
ESG Disclosure, Rating Divergence and Greenwashing: A Critical Review and Integrative Research Agenda

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Abstract: Environmental, social and governance (ESG) information has become central to investment, lending and regulatory decisions, yet its credibility remains contested. This review synthesises research on three closely connected phenomena: corporate ESG disclosure, third-party ESG ratings and greenwashing. Using an integrative narrative review of peer-reviewed studies, standard-setter publications and regulatory texts, the paper examines how legitimacy, voluntary disclosure, signalling, stakeholder, institutional and agency theories explain why firms disclose ESG information, why disclosure quality varies and why selective or misleading claims persist. The review shows that sustainability reporting is now almost universal among the largest companies, but that the ratings built on these disclosures diverge markedly, with correlations between major providers ranging from 0.38 to 0.71, compared with near-perfect agreement among credit ratings. Differences in measurement, rather than in weighting, explain most of this divergence, and more disclosure can widen rather than narrow disagreement. These conditions create room for greenwashing at both firm and fund level, which regulators in the European Union, the United States and elsewhere have begun to address through mandatory reporting standards, supervision of rating providers, anti-greenwashing rules and enforcement. The paper proposes an integrative Disclosure, Rating and Greenwashing (DRG) framework, derives five propositions and sets out a future research agenda. It identifies gaps concerning emerging markets, the effects of the regulatory wave of 2023 to 2026, artificial intelligence-based detection and the social and governance pillars, which remain understudied relative to climate. Implications are offered for managers, investors, rating providers and policymakers.

Keywords: ESG Disclosure, ESG Ratings, Rating Divergence, Greenwashing, Sustainability Reporting, Legitimacy Theory.

Type: Review Paper



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1. Introduction

Over the past two decades, environmental, social and governance (ESG) information has moved from the margins of corporate communication to the centre of investment, lending and regulatory decision-making. The Global Sustainable Investment Alliance estimates that sustainable investment assets in the major markets it tracks reached USD 30.3 trillion at the start of 2022 (GSIA, 2023), and survey evidence shows that most institutional investors use ESG information, mainly because they regard it as financially material to investment performance (Amel-Zadeh and Serafeim, 2018). On the corporate side, sustainability reporting has become almost universal among large firms: in 2022, 96% of the world's 250 largest companies and

79% of the top 100 companies in 58 countries reported on sustainability (KPMG, 2022).

The rapid growth of ESG information has not, however, been matched by comparable growth in its credibility. Three connected problems dominate the literature. First, corporate ESG disclosure has historically been voluntary, heterogeneous and largely unassured, which makes it difficult to compare across firms or to verify against actual performance (Clarkson et al., 2008; Christensen et al., 2021). Second, the ESG ratings that investors use to condense this information disagree to a striking degree: the correlations between the ratings of six prominent providers range from 0.38 to 0.71, whereas the credit ratings of Moody's and Standard & Poor's correlate at 0.99 (Berg et al., 2022). Third, the gap between what firms communicate and what they actually do has given rise to greenwashing, which Delmas and Burbano (2011) define as the intersection of poor environmental performance and positive communication about that performance. A European Commission screening of company websites found that 42% of the green claims examined were exaggerated, false or deceptive (European Commission, 2021).

These three phenomena are usually studied in separate literatures: disclosure in financial accounting, ratings in finance, and greenwashing in management, marketing and business ethics (Gillan et al., 2021; Yang et al., 2020). Yet they are tightly linked. Corporate disclosures are the main input to ESG ratings; ratings in turn shape the sustainability claims of firms, funds and index providers; and weaknesses in both create the conditions under which greenwashing becomes feasible and profitable. In recent years, including 2021, there has been a dramatic change in regulations with the introduction of ISSB standards, the implementation of EU CSRD (Corporate Sustainability Reporting Directive), the regulation of ESG rating providers in the EU for the first time, and an establishment of new regulations concerning misleading green claims. Thus, an updated and integrative review is a must.

In this paper, there are three research questions that are encountered. RQ1: Which theoretical perspectives are appropriate to explain the nature and quality of corporate ESG disclosure? RQ2: Why are ESG ratings different and what is the impact of this difference? RQ3: What does greenwashing mean, what are the methods of its measurement and regulation and how is it related to disclosure and ratings? The literature review makes three contributions. First, it combines the literature on the disclosure, ratings and greenwashing instead of reviewing them separately. Second, it presents the main empirical realities and regulations in comparative tables that can be used by researchers and practitioners. Third, it presents testable hypotheses and research agenda with emphasis on countries with emerging economies where ESG disclosure systems develop quickly but the empirical data is still absent.

Table 1: Selected Facts on ESG Disclosure, Ratings and Greenwashing.

Indicator	Key figure	Source
Sustainable investment assets in five major markets (start of 2022)	USD 30.3 trillion	GSIA (2023)
Sustainability reporting rate, world's 250 largest companies (G250)	96%	KPMG (2022)
Sustainability reporting rate, top 100 companies in 58 countries (N100)	79%	KPMG (2022)
Use of GRI Standards, G250 / N100 companies	78% / 68%	KPMG (2022)
Correlation between ESG ratings of six major providers	0.38 to 0.71	Berg et al. (2022)
Correlation between Moody's and S&P credit ratings	0.99	Berg et al. (2022)
Share of ESG rating divergence explained by measurement / scope / weight	56% / 38% / 6%	Berg et al. (2022)

Indicator	Key figure	Source
EU environmental claims found vague, misleading or unfounded (2020 study)	53.3%	European Commission (2023b)
EU environmental claims found unsubstantiated (2020 study)	40%	European Commission (2023b)
Online green claims judged exaggerated, false or deceptive (EU website sweep)	42%	European Commission (2021)
Consumer products committing at least one “sin of greenwashing” (North America)	More than 95%	TerraChoice (2010)
Studies reporting a non-negative relation between ESG and financial performance	About 90% of over 2,000 studies	Friede et al. (2015)

The remainder of the paper is organised as follows. Section 2 describes the review approach. Section 3 presents the theoretical foundations. Sections 4, 5 and 6 review the literature on ESG disclosure, ESG ratings and greenwashing, respectively. Section 7 develops an integrative framework and discusses its implications. Section 8 sets out the limitations of the review and a future research agenda, and Section 9 concludes.

2. Review Methodology

This paper adopts an integrative narrative review design. Such a design is appropriate when the aim is to synthesise and critique research from different disciplines and to generate new conceptual frameworks, rather than to estimate a pooled effect size (Torraco, 2005; Snyder, 2019). ESG disclosure, ratings and greenwashing are studied in accounting, finance, management, marketing and law, and a substantial part of the relevant evidence is found in regulatory texts and standard-setting documents. An integrative approach is therefore more suitable than a strict systematic review or meta-analysis.

Relevant literature was identified through searches of Scopus, Web of Science and Google Scholar using combinations of terms such as “ESG disclosure”, “sustainability reporting”, “CSR reporting”, “ESG ratings”, “rating divergence”, “rating disagreement”, “greenwashing”, “selective disclosure” and “decoupling”. The searches were complemented by backward and forward citation tracking of highly cited studies. Priority was given to peer-reviewed articles in established journals, supplemented by foundational theoretical works and by primary regulatory and standard-setting sources from the European Union, the IFRS Foundation, the Global Reporting Initiative (GRI), the US Securities and Exchange Commission (SEC) and the International Organization of Securities Commissions (IOSCO). The selected sources were coded thematically into the three streams of disclosure, ratings and greenwashing and then analysed across streams to identify linkages, tensions and gaps. Table 2 summarises the review protocol.

Table 2: Review Protocol.

Element	Description
Review type	Integrative narrative review (Torraco, 2005; Snyder, 2019)
Sources	Scopus, Web of Science and Google Scholar; backward and forward citation tracking; regulatory and standard-setter documents
Search terms	ESG disclosure; sustainability or CSR reporting; ESG ratings; rating divergence or disagreement; greenwashing; selective disclosure; decoupling
Time frame	Foundational theory (1973 to 1995); empirical and regulatory literature mainly from 2007 to 2025
Inclusion criteria	Studies in English; clear relevance to at least one of the three streams; peer-reviewed articles, scholarly books and primary regulatory texts
Exclusion criteria	Opinion pieces without scholarly or regulatory standing; studies without a clear focus on ESG disclosure, ratings or greenwashing

Element	Description
Analysis	Thematic coding by stream; cross-stream synthesis; development of an integrative framework, propositions and research agenda

3. Theoretical Foundations

No single theory explains ESG disclosure, rating behaviour and greenwashing. Instead, the literature draws on several complementary, and sometimes competing, perspectives, summarised in Table 3. Their predictions diverge most clearly on one question that lies at the heart of greenwashing: do firms with better ESG performance disclose more, or do firms with worse performance disclose more in order to manage perceptions?

Legitimacy theory holds that organisations seek congruence between their activities and the norms of the social system in which they operate (Suchman, 1995). Disclosure is a tool for gaining, maintaining or repairing legitimacy, so firms whose legitimacy is threatened, for example heavy polluters, are expected to disclose more positive environmental information (Deegan, 2002). Consistent with this view, Cho and Patten (2007) find that firms in environmentally sensitive industries and firms with worse environmental performance use disclosure to offset exposure to legitimacy threats. In contrast, *voluntary disclosure theory* predicts that firms with good performance have an incentive to disclose in order to separate themselves from weaker firms, while poor performers stay silent (Verrecchia, 1983; Dye, 1985). Clarkson et al. (2008) find evidence for this prediction when disclosure is measured by hard, verifiable items, and evidence for legitimacy-driven behaviour in soft, unverifiable claims. This distinction between hard and soft disclosure is central to understanding greenwashing.

Signalling theory adds that a signal is credible only if it is costly or difficult for low-quality senders to imitate (Spence, 1973; Connelly et al., 2011). Many ESG claims are cheap to make and hard to verify, which lowers their signalling value and encourages imitation by weaker firms. *Stakeholder theory* explains why firms report to a broad audience beyond shareholders, including employees, communities, consumers and regulators (Freeman, 1984). *Institutional theory* explains how coercive, mimetic and normative pressures lead firms to adopt similar reporting practices (DiMaggio and Powell, 1983), and why formal adoption may be decoupled from actual practice. Finally, *agency theory* highlights that managers may use ESG activities and disclosures to pursue private benefits such as reputation or entrenchment, at the expense of shareholders (Jensen and Meckling, 1976).

Table 3: Theoretical Perspectives on ESG Disclosure and Greenwashing.

Theory	Core logic	Implication for ESG disclosure	Implication for greenwashing
Legitimacy (Suchman, 1995; Deegan, 2002)	Firms seek alignment with societal norms	Poor performers disclose more to repair legitimacy (Cho and Patten, 2007)	Positive, soft claims used to mask weak performance
Voluntary disclosure (Verrecchia, 1983; Dye, 1985)	Good performers disclose to separate themselves	Better performers provide more hard, verifiable data (Clarkson et al., 2008)	Greenwashing is limited where claims are verifiable
Signalling (Spence, 1973; Connelly et al., 2011)	Signals must be costly to imitate	Assured, quantified disclosures carry more credibility	Cheap talk allows imitation by weak firms
Stakeholder (Freeman, 1984)	Firms answer to multiple stakeholder groups	Broad, multi-audience reporting	Claims tailored to the most powerful audiences

Theory	Core logic	Implication for ESG disclosure	Implication for greenwashing
Institutional (DiMaggio and Powell, 1983)	Coercive, mimetic and normative pressures	Convergence on frameworks and formats	Decoupling of formal policy from practice (Marquis et al., 2016)
Agency (Jensen and Meckling, 1976)	Managers' interests may diverge from owners'	ESG reporting may serve managerial reputation	Symbolic ESG used for private benefit

4. ESG Disclosure

4.1. Evolution of Reporting Frameworks and Regulation

Early sustainability reporting was shaped largely by the Global Reporting Initiative, whose standards focus on an organisation's impacts on the economy, environment and people, a perspective often called impact materiality (GRI, 2021). The Sustainability Accounting Standards Board (SASB) later developed 77 industry-specific standards centred on financial materiality, that is, on sustainability issues likely to affect enterprise value (SASB, 2018). Research supports this focus: Khan et al. (2016) show that firms performing well on material sustainability issues outperform, whereas performance on immaterial issues is not associated with superior returns. The Task Force on Climate-related Financial Disclosures (TCFD, 2017) organised climate disclosure around four pillars: governance, strategy, risk management, and metrics and targets.

From 2019 onwards, voluntary frameworks began to be embedded into regulation. The EU Sustainable Finance Disclosure Regulation (SFDR) imposed sustainability disclosure duties on financial market participants and introduced the widely used distinction between products that promote environmental or social characteristics (Article 8) and products that have sustainable investment as their objective (Article 9) (European Union, 2019). The CSRD extended mandatory reporting to a much wider population of companies, requiring reporting under the European Sustainability Reporting Standards (ESRS) on a double materiality basis and with limited assurance (European Union, 2022; European Commission, 2023a). In 2025, however, the application of the CSRD to later waves of companies was postponed by two years (European Union, 2025). At the global level, the ISSB issued IFRS S1 and IFRS S2 in 2023, building on the TCFD and SASB and focusing on information useful to investors (IFRS Foundation, 2023a, 2023b). In the United States, the SEC adopted climate disclosure rules in 2024 (SEC, 2024a), although their implementation was stayed pending litigation.

Emerging markets have also moved towards structured ESG disclosure. For example, the Saudi Exchange issued ESG disclosure guidelines for listed companies (Saudi Exchange, 2021), and Egypt's Financial Regulatory Authority introduced ESG and TCFD-aligned reporting requirements for certain listed and non-bank financial companies (Financial Regulatory Authority, 2021). Table 4 summarises the main frameworks and regulations.

Table 4: Major ESG Disclosure, Rating and Anti-Greenwashing Frameworks.

Instrument	Issuer / year	Nature	Key features
GRI Standards (GRI, 2021)	GRI; revised 2021	Voluntary	Impact materiality; universal, sector and topic standards
SASB Standards (SASB, 2018)	SASB; 2018	Voluntary	77 industry standards; financial materiality; now maintained by the ISSB
TCFD Recommendations (TCFD, 2017)	FSB Task Force; 2017	Voluntary, later embedded in regulation	Governance, strategy, risk management, metrics and targets

Instrument	Issuer / year	Nature	Key features
SFDR (European Union, 2019)	EU; 2019, applied 2021	Mandatory for financial market participants	Entity- and product-level disclosures; Article 8 and Article 9 products
CSRD and ESRS (European Union, 2022; European Commission, 2023a)	EU; 2022 and 2023	Mandatory	Double materiality; limited assurance; later waves postponed in 2025 (European Union, 2025)
IFRS S1 and S2 (IFRS Foundation, 2023a, 2023b)	ISSB; 2023	Voluntary unless adopted by jurisdictions	Investor focus; general requirements and climate disclosures
SEC climate disclosure rules (SEC, 2024a)	US SEC; 2024	Adopted but stayed pending litigation	Climate-related risks and, for larger registrants, material Scope 1 and 2 emissions
ISSA 5000 (IAASB, 2024)	IAASB; 2024	Assurance standard	Limited and reasonable assurance of sustainability information
IOSCO recommendations (IOSCO, 2021)	IOSCO; 2021	Soft law	Governance, transparency and conflicts of interest of ESG rating and data providers
ESG Rating Activities Regulation (European Union, 2024b)	EU; 2024	Mandatory for rating providers	ESMA authorisation and supervision; methodology transparency; disclosure of E, S and G weighting
Empowering Consumers for the Green Transition Directive (European Union, 2024a)	EU; 2024	Mandatory	Bans generic environmental claims and unverified sustainability labels
Guidelines on ESG fund names (ESMA, 2024)	ESMA; 2024	Supervisory guidelines	80% of investments must meet the environmental or social characteristics implied by the name

4.2. Mandatory versus Voluntary Disclosure

Numerous studies have been conducted in order to determine the influence of compulsory sustainability reporting on either the quality of the information provided or the behaviour of businesses. Christensen et al. (2021) conducted a detailed analysis and established that although compulsory sustainability reporting affects corporate behaviour, the benefits of such reporting significantly depend on the degree of comparability, standardisation and enforcement. There is no consensus when it comes to the findings based on information received from the capital market participants: Grewal et al. (2019) state that the adoption of the European directive on non-financial reporting had a negative impact in general, while the firms with better sustainability performance and reporting received more positive evaluations from the members of the market. There are different views about the benefits of voluntary reporting. Dhaliwal et al. (2011) concluded from the analysis of the data collected about the companies that published the first CSR reports that companies having the best social performance managed to reduce their costs of equity capital compared to the period before the introduction of the stand-alone CSR reports.

In conclusion, this means that when we take all the evidence into consideration, we can state that disclosure is conducive when it is useful in decision-making, it is relevant and reliable. Besides that, it may turn out that being under mandatory regimes leads to a change in the strategy when it comes to greenwashing: the issue in this case is no longer whether companies disclose the information but rather how they do that, which is the level of selectivity, abstractness and optimism.

4.3. Disclosure Quality, Assurance and the Gap between Disclosure and Performance

Research has established that the amount of ESG disclosures cannot be equated with its quality. Clarkson et al. (2008) demonstrate that the quality of the disclosures

relates to the type of information presented. Hard quantitative disclosures correspond to better environmental performance, while soft, narrative disclosures do not. Mahoney et al. (2013) find that US firms issuing standalone CSR reports generally have higher CSR performance scores, which is more consistent with signalling than with greenwashing. Research oriented toward practitioners identifies some enduring issues with ESG data such as ambiguous definitions, varying benchmarks and imputed values for missing data (Kotsantonis and Serafeim, 2019).

Independent verification is the principal institutional answer to these challenges. The CSRD mandates assurance for sustainability statements, while ISSA 5000, issued by the International Auditing and Assurance Standards Board (IAASB) in 2024, sets the standard for sustainability assurance engagements globally (IAASB, 2024). Consequently, the quality of the verification and its ability to narrow the gap between performance and disclosure is a pertinent empirical question for the future.

5. ESG Ratings

5.1. The ESG Rating Landscape

The ESG ratings and the associated data products aggregate vast amounts of heterogeneous information and transform it into scores that can be utilized by investors, lenders, index providers and regulators accordingly. According to IOSCO (2021), the market for the aforementioned products has developed rapidly and experienced consolidation, so large financial data and credit rating companies acquire specialized ESG research companies, raising several issues related to the transparency, existing conflicts of interest and a limited involvement of the rated companies in the rating process itself. Rating providers differ in what they seek to measure. Some assess how exposed a firm is to financially material ESG risks and how well it manages them, while others assess a firm's impact on society and the environment. Providers also differ in whether ratings are relative to industry peers, in their data sources and in their output scales. Table 5 illustrates this diversity.

Table 5: Illustrative Characteristics of Major ESG Rating Providers.

Provider	Output	Scale	Orientation
MSCI ESG Ratings	Letter rating	AAA (leader) to CCC (laggard)	Industry-relative exposure to and management of material ESG risks
Morningstar Sustainalytics ESG Risk Rating	Unmanaged risk score	Negligible, low, medium, high and severe risk	Absolute score intended to be comparable across industries
S&P Global Corporate Sustainability Assessment	Score	0 to 100	Industry-specific questionnaire and public data; basis for sustainability indices
ISS ESG Corporate Rating	Letter grade	A+ to D-	Industry-specific performance assessment
LSEG (formerly Refinitiv) ESG Scores	Score and grade	0 to 100; A+ to D-	Relative performance based on reported data, with a controversies overlay
CDP	Letter score	A to D-	Questionnaire-based assessment of climate, water and forest disclosure and performance

Note: Compiled by the author from providers' publicly available methodology descriptions; see also IOSCO (2021), Berg et al. (2022) and Larcker et al. (2022). Methodologies change over time and should be checked against current provider documentation.

5.2. Rating Divergence and Its Sources

A robust finding across studies is that ESG ratings for the same firm often differ substantially between providers. Chatterji et al. (2016) were among the first to document low convergence among six well-known raters and to show that the disagreement reflects both different theories of what corporate social responsibility is and different ways of measuring it. Berg et al. (2022) decompose the divergence among six major providers into three sources: scope (which attributes are rated), measurement (how a given attribute is measured) and weight (how attributes are aggregated). Measurement explains about 56% of the divergence, scope about 38% and weight only about 6%. They also identify a “rater effect”, whereby a provider’s overall view of a firm influences how it assesses the firm’s individual categories.

Other studies confirm and extend these findings. Dimson et al. (2020) show that leading providers’ ratings are far from interchangeable, so that portfolio composition depends on which rating is used. According to Gibson Brandon et al. (2021), the level of disagreement is highest in the governance category, and that companies with outstanding rating disparity will get higher returns, thus asserting the existence of risk premium due to ESG uncertainty. On the contrary, Christensen et al. (2022) illustrate that the higher amount of ESG disclosure correlates with the rise in rating disagreement, since more information leaves more space for numerous interpretations. Avramov et al. (2022) show that uncertainty about ESG ratings reduces investor demand for stocks and weakens the relation between ESG ratings and expected returns. Larcker et al. (2022) summarise these problems as ratings that lack a common definition of what they are meant to measure. Table 6 summarises the key studies.

Table 6: Key Empirical Studies on ESG Rating Divergence.

Study	Coverage	Main findings
Chatterji et al. (2016)	Six well-known raters	Low convergence; raters differ in how they theorise and measure CSR
Berg et al. (2022)	Six major providers	Correlations of 0.38 to 0.71; divergence explained by measurement (56%), scope (38%) and weight (6%); evidence of a rater effect
Dimson et al. (2020)	Leading providers	Substantial disagreement; ratings not interchangeable for portfolio construction
Gibson Brandon et al. (2021)	Multiple providers; S&P 500 firms	Disagreement highest for governance; higher disagreement associated with higher stock returns
Christensen et al. (2022)	Major providers	Greater ESG disclosure associated with greater rating disagreement
Avramov et al. (2022)	Six providers	Rating uncertainty lowers demand for stocks and weakens the relation between ESG ratings and returns
Larcker et al. (2022)	Review of rating practices	Ratings lack a shared objective; users should understand what each rating measures

5.3. Consequences of Rating Divergence

Rating divergence has consequences for several groups. For investors, it means that ESG-labelled portfolios built on different ratings may contain quite different firms, and that research findings on the financial effects of ESG can depend on the provider chosen (Berg et al., 2022). The significance lies in the fact that, according to the theory, if investors desire sustainability, then, it follows that green investments will garner lower returns on average (Pástor et al., 2021). If companies are incorrectly classified, this would lead to misallocation of capital. For businesses, divergence reduces the motivation to enhance their rating. For the regulators, divergence results in problems

with relying on rating for labelling, benchmarking, or developing regulatory developments.

Divergence also exists at the fund level. According to a study by Kim and Yoon (2023), asset managers that adopted the United Nations Principles for Responsible Investment attracted more capital flows; however, their portfolios' sustainability metrics improved little. Similarly, Raghunandan and Rajgopal (2022) showed that US mutual funds labeled as ESG portfolios actually invested in companies with worse compliance performance in labor and environmental regulations than comparable non-ESG mutual funds run by the same families and charged investors higher fees. The insights obtained point out that ESG labels based on different criteria are likely to misinform investors, thereby making the quality of their ratings linked to greenwashing.

5.4. Regulating ESG Rating Providers

The approach to policies has shifted from lenient legislation to firm governing. According to IOSCO (2021), it was urged that companies dealing in ESG information should be regulated and properly informed on their practices. The EU has gone above this, with its Regulation (EU) 2024/3005, which demands that companies providing ESG ratings within the EU operate under the authorization of the European Securities and Markets Authority (ESMA) and that such companies provide proper information about their process of selecting ESG factors when issuing a single rating (European Union, 2024b). It remains unclear whether the new rules will actually in any way affect discrepancies in ESG ratings that exist today or it will just make them visible.

6. Greenwashing

6.1. Defining Greenwashing

Definitions of greenwashing have broadened over time. Delmas and Burbano (2011) define it as the combination of poor environmental performance and positive communication about that performance. Lyon and Maxwell (2011) model it as selective disclosure, in which firms reveal positive information while withholding negative information. Lyon and Montgomery (2015) argue for a broader concept that includes any communication that misleads people into forming overly positive beliefs about an organisation's environmental practices or products, and they catalogue the many forms this can take. Seele and Gatti (2017) propose an accusation-based definition in which greenwashing is a phenomenon that arises when an external party accuses a firm of misleading communication, thereby emphasising its social construction. A systematic review by Yang et al. (2020) synthesises the causes, types and consequences of greenwashing and shows that the concept now extends to social and governance claims, a phenomenon increasingly referred to as ESG washing.

6.2. Forms of Greenwashing

Greenwashing takes many forms, ranging from vague product labels to systematic fraud. Table 7 organises the main types identified in the literature. A useful distinction is between claim-based greenwashing, in which misleading statements are made, and action-based greenwashing, in which firms adopt symbolic policies or practices that are decoupled from their core operations (Walker and Wan, 2012; Siano et al., 2017).

Table 7: A Typology of Greenwashing.

Type	Description	Key sources
Selective disclosure	Positive information is disclosed while negative information is withheld	Lyon and Maxwell (2011); Marquis et al. (2016)
Cheap talk and cherry-picking	Commitments and narratives that are not backed by concrete targets or data; emphasis on non-material topics	Bingler et al. (2022)
Symbolic action (decoupling)	Adoption of visible policies or certifications without substantive changes in practice	Walker and Wan (2012); Testa et al. (2018)
Vague or unsubstantiated claims	Generic terms such as “eco-friendly” or “green” with no evidence	TerraChoice (2010); European Commission (2023b)
Misleading labels	Self-created or unverified sustainability labels implying third-party endorsement	TerraChoice (2010); European Union (2024a)
Deceptive manipulation	Actions designed to deceive regulators or consumers, as in the Volkswagen emissions scandal	Siano et al. (2017)
Carbon washing	Misleading climate claims based on selective emissions scopes, offsets or metrics	In and Schumacher (2021)
ESG fund washing	Funds marketed as sustainable whose holdings or processes do not match their claims	Raghunandan and Rajgopal (2022); Kim and Yoon (2023)
Brownwashing (greenhushing)	Firms under-report genuine environmental achievements to avoid scrutiny	Kim and Lyon (2015)

6.3. Drivers of Greenwashing

Delmas and Burbano (2011) divide the causes of greenwashing into three levels. The first level is related to external causes such as the absence of strict regulations as well as pressure from consumers and investors regarding green products and investments. The second level is characterized by organizational causes including characteristics of firms, incentives, ethics and communication methods with workers. Individual factors that contribute to greenwashing belong to the last level. Some examples of these causes are cognitive illusions and bias like being optimistic, making limited decisions and hyperbolic discounting. Some empirical studies provide new information on this topic. For example, Marquis et al. (2016), using panel data on 4,750 firms headquartered in 45 countries, show that more environmentally damaging firms are less likely to engage in selective disclosure when they are exposed to greater scrutiny and global norms, implying that selective disclosure thrives where scrutiny is weak. Testa et al. (2018) argue that stakeholder pressure might encourage companies to adopt symbolic rather than effective ways of implementing environmental policies in their work.

6.4. Measuring Greenwashing

Because greenwashing involves a gap between communication and reality, measuring it requires observing both. Four approaches dominate. The first compares disclosure with performance. Yu et al. (2020), for example, measure greenwashing as the extent to which a firm’s ESG disclosure score exceeds its ESG performance score. The second uses textual analysis. Bingler et al. (2022) apply a deep-learning language model to corporate climate disclosures and find that support for the TCFD is largely cheap talk, with firms selectively reporting on non-material climate risks. The third relies on external accusations or controversies, in line with Seele and Gatti’s (2017) accusation-based view. The fourth audits product claims directly, as in TerraChoice (2010) and the European Commission’s website screening (European Commission, 2021).

Each approach has weaknesses. Measures based on the gap between disclosure and performance depend on ESG ratings, whose divergence was documented in Section 5;

the measured level of greenwashing may therefore vary with the rating chosen. Textual methods capture the characteristics of language but not always the underlying reality, while accusation-based data reflect the attention of media and non-governmental organisations as much as corporate behaviour. This measurement problem is a key connection between the rating and greenwashing literatures.

6.5. Consequences and Enforcement

Greenwashing can harm firms as well as stakeholders. Walker and Wan (2012) find that symbolic environmental actions are negatively related to financial performance, while the Volkswagen emissions case illustrates how deceptive manipulation can destroy reputation and trigger large legal liabilities (Siano et al., 2017). Regulatory responses have intensified. The EU Directive on empowering consumers for the green transition prohibits generic environmental claims that cannot be substantiated and sustainability labels not based on a certification scheme or established by public authorities, with application from September 2026 (European Union, 2024a). A separate proposal for a Green Claims Directive would require prior substantiation and verification of explicit environmental claims (European Commission, 2023b). For investment funds, ESMA (2024) guidelines require that at least 80% of the investments of funds using ESG or sustainability-related terms in their names meet the characteristics or objectives implied by the name, and the SEC (2023b) expanded its fund names rule for similar purposes. Enforcement has also increased, as illustrated in Table 8.

Table 8: Selected Enforcement Actions Related to ESG Misstatements.

Entity	Year	Nature of the violation	Penalty
BNY Mellon Investment Adviser (SEC, 2022a)	2022	Misstatements and omissions about ESG quality reviews of investments held in certain funds	USD 1.5 million
Goldman Sachs Asset Management (SEC, 2022b)	2022	Failure to follow its own policies and procedures for ESG research in certain ESG funds	USD 4 million
DWS Investment Management Americas (SEC, 2023a)	2023	Misleading statements about its controls for incorporating ESG factors into investments	USD 19 million (of USD 25 million total, including anti-money laundering violations)
Invesco Advisers (SEC, 2024b)	2024	Misleading statements that a large share of assets under management was “ESG integrated”	USD 17.5 million

6.6. Linking Greenwashing to Disclosure and Ratings

The review indicates that greenwashing is not only a matter of individual corporate ethics; it is also a product of the information environment. Where disclosure is voluntary, narrative and unassured, soft claims are cheap and hard to verify (Clarkson et al., 2008). Where ratings diverge, firms and funds can choose the most favourable assessment, and observers cannot easily agree on what constitutes good performance (Berg et al., 2022). Where scrutiny is weak, the expected costs of misleading claims are low (Marquis et al., 2016). At the same time, stronger scrutiny may lead some firms to stop communicating genuine achievements, a response known as brownwashing or greenhushing (Kim and Lyon, 2015). Effective policy therefore needs to discourage misleading claims without discouraging credible disclosure.

7. Discussion: An Integrative Framework

7.1. The Disclosure, Rating and Greenwashing (DRG) Framework

Following the discussions seen in the previous sections, Figure 1 presents a comprehensive framework of Disclosure, Rating, and Greenwashing (DRG). Institutional and social pressures arising from authority and company uncertainty lead to ESG disclosure. Such disclosures serve as inputs to ESG ratings where scope, method of assessment, and weighting of various types of disclosures would be considered. The idea of "greenwashing" arises from the disparity between disclosures and ESG results whereby some firms or funds may engage in misleading practices in terms of their ESG standing. One of the implications of "greenwashing" is the impact on costs of funding, capital flows, public trust, and legitimacy. Finally, governance and deterrent tools play their role in constraining the extent of greenwashing and in contributing to institutional pressures.

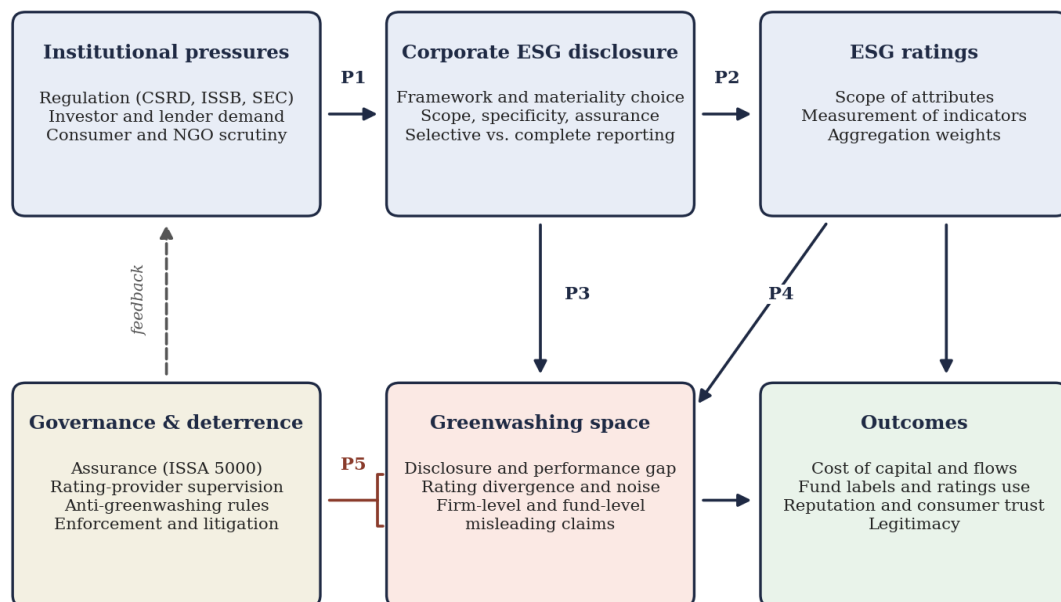


Figure 1: The Disclosure, Rating and Greenwashing (DRG) Framework

Source: Developed by the author based on the reviewed literature. P1 to P5 refer to the propositions below; the bracket at P5 denotes a constraining effect.

The framework yields five propositions for future empirical testing:

P1: Mandatory, standardised and assured ESG disclosure narrows the gap between disclosure and performance and therefore reduces firm-level greenwashing, particularly for hard, quantitative disclosures (Clarkson et al., 2008; Christensen et al., 2021).

P2: Standardised disclosure reduces the measurement component of rating divergence but not necessarily the scope and weight components, and in the short term it may increase disagreement by providing more information to interpret (Berg et al., 2022; Christensen et al., 2022).

P3: The larger the gap between a firm's soft ESG disclosures and its verifiable performance, the greater the likelihood of subsequent greenwashing accusations, controversies or enforcement (Delmas and Burbano, 2011; Seele and Gatti, 2017).

P4: Greater rating divergence enlarges the scope for fund-level ESG washing, unless fund labels are tied to quantified and verifiable thresholds (Raghunandan and Rajgopal, 2022; ESMA, 2024).

P5: Credible scrutiny and enforcement reduce greenwashing, but they may also increase greenhushing among firms with genuine achievements, so the net effect on information quality depends on the design of rules (Lyon and Maxwell, 2011; Kim and Lyon, 2015).

7.2. Theoretical Contributions

This review contributes to theory in three ways. First, it shows that the competing predictions of legitimacy and voluntary disclosure theories can be reconciled by distinguishing between hard and soft disclosure and by considering the verification environment: the same firm may behave in line with voluntary disclosure theory when claims are verifiable and in line with legitimacy theory when they are not. Second, it identifies rating divergence as a mechanism linking disclosure to greenwashing, which has been largely absent from the greenwashing literature. Third, it frames greenwashing as an outcome of the interaction between corporate choices and institutional infrastructure, including standards, raters, assurers and enforcers, rather than as an isolated ethical failure.

7.3. Practical Implications

Implications for Managers

Managers should prioritise hard, quantified and assured disclosures on material topics over broad narrative claims. Aligning claims with verifiable data, explaining methodologies and disclosing negative as well as positive information reduces legal and reputational risk under the new regulatory regimes. Firms should also avoid greenhushing, since withholding credible information can weaken their standing with investors and ratings providers.

Implications for Investors and Asset Managers

Investors should not treat ESG ratings as interchangeable. They should understand what each rating measures, combine ratings with underlying data and their own materiality assessments, and document how ESG information is used in investment processes. The enforcement actions in Table 8 show that inaccurate descriptions of ESG processes, not only of holdings, can create liability.

Implications for Rating Providers

Rating providers can reduce harmful divergence by clearly stating the objective of each rating, publishing methodologies and data sources, separating E, S and G assessments, and limiting the use of imputed data. Such transparency is now required in the EU and would improve the usefulness of ratings for users elsewhere.

Implications for Policymakers and Regulators

Policymakers should seek interoperability between ISSB, ESRS and national standards to limit fragmentation, strengthen assurance and enforcement capacity, and design anti-greenwashing rules that penalise misleading claims without discouraging honest disclosure. For emerging markets, including those in the Middle East and North Africa, gradual adoption of internationally recognised standards, supported by capacity building for preparers and assurers, can improve credibility and access to international capital.

8. Limitations and Future Research

8.1. Limitations of the Review

This review has some limitations. It does not utilize a systematic methodology in its collection of data as the investigation process employs subjective principles for the selection of the sources. It accounts only for studies published in English, which may lead to the omission of findings from less developed countries. Furthermore, the regulatory environment is constantly changing. Many of the regulations that have been mentioned in the analysis have been adopted, changed, or postponed after 2023. Last but not least, the majority of studies cited in this review are from North America or Europe and pertain to the environmental component of sustainability, which limits the applicability of results to other areas of application.

8.2. Future Research Agenda

Table 9 sets out an agenda for future research based on the gaps identified in this review.

Table 9: Future Research Agenda.

Theme	Gap identified	Illustrative research questions	Suggested methods
Emerging markets and MENA	Limited evidence outside the US and Europe	How do new ESG disclosure guidelines affect disclosure quality and greenwashing in MENA markets?	Content analysis; panel regressions; case studies
The regulatory wave of 2023 to 2026	Effects of CSRD, ISSB, ESG rating and green claims rules are largely untested	Did these rules reduce rating divergence, fund washing or misleading claims?	Difference-in-differences; event studies
Social and governance pillars	Research focuses mainly on climate	How prevalent is social washing, and how is it detected?	Text analysis; controversy data
AI-based detection	Measurement of greenwashing depends on divergent ratings	Can large language models reliably detect vague or inconsistent ESG claims?	Natural language processing; validation against enforcement cases
Assurance quality	Little evidence on sustainability assurance under ISSA 5000	Does assurance narrow the gap between disclosure and performance?	Archival studies; surveys of assurers
Greenhushing	Trade-off between deterrence and disclosure is poorly understood	Do stricter rules lead firms with genuine achievements to disclose less?	Natural experiments; interviews
Consumer and investor perception	Limited evidence on how users interpret ratings and labels	How do retail investors and consumers respond to regulated labels?	Experiments; surveys

9. Conclusion

In the present review, three processes influencing the quality of sustainability information are analyzed, namely: corporate ESG disclosure, ESG ratings, and the concept of greenwashing. The data indicate that sustainability reporting is being performed almost in all companies; however, it is still complicated to make comparisons based on this information. ESG ratings that summarize this information significantly differ from one another since they reflect different criteria at the same time. The combination of such differences and inaccurate reporting creates opportunities for greenwashing in companies and finance products, which can be evidenced by the audits and enforcement actions.

This paper introduces a comprehensive DRG model that argues that the only way to stop greenwashing is through coordinated improvements through the entire information chain — starting from standardized disclosures and assurances, ending with clear ratings and credible enforcement. The wave of regulations that commenced in 2023 will allow us to test if implementing such reforms will make such information more trustworthy. Researchers in this field need to meet various challenges, including extending the collected evidence to the developing world, investigating the nature of the social and governance pillars, and creating tools for the measurement of greenwashing that would not rely on any specific rating. Practitioners must understand that it is not the amount of disclosure that provides EGS information with its value, but its credibility.

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