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Environmental, Social, and Governance (ESG) Fraud: A Systematic Literature Review

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Abstrack

Purpose this study systematically examines the phenomenon of Environmental, Social, and Governance (ESG) fraud, analyzing its evolving trends, sector-specific manifestations, and underlying theoretical frameworks. The research investigates how governance gaps, regulatory arbitrage, and market pressures drive fraudulent ESG practices across industries. Methodology employing a systematic literature review (SLR) following PRISMA 2020 guidelines, this study analyzes 66 peer-reviewed articles from Scopus and Web of Science (2014–2023). Bibliometric tools (VOSviewer) and content analysis are used to map research trends, fraud schemes, and theoretical perspectives. Findings three key insights emerge: (1) ESG fraud is enabled by weak internal governance (e.g., unqualified board oversight, misaligned executive incentives) and regulatory inconsistencies; (2) firms prioritize fraud over genuine sustainability due to cost-benefit calculus and institutional isomorphism; (3) fraud patterns diverge across ESG pillars environmental fraud dominates high-impact sectors (energy, mining), social fraud thrives in supply chain-dependent industries (apparel, tech), while governance fraud permeates financial services. Agency theory, institutional theory, and stakeholder theory collectively explain these dynamics. Limitations/Implications the study's focus on 66 articles may limit generalizability, while the dominance of quantitative methods (95% of sample) could marginalize qualitative insights. Findings underscore the need for standardized ESG metrics, cross-border enforcement, and sector-specific anti-fraud frameworks. Originality this research offers a novel integration of bibliometric analysis and multi-theoretical framing to decode ESG fraud. It provides practitioners with actionable insights for fraud detection and policymakers with evidence to strengthen ESG accountability mechanisms. The study identifies underexplored research avenues, including the role of AI in fraud detection and cultural influences on ESG disclosure integrity.

Keywords: ESG fraud; corporate governance; systematic literature review

Abstrak

Tujuan penelitian ini secara sistematis mengkaji fenomena penipuan Lingkungan, Sosial, dan Tata Kelola (ESG), menganalisis tren yang berkembang, manifestasi spesifik sektor, dan kerangka teoritis yang mendasarinya. Penelitian ini menyelidiki bagaimana kesenjangan tata kelola, arbitrase regulasi, dan tekanan pasar mendorong praktik ESG yang curang di berbagai industri. Metodologi yang

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menggunakan tinjauan pustaka sistematis (SLR) mengikuti pedoman PRISMA 2020, penelitian ini menganalisis 66 artikel peer-review dari Scopus dan Web of Science (2014–2023). Alat bibliometrik (VOSviewer) dan analisis konten digunakan untuk memetakan tren penelitian, skema penipuan, dan perspektif teoritis. Temuan tiga wawasan utama muncul: (1) penipuan ESG dimungkinkan oleh tata kelola internal yang lemah (misalnya, pengawasan dewan yang tidak memenuhi syarat, insentif eksekutif yang tidak selaras) dan inkonsistensi regulasi; (2) perusahaan memprioritaskan penipuan daripada keberlanjutan yang sesungguhnya karena kalkulus biaya-manfaat dan isomorfisme kelembagaan; (3) Pola penipuan berbeda di berbagai pilar ESG. Kecurangan lingkungan mendominasi sektor-sektor berdampak tinggi (energi, pertambangan), penipuan sosial berkembang pesat di industri yang bergantung pada rantai pasokan (pakaian, teknologi), sementara penipuan tata kelola merambah layanan keuangan. Teori keagenan, teori institusional, dan teori pemangku kepentingan secara kolektif menjelaskan dinamika ini. Keterbatasan/Implikasi: Fokus studi pada 66 artikel dapat membatasi generalisasi, sementara dominasi metode kuantitatif (95% sampel) dapat meminggirkan wawasan kualitatif. Temuan-temuan ini menggarisbawahi perlunya metrik ESG yang terstandarisasi, penegakan lintas batas, dan kerangka kerja anti-penipuan yang spesifik untuk sektor tertentu. Orisinalitas: Penelitian ini menawarkan integrasi baru analisis bibliometrik dan pembingkaian multi-teoretis untuk menguraikan penipuan ESG. Penelitian ini memberikan wawasan yang dapat ditindaklanjuti kepada praktisi untuk deteksi penipuan dan bukti bagi para pembuat kebijakan untuk memperkuat mekanisme akuntabilitas ESG. Studi ini mengidentifikasi berbagai jalur penelitian yang belum dieksplorasi, termasuk peran AI dalam deteksi penipuan dan pengaruh budaya terhadap integritas pengungkapan ESG.

Kata kunci: penipuan ESG; tata kelola perusahaan; tinjauan pustaka sistematis

1. INTRODUCTION

The topic of Environmental, Social, and Governance (ESG) research has gained significant attention in recent years, with a notable increase in scholarly discussions surrounding ESG issues (Lim, 2024; Poiriazi et al., 2025; Shirazi et al., 2023). Numerous studies have reported a surge in ESG-related research starting in 2019. Over the past decade, researchers have explored various dimensions of ESG, including ESG information, reporting, risk-adjusted performance, transparency in ESG reporting, investment decisions, earnings management, financial performance, firm value, price inefficiency, and brand reputation (Au et al., 2023; Lim, 2024). Furthermore, ESG research has expanded across diverse industrial sectors, such as mining, banking, manufacturing, transportation, technology, real estate, materials, entertainment, retail, services, health, and tourism. This growing interest in ESG issues reflects a broader trend among researchers to not only theorize about ESG but also to empirically investigate its applications across various sectors, making ESG a particularly salient topic in recent years (Al Makhzoumi et al., 2024).

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The rapid evolution of ESG has placed immense pressure on companies. This pressure has led many organizations to adopt various methods for implementing ESG, some of which may involve controversial practices. Such controversies can exacerbate issues related to employee rights, environmental degradation, and corporate governance (Arvidsson & Dumay, 2022; Del Gesso & Lodhi, 2024). Alarmingly, some entities resort to unethical practices, including corruption, falsifying reports, misappropriating assets, and producing fraudulent financial statements to evade proper ESG implementation. Consequently, these controversial ESG practices are closely linked to the emergence of ESG fraud (Lagasio, 2024).

The discourse surrounding ESG fraud has evolved significantly over the last decade. In 2014, research highlighted the potential for fraud within ESG implementation (Jacobs & Levy, 2022; Shen et al., 2023). Since then, discussions have expanded to encompass ESG risk assessment, ESG red flags, corporate fraud, ESG controversies, supply chain issues, company performance, the persistence of ESG controversies, ESG fraud, and the implications of ESG. This growing body of literature indicates an increasing interest among researchers in the topic of ESG fraud, prompting a deeper exploration of its theoretical and practical dimensions (Ranta et al., 2023; Senadheera et al., 2022).

This research aims to conduct a bibliometric analysis and systematic literature review to investigate ESG fraud (Bronzini et al., 2024). Both bibliometric and systematic literature review approaches have gained popularity among ESG researchers (Jámbor & Zanócz, 2023). Previous studies have utilized bibliometric methods to examine ESG trends, sustainable finance, ESG issues in banking, the relationship between ESG and financial performance, and ESG disclosure (D'Amato et al., 2021; Jain & Tripathi, 2023). From a systematic literature review perspective, researchers have explored various ESG themes, practices, and developments. However, there remains a notable gap in the literature regarding ESG fraud, as research employing bibliometric and systematic literature review methodologies in this area is still scarce. Therefore, this study seeks to fill this gap by reviewing and synthesizing research on ESG fraud through these approaches.

The primary contribution of this research is to enrich the existing literature on ESG fraud. Additionally, it aims to provide insights into trends in ESG fraud research, identify factors contributing to the emergence of ESG fraud, outline various ESG fraud schemes, and highlight research opportunities. On a practical level, this study seeks to elucidate ESG fraud, equipping practitioners with the knowledge to prevent, detect, and investigate ESG fraud cases. Ultimately, the goal of this research is to contribute to the reduction of ESG fraud practices on a global scale.

2. THEORETICAL BACKGROUND

The Importance of Internal and External Determinants in ESG Fraud

The phenomenon of ESG fraud is rooted in the interplay between internal corporate governance mechanisms and external institutional pressures. Internally, factors such as financial incentives (Zervoudi et al., 2025), executive compensation structures (Garcia-Blandon et al., 2019), and board oversight failures ((Ferjančič et

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al., 2024) create opportunities for misrepresentation. Externally, weak regulatory frameworks (Hotel & Alam, 2024; Passas et al., 2022), divergent ESG rating methodologies (Nielsen, 2022), and market pressures to attract sustainable investments (Hughes et al., 2021) incentivize firms to engage in fraudulent practices. While strategic management literature emphasizes firm-level factors as primary drivers of financial performance (de Souza Barbosa et al., 2023), ESG fraud often stems from systemic external vulnerabilities—such as inconsistent materiality standards across industries (Sahin et al., 2022) or national differences in enforcement (Kartal et al., 2024).

The agency theory perspective (Jensen & Meckling, 1976) highlights misaligned incentives between managers (agents) and shareholders (principals), where short-term gains from ESG fraud outweigh long-term reputational risks. Conversely, institutional theory (Nielsen, 2022) suggests that firms mimic industry peers' ESG disclosures even if misleading to maintain legitimacy. For example, companies in weakly regulated markets may adopt "checkbox compliance" ((Hughes et al., 2021), while those in stringent regimes resort to subtle greenwashing (de Souza Barbosa et al., 2023). This section addresses:

Research Question 1: How do internal governance gaps and external regulatory arbitrage enable ESG fraud?

Research Question 2: Why do firms prioritize fraudulent ESG practices over genuine sustainability investments?

The Need for Disaggregated Analysis of ESG Fraud

ESG fraud exhibits distinct characteristics across its three core dimensions, each requiring specialized examination due to their unique vulnerabilities and manipulation techniques. The environmental (E) dimension is particularly susceptible to what has become widely known as "greenwashing," where companies deliberately exaggerate or falsify their ecological commitments. A common tactic involves making unsubstantiated claims about carbon neutrality or renewable energy usage, often supported by carefully selected data that presents an overly positive picture while omitting contradictory evidence ((Kartal et al., 2024; Sahin et al., 2022). For instance, a corporation might advertise its operations as "100% powered by renewable energy" while quietly relying on carbon offsets of questionable integrity or excluding emissions from its supply chain from calculations. More egregious cases involve the outright fabrication of environmental impact reports or the selective disclosure of only favorable metrics, creating a misleading impression of sustainability performance. The consequences of such deception are particularly severe in industries with high environmental footprints, such as energy and manufacturing, where the gap between claimed and actual performance can be substantial (Daugaard & Ding, 2022; Saini & Kharb, 2025; Wan et al., 2023).

The social (S) dimension of ESG fraud, frequently termed "social washing," manifests through systematic misrepresentation of a company's relationships with its workforce, communities, and other stakeholders. This often takes the form of falsified labor condition reports in supply chains, where companies may present audit results that bear little resemblance to actual working conditions (Alvarez-

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Perez & Fuentes, 2024; Kimbrough et al., 2022; Qureshi et al., 2021). A notable example includes apparel brands that publicly commit to ethical sourcing while subcontracting production to factories with documented labor violations. Another prevalent form involves the inflation of diversity statistics through creative categorization of employees or temporary hiring practices designed to artificially boost representation metrics during reporting periods. Community impact claims are similarly vulnerable to exaggeration, with companies frequently overstating their contributions to local development initiatives while underdelivering on promised outcomes. The technology sector has shown particular susceptibility to such practices, where the pressure to demonstrate progressive social policies often outweighs the reality of workplace conditions (Bosi et al., 2022; Tamasiga et al., 2024).

Governance (G) related fraud represents perhaps the most insidious form of ESG deception, as it undermines the very systems designed to ensure corporate accountability. Common manifestations include the concealment of board members' conflicts of interest, where personal or financial relationships that should disqualify participation in certain decisions are deliberately obscured (Chopra et al., 2024; Zaid & Issa, 2023). Anti-corruption programs may exist on paper but lack meaningful implementation, with policies crafted more for regulatory compliance than genuine ethical practice. More sophisticated schemes involve the manipulation of executive compensation structures to create the illusion of ESG-aligned incentives while maintaining traditional profit-driven metrics as the true determinants of remuneration (Matakanye et al., 2021; Tarmuji et al., 2016). The financial sector demonstrates particular vulnerability to governance fraud, where complex organizational structures and opaque decision-making processes can facilitate such deception. These governance failures are especially concerning as they not only represent immediate ethical breaches but also enable and perpetuate other forms of ESG fraud by weakening oversight mechanisms.

The variation in fraud manifestations across these dimensions highlights the need for specialized detection approaches. Environmental fraud often leaves a paper trail in sustainability reports and carbon accounting, while social fraud may be more evident in supply chain documentation and workforce data. Governance fraud, by contrast, typically requires deep analysis of board minutes, voting records, and compensation structures. This dimensional analysis underscores that ESG fraud is not a monolithic concept but rather a collection of related yet distinct deceptive practices, each requiring tailored prevention and detection strategies. Understanding these differences is crucial for regulators, auditors, and investors seeking to identify and mitigate ESG-related risks in corporate reporting and behavior.

The resource-based view (Agnese et al., 2024; Nelson, 2024; Tarjo et al., 2024) posits that firms lacking genuine ESG capabilities resort to fraud to remain competitive. For instance, industries with high environmental scrutiny (e.g., oil and gas) may inflate sustainability reports (Mancino et al., 2025; Wang et al., 2023), while tech firms exaggerate diversity metrics (Bifulco et al., 2023). This section explores:

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Research Question 3: How do fraud patterns vary across ESG pillars, and what are their sector-specific drivers?

Theoretical Frameworks Explaining ESG Fraud

The phenomenon of ESG fraud can be comprehensively understood through four principal theoretical perspectives, each providing unique insights into the motivations and mechanisms behind corporate sustainability deception.

Stakeholder Theory Perspective

Developed by (Ademi & Klungseth, 2022; K. Zhang et al., 2023), stakeholder theory suggests that companies must balance the often competing interests of various stakeholders including investors, employees, communities, and regulatory bodies. ESG fraud frequently occurs when organizations disproportionately prioritize certain stakeholder demands, particularly those of investors seeking short-term returns, over genuine sustainability commitments. This imbalance leads to symbolic ESG disclosures designed to satisfy investor expectations while substantive environmental or social improvements remain unrealized. For instance, a corporation might highlight selective green initiatives in its annual report while continuing environmentally harmful core operations, creating a misleading impression of sustainability performance.

Agency Theory Framework

Rooted in the work of Jensen and Meckling (1976), agency theory examines the inherent conflicts between corporate managers (agents) and shareholders (principals). In the ESG context, this theory explains how executive compensation structures tied to sustainability metrics can create perverse incentives for data manipulation. When bonuses depend on achieving specific ESG targets, executives may resort to creative accounting or selective reporting to meet these benchmarks. (de la Fuente & Velasco, 2024) research demonstrates how this dynamic manifests when CEOs artificially enhance diversity statistics or underreport environmental violations to qualify for performance-based rewards. The theory underscores the critical need for independent verification mechanisms and robust board oversight to mitigate these agency problems.

Institutional Theory Analysis

Galbreath's (2013) institutional theory posits that organizations adopt ESG practices including potentially deceptive ones primarily to maintain legitimacy within their industry ecosystem. Firms frequently emulate the sustainability disclosures of sector leaders, regardless of their own actual performance, to avoid being perceived as non-compliant with emerging norms. This mimetic isomorphism is particularly evident in industries where ESG reporting remains voluntary, allowing companies to replicate the surface-level aspects of sustainability reporting without implementing substantive operational changes. The theory highlights how regulatory ambiguity and the absence of standardized metrics create environments conducive to ESG fraud.

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Neo-Institutional Theoretical Perspective

Extending institutional theory, neo-institutional approaches examine how national cultural contexts influence ESG fraud prevalence. Ortas et al. (2015) demonstrate significant cross-country variations in sustainability reporting integrity, with collectivist societies typically exhibiting stronger norms against deceptive disclosures compared to more individualistic business cultures. Regulatory environments also play a crucial role, as weaker enforcement regimes in developing economies enable more overt forms of ESG fraud, while developed markets tend to see more sophisticated greenwashing techniques. These cultural and institutional differences explain why similar companies operating in different national contexts may exhibit markedly different propensities for ESG deception.

Implications and Research Directions

While agency theory has traditionally dominated corporate governance research, the complex nature of ESG fraud demands a more integrated theoretical approach that incorporates institutional and stakeholder perspectives (Ferdous et al., 2024; Jonsdottir et al., 2022; Tauseef & Khurshid, 2025). Agency theory effectively explains the micro-level incentive structures that drive individual fraudulent decisions, but requires supplementation from institutional theory to understand the macro-level pressures that normalize such behaviors across industries. Simultaneously, stakeholder theory provides crucial insights into how power dynamics between different stakeholder groups create opportunities for selective disclosure and misrepresentation.

Research Question 4: Which theories best explain the determinants and consequences of ESG fraud?

3. METHOD

Research methods

This systematic literature review (SLR) was conducted following the PRISMA 2020 guidelines (Almubarak et al., 2023; Clément et al., 2022) (Fig. 1) and the methodological framework proposed by Sauer and Seuring (2023). Given the increasing scrutiny on ESG disclosures and the rising cases of greenwashing and ethical misconduct, there has been a growing number of studies examining ESG fraud. However, these studies often focus on specific aspects, such as disclosure manipulation or regulatory failures, leaving a fragmented understanding of the broader determinants and mechanisms of ESG fraud. A systematic review can address this gap by synthesizing existing knowledge, identifying research inconsistencies, and proposing future research directions (Clément et al., 2023; Ng et al., 2023; C. Zhang & Wu, 2023).

Search Strategy and Data Collection

We initiated the search process using the Scopus and Web of Science (WOS) databases, focusing on peer-reviewed journal articles published in English up to September 15, 2023. The identification phase involved multiple trial searches

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to refine the algorithm, ensuring a balance between comprehensiveness and relevance.

Given the interdisciplinary nature of ESG fraud, we incorporated key terms related to corporate misconduct, sustainability reporting, and ethical governance. Scopus allowed the use of index terms to enhance search precision, while WOS relied on keyword-based queries. We also included terms like "sustainable finance" to capture broader debates on financial ethics and corporate accountability (Cepêda et al., 2025; Maji & Lohia, 2024b; Smith & Lamprecht, 2024). Sustainable finance encompasses various related concepts, such as ethical investing, socially responsible investment (SRI), and impact finance (Rizzi et al., 2018). Since ESG fraud often intersects with ethical violations, we incorporated terms like "corporate ethical misconduct" to align with the virtue-ethical perspective in sustainable finance (Soppe, 2004). The two algorithms from SCOPUS and WOS returned 1763 and 1834 papers respectively. After removing duplicate papers (1205), we proceeded with second phase: screening of the 2392 papers selected.

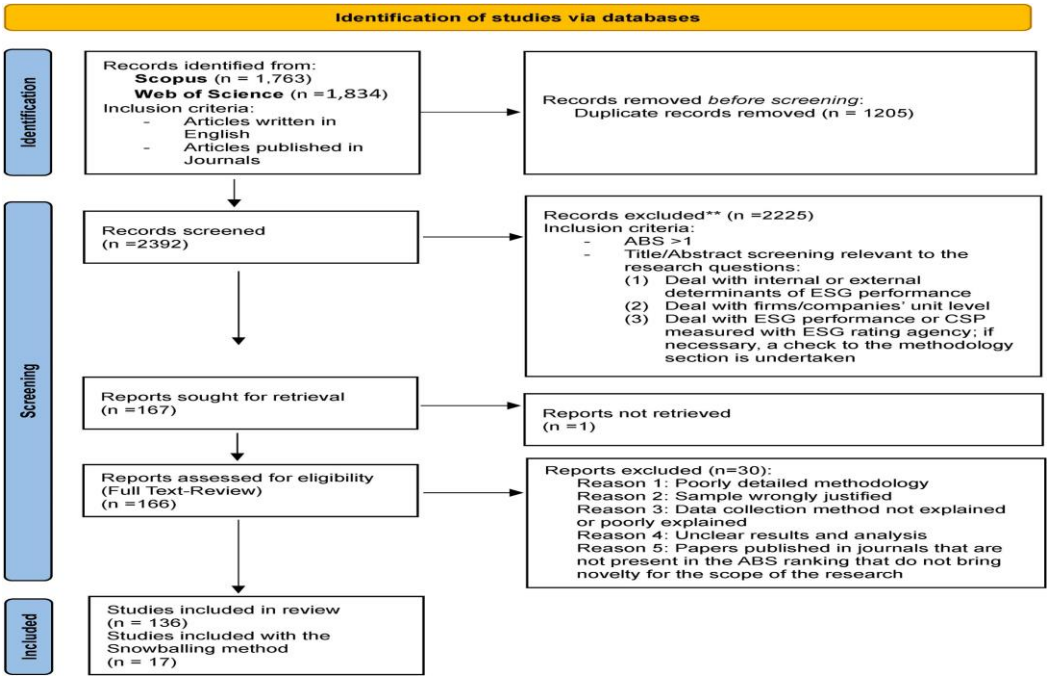

Figure 1.PRISMA flow diagram modified

The screening and selection process was conducted in two main phases: an initial screening of titles and abstracts followed by a thorough assessment of full texts. To establish a baseline quality threshold, we first included papers published in journals ranked at level 1 or higher in the Chartered Association of Business Schools (ABS) journal ranking (see Figure 2 and Appendix A for complete details). However, recognizing that valuable insights might exist outside top-ranked journals, we also incorporated relevant studies from non-ABS-ranked publications

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to avoid potential selection bias and ensure comprehensive coverage of the topic (Ali et al., 2025; Dwibedi et al., n.d.; Maji & Lohia, 2024a).

During the title and abstract screening phase, we carefully evaluated each paper's relevance to our core research questions about ESG fraud. Our inclusion criteria specifically targeted studies that addressed various aspects of ESG misconduct, including greenwashing, disclosure manipulation, and ethical violations at the organizational level. We sought papers that examined both internal factors (such as corporate governance structures, executive compensation schemes, and board characteristics) and external influences (including regulatory frameworks, stakeholder pressures, and market incentives) that might contribute to fraudulent ESG practices. The screening process also prioritized research that investigated the mechanisms through which ESG fraud occurs, methods for its detection, and its broader consequences for organizations and stakeholders (Hussain et al., 2024; Mahomed & Mohamad, 2021; Wei et al., 2024).

We included studies that offered nuanced perspectives on ESG fraud across different institutional contexts and industry sectors, particularly those that analyzed variations in fraudulent practices under different regulatory regimes or market conditions. Research examining the effectiveness of various anti-fraud measures, including policy interventions, certification systems, and corporate governance reforms, was also incorporated. When key information about a study's focus on ESG fraud was not immediately apparent from the abstract, we examined the methodology section to make a more informed judgment about its relevance to our review. This rigorous screening process resulted in the identification of 153 potentially relevant papers, all of which we successfully retrieved for further examination (Banerjee & David, 2024; Camilleri et al., n.d.; Friede et al., 2015; Hu et al., 2024).

The full-text review phase involved a detailed analysis of each paper's methodology, key findings, and theoretical contributions. We paid particular attention to studies that employed robust research designs and offered novel insights into ESG fraud dynamics (Li et al., 2021; Nyantakyi et al., 2023; Veenstra & Ellemers, 2020). Papers that merely discussed general ESG performance without specifically addressing fraudulent activities were excluded, as were studies that presented redundant case examples or theoretical perspectives without substantive empirical support (Del Giudice & Rigamonti, 2020; Madison & Schiehll, 2021; Singhania et al., 2024). Throughout this phase, we maintained a careful balance between including high-quality research from ABS-ranked journals and incorporating innovative findings from emerging sources, ensuring that our review captured both established knowledge and cutting-edge developments in the field of ESG fraud research.

4. RESULTS AND DISCUSSION

This section provides a comprehensive analysis of the bibliometric findings on Environmental, Social, and Governance (ESG) fraud, structured into two key parts. First, it examines research trends from 2014 to 2023, including publication

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patterns, major publishers, research methodologies, focal subjects, the ESG fraud triangle framework, and prevalent fraud schemes. Second, it identifies emerging research opportunities based on network analysis from VOSviewer.

An analysis of publication trends (Fig. 2) reveals distinct phases in ESG fraud research. Between 2014 and 2018, scholarly attention remained minimal, with only one or two studies published annually. However, a significant surge occurred starting in 2019, when five studies explicitly addressed ESG fraud. This upward trajectory continued, with eight publications in 2020 and a sharp rise to sixteen in 2021, marking the peak of academic interest. Notably, early research predominantly examined ESG controversies rather than explicitly framing them as fraudulent activities. A pivotal shift occurred in 2022, when studies began systematically linking controversial ESG practices to fraudulent behavior. This transition was influenced by landmark reports from Grant Thornton LLP and the Association of Certified Fraud Examiners (ACFE), which formalized ESG fraud as a distinct research domain. By 2023, ESG fraud had solidified as a prominent subject, with scholars increasingly analyzing its mechanisms through theoretical lenses such as the fraud triangle.

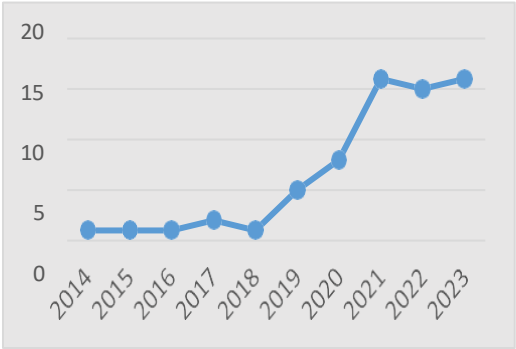

Figure 2. Research trends from 2014 to 2023.

Second, an analysis of the leading publishers in ESG fraud research from 2014 to 2023 (Fig. 3) reveals that Elsevier dominates the field with 27 published papers on the subject, making it the most prominent platform for ESG fraud studies. Following Elsevier, Wiley ranks second with 10 publications, while Springer holds third place with 8 publications. The fourth position is shared by Emerald and Taylor & Francis, each contributing 6 publications. Lastly, SAGE has published 2 papers on ESG fraud.

Given Elsevier's substantial contribution to this research area, scholars seeking to publish their work on ESG fraud are strongly advised to consider Elsevier as a primary submission target. Its leading position in terms of publication volume indicates both a high level of interest in the topic and a greater likelihood of acceptance for related studies. This trend also highlights the importance of targeting reputable, high-impact publishers when disseminating research on emerging and critical topics such as ESG fraud.

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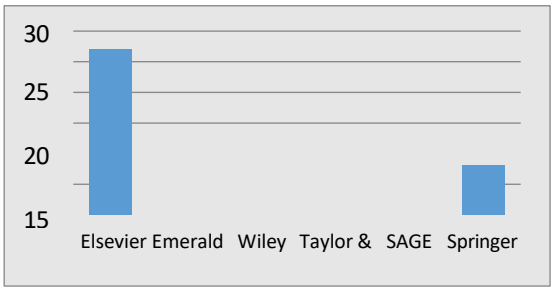

Figure 3. Publisher.

Third, the results of the research method can be seen in Fig. 4. Based on Fig. 4, the quantitative method is the method preferred by 95% of researchers. Meanwhile, only 5% of researchers use qualitative and mixed methods. These results prove the superiority of quantitative methods in ESG fraud research.

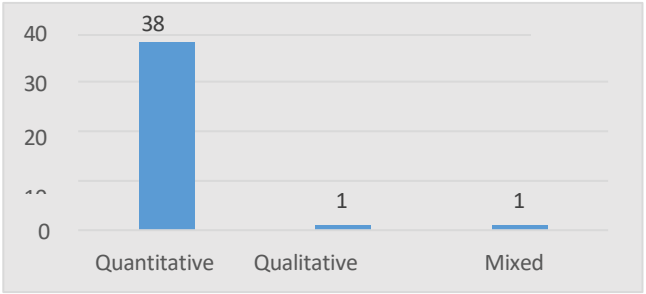

Figure 4. Research method.

VOSviewer Network Analysis of ESG Fraud Research

The results of the bibliometric analysis using VOSviewer are presented through three distinct visualizations: network visualization, overlay visualization, and density visualization. The network visualization, as depicted in Figure 5, serves as the foundation for understanding the complex relationships between various ESG-related keywords. This visualization reveals that the central keyword "ESG" maintains direct connections with several significant terms including "initial public offering," "investor sentiment," "environmental controversies," "governance controversies," "corporate social responsibility," "risk," "ESG controversy," and "board gender diversity." Notably, while "ESG" does not demonstrate a direct linkage with "environmental" or "ESG controversies," their co-location within the same cluster suggests an inherent thematic relationship that warrants further academic exploration.

The spatial distribution of keywords within the network visualization offers valuable insights into current research trends and potential gaps. In the upper quadrant of the visualization, keywords such as "environmental performance" and "governance controversies" form a distinct cluster, emphasizing the growing scholarly focus on performance metrics and governance-related challenges in

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ESG implementation. The left quadrant presents an interconnected web of terms including "controversy," "sustainable investment," "ESG risk," and "compensation effect," with "Corporate social responsibility" serving as a mediating node. Particularly intriguing is the right quadrant, where keywords positioned furthest from the central "ESG" node reveal indirect relationships worth investigating. For instance, "board gender diversity" demonstrates an indirect association with "ESG controversies," suggesting potential research avenues examining how corporate governance structures influence ESG-related disputes.

The "ESG controversies" cluster itself encompasses a rich array of sub-themes such as "corporate governance," "information asymmetry," "ESG disclosure," "firm value," "media severity," and "media reach," indicating the multidimensional nature of ESG-related disputes in academic literature. Furthermore, tracing the pathway from "ESG controversy" leads to the "environmental" cluster, which contains critical terms like "social and governance (ESG) performance," "social and governance risks (ESG risks)," "climate change," "carbon risk," and "sustainable investment." This interconnected network structure highlights numerous potential research directions, particularly at the intersections of "ESG," "board gender diversity," "ESG controversies," and "environmental" themes. The visualization thus not only maps current research landscapes but also identifies fertile ground for future scholarly investigation into the complex dynamics of ESG fraud and its associated controversies.

Figure 5. Network visualization results.

Next, the results of the overlay visualization will be shown in Fig. 6. Overlay visualization aims to analyze the latest research or issues. This difficulty can be a research opportunity for future researchers. Based on Fig. 8, there is a new issue near the center of the "ESG" cluster, namely "market competition." Meanwhile, the keywords furthest from the center of the cluster are in the "board gender diversity," "ESG controversies," and "environmental" sections. In the "board gender diversity" cluster, there are three keywords that are suitable for research, namely the issues of "greenwashing," "brainwashing," "religiosity," and sustainability practices" (see Fig. 7). Next, in the "ESG controversies" cluster, there are "corporate governance," "firm value," "media severity," and "media

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reach" (see Fig. 7). Finally, in the "environmental" cluster, there is the issue of "social and governance (ESG) performance" which is still emerging (see Fig. 7). Thus, utilizing these latest issues can create new research ideas and models.

Figure 6. Overlay visualization results.

The final part of the VOSviewer results is the density visualization results. Density visualization describes the intensity or amount of research on an issue or keyword. The density visualization results will be seen from the colors displayed. The brighter a cluster is, the more researched the issues are, and vice versa. Based on Fig. 7, there are two dark-colored keywords, namely "sustainable practices" (see Fig. 7) and "social and governance (ESG) performance." Apart from that, two keywords are a little more precise, namely "risk" and "ESG controversy." Thus, the keywords mentioned previously can become research opportunities for ESG researchers.

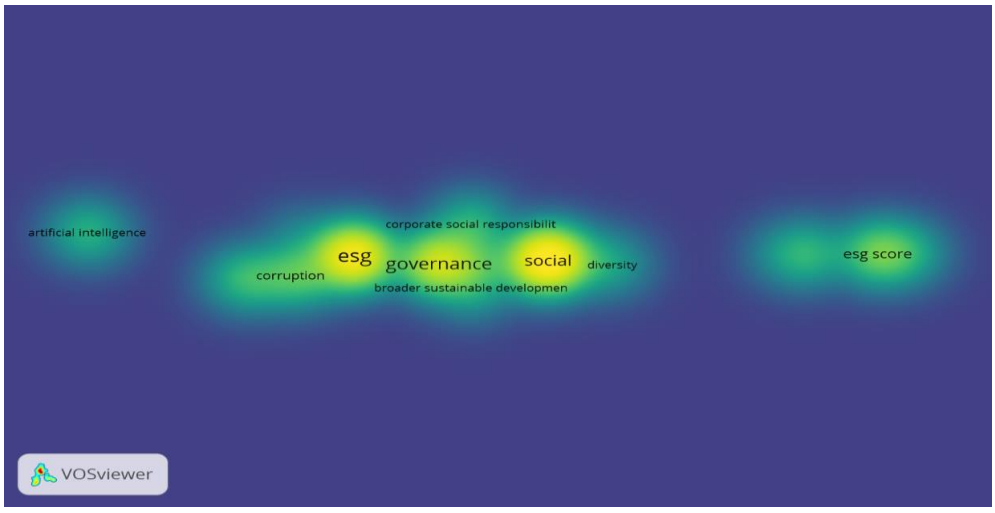

Figure 7. Density visualization results.

Discussion

How do internal governance gaps and external regulatory arbitrage enable ESG fraud?

The proliferation of ESG fraud stems from systemic weaknesses in both corporate governance structures and the global regulatory landscape, which collectively erode accountability and create perverse incentives for deception. At

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the organizational level, governance gaps manifest most prominently through inadequately constituted boards that lack the specialized expertise required to critically evaluate ESG disclosures. Many directors, particularly in traditional industries, possess deep financial or operational knowledge but remain ill-equipped to assess the veracity of sustainability claims, whether related to carbon neutrality, diversity metrics, or supply chain ethics (Escrig-Olmedo et al., 2019; Naveed et al., 2025). This expertise deficit enables executives to promulgate exaggerated or outright falsified ESG narratives without facing rigorous challenge. Compounding this issue is the widespread misalignment of executive compensation with long-term sustainability outcomes. When managerial bonuses are tied to short-term ESG performance targets such as achieving arbitrary diversity quotas or reducing reported emissions by a specific percentage the temptation to manipulate data becomes acute (Aich et al., 2021; De Giuli et al., 2024; Rendtorff, 2024; Wong et al., n.d.). A case in point is the automotive industry, where several manufacturers have faced allegations of overstating electric vehicle range capabilities or underreporting emissions through selective testing methodologies. These practices persist because internal audit functions, particularly those focused on ESG metrics, often lack the independence, resources, or methodological sophistication to detect and prevent such manipulations (Rendtorff, 2025).

The external regulatory environment further amplifies these risks through a patchwork of inconsistent standards and enforcement regimes. In jurisdictions with nascent ESG frameworks particularly emerging markets eager to attract foreign investment companies frequently engage in "checkbox compliance," whereby they fulfill the letter of reporting requirements while wholly disregarding their spirit (Abhayawansa, n.d.; Agapova & Garanina, 2024). This might involve publishing sustainability reports that mimic the structure of leading firms' disclosures but omit material negative information, such as workplace safety violations or community conflicts. Conversely, in regions with more stringent regulations like the European Union, corporations deploy subtler forms of obfuscation, such as burying adverse data in technical annexes or leveraging ambiguous accounting methodologies to obscure their true environmental footprint. The mining sector provides illustrative examples, where companies operating across multiple jurisdictions routinely highlight rehabilitation efforts in their European disclosures while downplaying tailings dam risks in reports filed elsewhere. This regulatory arbitrage is facilitated by the absence of universally accepted materiality standards, allowing firms to justify selective disclosure by arguing that omitted items are "not material" in certain contexts (Kalia & Aggarwal, 2023; A. Y. Zhang & Zhang, 2023).

The convergence of these internal and external factors creates a dangerous equilibrium where the costs of authentic ESG transformation appear to outweigh the risks of deception. Internally, boards either cannot or choose not to scrutinize sustainability claims rigorously, while externally, regulators lack the cross-border coordination necessary to hold firms accountable for inconsistent reporting. This dynamic is particularly pronounced in industries undergoing forced ESG transitions, such as fossil fuels, where the financial implications of rapid decarbonization incentivize companies to "green" their narratives faster than their operations. Until corporations face meaningful consequences for ESG

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misrepresentation—through either shareholder litigation, regulatory penalties, or reputational damage—the current system will continue to reward form over substance, perpetuating a cycle of fraud that undermines the very purpose of sustainable investing.

Why do firms prioritize fraudulent ESG practices over genuine sustainability investments?

The preference for fraudulent ESG practices over genuine sustainability investments emerges from a complex interplay of economic rationality, market pressures, and institutional dynamics that collectively reshape corporate decision-making. At its core, this phenomenon reflects a fundamental cost-benefit analysis where the immediate financial advantages of deception consistently outweigh the perceived long-term benefits of authentic transformation (Veenstra & Ellemers, 2020). From a resource allocation perspective, many firms particularly in carbon-intensive industries face staggering capital expenditures to achieve meaningful ESG progress. A petroleum refinery seeking to reduce its Scope 3 emissions by 50%, for instance, might need to invest billions in renewable energy infrastructure, carbon capture technology, and supply chain restructuring. When confronted with such figures, executives frequently determine that manipulating emissions data or purchasing questionable carbon offsets represents a fraction of the cost while yielding similar short-term benefits in terms of ESG ratings and investor relations. This calculus is particularly prevalent among publicly traded companies beholden to quarterly earnings expectations, where the market's inability to distinguish between authentic and performative sustainability creates perverse incentives for deception (Nyantakyi et al., 2023).

Market mechanisms have exacerbated this trend by creating an environment where perception often trumps reality. The explosive growth of ESG-focused investment products which now exceed $40 trillion in assets under management has generated intense pressure for firms to demonstrate sustainability credentials, regardless of their actual operational practices. In this climate, symbolic actions like joining the UN Global Compact or obtaining superficial sustainability certifications provide immediate access to green financing and ESG-focused funds without requiring substantive operational changes. The financial sector's heavy reliance on third-party ESG ratings, which often prioritize easily quantifiable metrics over contextualized impact assessments, further enables this behavior. A striking example emerges in fast fashion, where brands routinely publish glossy sustainability reports highlighting limited organic cotton collections while obscuring the fact that 98% of their production remains environmentally destructive. The market's failure to penalize such discrepancies—and in many cases, its active reward of them through lower capital costs and higher valuations—reinforces the economic logic of ESG fraud (Rossi et al., 2024).

Institutional forces compound these economic incentives through powerful mimetic pressures. As ESG reporting becomes ubiquitous across industries, firms face normative pressure to conform to disclosure practices regardless of their authenticity. This institutional isomorphism manifests most visibly in sectors like technology, where companies engage in "diversity theater" publishing demographic

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statistics that appear progressive while maintaining exclusionary hiring practices and toxic workplace cultures. The prevalence of template-based sustainability reporting frameworks enables this deception by allowing firms to mimic industry leaders' language and structure without adopting their substance. Perhaps most insidiously, the current ESG ecosystem creates a self-reinforcing cycle where superficial compliance becomes the norm: as more firms engage in greenwashing or social washing, the bar for what constitutes acceptable practice deteriorates, making authentic sustainability appear unnecessarily costly or even competitively disadvantageous (Friede et al., 2015).

The temporal dimension of these incentives further explains the prevalence of ESG fraud. While the potential long-term risks of exposed deception—regulatory penalties, reputational damage, litigation—appear substantial, they remain statistically remote and difficult to quantify. In contrast, the short-term benefits of inflated ESG performance are immediate and measurable: stock price premiums averaging 10-15% for high ESG-rated firms, lower costs of capital, preferential treatment in procurement processes, and enhanced talent acquisition. This imbalance is particularly acute in industries with weak enforcement regimes, where the probability of detection remains low. Until regulatory bodies develop more sophisticated detection capabilities and impose meaningful consequences such as delisting from sustainability indices, financial penalties tied to revenue percentages, or executive liability the economic and institutional drivers of ESG fraud will continue to outweigh the ethical and reputational arguments for authentic sustainability investment.

How do fraud patterns vary across ESG pillars, and what are their sector-specific drivers?

The multifaceted nature of ESG fraud reveals distinct patterns across environmental, social, and governance dimensions, each shaped by unique sector-specific vulnerabilities and external pressures. These variations reflect the complex interplay between regulatory landscapes, stakeholder expectations, and industry characteristics that collectively influence corporate misconduct (Banerjee & David, 2024).

Environmental fraud predominantly surfaces in extractive and heavy industries where ecological impacts are both substantial and measurable. In the energy sector, companies have developed sophisticated techniques to obscure their carbon footprints, including the strategic exclusion of Scope 3 emissions from reporting and the use of creative accounting in carbon intensity calculations. Mining operations frequently engage in "nature-washing," where they highlight small-scale rehabilitation projects while concealing broader ecosystem destruction through carefully framed disclosures. The manufacturing sector has perfected the art of data cherry-picking, with automotive companies notably selecting optimal testing conditions to present inflated fuel efficiency figures. These practices are particularly prevalent in industries facing stringent climate regulations, where the cost of compliance drives firms toward deception rather than operational transformation. The recent proliferation of questionable carbon offset schemes where companies claim carbon neutrality through investments in unverified forest

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conservation projects exemplifies how environmental fraud has evolved into a sophisticated shadow market of its own (Mahomed & Mohamad, 2021).

Social dimension fraud thrives in industries with complex, multi-tiered supply chains and intensive labor requirements. The apparel industry's systemic issues with "ethical washing" reveal how brands maintain elaborate networks of subcontractors while publishing sanitized supplier audit reports. Technology companies have pioneered innovative forms of social fraud, particularly in diversity reporting through statistical manipulations that create the illusion of progress—such as counting the same minority employee in multiple diversity categories or focusing on entry-level hiring while maintaining homogeneous leadership structures. The agriculture sector demonstrates unique social fraud patterns, where large-scale plantations advertise fair labor practices while relying on seasonal migrant workers facing exploitative conditions. These practices persist because social metrics are inherently qualitative and difficult to verify, allowing companies to craft compelling narratives that bear little resemblance to operational realities. The growing emphasis on social license to operate has further incentivized companies to manufacture community consent through staged consultations and misleading impact assessments (Hussain et al., 2024).

Governance-related fraud manifests most prominently in sectors characterized by complex organizational structures and information asymmetry. Financial institutions have developed particularly elaborate governance fraud mechanisms, including the creation of sham ESG committees that meet regulatory requirements without exercising substantive oversight. Conglomerates frequently engage in "window-dressing" governance, where they adopt the formal trappings of good governance such as independent directors and ethics policies while maintaining opaque decision-making processes that circumvent these controls. The pharmaceutical industry's approach to governance fraud often involves strategic disclosure of clinical trial data, where unfavorable results are buried in technical appendices or reported using methodologies that obscure risks. These practices reflect investor demands for governance transparency, which has led to checkbox compliance rather than meaningful reform. The rise of ESG-linked executive compensation has introduced new forms of governance fraud, with boards setting easily achievable sustainability targets or using non-material ESG metrics to justify bonus payments (Wei et al., 2024).

These sector-specific patterns emerge from distinct pressure points: environmental fraud responds primarily to regulatory and investor climate demands, social fraud addresses consumer and activist concerns, while governance fraud attempts to satisfy institutional investor requirements for transparency and accountability. The variation underscores that ESG fraud is not a monolithic concept, but rather a collection of adaptive practices that evolve in response to sector-specific vulnerabilities and stakeholder expectations. This nuanced understanding is crucial for developing targeted anti-fraud measures that address the unique risks present in different industries and ESG dimensions.

Which theories best explain the determinants and consequences of ESG fraud?

The complex phenomenon of ESG fraud finds robust explanation through four complementary theoretical lenses, each illuminating distinct aspects of its

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causes and consequences while collectively providing a comprehensive understanding of this multifaceted challenge (Ali et al., 2025).

Agency Theory offers crucial insights into the micro-level dynamics of ESG fraud, particularly the principal-agent conflicts that emerge when executive compensation becomes tied to sustainability metrics. The separation of ownership and control in modern corporations creates perverse incentives where managers may prioritize short-term ESG performance indicators over long-term value creation. This is especially evident in cases where CEOs receive substantial bonuses for achieving diversity targets or carbon reduction goals, creating powerful motivations for data manipulation. The theory explains why some executives might approve misleading sustainability reports - the immediate personal financial benefits outweigh the diffuse, long-term organizational risks. Recent cases in the automotive industry, where emissions testing fraud was tied to performance-based compensation structures, vividly illustrate these agency problems. The theory's predictive power is particularly strong for understanding why ESG fraud frequently originates at middle management levels, where employees face intense pressure to meet ambitious sustainability targets set by leadership disconnected from operational realities (Maji & Lohia, 2024a).

Institutional Theory provides a meso-level perspective, revealing how organizational isomorphism drives the spread of ESG fraud practices across industries. As ESG reporting becomes institutionalized, firms experience coercive pressure to adopt similar disclosure practices regardless of their substantive performance. This explains the epidemic of "greenwashing by template," where companies replicate industry-standard sustainability report structures without corresponding action. The theory's concept of decoupling is particularly relevant - many organizations maintain elaborate ESG facades that are ceremonially adopted but operationally ignored. The fossil fuel industry's widespread adoption of net-zero pledges while continuing business-as-usual exploration exemplifies this dynamic. Institutional theory also helps explain geographic variations in ESG fraud prevalence, as firms adapt their disclosures to conform to different national institutional expectations, often maintaining multiple contradictory ESG narratives for different markets (Maji & Lohia, 2024b).

Stakeholder Theory enriches our understanding by highlighting the power asymmetries that shape ESG reporting priorities. In practice, most firms prioritize the information demands of powerful stakeholders (investors, regulators) over less influential groups (local communities, employees). This explains why environmental disclosures often emphasize climate risks (important to institutional investors) while underreporting toxic emissions (more relevant to local communities). The theory's emphasis on stakeholder salience helps decode why certain ESG issues receive disproportionate attention while material concerns are overlooked. Recent controversies in the tech sector, where companies emphasize renewable energy usage in data centers (visible to investors) while obscuring poor labor conditions in supply chains (less visible), demonstrate this selective disclosure pattern. Stakeholder theory also predicts that ESG fraud will be most prevalent in areas where powerful stakeholders lack direct verification capabilities (Smith & Lamprecht, 2024).

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The Resource-Based View provides a strategic perspective, framing ESG fraud as a competitive response to capability gaps. Firms facing resource constraints in sustainability transformation often perceive fraud as a lower-cost alternative to genuine improvement. This is particularly evident in capital-intensive industries where authentic decarbonization would require massive reinvestment. The theory explains why ESG fraud clusters in industries undergoing forced transitions - traditional automakers lacking EV capabilities are more likely to manipulate emissions data than Tesla. The RBV also helps identify which firms are most prone to ESG fraud: those with weak sustainability-related human capital, inadequate environmental management systems, or outdated social compliance frameworks. The apparel industry's widespread misrepresentation of factory conditions stems directly from this resource gap - most brands lack the internal capabilities to properly monitor thousands of subcontractors (Clément et al., 2023; Ng et al., 2023).

An integrated theoretical framework reveals how these perspectives interact across levels of analysis. At the individual level, agency problems create motivation for fraud. At the organizational level, resource constraints determine capability for authentic ESG performance. At the field level, institutional pressures shape disclosure norms. And across all levels, stakeholder power dynamics determine which forms of fraud are most likely to emerge and persist. This multi-level understanding suggests that effective anti-fraud interventions must simultaneously address executive incentives (agency), build organizational capabilities (RBV), improve industry standards (institutional), and empower marginalized stakeholders - a challenging but necessary systemic approach.

5. CONCLUSION

This systematic literature review underscores ESG fraud as a multifaceted phenomenon driven by governance deficiencies, regulatory fragmentation, and misaligned market incentives. The analysis reveals that fraudulent practices manifest distinctly across environmental, social, and governance pillars, with sector-specific vulnerabilities shaping their evolution. Key theoretical frameworks agency theory, institutional theory, stakeholder theory, and the resource-based view collectively explain how individual incentives, organizational capabilities, and systemic pressures converge to enable ESG fraud. The findings highlight an urgent need for harmonized global standards, robust verification mechanisms, and accountability reforms to align corporate sustainability disclosures with genuine performance. Future research should prioritize sector-specific detection methodologies and explore the efficacy of policy interventions in mitigating ESG fraud.

Implications

This study's findings carry significant implications for practice, policy, and research, highlighting the urgent need to fortify internal governance by ensuring board expertise and aligning executive incentives with long-term sustainability,

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while externally, regulators must harmonize fragmented global standards and enforce cross-border accountability to eliminate regulatory arbitrage opportunities that enable ESG fraud. For the investment community, this underscores the necessity of developing sophisticated verification mechanisms to move beyond superficial ratings, and for academia, it identifies a critical pathway for future research into qualitative drivers of fraud and the underexplored role of emerging factors like AI in detection and cultural influences on disclosure integrity.

Limitation

This study is constrained by its reliance on a curated sample of 66 articles, which may not capture the full spectrum of ESG fraud research. The predominance of quantitative studies (95% of the sample) could overlook nuanced qualitative insights into fraudulent behaviors. Additionally, the focus on English-language publications may exclude region-specific perspectives from non-English-speaking markets. The rapid evolution of ESG regulations and fraud tactics also means some findings may require timely updates. These limitations suggest caution in generalizing the results and highlight opportunities for broader, more diverse research in future studies.

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