INTERNATIONAL JOURNAL OF ACADEMIC RESEARCH IN BUSINESS & SOCIAL SCIENCES

Vol 15, Issue 12, (2025) E-ISSN: 2222-6990

The Determinants of ESG Decoupling: A Systematic Literature Review

Yuhua Cai[1*], Suresh Ramakrishnan[2], Saleh F. A. Khatib[3] and Chengzong Wu[4]

[1*,2,4]Faculty of Management, Universiti Teknologi Malaysia, 81310 Johor Bahru, Johor, Malaysia, [2,3]Faculty of Business, Sohar University, 311 Sohar, Oman

[1*]Corresponding Authors Email: caiyuhua@graduate.utm.my

DOI Link: http://dx.doi.org/10.6007/IJARBSS/v15-i12/27276

Published Date: 15 December 2025

Abstract

Environmental, social, and governance decoupling (ESGD) has received growing academic attention in the past five years. However, existing review studies focus on CSR decoupling and greenwashing, leaving the review of ESGD still insufficient. To help governance and firms prevent ESGD, reviewing the determinants of ESGD is imperative. This study aims to identify the key determinants of ESGD and to develop a comprehensive knowledge framework that systematically organises the key factors influencing ESGD. Based on a sample of 46 journal articles taken from the Scopus and Web of Science (WoS) databases between 2020 and April 20, 2025, this study classifies the determinants of ESGD into four main categories: firm-level, regulatory-level, market-level, and social-level. In addition, it highlights the current challenges and identifies the future research from three directions: the missing determinant variables, the measurement of ESGD, and big data and artificial intelligence in solving the ESGD issues. This study contributes to the literature by building a comprehensive framework for understanding ESGD's determinants and laying out key investigative changes for this emerging field in expansion to give policymakers, practitioners, and researchers thoughts on addressing these challenges.

Keywords: ESG Decoupling, ESG Greenwashing, Determinant, Corporate Sustainability, Systematic Literature Review

Introduction

ESG decoupling (ESGD) refers to the gap between a firm's ESG disclosure and its actual ESG performance, which manifests as saying one thing and doing another (Eliwa *et al.*, 2023). ESGD has received more consideration due to the stakeholders' demands for greater transparency in their sustainable development goals. Notably, the beginnings of ESGD can be traced to the discourse encompassing CSR decoupling (CSRD), where the discrepancy between CSR reporting and CSR practices (Tashman *et al.*, 2019). Similarly, greenwashing is closely related to ESGD, as it involves companies making misleading claims around their environmental practices to seem more sustainable than they are (Daga *et al.*, 2025; Zervoudi

et al., 2025). In essence, greenwashing is a specific form of ESGD at the environmental communication level, while ESGD is a broader concept, which not only includes greenwashing in the environmental dimension but also covers the inconsistency between words and deeds in the social and governance dimensions. Therefore, in this study, greenwashing is a subset of ESGD. Beyond conceptual distinctions, corporate governance, regulatory demands, market pressures, and social media all significantly impact ESGD. Understanding these drivers is crucial, as they help explain the root cause of ESGD and its implications for firm performance. Therefore, finding out the causes of ESGD can help governance and firms to prevent ESGD. That is why this study focuses on the determinants of ESGD.

This study aims to identify the key determinants of ESGD and to develop a comprehensive knowledge framework that systematically organises the key factors influencing ESGD. Specifically, (1) this study identify the determinants of ESGD; (2) classify them into internal and external determinants, further separate into four categorises (firm level, regulatory level, market level, and social level) by characteristics; (3) build the sub-level if necessary, such as firm level including top management, board composition, ownership structure, monitoring mechanisms; (4) discuss the current challenges and outlines the research trends.

The contributions of this study are threefold. First, it systematically develops a comprehensive framework to organise the determinants of ESGD. Second, it highlights key challenges associated with ESGD, providing actionable insights for policymakers, practitioners, and researchers. Third, it outlines future research directions to deepen understanding and support effective mitigation of ESGD.

The structure of this paper proceeds as outlined below: Section 2 provides an overview of the literature review, followed by section 3, research methodology and section 4, results and discussions. Lastly, section 5 offers conclusions, including future research trends and contributions.

Literature Review

Over the past three years, scholarly interest in CSRD and greenwashing has intensified, as reflected in a series of systematic literature reviews and thematic reviews. For instance, Talpur *et al.* (2023) and Velte (2023) emphasised both internal and external determinants of CSRD and firm-level impacts, while Luan (2024) focused on the impacts of CSRD's ESG dimensions in the Chinese context. By expanding the analytical scope, Cepêda *et al.* (2025) classified the literature into five key themes: characterisation, drivers, mitigating factors, impacts, and alternative interpretations. Research on greenwashing has also progressed notably. Liu *et al.* (2023) developed a governance-based framework to explain its causes and consequences, while Santos *et al.* (2023) explored the relationship between greenwashing and stakeholder engagement. Zervoudi *et al.* (2025) contributed a longitudinal perspective, tracing the evolution from CSR to ESG and its implications for greenwashing. Furthermore, Sneideriene and Legenzova (2025) integrated bibliometric and systematic methods to map ESG disclosure practices and propose preventive strategies against greenwashing.

Prior review research focuses on CSRD and greenwashing, while Zervoudi *et al.* (2025) showed a good start from CSRD to ESGD. However, the review of determinants of ESGD is still

insufficient. There are three reasons to support. First, prior review articles mixed CSRD and ESGD due to the keywords they used. The mixed keywords will get broader results but not match the domain rigorously. Second, extant review articles focus on the causes and consequences, but this study only focuses on the determinants of ESGD to construct a comprehensive knowledge framework that systematically organises the influencing factors of ESGD. Third, the existing review studies largely cover periods before the global expansion of ESG disclosure mandates, whereas this study incorporates more recent literature that reflects the transition from voluntary CSR reporting to more standardised ESG frameworks, thereby offering an updated perspective on the determinants of ESG decoupling.

Research Methodology

This study utilises data from Scopus and Web of Science (WoS). There are three reasons why we chose these databases. First, both Scopus and WoS databases are renowned for their extensive and high-quality collections of academic publications. Second, Scopus and WoS databases have a global reach, indexing research from a wide array of countries and institutions. This ensures a diverse and comprehensive perspective on ESGD. Third, Scopus and WoS facilitate the tracking of publication trends over time, which is essential for understanding the evolution of ESGD research.

We use the keywords to search through Scopus by title, abstract and keywords: (ESG OR "Environmental, Social and Governance") W/3 (decoupl* OR greenwash* OR wash*), while in WoS, we should change W/3 to NEAR/3 due to the different rules. Because Scopus used W/3 to represent within three words, while NEAR/3 in WoS. Why within three words? Because within three words, it can be moderately flexible while ensuring relevance. In addition, the bigger numbers would not be related enough to each other. These keywords do not contain determinants, since there are not too many articles that match with ESGD. Therefore, we download all of the ESGD articles, following to judge them manually. To ensure methodological rigour and enhance the precision of search results, the review process strictly adhered to the PRISMA guidelines, as depicted in Figure 1. After downloading separately from Scopus (n=122) and WoS (n=106) on 20 April 2025, we removed the duplicated articles, and only 129 records remained. Excluded not in English (n=1); in process articles (n=10); not journal articles (n=6), such as conference papers and book chapters; review articles (n=2), 110 articles assessed for eligibility. Manually go through all of the articles and exclude 64 articles due to being out of the determinants of ESGD. Thus, the final sample of this study is 46 articles.

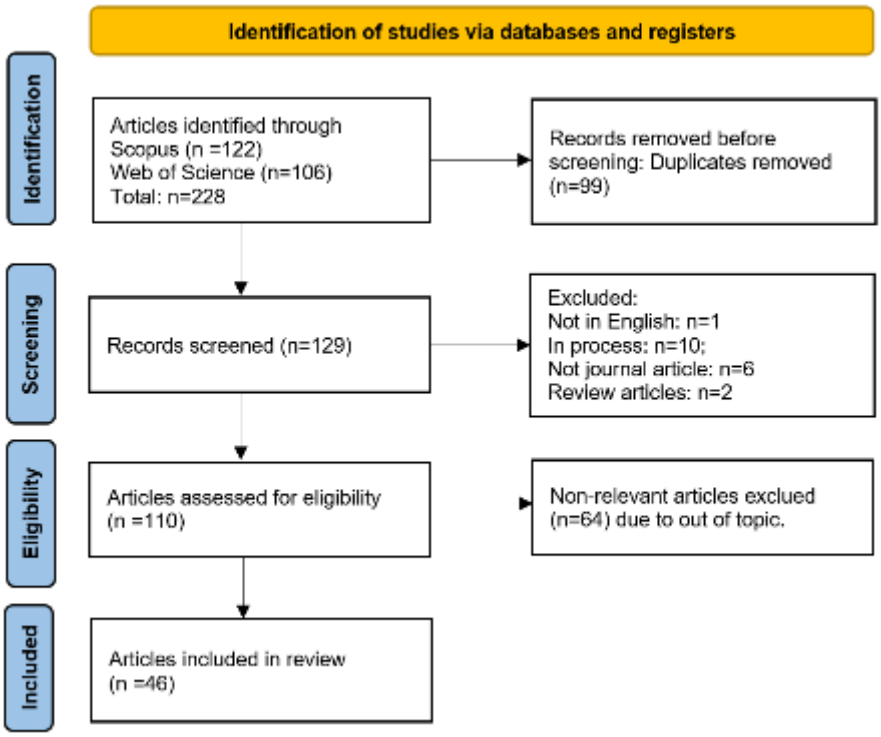

Figure 1. PRISMA Flow Diagram

Figure 2 outlines the research framework of this study. The determinants of ESGD include internal and external factors from the firm's perspective. Internal factors are based on the firm level, including top management, board composition, ownership structure, and monitoring mechanisms. While the external factors are more complicated, they will be discussed in the following section. The current challenges of ESGD will be discussed and following the research trends.

Figure 2. Research Framework

Results and Discussions

Description of the Sampling

The earliest article on the determinants of ESGD was published in 2020 and has received the most cited in the field, with a total of 496 citations. Scholarly output on this topic has increased significantly, with 28 publications in 2024 alone. As of April 20, 2025, 12 articles

have already been published in 2025, forecasting that the total for 2025 is likely to exceed 40. This upward trend reflects growing academic attention and the rising relevance of ESGD research.

Analysis of the publications reveals that the majority of recent studies on the determinants of ESGD have been published in leading academic journals. Notably, *Finance Research Letters* and *International Review of Financial Analysis* have each contributed five articles to this field. These journals, along with most others included in this review, are ranked in the top quartile (Q1) according to the Scimago Journal Rank (SJR), underscoring the scholarly quality and growing relevance of this topic. Of the 46 articles, 87% appear in Q1 journals, indicating that ESGD is not only an emerging topic but also one attracting high-quality research attention. Geographically, Chinese scholars dominate the field, with 78% of the studies based on Chinese samples. This reflects the prominent role of Chinese researchers in advancing knowledge of the determinants of ESGD.

Determinants of ESG Decoupling

Table 1 outlines a structured summary of the determinants of ESGD, classified into four main categories: firm-level, regulatory-level, market-level, and social-level. Notably, firm-level represents internal determinants of ESGD, while the others constitute external determinants. Furthermore, each category is divided into sub-levels and distinguishes between positive and negative influences on ESGD. In this paper, positive denotes a factor that increases ESGD, whereas negative indicates a factor that reduces it. It is critical to emphasize that these terms refer to the direction of impact, rather than implying any value judgements. The following sections will provide a comprehensive analysis of the determinants of ESGD from both internal and external perspectives.

Internal Determinants of ESG Decoupling

Internal determinants, also referred to as firm-level factors, due to entirely within the organisation. These can be further categorised into sub-levels, including top management, board composition, ownership structure, monitoring mechanisms, and others.

Top management characteristics significantly shape ESGD tendencies. Several characteristics of top management teams can either increase or reduce ESGD. On the one hand, a larger executive pay gap exacerbates ESGD by increasing the level of risk-taking (Li and Chen, 2024), while high CEO cash compensation promotes ESGD by incentivising short-term financial performance (K. Li *et al.*, 2024). Moreover, executive power discrepancies (X. Zhao *et al.*, 2024) and vertically interlocked executives (G. Liu *et al.*, 2024) lead to ESGD by impacting a firm's operational efficiency. In addition, CEO turnover is often associated with a focus on short-term performance goals (Yoo *et al.*, 2024), and directors and officers (D&O) insurance may lower litigation risk (Qu, 2024), thus weakening executives' commitment to genuine ESG practices. On the other hand, certain characteristics of top management can mitigate ESGD. For instance, team stability reduces agency costs and enhances the credibility of ESG disclosures (Deng *et al.*, 2024). Furthermore, executives holding company shares and CEOs receiving equity compensation are more likely to align their interests with sustainability development, thereby reducing ESGD (K. Li *et al.*, 2024; Zheng and Zhang, 2024). Additionally, female leadership has been associated with stronger ethical standards and stakeholder

orientation, which enhances the efficacy of corporate governance and mitigates symbolic ESG behaviour (Yang *et al.*, 2024).

Board composition, specifically, independent directors, enhances governance oversight and ensures that ESG practices reflect substantive efforts (Yu *et al.*, 2020). Similarly, board gender diversity introduces varied perspectives and tends to improve accountability, thereby discouraging symbolic behaviour (Eliwa *et al.*, 2023). However, superficial independence could still have potential risks if oversight mechanisms are not fully functional.

Ownership structure plays a critical part in ESGD. The classified reform of state-owned enterprises (CRSOEs) and SOEs is negatively impacted on ESGD (G. Liu *et al.*, 2024; H. Zhao *et al.*, 2024). SOEs that do not follow Global Reporting Initiative standards have diminished ESG greenwashing due to the CRSOE policy (H. Zhao *et al.*, 2024). In addition, G. Liu *et al.* (2024) found that SOEs illustrate lower levels of ESG greenwashing under capital market liberalisation, recommending that they are less responsive to foreign investors' pressure than non-SOEs.

Monitoring mechanisms are negative to ESGD. Robust monitoring systems (Daga *et al.*, 2025), high-quality auditors (Long *et al.*, 2024), high-quality internal controls (Zheng and Zhang, 2024), and ESG assurance (Bu *et al.*, 2024) are reliably related to lower ESGD since they enhance the credibility of ESG disclosures and constrain opportunistic behaviours. For instance, strong monitoring mechanisms are basic in relieving ESG greenwashing (Daga *et al.*, 2025). In order to detect ESG greenwashing, high-quality auditors show strong professional ethics and a high degree of independence (Long *et al.*, 2024). Additionally, solid internal controls decrease ESGD by diminishing data asymmetry (Chen *et al.*, 2024; Zheng and Zhang, 2024), whereas ESG assurance improves disclosure reliability (Bu *et al.*, 2024). These mechanisms strengthen stakeholder trust and offer assistance in adjusting ESG reporting with genuinee performance.

At the firm-particular level, other determinant variables, such as cross-listing (Yu *et al.*, 2020), risk aversion (C. Liu *et al.*, 2024), and renewable energy technology innovation (Huang *et al.*, 2024), are associated with lower ESGD. More accurate ESG disclosures are produced since cross-listed companies are subject to various regulatory regimes and investors' scrutiny (Yu *et al.*, 2020). Due to the risk-averse corporate culture and technological progressions in green innovation, making ESGD is less likely (Huang *et al.*, 2024; C. Liu *et al.*, 2024). These characteristics illustrate a strategic orientation to a real ESG.

External Determinants of ESG Decoupling

Regulatory-level

Environmental regulation influences ESGD in two opposite ways. On the positive side, environmental protection taxes and high government subsidies induce ESG greenwashing, as firms with poor ESG performance frequently disclose selectively to keep legitimacy (Jiang *et al.*, 2024; Liu *et al.*, 2025). Moreover, the rising climate policy uncertainty intensifies greenwashing, particularly in regions with weaker environmental regulations, high-polluting industries and short-term management perspectives (Zhang and Ge, 2024). Conversely, new environmental protection laws curb greenwashing more effectively in developed regions,

non-high-tech sectors, and privately owned enterprises, where stronger enforcement and reputational concerns incentivise genuine ESG engagement (Long *et al.*, 2024; Yin *et al.*, 2024).

Finance policy exerts mixed effects on ESGD. For instance, while green bond issuance improves environmental and social performance, it has limited influence on governance, thereby allowing potential for symbolic compliance (Ge et al., 2025). Additionally, green financial regulations unintentionally increase ESG greenwashing by enhancing firms' green image and overemphasising executives' environmental backgrounds (Jin et al., 2024). Furthermore, green finance reform can promote ESG greenwashing by intensifying executive myopia and easing financing constraints (Hu et al., 2025). In contrast, green finance reform and innovation pilot zones help curb greenwashing through enhanced market scrutiny and stronger internal and external monitoring (Tong et al., 2024).

Disclosure policies influence ESGD diversity. Financial report comment letters heighten greenwashing as firms prefer symbolic disclosure and tone management to misleading external judgment, especially without strong internal governance (Liao et al., 2023). In contrast, mandatory disclosure requirements, such as the European Union's Directive 2014/95, subject firms to standardising and coercive institutional pressures, improving responsibility and reducing ESGD (Aboud *et al.*, 2023; G. Liu *et al.*, 2024). Moreover, firms are more cautious in reporting practices since litigation risk raises the costs of misleading ESG disclosures (Qu, 2024).

Market-level

Capital market dynamics have mixed effects on ESGD. Capital market liberalisation induces ESG greenwashing, as firms cater to foreign investors through symbolic disclosures (G. Liu *et al.*, 2024). Resource-limited firms prioritising symbolic over substantive ESG endeavours, exacerbated by financial constraints (Zhang, 2022). Conversely, globalisation of the capital markets reduces greenwashing, especially regarding environmental and governance dimensions (Tian *et al.*, 2025). Moreover, green finance decreases ESGD by encouraging genuine green investments (Zhang, 2023), whereas bank fintech contributes by alleviating capital constraints (Liu and Li, 2024).

Digital finance has a noteworthy effect on the decrease in ESGD. By lowering financial constraints, enhancing investment efficiency, and increasing disclosure quality, digital finance reduces ESGD (Liu *et al.*, 2024). In order to diminish managerial myopia and suppress ESGD, digital transformation reinforces internal controls, improves information processing, and draws investor attention (Chen *et al.*, 2024; Z. Li *et al.*, 2024; Xu *et al.*, 2024). Similarly, digital financial inclusion enables more true ESG practices by alleviating financial pressure and reducing information asymmetry (Li *et al.*, 2024). Moreover, online platforms enhance external scrutiny through straightforward firm–investor interactions (Zheng and Zhang, 2024), whereas e-commerce improves ESG disclosure and market network (Yu *et al.*, 2025). Artificial intelligence advances ESGD judgment in expansion to advancing transparency and unveiling contradictions in detailed information (Daga *et al.*, 2025).

Investor analytics have dual effects on ESGD. Retail investor attention often drives ESG greenwashing by constraining firms to enhance disclosure visibility without improving real ESG performance (Li *et al.*, 2025). Likewise, distracted mutual fund investors induce ESGD by

weakening regulatory oversight (Liu *et al.*, 2023). In addition, intense analyst coverage is inclined to exacerbate greenwashing as firms react to raised stakeholder expectations with superficial disclosures (Gao and Chen, 2024). In contrast, institutional investors, especially those with long-term horizons, effectively mitigate ESGD by dynamic monitoring, administration ability, and transparency advancement (Long *et al.*, 2024), whereas short-term institutional investors have limited influence due to their focus on immediate returns (Yu *et al.*, 2020; Eliwa and Elmaghrabi, 2025).

Other market-level factors, such as emission trading schemes and ESG scores, exhibit contrasting effects on ESGD. ESG scores are positively connected to greenwashing, as they often prioritise disclosed intentions over real environmental practices (Kathan *et al.*, 2025). In contrast, emission trading schemes reduce greenwashing by enhancing market transparency and responsibility, thereby aligning disclosures with real performance (Tao *et al.*, 2024).

Social-level

Societal trust is negatively associated with ESGD because it increases reputational concerns, improves ESG reporting transparency, and strengthens stakeholder engagement, subsequently expanding public scrutiny and encouraging firms to adjust disclosures with actual practices (Haidar, 2025). Furthermore, social media pressure incorporates a double impact. It may induce empowering administrative short-termism in low-reputation organisations, leading to ESG greenwashing (Long *et al.*, 2024). Conversely, social media enables greater scrutiny and hinders deceptive ESG behaviour in less corrupt countries (Yu *et al.*, 2020).

Table 1
Summary of the Determinants of ESG Decoupling

Categorise	Sub-level	Positive	Negative
Firm-level	Top management	Executive pay gap	Top management team stability
		CEO's cash compensation	Executive shareholding
		Executive power discrepancy	Executives with overseas backgrounds
		Vertically interlocked executives	CEO's equity compensation
		CEO turnover	Female power
		Directors and officers insurance	
	Board composition		Independent directors
			Board gender diversity
	Ownership structure		Classified reform of SOEs
			State-owned enterprises
	Monitoring mechanisms		Robust monitoring mechanisms
			High-quality audit
			High-quality internal controls
			ESG Assurance
	Others		Being cross-listed
			Risk preference of enterprise
			Renewable energy technology innovation

Categorise	Sub-level	Positive	Negative
Regulatory-level	Environmental regulation	Environmental protection tax	New environmental protection law
		Environmental subsidies	
		Climate policy uncertainty	
	Finance policy	Green bonds	Green Finance Reform and
		Green financial regulation	Innovation Pilot Zone
		Green finance reform	
	Disclosure policy	Financial report comment letters	Mandatory disclosure
			The European Union's Directive 2014/95
	Others		Litigation risk
Market-level	Capital market	Capital market liberalisation	Globalisation of the capital market
		Financial constraints	Green finance
			Bank fintech
	Digital finance		Digital finance
			Digital Transformation
			Digital financial inclusion
			Online platform
			E-commerce
			Artificial intelligence
	Investor analytics	Retail investor attention	Institutional investors
		Distracted mutual fund investors	Investment horizon
		Analyst coverage	
	Others	ESG scores	Emission trading schemes
Social-level	Societal trust		Reputational concerns
	Social media pressure	Low-reputation organisations	Less corrupt countries

Current Challenges

ESGD challenges include ESG data quality, regulatory frameworks, behavioural biases, and market dynamics. Policymakers, companies, and investors must collaborate to properly integrate ESG concepts into corporate practices to address these challenges. First, the most imperative obstacles are the poor ESG data quality and the need for standardisation. Comparability and reliability quality of ESG data are hampered by inconsistent disclosures, vague definitions, and different ESG rating procedures (Friede, 2019; Solutions, 2024). This inconsistency is further exacerbated by varying perceptions of politically sensitive corporate activities among ESG standards (Arroyo *et al.*, 2025). Second, regulatory shortcomings have led to policy-practice decoupling. While overly rigid regulations can create compliance burdens without driving substantive change (Luan, 2024). Moreover, sustainability reports are frequently unaudited, ESG disclosure rules lack global consistency, and no authoritative organisations ensure the accuracy of reported ESG information. Third, behavioural biases reduce the adoption of ESG practices. These include the perception that ESG lacks a strong business case and that it tends to prioritise short-term financial outcomes over long-term goals (Friede, 2019). Fourth, market dynamics emphasise short-term returns and speculative financial practices, reinforcing ESGD. Natural capital is overlooked by the prevailing economic system, which causes a structural disconnect between economic growth and environmental sustainability (Gonzalez-Redin *et al.*, 2024).

Conclusions

This study analyses 46 articles that focus on the determinants of ESGD, which are separated into internal and external factors. Firm-level determinants, such as top management characteristics, board composition, ownership structure, and monitoring mechanisms, are internal factors, while regulatory, market, and social levels are external. It highlights both positive and negative influences on ESGD. Most studies used Chinese samples and were published in Q1 journals, underscoring the topic's academic significance.

Research Trends

First, future research should explore the under-researched determinant variables influencing ESGD. Further research is needed to investigate the long-term effects of digital finance among industries and regions (H. Liu *et al.*, 2024), as well as to explore how female executives impact ESGD under different social and regulatory settings (Yang *et al.*, 2024). Moreover, greater attention should be given to the impact of diverse regulatory institutional investors, such as pension and mutual funds, and the role of regulatory frameworks in shaping ESG practices (Eliwa and Elmaghrabi, 2025). A wide scope of investigation is still required to determine how board compositions, market dynamics, and competitive pressures influence ESGD, particularly in high-tech sectors (Yu *et al.*, 2020; Sun *et al.*, 2025).

Second, improving the measurement of ESGD is a fundamental area for future research. Efforts should focus on the development of standardised and transparent ESG evaluation frameworks to reduce divergences among rating agencies (Berg *et al.*, 2022). Utilising digital technologies and automated text analysis can enhance the accuracy and reliability of ESG assessments by better aligning qualitative disclosures with quantitative performance indicators (Velte, 2023). Furthermore, incorporating sector-specific ESG strategies that reflect industry specific characteristics can further improve the accuracy and applicability of ESG assessments (Li and Wu, 2020).

Third, the role of big data and artificial intelligence (AI) in addressing ESGD requires more in-depth investigation. AI models can be made to improve ESG assessment accuracy by mitigating reporting biases and behavioural distortions (Fluharty-Jaidee and Neidermeyer, 2023). Moreover, future research should also investigate how AI and big data can predict ESG performance, particularly in climate and earth system sciences (Crona and Sundström, 2023). Besides, the development of machine learning instruments capable of detecting greenwashing practices (Henao-Rodríguez *et al.*, 2024), examining the influence of board characteristics on AI adoption (Mohapatra *et al.*, 2024), and constructing predictive models to protect against adversarial attacks on ESG information will be imperative to guaranteeing the reliability and credibility of ESG reporting and ratings (Lee *et al.*, 2022).

This study contributes to the literature in several meaningful ways. First, it systematically develops a comprehensive framework to organise the determinants of ESGD. Second, it highlights key challenges associated with ESGD, offering insights that can inform policymakers, practitioners, and researchers in addressing these issues more effectively. Finally, it outlines future research directions to deepen understanding and support effective mitigation of ESGD. Whereas this study offers several important contributions, it also has certain limitations. First, it focuses exclusively on the determinants of ESGD and does not examine its consequences, as the primary objective is to address ESGD at its source. Second,

the sample is largely based on Chinese listed companies, which may limit the generalizability of the findings to other institutional contexts. However, the Chinese context is particularly relevant for ESG research, given China's rapid development in ESG disclosure regulations, its strong state influence in corporate governance, and its growing role in global sustainability efforts. Future research could study in other countries or adopt comparative approaches to assess whether similar determinants operate under different institutional, cultural, and market settings. Third, the analysis is confined to English language publications, and this focus may result in incomplete coverage by overlooking valuable research in other languages.

References

Aboud, A., Saleh, A., & Eliwa, Y. (2023). Does mandating ESG reporting reduce ESG decoupling? Evidence from the European Union's Directive 2014/95. *Business Strategy and the Environment*, *33*(2), 1305-1320.

Arroyo, P., Ramboarisata, L., & Dicko, S. (2025). Ceremonial conformity: Navigating institutional complexity and uncertainty in corporate political activities. *Society and Business Review*, *20*(1), 133-159.

Berg, F., Koelbel, J. F., & Rigobon, R. (2022). Aggregate confusion: The divergence of ESG ratings. *Review of Finance*, *26*(6), 1315-1344.

Bu, M., Liu, X., Zhang, B., Hazaea, S. A., Fan, R., & Wang, Z. (2024). Governance of corporate greenwashing through ESG assurance. *Systems*, *12*(9), 365.

Cepêda, C., Monteiro, A. P., & Aibar-Guzmán, B. (2025). Decoupling in sustainability reporting: A systematic literature review. *Corporate Social Responsibility and Environmental Management*.

Chen, X., Wan, P., Ma, Z., & Yang, Y. (2024). Does corporate digital transformation restrain ESG decoupling? Evidence from China. *Humanities and Social Sciences Communications*, *11*(1), 1-15.

Crona, B., & Sundström, E. (2023). Sweet spots or dark corners? An environmental sustainability view of big data and artificial intelligence in ESG. In *Handbook of Big data and analytics in accounting and auditing* (pp. 105-131). Springer.

Daga, S., Yadav, K., Singh, D., Pamucar, D., & Simic, V. (2025). Unveiling greenwashing: Analyzing the interaction of factors discouraging ESG greenwashing through TISM and MICMAC. *Journal of Environmental Management*, *380*, 124850.

Deng, B., Peng, Z., Albitar, K., & Ji, L. (2024). Top management team stability and ESG greenwashing: Evidence from China. *Business Strategy and the Environment*, *34*(1), 450-467.

Eliwa, Y., Aboud, A., & Saleh, A. (2023). Board gender diversity and ESG decoupling: Does religiosity matter? *Business Strategy and the Environment*, *32*(7), 4046-4067.

Eliwa, Y., & Elmaghrabi, M. E. (2025). Investment horizons and ESG decoupling: Distinct roles of long-term and short-term institutional investors. *Economics Letters*, *247*, 112207.

Fluharty-Jaidee, J., & Neidermeyer, P. (2023). Artificial intelligence and environmental, social and governmental issues: A current perspective. In *Handbook of Big Data and Analytics in Accounting and Auditing* (pp. 89-103). Springer.

Friede, G. (2019). Why don't we see more action? A metasynthesis of the investor impediments to integrating environmental, social, and governance factors. *Business Strategy and the Environment*, *28*(6), 1260-1282.

Gao, Y., & Chen, Y. (2024). Watchdogs or enablers? Analyzing the role of analysts in ESG greenwashing in China. *Sustainability*, *16*(11), 4339.

Ge, P., Liu, Y., Tang, C., & Zhu, R. (2025). Green bonds and corporate environmental social and governance performance: Innovative approaches to identifying greenwashing in green bond markets. *Corporate Social Responsibility and Environmental Management*, *32*(1), 1060-1078.

Gonzalez-Redin, J., Gordon, I. J., Polhill, J. G., Dawson, T. P., & Hill, R. (2024). Navigating sustainability: Revealing hidden forces in social–ecological systems. *Sustainability*, *16*(3), 1132.

Haidar, M. I. (2025). Does societal trust reduce greenwashing? International evidence. *Business Strategy and the Environment*, *34*(3), 3400–3424.

Henao-Rodríguez, C., Lis-Gutiérrez, J. P., & Angulo-Bustinza, H. D. (2024). Unveiling greenwashing in Colombian manufacturing: A machine learning approach. *Research in Globalization*, *8*, 100196.

Hu, S., Chen, P., & Zhang, C. (2025). How does green finance reform affect corporate ESG greenwashing behavior? *International Review of Financial Analysis*, *102*, 104037.

Huang, Y., Xiong, N., & Liu, C. (2024). Renewable energy technology innovation and ESG greenwashing: Evidence from supervised machine learning methods using patent text. *J Environ Manage*, *370*, 122833.

Jiang, C., Li, X., Xu, Q., & Liu, J. (2024). Does environmental protection tax impact corporate ESG greenwashing? A quasi-natural experiment in China. *Economic Analysis and Policy*, *84*, 774-786.

Jin, X., Qi, H., & Huang, X. (2024). Green financial regulation and corporate strategic ESG behavior: Evidence from China. *Finance Research Letters*, *65*, 105581.

Kathan, M. C., Utz, S., Dorfleitner, G., Eckberg, J., & Chmel, L. (2025). What you see is not what you get: ESG scores and greenwashing risk. *Finance Research Letters*, *74*, 106710.

Lee, O., Joo, H., Choi, H., & Cheon, M. (2022). Proposing an integrated approach to analyzing ESG data via machine learning and deep learning algorithms. *Sustainability*, *14*(14), 8745.

Li, J., & Wu, D. (2020). Do corporate social responsibility engagements lead to real environmental, social, and governance impact? *Management Science*, *66*(6), 2564-2588.

Li, K., Lin, T. Y., & Zhu, G. (2024). The effect of CEO's compensation in driving corporate ESG greenwashing: Evidence from China. *PLoS One*, *19*(10), e0312247.

Li, M., & Chen, Q. (2024). Executive pay gap and corporate ESG greenwashing: Evidence from China. *International Review of Financial Analysis*, *95*(103375), 103375.

Li, W., Mao, Z., Ren, X., & Liang, J. (2025). Retail investor attention: Guardian of corporate ESG integrity or catalyst for greenwashing? *Energy Economics*, *144*, 108361.

Li, W., Shi, C., Xiao, Z., & Zhang, X. (2024). Bridging the green gap: How digital financial inclusion affects corporate ESG greenwashing. *Finance Research Letters*, *69*, 106018.

Li, Z., Miao, S., & Xu, L. (2024). Digital transformation and environmental, social, and governance greenwashing: Evidence from China. *J Environ Manage*, *365*, 121460.

Liao, F., Sun, Y., & Xu, S. (2023). Financial report comment letters and greenwashing in environmental, social and governance disclosures: Evidence from China. *Energy Economics*, *127*, 107122.

Liu, C., Gong, W., Dong, G., & Ji, Q. (2024). Regulation of environmental, social and governance disclosure greenwashing behaviors considering the risk preference of enterprises. *Energy Economics*, *135*, 107637.

Liu, G., Fang, Y., Qian, H., Ding, Z., Zhang, A., & Zhang, S. (2025). Incentive or catering effect of environmental subsidies? Evidence from ESG reports on greenwashing. *International Review of Financial Analysis*, *103*, 104242.

Liu, G., Qian, H., Shi, Y., Yuan, D., & Zhou, M. (2024). How do firms react to capital market liberalization? Evidence from ESG reporting greenwashing. *Corporate Social Responsibility and Environmental Management*, *31*(5), 4329-4344.

Liu, G., Qian, H., Wu, Q., & Han, F. (2024). Research on the masking effect of vertical interlock on ESG greenwashing in the context of sustainable Enterprise development. *Corporate Social Responsibility and Environmental Management*, *31*(1), 196-209.

Liu, H., Wang, J., & Liu, M. (2024). Can digital finance curb corporate ESG decoupling? Evidence from Shanghai and Shenzhen A-shares listed companies. *Humanities and Social Sciences Communications*, *11*(1), 1-15.

Liu, Y., Li, W., & Meng, Q. (2023). Influence of distracted mutual fund investors on corporate ESG decoupling: evidence from China. *Sustainability Accounting, Management and Policy Journal*, *14*(1), 184-215.

Liu, Y., Li, W., Wang, L., & Meng, Q. (2023). Why greenwashing occurs and what happens afterwards? A systematic literature review and future research agenda. *Environ Sci Pollut Res Int*, *30*(56), 118102-118116.

Liu, Z., & Li, X. (2024). The impact of bank fintech on ESG greenwashing. *Finance Research Letters*, *62*, 105199.

Long, L., Wang, C., & Zhang, M. (2024). Does social media pressure induce corporate hypocrisy? Evidence of ESG greenwashing from China. *Journal of Business Ethics*, *197*(2), 311-338.

Luan, T. (2024). A Review of Corporate Social Responsibility Decoupling and Its Impact: Evidence from China. *Sustainability*, *16*(10), 4047.

Mohapatra, A. K., Matta, R., Soni, R., & Hiremath, N. V. (2024). Evaluating the role of artificial intelligence on ESG reporting: Evidence from India. *Prabandhan: Indian Journal of Management*, *17*(11), 8-22.

Qu, S. (2024). Costs may be a blessing in disguise: Litigation risk and greenwashing. *Finance Research Letters*, *62*, 105069.

Santos, C., Coelho, A., & Marques, A. (2023). A systematic literature review on greenwashing and its relationship to stakeholders: State of art and future research agenda. *Management Review Quarterly*, *74*(3), 1397-1421.

Sneideriene, A., & Legenzova, R. (2025). Greenwashing prevention in environmental, social, and governance (ESG) disclosures: A bibliometric analysis. *Research in International Business and Finance*, *74*, 102720.

Contractor, S. (2025). Challenges in analyzing ESG data and their potential solutions. In Sustainable Investing: Problems And Solutions (pp. 223-252). World Scientific.

Sun, Y., Tao, Q., Wang, D., & Zhang, W. (2025). Corporate ESG decoupling and R&D investment. *The North American Journal of Economics and Finance*, *75*, 102278.

Talpur, S., Nadeem, M., & Roberts, H. (2023). Corporate social responsibility decoupling: A systematic literature review and future research agenda. *Journal of Applied Accounting Research*, *25*(4), 878-909.

Tao, M., Lin, B., & Poletti, S. (2024). From policy to practice: How China's emissions trading scheme shapes ESG greenwashing at the firm level? *Journal of Environmental Management*, *370*, 122681.

Tashman, P., Marano, V., & Kostova, T. (2019). Walking the walk or talking the talk? Corporate social responsibility decoupling in emerging market multinationals. *Journal of International Business Studies*, *50*, 153-171.

Tian, L., Song, X., Du, M., & Xu, B. (2025). The disciplinary impact of capital market internationalization on corporate ESG greenwashing: A study of A-shares' inclusion in the MSCI index. *International Review of Financial Analysis*, *103*, 104202.

Tong, Y., Lau, Y. W., & Binti Ngalim, S. M. (2024). Do pilot zones for green finance reform and innovation avoid ESG greenwashing? Evidence from China. *Heliyon*, *10*(13), e33710.

Velte, P. (2023). Determinants and consequences of corporate social responsibility decoupling—Status quo and limitations of recent empirical quantitative research. *Corporate Social Responsibility and Environmental Management*, *30*(6), 2695-2717.

Xu, S., Zhang, S., Ren, Y., Jiang, Q., & Wu, D. (2024). Can digital transformation restrain corporate esg greenwashing-a test based on internal and external joint perspectives. *Systems*, *12*(9), 334.

Yang, L., Ye, M., Wang, H., & Lu, W. (2024). Female power, ownership and ESG decoupling: Evidence from China. *International Journal of Gender and Entrepreneurship*, *16*(3), 341-366.

Yin, B., Li, Z., Xiong, Z., & Shi, D. (2024). How does environmental regulation affect corporate environmental, social, and governance (ESG) greenwashing? Evidence from China. *Sustainability*, *16*(23), 10608.

Yoo, J. S., Song, W. J., & Ku, J. E. (2024). CEO turnover, ESG-washing, and firm value. *Managerial and Decision Economics*, *45*(5), 2801-2819.

Yu, E. P.-y., Van Luu, B., & Chen, C. H. (2020). Greenwashing in environmental, social and governance disclosures. *Research in International Business and Finance*, *52*, 101192.

Yu, R., Wu, L., Li, W., & Ou, L. (2025). Research on the impact of e-commerce on corporate ESG performance: disclosure mechanism, greenwashing behavior and substantive performance. *Environmental Research Letters*, *20*(5), 054007.

Zervoudi, E. K., Moschos, N., & Christopoulos, A. G. (2025). From the corporate social responsibility (CSR) and the environmental, social and governance (ESG) criteria to the greenwashing phenomenon: A comprehensive literature review about the causes, consequences and solutions of the phenomenon with specific case studies. *Sustainability*, *17*(5), 2222.

Zhang, D. (2022). Are firms motivated to greenwash by financial constraints? Evidence from global firms' data. *Journal of international financial management and accounting*, *33*(3), 459-479.

Zhang, D. (2023). Does green finance really inhibit extreme hypocritical ESG risk? A greenwashing perspective exploration. *Energy Economics*, *121*, 106688.

Zhang, Z., & Ge, Z. (2024). Fishing in muddy water? Climate policy uncertainty and corporate greenwashing in environmental, social, and governance. *Managerial and Decision Economics*, *45*(6), 4191-4207.

Zhao, H., Wang, D., Zhang, Z., & Hao, X. (2024). Does the classified reform of Chinese state-owned enterprises alleviate environmental, social and governance decoupling? *Sustainability*, *16*(23), 10622.

Zhao, X., Huang, X., Liu, F., & Pan, L. (2024). Executive power discrepancy and corporate ESG greenwashing. *International Review of Financial Analysis*, *96*, 103533.

Zheng, H., & Zhang, J. (2024). The power of crowds: The effect of online platform interactions on greenwashing. *Corporate Social Responsibility and Environmental Management*, *31*(6), 6481-6503.