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Research Paper

Sustainability practices and fraud indications: Empirical evidence from Indonesia

Amelia Oktrivina*, Shanty Lysandra, Sailendra, Amanda Putri Alisha

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Corresponding author:
Email:
ameliaoktrivina@univpancasila.ac.id

Fakultas Ekonomi dan Bisnis, Universitas Pancasila, Jakarta, Indonesia

Abstract

This study explores the relationship between Environmental, Social, and Governance (ESG) performance, Corporate Social Responsibility (CSR) disclosure, and financial statement fraud in publicly listed companies in Indonesia. Using a quantitative approach, we analyzed data from 30 companies with ESG Scores from 2020–2024, yielding 150 observations. Secondary data came from the Refinitiv ESG Database, annual and sustainability reports, and audited financial statements. The analysis used Partial Least Squares-Structural Equation Modeling (PLS-SEM) with SmartPLS 4, showing that ESG influences both CSR and indicators of financial statement fraud. At the same time, CSR mediates ESG's impact on fraud indicators. These findings highlight the complex interplay between sustainability practices and financial reporting integrity, contributing to the literature by integrating ESG, CSR, and Fraud Pentagon indicators in one framework and offering practical insights into corporate sustainability assessment.

Keywords: ESG, CSR, fraudulent financial statements, fraud pentagon, greenwashing, PLS-SEM

Author(s) Detail
[1-4.] Economics and Business Faculty, Universitas Pancasila, Jakarta, Indonesia

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Abstrak
Penelitian ini mengkaji hubungan antara kinerja Environmental, Social, and Governance (ESG), pengungkapan Corporate Social Responsibility (CSR), dan indikasi kecurangan laporan keuangan pada perusahaan publik di Indonesia. Dengan menggunakan pendekatan kuantitatif, penelitian ini menganalisis 30 perusahaan yang memiliki ESG Score secara konsisten selama periode pengamatan 2020–2024, dengan total 150 observasi *firm-year*. Data sekunder diperoleh dari Refinitiv ESG Database, laporan tahunan, laporan keberlanjutan, dan laporan keuangan auditan. Data dianalisis menggunakan Partial Least Squares-Structural Equation Modeling (PLS-SEM) dengan bantuan SmartPLS 4 untuk menguji pengaruh ESG dan CSR terhadap indikasi kecurangan laporan keuangan serta peran mediasi CSR. Hasil penelitian menunjukkan bahwa ESG berpengaruh signifikan terhadap CSR, ESG berpengaruh signifikan terhadap indikasi kecurangan laporan keuangan, dan CSR berpengaruh signifikan terhadap indikasi kecurangan laporan keuangan. Selain itu, CSR secara signifikan memediasi hubungan antara ESG dan indikasi kecurangan laporan keuangan. Temuan ini menunjukkan bahwa hubungan antara praktik keberlanjutan dan integritas pelaporan keuangan bersifat kompleks dan tidak dapat dinilai hanya berdasarkan kinerja ESG atau CSR. Penelitian ini berkontribusi pada literatur dengan mengintegrasikan ESG, pengungkapan CSR, dan indikator berbasis Fraud Pentagon dalam satu kerangka empiris serta memberikan implikasi praktis bagi evaluasi keberlanjutan perusahaan dan integritas pelaporan keuangan.

Kata Kunci: ESG, CSR, kecurangan laporan keuangan, *fraud pentagon*, *greenwashing*, PLS-SEM

1. Introduction

In contemporary corporate governance, Environmental, Social, and Governance (ESG) performance and Corporate Social Responsibility (CSR) disclosure have emerged as central pillars for evaluating organizational legitimacy and accountability (Xuan et al., 2026). ESG constitutes a comprehensive framework for assessing a firm's measurable achievements across environmental stewardship, social relationships, and governance structures (Yadav et al., 2025). In contrast, CSR encompasses the discretionary corporate actions and informational disclosures directed toward diverse stakeholders and society at large (Dong et al., 2025; Gamerschlag et al., 2011; Hassan & Batool, 2016). Collectively, these practices are widely presumed to reinforce transparency, strengthen stakeholder trust, and curtail managerial opportunism, thereby theoretically reducing the propensity for financial misconduct. Nevertheless, the precise relationship between sustainability practices and financial reporting integrity remains theoretically contested and empirically inconclusive. This ambiguity is particularly consequential, as financial statement fraud fundamentally undermines investor confidence, distorts capital allocation, and erodes the credibility of sustainability-related disclosures upon which stakeholders increasingly rely.

Companies disclose CSR information for multiple strategic and institutional reasons. Primarily, such disclosure enhances organizational transparency and demonstrates accountability to stakeholders, helping build trust and organizational legitimacy (Nair et al., 2019)]. Additionally, companies utilize CSR disclosure as a strategic tool to manage and improve their corporate reputation among the public and the investment community (Ernst et al., 2026)]. Beyond reputation management, disclosure facilitates meaningful stakeholder engagement by enabling firms to communicate their core values and operational actions, which can significantly influence stakeholder perceptions and, consequently, investment decisions (Thu et al., 2025). In certain jurisdictions, CSR disclosure is also driven by regulatory compliance, as legislative mandates increasingly reflect growing societal expectations for corporate transparency (Nair et al., 2019). Finally, by proactively showcasing responsible business practices, companies may secure a competitive advantage in the marketplace, differentiating themselves from less transparent peers and potentially attracting sustainability-conscious consumers and investors (Hassan & Batool, 2016).

Prior empirical investigations have yielded markedly divergent conclusions regarding the association between ESG, CSR, and corporate misconduct. On one hand, a growing body of evidence supports a protective role. Wang et al. (2024), examining Chinese A-share listed firms, documented that superior ESG performance significantly reduced corporate violations, an effect mediated through enhanced information transparency, relaxed financing constraints, and intensified media scrutiny. Similarly, Chu et al. (2023) found that CSR engagement reduced both the likelihood and severity of corporate fraud in the Chinese context. Extending this line of inquiry internationally, Ghorbel and Ben Amar (2025) reported that stronger CSR performance was significantly associated with a lower probability of accounting fraud across firms in France, Canada, the United Kingdom, and Germany. Collectively, these studies position sustainability practices as effective accountability-enhancing mechanisms.

On the other hand, countervailing evidence complicates this narrative. Zhou and Lei (2025) revealed that *uncertainty* in ESG ratings—rather than ESG performance per se—was positively correlated with corporate financial misconduct, suggesting that the reliability and interpretability of ESG information critically moderate its governance efficacy. These contradictory findings collectively indicate that the relationship between sustainability practices and financial statement fraud cannot be assumed to be uniformly negative or deterministic.

The inconsistency becomes particularly salient when ESG and CSR are examined in conjunction rather than in isolation. Conceptually, ESG represents a broader, more structural assessment of corporate performance across sustainability dimensions, whereas CSR captures the communicative and operational manifestations of stakeholder-oriented responsibilities. As such, robust ESG performance may logically predispose firms to expand the scope and depth of their CSR disclosures, positioning CSR as a downstream conduit through which sustainability achievements are signaled to external audiences. Despite this conceptual sequencing, existing studies have predominantly examined the direct effects of either ESG or CSR on corporate misconduct separately, with limited attention to CSR's potential *mediating* role in transmitting the influence of ESG performance to financial reporting outcomes. This oversight leaves a critical empirical question unresolved: does CSR genuinely function as an accountability mechanism that reinforces financial reporting integrity, or can it, under certain organizational and governance conditions, paradoxically coincide with heightened fraud indicators?

This research gap is particularly pertinent within the context of publicly listed companies in Indonesia, an emerging market characterized by evolving sustainability reporting standards, concentrated ownership structures, and a developing regulatory environment for corporate governance. In this setting, investors, regulators, and other stakeholders increasingly use sustainability information and financial reports to assess corporate performance and trustworthiness. The simultaneous proliferation of sustainability disclosures alongside persistent concerns regarding financial reporting irregularities necessitates a rigorous examination of whether these indicators convey consistent, reliable signals of corporate integrity. Accordingly, investigating ESG performance, CSR disclosure, and financial statement fraud within an integrated empirical framework can meaningfully advance scholarly understanding of the sustainability–reporting integrity nexus while offering actionable insights for domestic regulators and market participants.

The present study pursues three interrelated objectives: (1) to examine the influence of ESG performance on CSR disclosure; (2) to assess the direct effects of both ESG performance and CSR disclosure on indications of financial statement fraud; and (3) to test whether CSR disclosure

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mediates the relationship between ESG performance and fraud indications. Drawing on Agency Theory (Jensen & Meckling, 1976) to explain monitoring and information asymmetry dynamics, and Legitimacy Theory (Suchman, 1995) to capture reputational and societal conformity pressures, this study contributes to the literature by integrating ESG, CSR, and the Fraud Pentagon framework into a single analytical model. In doing so, it moves beyond the prevailing assumption that sustainability practices uniformly deter misconduct, offering a more critical and context-sensitive perspective on when and how sustainability performance may relate to financial reporting integrity.

2. Theoretical background and hypothesis

This study is anchored in three complementary theoretical perspectives that collectively underpin the proposed research model. First, Agency Theory (Jensen & Meckling, 1976) addresses the inherent conflicts of interest and information asymmetry arising from the separation of ownership and managerial control, positing that ESG performance and CSR disclosure can serve as transparency-enhancing mechanisms that strengthen monitoring and constrain managerial opportunism—though their effectiveness remains contingent upon robust governance and genuine accountability. Complementarily, Legitimacy Theory (Suchman, 1995) explains that organizations proactively communicate their sustainability commitments through ESG and CSR disclosures to signal alignment with prevailing societal norms and stakeholder expectations, thereby securing and maintaining organizational legitimacy. Finally, Fraud Pentagon Theory (Crowe, 2011) extends the traditional fraud triangle by incorporating *capability* and *arrogance* alongside *pressure*, *opportunity*, and *rationalization*, providing a comprehensive framework for identifying conditions conducive to fraudulent financial reporting. In this study, these five elements are operationalized through specific financial and governance indicators to construct the measure of indications of financial statement fraud, thereby furnishing the conceptual basis for the dependent variable in the research model.

Hypothesis development

ESG performance reflects a firm's measurable achievements in managing environmental impacts, social relationships, and governance structures. In contrast, Corporate Social Responsibility (CSR) encompasses the discretionary corporate actions and informational disclosures directed toward diverse stakeholders and society at large. Grounded in Legitimacy Theory (Suchman, 1995), organizations strive to ensure that their operations are perceived as congruent with prevailing societal norms and expectations. Specifically, firms with strong ESG credentials often face heightened scrutiny from investors, regulators, and the public. Consequently, these firms possess stronger incentives to undertake and disclose CSR initiatives as a strategic mechanism to signal their continued commitment to sustainable development and to preserve their social license to operate. In this regard, ESG practices serve as a foundational driver that not only enables but also encourages firms to expand the scope and quality of their CSR disclosures. This theoretical conjecture is reinforced by empirical evidence. For instance, Khoshnaw et al. (2024) and Nugroho et al. (2024) document that robust ESG engagement is significantly and positively correlated with enhanced CSR performance and more transparent sustainability reporting. Based on the theoretical rationale and empirical regularities outlined above, we formulate the following hypothesis:

H1: ESG performance has a significant effect on CSR.

Agency Theory posits that divergent interests between principals (shareholders) and agents (managers) create inherent information asymmetries, which may incentivize managers to prioritize personal utility over shareholder value maximization (Jensen & Meckling, 1976). Within this framework, robust governance structures and enhanced transparency mechanisms serve as effective monitoring tools that reduce information asymmetry and constrain managerial opportunism. ESG performance—particularly its governance pillar, yet reinforced by the external stakeholder scrutiny generated by the environmental and social dimensions—can strengthen internal oversight and curb self-serving managerial behavior, thereby lowering the propensity for financial reporting irregularities.

Empirical support for this theoretical proposition is, however, mixed. On one hand, Wang et al. (2024) document that superior ESG performance is significantly associated with fewer corporate violations, suggesting a deterrent effect on misconduct. Similarly, Sastroredjo and Suganda (2025) provide corroborating evidence linking ESG weaknesses to heightened risks of bribery, corruption, and financial distress, underscoring the protective role of sustainability practices. On the other hand, Zhou and Lei (2025) present a countervailing perspective, finding that *uncertainty* in ESG ratings—rather than ESG performance per se—is positively associated with corporate financial misconduct. This latter finding implies that the credibility and consistency of ESG information may be as critical as its absolute level in influencing managerial integrity.

Taken together, while the prevailing Agency Theory logic strongly predicts a negative relationship between ESG engagement and fraud indicators, the empirical landscape remains non-uniform, with contradictory evidence suggesting that the *quality, reliability, and consistency* of ESG practices and disclosures may moderate this association. Nevertheless, grounded in the overarching theoretical framework, we anticipate that higher overall ESG performance predominantly strengthens monitoring and transparency, thus reducing opportunities for financial misstatement. Based on the above theoretical reasoning, we propose the following hypothesis:

H2: ESG performance has a significant effect on indications of financial statement fraud.

Integrating Agency Theory and Legitimacy Theory provides a comprehensive conceptual lens for predicting that Corporate Social Responsibility (CSR) disclosure curtails financial statement fraud. Under Agency Theory (Jensen & Meckling, 1976), voluntary CSR disclosure provides stakeholders with additional non-financial information, reducing information asymmetry between managers and external parties. This enhanced transparency fortifies external monitoring mechanisms and reduces managerial discretion to obscure opportunistic behavior, ultimately constraining incentives to manipulate reported earnings. Complementarily, Legitimacy Theory (Suchman, 1995) posits that firms employ CSR disclosures as strategic instruments to signal alignment with societal norms and stakeholder expectations, thereby securing their social license to operate. Importantly, organizations that have invested considerable resources in cultivating a responsible public image face substantially higher reputational costs should financial irregularities be exposed. This reputational deterrence effect further dissuades managers from engaging in fraudulent reporting, as such misconduct would jeopardize their hard-won organizational legitimacy.

Prior empirical inquiries broadly corroborate the theoretical predictions outlined above. Chu et al. (2023) provide robust evidence that active CSR engagement significantly reduces both the likelihood and intensity of corporate fraud. Similarly, in a cross-national context, Ghorbel and Ben Amar (2025) confirm a significant *negative* association between CSR performance and accounting fraud, further supporting the fraud-deterrent role of responsible corporate behavior.

Nevertheless, the universality of this relationship remains contestable. The efficacy of CSR disclosure in deterring fraud is unlikely to be absolute; rather, it may be moderated by

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institutional factors such as regulatory enforcement quality, ownership concentration, cultural norms, and the credibility of CSR reporting itself. In certain contexts, CSR disclosures may even serve as a legitimating veneer for underlying misconduct—a phenomenon often associated with greenwashing or symbolic compliance. These contextual contingencies underscore the need to examine the CSR-fraud nexus empirically within Indonesia's institutional landscape, where stakeholder pressures, reporting standards, and governance enforcement may differ markedly from those in developed economies.

Notwithstanding these caveats, the dominant theoretical logic and accumulated empirical evidence strongly predict a fraud-reducing effect. Accordingly, we propose the following hypothesis:

H3: CSR disclosure has a significant effect on indications of financial statement fraud.

The mediating role of CSR

CSR disclosure constitutes the provision of information concerning a company's environmental and social performance (Gamerschlag et al., 2011; Thu et al., 2025), encompassing comprehensive details on environmental impact, social initiatives, governance, and ethics (Cho et al., 2015), and is typically presented in annual reports, sustainability reports, or dedicated CSR reports (Gamerschlag et al., 2011). Such disclosure may be undertaken voluntarily or mandated by regulatory requirements, with some jurisdictions having introduced legislation that compels non-financial reporting (Sharairi, 2021)], and its primary purpose is to inform a diverse array of stakeholders—including investors, consumers, regulators, and the general public—about corporate CSR activities, specifically aiming to meet the information needs of varied audiences, including non-professionals (Axjonow et al., 2018).

Companies engage in CSR disclosure for multiple strategic and institutional reasons: to enhance organizational transparency and demonstrate accountability to stakeholders (Thu et al., 2025), to manage and improve corporate reputation among the public and investment communities (Axjonow et al., 2018), to facilitate stakeholder engagement and thereby influence perceptions and investment decisions (Ernst et al., 2026), to ensure compliance with applicable legal frameworks (Sharairi, 2021), and to potentially secure a competitive advantage in the marketplace by showcasing responsible business practices (Hassan & Batool, 2016). In practice, while some firms voluntarily disclose such information, others do so in response to legal obligations, and many companies utilize established reporting frameworks, most notably the Global Reporting Initiative (GRI), to guide their disclosure content and structure. Moreover, emerging technologies such as artificial intelligence and blockchain are increasingly being deployed to enhance the accuracy, transparency, and overall credibility of CSR disclosures (Antić & Milosavljević, 2025; Mamilla, 2025). While these practices offer considerable benefits—including enhanced transparency and trust, improved stakeholder relations, and the capacity to influence investment decisions—CSR disclosure is not without its challenges; these include the persistent risk that disclosed information may not accurately reflect an organization's actual responsible behavior , substantial variability in the quality and extent of disclosures across firms (García-Sánchez et al., 2019), and significant cross-country regulatory disparities that complicate comparability and enforcement (Thu et al., 2025).

The relationship between ESG and financial statement fraud may also operate indirectly through CSR. Legitimacy Theory suggests that stronger ESG performance can encourage companies to strengthen CSR activities and disclosures to communicate their sustainability commitments to stakeholders (Suchman, 1995). At the same time, Agency Theory indicates that CSR disclosure may influence information asymmetry and managerial monitoring (Jensen & Meckling, 1976).

Therefore, ESG may influence indications of financial statement fraud not only through its direct relationship with fraud-related conditions but also through CSR disclosure. Given the theoretical relationship between ESG and CSR established in H1 and the relationship between CSR and financial statement fraud proposed in H3, CSR may function as an intervening variable in the relationship between ESG and indications of financial statement fraud. Accordingly:

H4: CSR mediates the relationship between ESG and indications of financial statement fraud.

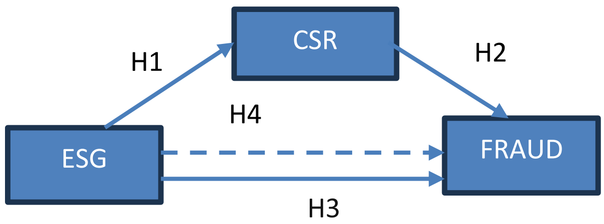

Figure 1. Research model

3. Methodology

3.1. Sample and Procedure

This study employs a quantitative approach using secondary data from publicly listed companies in Indonesia. The sample consists of 30 companies with consistently available ESG Scores during the 2020–2024 observation period, resulting in 150 firm-year observations. The companies were selected using purposive sampling based on the availability and completeness of ESG Scores, annual reports, sustainability reports, and audited financial statements required for the measurement of the research variables. The ESG data were obtained from the Refinitiv ESG Database, while financial and sustainability information was collected from the companies' annual reports, sustainability reports, and audited financial statements. Refinitiv was selected because it provides standardized ESG scores covering environmental, social, and governance dimensions, allowing ESG performance to be measured consistently across the sampled companies. Companies with incomplete data during the observation period were excluded from the final sample. The final sample comprised 30 companies and 150 firm-year observations used in the subsequent PLS-SEM analysis.

3.2. Measurement

ESG performance is measured using the ESG Score obtained from the Refinitiv ESG Database, with scores ranging from 0 to 100. Higher scores indicate better ESG performance.

CSR disclosure is measured using the Corporate Social Responsibility Disclosure Index (CSRDI) based on the Global Reporting Initiative (GRI) Standards. Each disclosed item is coded 1 and each undisclosed item is coded 0. The index is calculated as the number of disclosed items divided by the total applicable items.

Indications of financial statement fraud are measured using five Fraud Pentagon dimensions (Crowe, 2011). Pressure is proxied by leverage (LEV), calculated as total liabilities divided by total assets; opportunity is proxied by ineffective monitoring (BDOUT), measured by the proportion of independent commissioners to total commissioners; rationalization is proxied by total accruals (TATA), calculated as net income minus operating cash flow divided by total assets; capability is measured by changes in directors (DCHANGE), coded 1 for a director change and 0 otherwise; and arrogance is proxied by the number of CEO photographs in the annual report (CEOPIC). These proxies are consistent with previous Fraud Pentagon studies (Aprilia, 2017; Tessa & Harto, 2016). The five Fraud Pentagon indicators are specified as formative indicators of the financial statement fraud construct.

3.3. Technique of Analysis

This study uses Partial Least Squares-Structural Equation Modeling (PLS-SEM) with SmartPLS to examine the relationships among ESG performance, CSR disclosure, and indications of financial statement fraud. The analysis consists of evaluating the measurement model (outer model) and the structural model (inner model). The outer model is assessed to ensure the validity and reliability of the constructs, while formative indicators are evaluated based on collinearity and indicator significance. The inner model is evaluated by examining path coefficients, coefficient of determination (R^2), effect size (f^2), and predictive relevance (Q^2). Hypothesis testing and mediation analysis are conducted using bootstrapping with 5,000 resamples at a 5% significance level. The mediation effect of CSR is assessed through the significance of the indirect effect and its bootstrap confidence interval (Hair et al., 2021).

4. Results and discussion

4.1 Descriptive Statistics

Table 1 presents the descriptive statistics for the seven variables used in this study. The ESG variable has a mean of 10.049 and a standard deviation of 11.664, indicating relatively high variation in ESG scores across the observed companies. CSR and Opportunity have the same mean of 0.499 and standard deviation of 0.128, indicating relatively limited variation in the observed values.

Table 1. Descriptive Statistics

Variable	*Mean*	*Standard Deviation*
ESG	10.049	11.664
CSR	0.499	0.128
Pressure	0.547	0.254
Opportunity	0.499	0.128
Rationalization	-0.030	0.061
Capability	0.580	0.494
Arrogance	2.750	0.606

Pressure has a mean of 0.547 with a standard deviation of 0.254, while Rationalization has a mean of -0.030 and a standard deviation of 0.061. Capability has a mean of 0.580 and a standard deviation of 0.494, consistent with its binary measurement, while Arrogance has a mean of 2.750 and a standard deviation of 0.606. Overall, the descriptive statistics provide an overview of the characteristics and variability of the variables prior to hypothesis testing.

4.2 Hypothesis Testing

The hypothesis testing results indicate that all path relationships in the research model are statistically significant at the 5% significance level. However, there is a considerable disparity between the magnitude of direct effects of ESG and CSR on the dependent variable (FRAUD), necessitating careful consideration not only of statistical significance but also of the practical meaning of each estimated path coefficient.

Table 2. Hypothesis Testing Results

Path	B	sd	T	p-values	2.50%	97.50%	R-square	f-square
ESG -> CSR	0.00	0.00	3.25	0.00	0.00	0.01	0.09	0.19
ESG -> FRAUD	0.00	0.00	2.24	0.03	0.00	0.01	0.23	0.04
CSR -> FRAUD	0.58	0.12	5.02	0.00	0.37	0.82		
ESG -> CSR -> FRAUD	0.00	0.00	2.63	0.00	0.00	0.00		

On the path of ESG influence on CSR, the path coefficient (B) is 0.00 with a standard deviation of 0.00. Yet the T-statistic of 3.25 and the p-value < 0.01 indicate a significant influence. The seemingly zero coefficient does not negate the influence; rather, it is caused by differences in measurement scales between constructs, given that the ESG mean is substantially larger with much wider variability compared to CSR, such that a one-unit change in ESG produces only a very small fractional change in CSR, which is reduced by decimal rounding. The 95% confidence interval falling within the positive range and the high T-value confirm that the positive effect of ESG on CSR remains statistically real (see Figure 2).

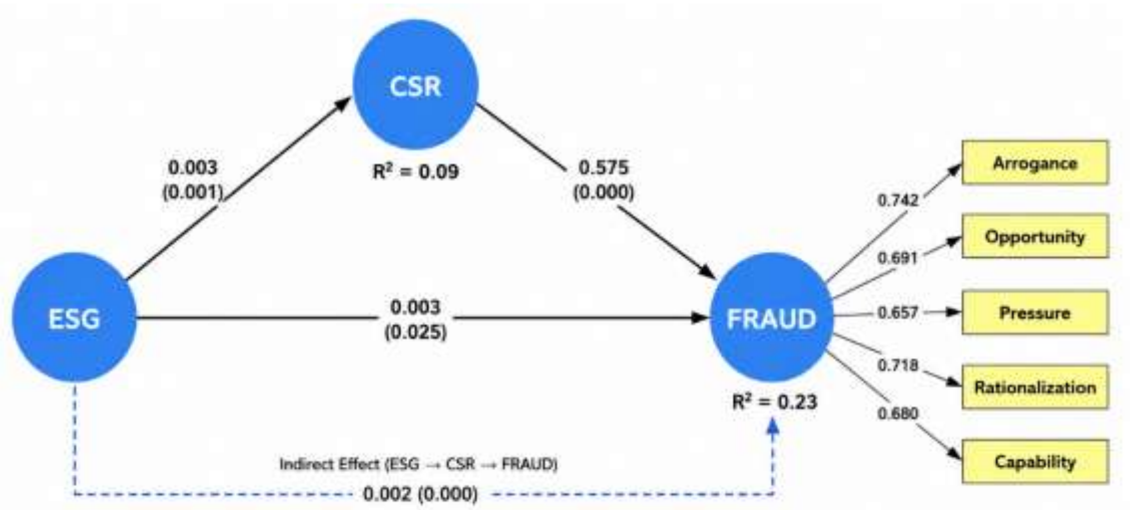

Figure 2. Results of path analysis

A similar pattern is observed in the direct effect of ESG on FRAUD, with a coefficient that appears zero yet is statistically significant, indicating that an increase in ESG scores directly drives an increase in fraud tendencies. However, the magnitude of this effect is very small in practical terms. In contrast to the ESG effect, the CSR-to-FRAUD path shows a substantially larger coefficient. The strong path coefficient, along with a relatively small standard deviation, a high T-statistic, and significance at p < 0.01, confirms that this relationship is the strongest among all paths tested. The 95% confidence interval is entirely positive and does not contain zero, providing strong statistical confidence that a one-unit increase in CSR will drive a substantial increase in FRAUD. This empirical finding confirms that CSR plays a far more dominant role than ESG in predicting fraud within the research model.

Table 2 presents the results of hypothesis testing using PLS-SEM. The results show that all proposed hypotheses are supported. The path from ESG to CSR is statistically significant (β =

0.00; $t = 3.25$; $p < 0.01$), indicating that H1 is accepted. The direct effect of ESG on FRAUD is also significant ($\beta = 0.00$; $t = 2.24$; $p = 0.03$), indicating that H2 is accepted. Furthermore, CSR has a significant effect on FRAUD ($\beta = 0.58$; $t = 5.02$; $p < 0.01$), supporting H3.

The indirect effect of ESG on FRAUD through CSR is also statistically significant ($t = 2.63$; $p < 0.01$), indicating that H4 is accepted. Since the direct effect of ESG on FRAUD remains significant while the indirect effect through CSR is also significant, CSR demonstrates a partial mediating effect in the relationship between ESG and FRAUD. Therefore, H1, H2, H3, and H4 are accepted, while none of the proposed hypotheses are rejected.

4.2. Discussion

The results show that all proposed relationships are statistically significant. ESG significantly affects CSR; ESG significantly affects indications of financial statement fraud; CSR significantly affects indications of financial statement fraud; and CSR significantly mediates the relationship between ESG and indications of financial statement fraud. The discussion below focuses on interpreting these relationships and how they differ from previous findings.

The positive and significant effect of ESG on CSR supports H1. This finding indicates that companies with stronger ESG performance tend to disclose more CSR. The result is consistent with Khoshnaw et al. (2024) and Nugroho et al. (2024), which indicate that environmental, social, and governance practices are associated with broader corporate sustainability activities and stakeholder-oriented disclosures. The finding also supports the legitimacy perspective, in which sustainability performance can encourage companies to communicate their responsibilities and commitments to stakeholders. However, the model explains only a limited proportion of the variance in CSR, suggesting that CSR disclosure is also influenced by other factors that are not included in the present model.

H2 is also supported, although the effect of ESG on indicators of financial statement fraud is very small. The positive coefficient indicates that higher ESG scores are statistically associated with higher values of the financial statement fraud construct in this sample. However, the magnitude of the relationship is constrained. This result differs from Wang et al. (2024), who reported that stronger ESG performance was associated with lower corporate violations. The difference may reflect variations in the dependent variable, measurement approach, sample characteristics, and institutional conditions. In the present study, fraud is not measured through confirmed cases of financial misconduct but through a composite construct based on Fraud Pentagon indicators. Therefore, the positive relationship should be interpreted as an empirical association within the observed sample, not evidence that ESG causes fraudulent behavior.

H3 shows the strongest direct relationship in the model, with CSR having a significant positive association with indications of financial statement fraud. This finding differs from Chu et al. (2023) and Ghorbel and Ben Amar (2025), which reported a negative relationship between CSR and corporate or accounting fraud. This difference suggests that the relationship between CSR disclosure and financial reporting integrity may depend on sample characteristics, CSR measurement, and fraud measurement. In this study, CSR is measured through disclosure, while Fraud Pentagon indicators represent financial statement fraud. Therefore, the result does not establish that CSR causes fraud or that CSR disclosure represents greenwashing. Rather, it indicates that greater CSR disclosure is statistically associated with higher indications of fraud in the companies observed. This unexpected finding warrants further investigation into the quality, substance, and credibility of CSR disclosures and the governance conditions surrounding them.

H4 is supported because the indirect effect of ESG on indications of financial statement fraud through CSR is statistically significant, while the direct effect of ESG on fraud remains significant.

This indicates that CSR partially mediates the relationship between ESG and indications of financial statement fraud. The result suggests that ESG is associated with financial statement fraud both directly and through its relationship with CSR. However, the mediating pathway contributes only a limited portion of the overall relationship. This finding extends the literature by showing that the relationship between sustainability performance and financial reporting risk may involve an indirect, CSR-related pathway rather than only a direct relationship.

Overall, the findings demonstrate that the relationships among ESG, CSR, and indications of financial statement fraud are more complex than a uniformly negative relationship would suggest. The differences between the present findings and previous studies highlight the importance of considering differences in sample characteristics, measurement approaches, and institutional settings when interpreting the relationship between sustainability practices and financial reporting integrity. The findings therefore provide empirical evidence that ESG and CSR should not be interpreted as standalone indicators of the absence of financial reporting risk..

4.3. Implications

The findings of this study yield several important theoretical implications. First, they contribute to the ongoing discussion about the "dark side" of corporate sustainability by revealing that ESG performance and CSR disclosures do not always guarantee ethical financial reporting. Instead of serving as reliable safeguards, these practices can be manipulated for impression management when internal governance structures are inadequate. By combining Agency Theory, Legitimacy Theory, and the Fraud Pentagon framework within a single analytical model, this research provides a more nuanced perspective on the relationship between sustainability and fraud. It highlights the ongoing conflict between genuine accountability and mere symbolic representation—an issue that increasingly affects modern sustainability reporting.

Second, the results question the common belief that ESG and CSR always function as beneficial governance tools. The positive correlations found between sustainability indicators and signs of fraud imply that these relationships are contingent on context rather than being universally applicable. This contribution reframes ESG and CSR as complex organizational factors that may influence—and at times overlap with—financial reporting risks in different ways.

Third, the significant mediation pathway identified in this work builds on previous theoretical models by demonstrating that ESG impacts financial reporting integrity not only directly but also indirectly through CSR disclosures. This calls for future theoretical frameworks to consider intermediate mechanisms instead of assuming a straightforward relationship between sustainability performance and fraud outcomes.

Practical Implications

From a practical perspective, the findings hold significant implications for various stakeholders. For investors and analysts, the results serve as a warning against overly relying on ESG scores or the amount of CSR disclosures as indicators of reporting integrity. High sustainability ratings should not be automatically interpreted as low fraud risk. Investors should enhance their sustainability evaluations by closely examining internal control systems, audit quality, and the credibility of non-financial disclosures, focusing on quality and verifiability rather than just quantity.

For regulators and standard-setters, the findings stress the importance of stronger oversight and standardized CSR reporting. Existing disclosure frameworks may encourage symbolic compliance rather than genuine accountability. Regulatory agencies should consider requiring external validation for sustainability reports, creating clearer materiality assessment guidelines, and enforcing stricter penalties for misleading or unsubstantiated CSR claims to combat potential greenwashing and symbolic manipulation.

For corporate managers and boards, the results indicate that merely investing in ESG and CSR efforts does not automatically decrease the risk of financial misstatement. Strong internal controls, transparent governance, and a sincere organizational culture of integrity must support these initiatives. Disclosures should accurately reflect genuine operational practices rather than serving as legitimizing facades that hide misconduct. Managers must understand that superficial sustainability reporting could lead to increased scrutiny from regulators and the public, potentially exacerbating rather than alleviating reputational and legal risks.

Limitations

This study has several limitations. First, the measurement of financial statement fraud relies on Fraud Pentagon-based indicators, which represent indications of fraud rather than confirmed cases of financial statement fraud. Second, the study focuses on 30 publicly listed companies during the 2020–2024 observation period, which may limit the generalizability of the findings to other sectors and institutional settings. Third, the study relies on secondary ESG and CSR disclosure data, which may not fully capture the substantive quality of corporate sustainability practices. Finally, the relatively low explanatory power of the model indicates that other factors may contribute to variations in CSR disclosure and indications of financial statement fraud.

Future research should consider expanding the sample across different sectors and extending the observation period to improve the generalizability of the findings. Longitudinal research is also recommended to provide stronger evidence regarding the temporal relationship among ESG, CSR, and financial statement fraud. Future studies may further refine the measurement of CSR by distinguishing the extent of disclosure from the substantive quality of sustainability practices. In addition, researchers may incorporate other governance, financial, and institutional variables to improve the explanatory power of the model and provide a more comprehensive understanding of the relationship between sustainability practices and financial reporting integrity.

5. Conclusion

This study examined the relationships among ESG performance, CSR disclosure, and indications of financial statement fraud in publicly listed companies in Indonesia. The findings show that ESG has a significant effect on CSR, while ESG and CSR also have significant effects on indications of financial statement fraud. In addition, CSR significantly mediates the relationship between ESG and indications of financial statement fraud. Among the direct relationships, the effect of CSR on indications of financial statement fraud is the strongest, whereas the direct effect of ESG is relatively small. Theoretically, this study contributes to the sustainability and financial reporting literature by integrating ESG, CSR, and Fraud Pentagon indicators within a single empirical framework. The findings indicate that sustainability-related indicators should not be interpreted independently when assessing corporate reporting integrity. Practically, the findings suggest that investors, regulators, and corporate managers should consider both sustainability disclosures and financial reporting conditions when evaluating corporate accountability.

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Declarations

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Conflicts of interest/ Competing interests

The authors have no conflicts of interest to declare that are relevant to the content of this article.

Data, Materials and/or Code Availability

Data sharing is not applicable to this article as no new data were created or analyzed in this study.