggested by Sharma et al., (1981), which uses a series of stepwise regression equations.

$$\begin{aligned}
 FFR &= \alpha + \beta_1 EScore + \beta_2 SScore + \beta_3 GScore + \beta_4 ROA + \beta_5 SIZE + e \dots\dots\dots 1 \\
 FFR &= \alpha + \beta_1 EScore + \beta_2 SScore + \beta_3 GScore + \beta_4 FOR + \beta_5 ROA + \beta_6 SIZE + e \dots\dots\dots 2 \\
 FFR &= \alpha + \beta_1 EScore + \beta_2 SScore + \beta_3 GScore + \beta_4 FOR + \beta_5 EScore * FOR + \beta_6 ROA + \beta_7 SIZE + e \dots\dots\dots 3 \\
 FFR &= \alpha + \beta_1 EScore + \beta_2 SScore + \beta_3 GScore + \beta_4 FOR + \beta_5 SScore * FOR + \beta_6 ROA + \beta_7 SIZE + e \dots\dots\dots 4 \\
 FFR &= \alpha + \beta_1 EScore + \beta_2 SScore + \beta_3 GScore + \beta_4 FOR + \beta_5 GScore * FOR + \beta_6 ROA + \beta_7 SIZE + e \dots\dots\dots 5
 \end{aligned}$$

Description:

FFR	= Fraudulent Financial Reporting
EScore	= Environmental Score
SScore	= Social Score
GScore	= Governance Score
ROA	= Return on Assets
SIZE	= Firm Size
FOR	= Foreign Ownership
α	= Constant
β_1 - β_7	= Regression coefficient
e	= Error

According to (Sharma et al., 1981), there are four possible outcomes in moderation regression analysis. First, if the coefficient for foreign ownership in the main model is significant, while the interaction coefficient between foreign ownership and the ESG variable is not, then foreign ownership acts as an independent variable. Second, if neither the foreign ownership coefficient nor the interaction coefficient is significant, then foreign ownership plays no role as either an independent variable or a moderator. Third, if both coefficients are

significant, then foreign ownership is categorized as a quasi-moderator. Fourth, if the foreign ownership coefficient is not significant but the interaction coefficient is, then foreign ownership is considered a pure moderator.

RESULTS AND DISCUSSION

Based on the collected observational data, several outliers showed significant deviations and were therefore removed. This removal was performed by referring to the boxplot to avoid bias in the research results. A total of 14 outliers were removed, resulting in a final sample size of 98 observations, as shown in Table 3.

Table 3
Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
FFR	98	-2.2824	1.015493	-4.116542	0.7705363
EScore	98	0.7889613	0.1613674	0.3636364	1
SScore	98	0.8256957	0.1732765	0.3636364	1
GScore	98	0.796846	0.1588335	0.4545455	1
FOR	98	0.1552702	0.2044954	0	0.8840065
ROA	98	0.131873	0.1386728	-0.1548358	0.6163459
SIZE	98	21.98027	4.251044	13.2987	31.62198

Source: Processed Data Using Stata (2026)

According to Table 3, the fraudulent financial reporting variable, as assessed by the Beneish M-Score (FFR), has an average value of -2.2824 , which is somewhat below the threshold of -2.22 . This outcome often signifies that the sampled firms are not categorized as exhibiting signs of financial statement manipulation. Despite this, the maximum score of 0.7705 indicates that numerous observations continue to demonstrate a considerable fraud risk. The standard deviation of 1.0155 indicates significant variability in manipulation risk among the sampled firms. The environmental dimension exhibits an average score of 0.7890 and a standard deviation of 0.1614 , suggesting that companies generally engage in the active disclosure of environmental information, encompassing emission control, energy efficiency, resource utilization, and environmental risk management, with minimal variation among companies. The social dimension exhibits the highest average score of 0.8257 and a standard

deviation of 0.1733, indicating that companies typically offer comprehensive disclosure concerning social factors, including employee welfare, equality, occupational health and safety, and corporate social responsibility initiatives.

The Governance dimension has a mean of 0.7968 and a standard deviation of 0.1588, indicating that organizations have adopted effective governance practices, including board structure, transparency, internal controls, and compliance with ethical standards. Despite relatively high and uniform disclosure levels across all three ESG dimensions, discrepancies in fraudulent financial reporting metrics suggest that fraud risk varies among organizations. Foreign ownership, serving as a moderating variable, has a mean of 0.1553 and exhibits a broad range (0 to 0.8840), indicating substantial variations in the capacity for external oversight. Moreover, profitability (ROA), with a mean of 0.1319 (minimum -0.1548), and firm size (SIZE) demonstrate variability, reflecting the heterogeneity of firm attributes in the sample.

Table 4
Classical Assumption Tests

Classical Assumption Test	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)
Normality	0.6085	0.6139	0.6790	0.6064	0.5038
Multicollinearity	1.43	1.44	1.46	1.48	1.43

Source: Processed Data Using Stata (2026)

Based on Table 4, the results of the classical assumption tests indicate that the data are normally distributed ($p\text{-value} > 0.05$) and that there is no multicollinearity issue, as the Variance Inflation Factor (VIF) values are below 10. However, the heteroscedasticity and autocorrelation tests indicate violations of classical assumptions in the model. Therefore, this study employs robust standard errors to obtain consistent and reliable estimates, as suggested by Hoechle (2007). Thus, the regression model in this research is suitable for further hypothesis testing.

Table 5
Hypothesis Test

	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)
EScore	-2.294*** (-3.17)	-2.299*** (-2.93)	-2.2216*** (-2.85)	-2.270*** (-2.85)	-2.239*** (-2.86)
SScore	-0.513 (-0.96)	-0.514 (-0.98)	-0.6686 (-1.27)	-0.602 (-1.09)	-0.943 (-1.79)

GScore	-2.420*** (-3.66)	-2.413*** (-3.29)	-2.472*** (-3.37)	-2.486*** (-3.36)	-2.089*** (-2.85)
FOR	-	-0.011 (-0.03)	0.212 (0.57)	0.117 (0.31)	-0.120 (-0.29)
EScore*FOR	-	-	2.855 (1.30)	-	-
SScore*FOR	-	-	-	1.335 (0.76)	-
GScore*FOR	-	-	-	-	6.619** (2.41)
ROA	-0.3024 (-0.54)	-0.303 (-0.52)	-0.147 (-0.25)	-0.227 (-0.38)	-0.261 (-0.48)
SIZE	-0.0161 (-0.93)	-0.016 (-0.92)	-0.016 (-0.94)	-0.015 (-0.89)	-0.013 (-0.81)
_cons	2.276*** (2.73)	2.277*** (2.70)	2.346*** (2.79)	2.345*** (2.75)	2.240*** (2.76)
F	0.0000	0.0000	0.0000	0.0000	0.0000
R ²	0.4744	0.4744	0.4856	0.4776	0.5072

Source: Processed Data Using Stata (2026)

Note: * p < 0.1, ** p < 0.05, * p < 0.01**

Based on Table 5, the F-test results indicate that all regression models are valid at the 0.0000 significance level, indicating that the independent variables influence fraudulent financial reporting. The coefficient of determination (R^2) values indicates that the first and second models explain 47.44% of the variation in the dependent variable, the third model 48.56%, the fourth 47.76%, and the fifth 50.72%. At the same time, the remainder are influenced by other variables outside the model.

In Model (1), Table 5 presents the results of the tests for the first, second, and third hypotheses. The p-value for the E-Score variable is 0.004 (<0.05), with a negative coefficient of -2.294, indicating that H1 is accepted. E-Score has a negative effect on fraudulent financial reporting. Environmental disclosure enhances corporate transparency, thereby strengthening oversight by stakeholders, including auditors, in assessing the alignment between environmental disclosures and the company's actual conditions (Yao et al., 2019). In the energy sector, environmental disclosure serves not only as a form of transparency but also as a

mechanism to reveal complex operational activities with high environmental impacts. Sector characteristics such as high capital intensity, long-term projects, and environmental regulatory pressures can increase the potential for information asymmetry, making environmental disclosure crucial. Stakeholders gain insight into risks that were previously difficult to detect (Miharsi et al., 2023; Nurkholik et al., 2024). Higher levels of transparency can reduce information asymmetry and increase the likelihood of detecting irregularities, thereby discouraging management from engaging in fraudulent financial reporting because of greater reputational and disclosure-related risks (Tarjo et al., 2024). Additionally, the disclosure of verified environmental information can attract stakeholder attention, thereby strengthening external monitoring and enhancing the ability to detect information discrepancies (Wei, 2023). The disclosure of environmental indicators, such as GHG emissions, accompanied by external verification improves the accuracy and credibility of information, thereby facilitating the detection of discrepancies by auditors, regulators, and investors, and promoting improved audit quality and reporting reliability, which ultimately reduces the likelihood of fraudulent financial reporting (Yao et al., 2019).

Furthermore, the S-Score variable has a significance level of 0.331 (>0.05), indicating that H2 rejected, that is the S-Score does not influence fraudulent financial reporting. From an agency theory perspective, social disclosure expected to reduce information asymmetry between management and stakeholders. However, the qualitative nature of social disclosure characteristics, such as non-discrimination policies, human rights, and CSR programs suggests that the disclosed information is not always objectively verifiable and does not always directly relate to operational activities or financial reporting, so its effectiveness in reducing information asymmetry may vary (Hu et al., 2019). Furthermore, the limited verifiability of social information makes it difficult for investors and external parties to use such information as a basis for effective monitoring of management actions (Hidayah et al., 2021). This condition becomes increasingly relevant in the energy sector, which faces high financial pressures and operational complexities that are more closely tied to environmental and technical aspects than to social ones (Miharsi et al., 2023; Nurkholik et al., 2024). Consequently, the low quality of social information and inconsistencies between non-financial information and financial performance render the impact of social disclosure on fraudulent financial reporting insignificant (Christianna et al., 2023).

The results of the G-Score variable test showed a significance level of 0.001 (<0.05) with a coefficient of -2.420, indicating that H3 is accepted. This means that the G-Score has a negative effect on fraudulent financial reporting. The negative effect of governance disclosure on fraudulent financial reporting suggests that strong corporate governance can curb management's opportunistic behavior. Governance disclosure, as reflected by the G-Score, indicates stronger oversight quality, greater transparency, and more effective internal control systems, thereby lowering the potential for financial statement manipulation (Schaefer et al., 2021). Indicators such as board independence and diversity help strengthen monitoring functions and reduce conflicts of interest in financial decision-making, thereby enhancing oversight of management (Rostami & Rezaei, 2022). In the energy sector, corporate governance is increasingly important due to the industry's high capital intensity, long-term projects, and complex contracts and regulations. These conditions increase the risk of information asymmetry and the potential for misconduct if not balanced by effective oversight mechanisms (Nurkholik et al., 2024). Therefore, the implementation of policies on ethics, anti-corruption, transparent reporting, and external assurance is crucial for enhancing the accountability and credibility of information, thereby increasing the risk of detection and reputational costs in the event of fraud (Christianna et al., 2023; LópezPuertas-Lamy et al., 2017; Tarjo et al., 2024). Thus, in the energy sector governance disclosure serves not only as a tool for transparency but also as an effective control mechanism to curb fraudulent financial reporting.

The foreign ownership variable in Model 2 was not significant, with a p-value of 0.978 (>0.05), which was used as the basis for determining the moderation role category in the fourth, fifth, and sixth hypotheses. Furthermore, the interaction between E-Score and foreign ownership in Model 3 yields a non-significant result with a p-value of 0.195 (>0.05), thus rejecting H4. Environmental disclosure is generally viewed as capable of enhancing corporate transparency and reducing opportunistic reporting practices through increased monitoring and oversight (Ellili, 2022). This disclosure is structured around quantitative indicators, such as greenhouse gas emissions, energy intensity, water usage, and environmental risk management, and thus serves as a signal to enhance oversight effectiveness (Velte, 2023). Although, in theory, foreign ownership expected to strengthen this function through increased external monitoring (Wu et al., 2022), its effectiveness is not always optimal in the energy sector. This is due to the operational complexity and high level of regulation in the energy sector, which

means that oversight of environmental disclosure is more supported by regulatory mechanisms than by investor pressure (Latief & Lefen, 2019; Nurkholik et al., 2024). Furthermore, the limitations of direct control and foreign investors' access to information regarding a company's internal processes, as well as the tendency towards non-controlling ownership, cause the monitoring role to not function effectively (Nie et al., 2023; Saini & Singhania, 2019; Schaefer et al., 2021). These conditions result in foreign ownership being insufficiently strong to moderate the relationship between environmental disclosure and fraudulent financial reporting.

Model 4 shows that the interaction between social disclosure and foreign ownership is not significant, with a p-value of 0.448 (>0.05), so H5 is rejected. These results indicate that foreign ownership does not moderate the relationship between social disclosure and fraudulent financial reporting. Social disclosure can increase corporate transparency. However, its effectiveness in reducing opportunistic reporting practices depends on the credibility and verifiability of the disclosed information. (Saini & Singhania, 2019). The qualitative nature of social disclosure and its reliance on internal company information suggest that such information is not always directly verifiable by external parties, so its effectiveness in signaling financial reporting risks may vary (Hidayah et al., 2021; Hu et al., 2019). In the energy sector, this is particularly relevant given the high operational complexity, which can increase information asymmetry between management and investors. In such situations, foreign investors face limitations in accessing and verifying social information, making the use of social disclosure as a monitoring mechanism less optimal (Ellili, 2022; Velte, 2023). Additionally, differing investment orientations which tend to prioritize financial performance over social aspects also influence the level of attention paid to social disclosure in decision-making (Herbert & Agwor, 2021; Saini & Singhania, 2019; Supriyanto et al., 2021). In developing countries such as Indonesia, concentrated ownership structures also influence the effectiveness of foreign investors' roles in corporate governance (Adiasih et al., 2018). These conditions indicate that foreign ownership is not yet strong enough to moderate the relationship between social disclosure and fraudulent financial reporting.

Furthermore, the interaction between governance disclosure and foreign ownership in Model 5 has a coefficient of 6.619 and a significance level of 0.018 (<0.05), indicating that H6 is accepted. This means that foreign ownership acts as a pure moderator in the relationship between governance disclosure and fraudulent financial reporting. This finding suggests that foreign ownership can serve as an external oversight mechanism that enhances managerial

discipline and information transparency, particularly in the energy sector, a primary target of foreign direct investment (Latief & Lefen, 2019; Wu et al., 2022). Within the agency theory framework, foreign ownership functions as an effective external oversight mechanism. However, unlike domestic investors, foreign investors generally face limitations in exercising direct control over management (Leuz et al., 2009). Consequently, foreign investors rely on corporate governance quality as a substitute for direct control mechanisms, making companies with strong governance more attractive, as they can reduce agency risk and information asymmetry (Yu & Luu, 2021).

Foreign investors are often associated with stronger demands for higher corporate governance standards, including greater board independence, improved audit quality, enhanced anti-corruption practices, and increased transparency in financial reporting (Lavin & Montecinos-Pearce, 2021; Velte, 2023). Foreign investors tend to avoid companies with weak governance and prefer those with strong governance, as they are perceived as more credible and carry lower risk (Claessens & Yurtoglu, 2013; Leuz et al., 2009). In developing countries, strong corporate governance practices play an important role in minimizing information disparities and strengthening investor confidence in the reliability of financial statements (Claessens & Yurtoglu, 2013). The governance disclosure is more effective in reducing information asymmetry and mitigating the likelihood of fraudulent financial reporting as external monitoring mechanisms are more secure and managerial discipline improves (Kumar et al., 2024; Li et al., 2022). The presence of foreign investors has also been shown to increase pressure on companies to improve governance quality, including board independence, audit quality, anti-corruption practices, and reporting transparency (Lavin & Montecinos-Pearce, 2021; Velte, 2023). Foreign ownership can also strengthen governance effectiveness by improving reporting quality and internal oversight, particularly regarding board independence and audit quality, which directly reduces the risk of misstatement (H. Huang et al., 2025; Qasem et al., 2022). The presence of foreign investors therefore strengthens the governance disclosure function as a control mechanism, thus reinforcing the negative relationship between governance disclosure and fraudulent financial reporting, as reflected by the significance of the moderating effect in this research.

Finally, the findings in Model 1 indicate that ROA and firm size did not significantly influence fraudulent financial reporting. This may occur because profitability, as measured by ROA, is not always a reliable predictor of fraud. Companies with either high or low profitability

levels may still engage in earnings management practices, or conversely, may choose not to manipulate financial statements, depending on the level of pressure, opportunity, and monitoring mechanisms present within the company (Tarjo et al., 2021). In other words, ROA does not always reflect the presence of incentives or disincentives that directly trigger fraudulent financial reporting, especially when other variables such as external pressure and corporate governance play a larger role in the research model (Mariati & Indrayani, 2020). Furthermore, firm size does not show a significant influence because a firm's size does not automatically guarantee the effectiveness of internal controls; in fact, high operational complexity can create opportunities for information asymmetry that are not captured in the model (Mentari & Sopian, 2022). Therefore, within the context of this research, ROA and firm size as control variables do not appear to be the main factors influencing fraudulent financial reporting, as the variations are likely explained by other more dominant determinants.

Robustness Test

To assess the robustness of the main findings to extreme observations, all continuous variables were winsorized at the 5th and 95th percentiles. The regression models were then re-estimated using the winsorized data under the same specifications as the main analysis. The results are reported in Table 6.

Table 6
Winsorization test

	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)
EScore	- 2.389*** (-3.59)	- 2.390*** (-3.26)	- 2.244*** (-3.16)	- 2.369*** (-3.17)	- 2.307*** (-3.21)
SScore	-0. 698 (-1.37)	-0. 698 (-1.37)	-0. 737 (-1.47)	-0. 709 (-1.36)	-0. 976* (-2.00)
GScore	- 2.372*** (-3.60)	-2.370*** (-3.24)	- 2.376*** (-3.24)	- 2.395*** (-3.21)	- 1.902** (-2.85)
FOR	-	-0. 004 (-0.01)	0.043 (0.10)	0. 037 (0.09)	-0. 196 (-0.43)
EScore*FOR	-	-	3.643 (1.12)	-	-
SScore*FOR	-	-	-	0.605 (0.26)	-
GScore*FOR	-	-	-	-	8.149** (2.37)

ROA	-0.632 (-1.14)	-0.632 (-0.52)	-0.451 (-0.75)	-0.603 (-1.04)	-0.620 (-1.12)
SIZE	-0.015 (-0.89)	-0.015 (-0.88)	-0.016 (-0.91)	-0.015 (-0.86)	-0.012 (-0.72)
_cons	2.514*** (3.28)	2.515*** (3.23)	2.410*** (3.22)	2.509*** (3.22)	2.201*** (2.92)
F	0.0000	0.0000	0.0000	0.0000	0.0000
R ²	0.5067	0.5067	0.5137	0.5071	0.5359

Source: Processed Data Using Stata (2026)

Note: * p < 0.1, ** p < 0.05, * p < 0.01**

The robustness test based on winsorization at the 5th and 95th percentiles produces results that are largely consistent with the main analysis. The hypotheses regarding the effects of environmental and governance disclosure on fraudulent financial reporting remain supported, as both relationships remain negative and statistically significant. Furthermore, the hypothesis concerning the moderating role of foreign ownership in the relationship between governance disclosure and fraudulent financial reporting remains supported, with the interaction coefficient increasing from 6.619 to 8.149 while remaining statistically significant. In contrast, the hypotheses concerning the moderating role of foreign ownership in the relationships between environmental and social disclosure and fraudulent financial reporting remain unsupported. Overall, the robustness test reinforces the consistency of the study's main findings despite the treatment of extreme observations. reporting.

CONCLUSIONS AND SUGGESTIONS

Conclusions

The findings of this research support the results reported by Anggraini et al., (2025), which demonstrated that the environmental and governance dimensions negatively affect fraudulent financial reporting. This indicates that higher-quality environmental and governance disclosures tend to reduce the likelihood of fraud in financial reporting. On the other hand, the social dimension was found to have an insignificant effect, implying that social disclosure may not effectively prevent fraudulent financial reporting, particularly when the disclosed information is not sufficiently reliable and lacks proper verification mechanisms (Fairuz & Rofiqoh, 2025). Furthermore, the study reveals that foreign ownership strengthens the influence of governance disclosure on reducing fraudulent financial reporting, indicating its

role as a pure moderating variable in this relationship. However, we did not find any moderating effects of foreign ownership on the effects of environmental and social disclosure. This indicates that external monitoring of foreign investors is still limited, particularly when the ownership levels are not dominant and access to internal company information is relatively constrained.

Limitations and Suggestions

Implicitly, these findings support that enhancing environmental disclosures and fortifying governance systems are important ways to lower the risk of fraudulent financial reporting, especially in the energy industry, which is known for its high operational complexity and pressure. These findings also have implications for stakeholders, particularly investors, creditors, and regulators, in evaluating corporate governance quality, underscoring the importance of governance and environmental dimensions as key indicators of oversight effectiveness and fraud risk. Furthermore, ESG disclosures must ensure that the information presented is not merely symbolic but substantively reflects the company's actual conditions, thereby enhancing transparency and accountability. Nevertheless, the use of the GRI Index as a measurement reference led to limited data availability in several companies, resulting in a reduction in the research sample. Further research is recommended to expand the scope by examining different industrial sectors, longer periods of time, different ways to measure ESG, and other variables such as audit quality, effectiveness of internal control and other related factors in order to gain a deeper understanding of the determinants of fraudulent financial reporting.

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