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GREEN, SAFE, AND MISLEADING? ESG INVESTMENT PRODUCTS, GREENWASHING, AND THE PROTECTION OF VULNERABLE RETAIL INVESTORS IN THE EUROPEAN UNION

AFRI, OBBIE[1]

ABSTRACT

The rapid expansion of ESG-labelled investment products in the European Union has transformed sustainable finance into a mainstream retail market offering. Through digital platforms such as banking applications and robo-advisors, "green" investments are increasingly presented as both ethically desirable and financially responsible. While EU regulation has significantly strengthened sustainability-related disclosure through instruments such as MiFID II, the Sustainable Finance Disclosure Regulation (SFDR), the EU Taxonomy Regulation, and the Unfair Commercial Practices Directive (UCPD), sustainability classification does not imply reduced financial risk. Nevertheless, simplified ESG labels, fund names, and digital interface design may influence investor perception, particularly among vulnerable retail investors with limited financial literacy.

This paper examines whether the current EU legal framework adequately protects retail investors from misleading sustainability framing in digital environments. It argues that EU sustainable finance law remains predominantly disclosure-based and insufficiently attentive to behavioural and perceptual effects. The paper proposes a more integrated interpretation of financial and consumer protection rules, emphasising vulnerability and the need to distinguish clearly between environmental alignment and financial safety.

KEYWORDS Consumer protection; ESG labelling; greenwashing; retail investor vulnerability; sustainable finance regulation

[1] PhD Student at Károli Gáspár University of the Reformed Church in Hungary, Doctoral School of Law and Political Sciences, Budapest, Hungary.

1. Introduction

The rapid expansion of ESG/sustainability-labelled financial products in the European Union is often presented as a regulatory success. Sustainable finance is framed as a solution to climate change and as an ethical investment opportunity. However, this narrative raises a fundamental concern: does the "green" label unintentionally create a perception of safety that EU law does not actually guarantee?

Retail investors frequently associate sustainability with responsibility and lower risk. In digital investment platforms, ESG labels are displayed in simplified formats, often more visible than risk disclosures. Yet EU sustainable finance regulation does not equate sustainability with capital protection. The legal framework focuses primarily on transparency, not on correcting behavioural bias.

Historical financial scandals demonstrate how symbolic legitimacy can mask underlying risk. Before its collapse in 2020, Wirecard was celebrated as a European fintech champion and an innovative success story (Economic Governance Support Unit, 2020). Its technological reputation contributed to investor confidence, despite internal governance failures and accounting manipulation. Reputation functioned as a substitute for scrutiny. In the ESG context, sustainability framing may perform a similar function: instead of "innovation," the moral language of "green" and "sustainable" can create an aura of good judgement.

The OneCoin scandal provides a more extreme illustration of misleading digital investment. Marketed as a revolutionary cryptocurrency, OneCoin attracted over 3.5 million investors and caused losses exceeding USD 4 billion (U.S. Attorney's Office, Southern District of New York, 2023). The project lacked a genuine blockchain and was designed as a fraudulent scheme. What made the fraud effective was not only false statements, but also the persuasive narrative of technological transformation. Investors relied on branding and social proof rather than verifiable safeguards. The lesson is not that ESG products are fraudulent, but that narrative legitimacy can significantly distort investor risk perception.

Empirical evidence suggests that retail investors expect stronger safeguards in the sustainable finance market. A 2025 consumer survey published by BEUC (The European Consumer Organisation), based on more than 11,000 respondents across 11 European countries, found that 34% of consumers cite misleading or unreliable green claims as a reason not to invest in sustainable finance products. Moreover, 52% of respondents wrongly believe that sustainable products comply with strict legal standards, and 49% assume that

such products are verified by a market supervisor, which is not necessarily the case (BEUC, 2025).

These findings indicate that while consumers show interest in sustainable investments, significant confusion and misplaced trust persist. Awareness of greenwashing risks does not eliminate vulnerability, particularly in digitalised markets where simplified ESG labels and visual indicators may function as heuristic shortcuts rather than as informed assessments of financial risk.

This paper therefore challenges the assumption that disclosure-based regulation is sufficient. It argues that the EU sustainable finance framework, while ambitious in terms of transparency, may inadequately address the perceptual and behavioural dimensions of investor protection. The central question is not whether ESG products are environmentally beneficial, but whether EU law sufficiently protects vulnerable retail investors from the misleading implication that "green" may signal "safe."

2. Methodology

This paper adopts a qualitative doctrinal legal research approach combined with analytical policy evaluation. The primary objective is to examine how European Union financial and consumer protection law regulates ESG-labelled investment products and whether the existing framework adequately protects vulnerable retail investors from misleading sustainability framing.

The analysis focuses on the interpretation of key legal instruments, including Directive 2014/65/EU (MiFID II), Regulation (EU) 2019/2088 (SFDR), Regulation (EU) 2020/852 (Taxonomy Regulation), and Directive 2005/29/EC (Unfair Commercial Practices Directive). Through systematic doctrinal interpretation, the study examines the structure, objectives, and internal logic of these instruments, particularly regarding suitability requirements, sustainability disclosures, classification mechanisms, and misleading commercial practices. Special attention is given to the relationship between sustainability alignment and financial risk neutrality within the regulatory framework.

In addition to doctrinal analysis, the paper integrates selected empirical and behavioural insights to contextualise legal interpretation. Studies on sustainability assurance (Simnett et al., 2009), greenwashing and market reactions (Xu et al., 2025), and behavioural decision-making under risk (Kahneman & Tversky, 1979) are used illustratively to explain how disclosure-based regulation may interact with investor perception in practice. These empirical references do not constitute independent quantitative research but serve to support the analytical evaluation of regulatory effectiveness.

By combining doctrinal interpretation with behavioural and market-context analysis, the methodology aims to assess whether the EU framework meaningfully addresses the perceptual and vulnerability dimensions of ESG-labelled financial products, or whether a structural gap persists between formal compliance and investor understanding (Hutchinson & Duncan, 2012).

3. Why Greenwashing Happens

Greenwashing does not happen randomly. It is often driven by strong financial incentives. Empirical research shows that firms engaging in symbolic sustainability communication may enjoy short-term improvements in reputation and market value, even when their actual environmental practices do not change (Xu et al., 2025). In this context, sustainability disclosure can function as a strategic signal rather than as a reflection of real reform.

Using signalling theory, Xu et al. (2025) argue that companies send positive ESG signals to reduce investor uncertainty and attract capital. However, these signals do not always correspond to substantive environmental improvements. By selectively presenting ESG information or overstating commitments, firms can reduce perceived information asymmetry and increase investor confidence. This may create short-term reputational capital and improve access to responsible investment portfolios (Xu et al., 2025). When verification mechanisms are weak, greenwashing may become an economically rational strategy.

The cost–benefit structure reinforces this behaviour. Substantive environmental reforms often require high operational costs and long-term investment. In contrast, polished sustainability reporting is relatively inexpensive. As a result, managers may choose symbolic compliance over real transformation (Naseer et al., 2025). This phenomenon reflects what organisational scholars describe as "decoupling", where corporate communication diverges from actual operational practice. What is reported in ESG disclosures does not necessarily match what is implemented internally.

Investor pressure also plays a significant role. Firms with higher ESG scores often enjoy easier access to capital and potentially lower financing costs (Xu et al., 2025). Earlier studies show that voluntary non-financial disclosure can reduce the cost of equity by lowering information asymmetry between managers and investors (Dhaliwal et al., 2011). Other research suggests that strong ESG performance may contribute to financial value and long-term competitiveness (Wang & Sarkis, 2017; Zhou et al., 2022). These findings create incentives for firms to communicate positively about sustainability in order to attract institutional investors and benefit from sustainable finance flows.

However, signalling theory reminds us that not all signals are credible. As Connelly et al. (2011) explain, disclosure can function as a reputational signal even when it does not reflect underlying quality. Media amplification may further shape investor reactions to ESG information (Wong & Zhang, 2022). In the short term, high ESG ratings and positive sustainability narratives may generate reputational benefits, including stronger valuations and improved financing conditions.

Therefore, regulation alone does not automatically eliminate greenwashing. While EU rules reduce the space for explicit false statements, they also create a technical framework that may be strategically navigated. Firms can comply formally through selective classification, boundary setting, and estimation techniques, while maintaining a "green" image without substantive change. Greenwashing, in this sense, emerges not only from dishonesty, but from structural incentives embedded within capital markets.

Xu et al.'s event study of 121 global greenwashing cases shows that the reputational premium associated with ESG claims is fragile. When regulators or the media expose inconsistencies between sustainability claims and actual corporate practices, stock markets react negatively, producing significant abnormal returns. Interestingly, companies with stronger ESG reputations often suffer greater losses. Investors expect higher standards from these firms, so the gap between narrative and reality creates greater disappointment and a deeper loss of credibility (Xu et al., 2025). In this sense, the same investor pressure that initially motivates companies to enhance ESG communication may later result in valuation penalties when greenwashing is revealed.

The multidimensional nature of greenwashing has also been highlighted in prior bibliometric research. Based on a keyword co-occurrence analysis using VOSviewer, Forliano et al. (2023) identified four thematic clusters in greenwashing research. The first cluster focuses on symbolic management and CSR communication, showing how companies use narratives and transparency claims to build legitimacy without substantial environmental change. The second cluster examines environmental regulation and institutional complexity, highlighting how fragmented regulatory frameworks may allow selective disclosure. The third cluster relates to operational performance and sustainable business strategies, while the fourth addresses marketing, perception, and trust, emphasising how green branding influences stakeholder attitudes. Taken together, these findings suggest that greenwashing is not a marginal issue, but a structural phenomenon linked to organisational strategy, stakeholder perception, and regulatory gaps.

Another important driver of greenwashing is information asymmetry. Investors, consumers, and regulators often lack the technical capacity to verify complex ESG disclosures, especially Scope 3 emissions. Scope 3 emissions include indirect emissions across the supply chain, product use, and end-of-life processes. These emissions are difficult to measure because they depend on data from external actors. As a result, many companies rely on estimates, modelling techniques, or assumptions rather than direct measurement (Oliveira et al., 2025). This creates room for discretion and selective reporting.

The opacity of Scope 3 reporting places stakeholders at a structural disadvantage. They must rely on corporate self-reporting without independent verification mechanisms. Companies may strategically emphasise lower-emission segments while downplaying carbon-intensive activities, thereby creating a positive signal without meaningful emission reductions. According to Oliveira et al. (2025), vague carbon disclosure weakens accountability and reduces comparability across firms and sectors. Scope 3 reporting, although essential for understanding climate responsibility, may therefore function as a reputational tool rather than as a reliable accountability mechanism.

This problem reflects a broader governance gap. Current ESG frameworks, including the CSRD and voluntary standards such as the GHG Protocol, require Scope 3 disclosure but do not always ensure strict verification. Without independent audits or harmonised methodologies, information asymmetry persists. Greenwashing in this context is not merely a matter of dishonest communication; it is structurally enabled by weak verification and complex reporting requirements. As long as disclosure remains difficult to verify, firms may capture reputational benefits while externalising the costs of unverifiable claims onto investors, society, and the environment (Oliveira et al., 2025).

4. Major European Financial Scandals and Their Advertising and Framing

Several major European financial scandals show a similar pattern in which misleading framing played an important role in shaping public perception and investor confidence.

The Wirecard collapse in 2020 is one of the largest financial scandals in modern German history. Before its insolvency, Wirecard was promoted as a successful and innovative fintech company, symbolising the digital transformation of Germany's financial sector. Its market value once exceeded that of Deutsche Bank. However, investigations later revealed accounting manipulation and approximately €1.9 billion in missing funds. The strong innovation narrative created an aura of credibility that overshadowed underlying risks and weaknesses in financial supervision (Comfort & Jennen, 2020).

Furthermore, the OneCoin case represents a global cryptocurrency fraud with strong links to Europe. Marketed as a revolutionary cryptocurrency and a "Bitcoin killer," OneCoin attracted millions of investors and generated more than USD 4 billion in losses. In reality, it had no genuine blockchain and no real mining operations. The founders deliberately used technological language and branding to create legitimacy and trust, while the underlying product had no real value (U.S. Attorney's Office, Southern District of New York, 2023). This case illustrates how innovation narratives can replace factual transparency.

Moreover, the collapse of Greensill Capital in 2021 also demonstrates the power of framing. Greensill presented its business as secure supply chain finance backed by real invoices. However, later analysis showed that risk exposures were far more complex and fragile than had been presented. The technical and structured nature of the product created a perception of safety, even though significant governance weaknesses existed (Huang & Xu, 2025). Complexity itself functioned as a legitimacy tool.

In the Volkswagen Dieselgate scandal, the company promoted its vehicles as "clean diesel," emphasising environmental performance in its marketing. Subsequent investigations revealed that emission tests had been manipulated, leading to more than €30 billion in fines and settlements. This case is often cited as a classic example of greenwashing, where environmental claims were inconsistent with actual performance (Ewing, 2015).

Finally, the Cum-Ex tax trading scheme involved complex dividend arbitrage transactions that led to estimated fiscal losses of around €55 billion across Europe. Although structured as legal financial engineering, the scheme exploited regulatory loopholes and weaknesses in oversight. The European Banking Authority (2020) later highlighted governance and supervisory failures in addressing these practices. The technical and legal complexity of the transactions contributed to their perceived legitimacy. The Cum-Ex case illustrates how financial complexity itself can generate an appearance of legitimacy. As Huang and Xu (2025) demonstrate in their analysis of the Greensill collapse, interconnected financial actors, securitisation techniques, and fragmented oversight structures can create systemic vulnerabilities that remain undetected until a crisis occurs. Similar dynamics were present in Cum-Ex: intricate legal structures and technical financial engineering masked underlying risks and accountability gaps. In this sense, complexity did not merely describe the transactions; it functioned as a shield against effective scrutiny.

Table 1: Major European Financial Scandals and Their Advertising or Framing Dynamics[2]

No.	Case	Jurisdiction	Estimated Financial Damage	Advertising / Framing Strategy	Regulatory and Investor Protection Relevance
1	Wirecard (2020)	Germany / EU	~€1.9 billion in missing funds; >€20 billion market capitalisation loss	Promoted as an innovative fintech company with a strong growth narrative	Reputation creation overshadowed substantive risk; oversight failures despite disclosure duties; relevant to ESG label perceptions
2	OneCoin (2014–2017)	Bulgaria (global impact)	billion in investor losses	Marketed as the "next Bitcoin" and a revolutionary blockchain	Technological legitimacy replaced factual transparency; parallels ESG sustainability narrative effects
3	Greensill Capital (2021)	UK / Germany	~USD 10 billion in exposures	Framed as secure supply chain finance backed by invoices	Technical framing created a perception of safety despite risk; similar to complexity-based trustworthy ESG cues
4	Volkswagen Dieselgate (2015)	Germany / EU	>€30 billion in fines and settlements	"Clean diesel" and environmental performance advertising	Classic greenwashing; sustainability claims contradicted actual emissions performance
5	Cum-Ex Tax Trading Scheme	Germany and the EU	~€55 billion in fiscal losses	Structured as complex arbitrage but presented as a legitimate tax strategy	Legal and financial complexity created an illusion of legitimacy; highlights the risk of perceived safety through complexity

This pattern is highly relevant for ESG-related financial products, where sophisticated structuring and technical classification may similarly create an impression of compliance while concealing substantive risks.

5. Regulatory Framework Within the EU

There are several regulatory frameworks within the European Union that restrict companies from advertising their products as "sustainable," "green," "low-risk," or "safe" without proper justification. EU law requires that marketing claims, especially in financial services, must be clear, accurate, and not misleading.

[2] The cases are selected to illustrate how symbolic narratives can overshadow actual risk, a dynamic comparable to concerns about how ESG labels may be interpreted by vulnerable retail investors. „Estimated Financial Damages" are drawn from investigative journalism, official reports, and academic estimates. These figures can vary slightly depending on the source; the table uses widely cited mid-range estimates. "Framing Strategy" describes how each scandal was marketed to the public or investors, focusing on reputation cues that generated a perception of innovation, safety, or sustainability.

Companies cannot simply use attractive sustainability language to attract investors without supporting evidence.

5.1. Markets in Financial Instruments Directive (MiFID II)

The investor suitability regime under MiFID II constitutes the cornerstone of retail investor protection within EU financial markets law. Article 25(2) MiFID II provides that:

> *"When providing investment advice or portfolio management, the investment firm shall obtain the necessary information regarding the client's knowledge and experience in the investment field relevant to the specific type of product or service, that person's financial situation including his or her ability to bear losses, and his or her investment objectives including his or her risk tolerance so as to enable the firm to recommend to the client the investment services and financial instruments that are suitable for him or her."* (MiFID II, art. 25(2))

This wording makes clear that suitability is structurally anchored in financial risk. The legal emphasis lies on "ability to bear losses" and "risk tolerance." Sustainability, at least in the original architecture of MiFID II, was absent from this triad.

The integration of sustainability preferences was introduced through Commission Delegated Regulation (EU) 2021/1253. The amendment requires that firms ask clients about sustainability preferences and incorporate them into suitability assessments. Article 1(7) of the Delegated Regulation modifies Article 54 of Delegated Regulation 2017/565 by requiring that:

> *"Investment firms shall include the client's or potential client's sustainability preferences in the suitability assessment."* (MiFID II Delegated Regulation, art. 1(7))

Sustainability preferences are defined by reference to Article 2(17) of the SFDR, which provides that a "sustainable investment" means:

> *"[…] an investment in an economic activity that contributes to an environmental objective […] provided that such investments do not significantly harm any of those objectives and that the investee companies follow good governance practices."* (SFDR, art. 2(17))

While these provisions formally integrate sustainability into advisory processes, they do not alter the primacy of financial risk assessment. ESMA's Guidelines on the MiFID II suitability requirements clarify that sustainability preferences must be considered only after the client's financial suitability has been determined (ESMA, 2022b). In effect, sustainability remains supplementary rather than transformative.

This legal structure creates a crucial limitation. MiFID II does not state anywhere that sustainability implies lower volatility, greater capital protection, or reduced downside exposure. The Directive speaks repeatedly of "risk tolerance" and "ability to bear losses," but never links ESG characteristics to financial stability (MiFID II, art. 25(2)). Legally speaking, "green" is not synonymous with "low risk."

The importance of this distinction becomes evident when viewed in light of financial scandals such as Wirecard. Prior to its collapse, Wirecard was widely perceived as a technologically advanced and reputable fintech company. Yet investigations revealed massive accounting manipulation and fictitious assets (ESMA, 2022c). Investors relied on symbolic legitimacy, innovation, and digital leadership rather than underlying financial fundamentals. Similarly, in the OneCoin case, investors were persuaded by the narrative of a "cryptocurrency revolution," despite the absence of a verifiable blockchain (U.S. Attorney's Office, Southern District of New York, 2023). In both instances, formal disclosure frameworks existed, yet reputational framing distorted risk perception.

The integration of sustainability preferences into MiFID II risks creating a comparable dynamic. ESG labelling may function as a reputational signal. While MiFID II ensures procedural alignment between the product and declared risk tolerance, it does not regulate how sustainability framing may influence the formation of that tolerance. The Directive presumes a rational investor who independently evaluates risk, but behavioural research demonstrates that framing effects can significantly alter decision-making under uncertainty (Kahneman & Tversky, 1979).

Moreover, neither Article 25(2) nor Delegated Regulation 2021/1253 requires firms to warn clients explicitly that sustainability characteristics do not imply reduced financial risk. The obligation is to recommend instruments that are "suitable", not to neutralise possible cognitive biases created by ESG branding. This omission is particularly significant in digital environments where ESG badges, green icons, and simplified classifications are visually prominent, while volatility metrics remain technical and less accessible.

From a doctrinal perspective, MiFID II remains coherent. It preserves a clear hierarchy: financial risk first, sustainability preferences second. However, from a systemic perspective, this architecture may be insufficient to address what can be described as perceptual greenwashing, namely situations in which sustainability characteristics influence investor behaviour not through false statements, but through implicit associations between "green" and "safe."

The lessons of Wirecard and OneCoin demonstrate that investor harm often arises from misplaced trust in symbolic signals. If ESG labels acquire similar symbolic authority, MiFID II's suitability regime may be formally compliant, yet

behaviourally incomplete. The law ensures procedural matching; it does not guarantee perceptual neutrality. Without explicit clarification that sustainability does not equal financial safety, the integration of ESG into MiFID II may unintentionally reinforce the moral aura of green investments without adequately safeguarding vulnerable retail investors. The EU framework thus structurally separates sustainability alignment from financial risk assessment. ESG classification does not alter the financial risk profile of the product under MiFID II suitability rules.

5.2. SFDR (Sustainable Finance Disclosure Regulation)

The SFDR constitutes a central pillar of the EU sustainable finance framework. Its core objective is transparency. Article 1 provides that the Regulation lays down *"harmonised rules for financial market participants and financial advisers on transparency with regard to the integration of sustainability risks and the consideration of adverse sustainability impacts"* (SFDR, art. 1). The emphasis is explicit: the SFDR regulates transparency, not financial risk.

At the product level, the SFDR establishes a three-tier categorisation under Articles 6, 8, and 9. Article 6 requires financial market participants to disclose "the manner in which sustainability risks are integrated into their investment decisions" or explain why such risks are not relevant. Article 8 applies where a product "promotes, among other characteristics, environmental or social characteristics" if investee companies follow good governance practices. Article 9 applies where a product "has sustainable investment as its objective". The definition of "sustainable investment" in Article 2(17) requires that the investment contributes to an environmental or social objective and "does not significantly harm" other objectives.

From a formal legal standpoint, this classification is descriptive rather than prudential. Nowhere does the SFDR state that Article 8 or Article 9 products are less volatile, less exposed to market risk, or safer than Article 6 products. The Regulation speaks of sustainability characteristics and transparency obligations, not of capital protection or financial stability. In fact, Recital 12 clarifies that the aim is to ensure "transparency on sustainability risks and impacts", not to guarantee financial outcomes.

Yet market practice has transformed Articles 6, 8, and 9 into informal quality labels: Article 6 as "non-ESG", Article 8 as "light green", and Article 9 as "dark green". This semantic hierarchy risks producing what may be termed a regulatory semiotics problem. Although legally neutral, the classification system may function symbolically. The higher the "green category", the stronger the implied moral authority.

This dynamic becomes particularly problematic when considered alongside historical cases such as Wirecard and OneCoin. In the Wirecard scandal, investors relied heavily on reputational signals associated with technological innovation and digital leadership. These signals created a perception of legitimacy and modernity, even as financial irregularities accumulated (ESMA, 2022c). Similarly, in the OneCoin fraud, the narrative of a revolutionary cryptocurrency masked the absence of substantive technological infrastructure (U.S. Attorney's Office, Southern District of New York, 2023). In both cases, the issue was not the absence of information per se, but the dominance of symbolic framing over substantive evaluation.

The SFDR, by design, assumes that enhanced disclosure enables rational investor choice. Articles 3 to 5 impose entity-level transparency obligations, while Articles 6 to 11 require detailed pre-contractual and periodic product disclosures. Article 4 further obliges large financial market participants to disclose principal adverse impacts (PAIs) on sustainability factors. The underlying regulatory philosophy is informational: more data produces better decisions.

However, this model presupposes that retail investors read and understand lengthy prospectuses and sustainability annexes. Empirical behavioural research suggests otherwise. Retail investors frequently rely on heuristics and simplified signals when making complex financial decisions (Kahneman & Tversky, 1979). In digital investment platforms, ESG labels are often visually prominent, while risk disclosures appear in technical documentation. In such contexts, the Article 8 or Article 9 designation may operate as a cognitive shortcut, implicitly associated with responsibility, prudence, or long-term resilience.

Crucially, the SFDR does not require financial market participants to clarify that sustainability classification does not imply reduced financial risk. There is no provision stating that Article 9 products may be as volatile as non-ESG products. The Regulation combats technical greenwashing, namely false or unsubstantiated sustainability claims, but does not address perceptual greenwashing, where sustainability framing influences risk perception without containing false information.

The structural limitation of the SFDR thus mirrors the perceptual dynamics observed in Wirecard and OneCoin. In those cases, the regulatory system focused on formal compliance and disclosure, yet failed to counteract the persuasive power of narrative framing. Likewise, the SFDR enhances transparency but does not regulate the semiotic impact of ESG categorisation in retail markets.

For vulnerable retail investors, particularly those with limited financial literacy or those strongly motivated by moral considerations, the distinction between sustainability quality and financial safety may not be self-evident. The law treats these dimensions as separate. Investor perception may not.

From a doctrinal perspective, the SFDR achieves coherence within its mandate: it standardises sustainability disclosures. From a systemic perspective, however, it leaves a regulatory gap. Transparency is necessary, but not sufficient. If ESG labels are perceived as implicit risk indicators, the classification system may inadvertently replicate the very reputational dynamics that contributed to past investor harm in non-ESG contexts.

In this sense, the SFDR illustrates the central tension of this paper. ESG investment products may be "green" in classification, yet the regulatory framework does not guarantee that they are understood in financially neutral terms. The challenge for EU law is therefore not only to prevent false sustainability claims, but also to ensure that ESG labelling does not become misleading through omission, framing, or behavioural effect.

5.3. European Union (EU) Taxonomy

Regulation (EU) 2020/852 (Taxonomy Regulation) represents the most ambitious attempt by the European Union to define what is environmentally sustainable in legally binding terms. Unlike SFDR, which focuses on disclosure categories, the Taxonomy aims to establish substantive criteria for sustainability classification. Article 1 states that the Regulation establishes "*the criteria for determining whether an economic activity qualifies as environmentally sustainable*" (Taxonomy Regulation, art. 1). The ambition is as much epistemic as regulatory: to create a common language of sustainability across EU financial markets.

Article 3 sets out the cumulative conditions under which an economic activity shall qualify as environmentally sustainable. It must:

a. contribute substantially to one or more of the environmental objectives;
b. not significantly harm any of the environmental objectives;
c. be carried out in compliance with minimum safeguards; and
d. comply with technical screening criteria.

The Regulation thereby embeds the "Do No Significant Harm" (DNSH) principle into EU financial law. Article 9 further enumerates six environmental objectives, including climate change mitigation and climate change adaptation (Taxonomy Regulation, art. 9). From a doctrinal perspective, the Taxonomy is more normatively structured than SFDR. It does not merely require transparency; it defines sustainability thresholds. However, crucially, the Regulation does not

attach any financial risk presumption to Taxonomy alignment. An activity that "contributes substantially" to climate mitigation may still be capital-intensive, volatile, or exposed to market fluctuation. Sustainability qualification under the Taxonomy is environmental in nature, not prudential.

Yet in market practice, Taxonomy alignment has become a strong signalling device. Under SFDR, financial products must disclose the extent of their Taxonomy alignment (SFDR, art. 5; Taxonomy Regulation, arts. 5–6). This creates a measurable sustainability percentage, often communicated in simplified marketing language: "X% Taxonomy-aligned." The numerical precision may enhance credibility, but it also risks generating an implicit association between environmental compliance and financial soundness.

This semiotic dynamic is structurally comparable to the reputational effects observed in the Wirecard and OneCoin scandals. In Wirecard, technological modernity functioned as a reputational shield that masked underlying risk (ESMA, 2022c). In OneCoin, the symbolic invocation of blockchain innovation substituted for genuine economic substance (U.S. Attorney's Office, Southern District of New York, 2023). In both cases, investors were influenced not only by false statements but by narrative legitimacy.

The Taxonomy Regulation, although technically rigorous, may inadvertently produce a similar legitimacy effect in a different register. Taxonomy alignment is a scientific and regulatory designation. However, retail investors may interpret it as a proxy for resilience, future-proofing, or structural stability. The Regulation itself does not support this inference. Indeed, Recital 19 clarifies that the Taxonomy *"should not require Member States or the Union to invest public money only in environmentally sustainable economic activities."* The Regulation does not declare Taxonomy-aligned activities economically superior or less risky. It provides classification criteria, not performance guarantees.

From a behavioural perspective, this distinction is critical. Research in behavioural finance demonstrates that framing and moral cues influence investor judgment under uncertainty (Kahneman & Tversky, 1979). In digital advisory platforms, a product described as "100% Taxonomy-aligned" may be perceived as future-oriented and transition-resilient. Yet the Taxonomy does not assess revenue stability, liquidity exposure, or downside volatility.

The regulatory architecture therefore creates a layered interaction: the Taxonomy defines environmental sustainability criteria, SFDR requires disclosure of Taxonomy alignment, and MiFID II requires the integration of sustainability preferences into suitability assessments. However, none of these instruments establish a legal link between environmental alignment and reduced financial risk.

This creates what may be termed a structural neutrality gap. Legally, sustainability and risk remain distinct categories. Behaviourally, they may converge in investor perception. If retail investors implicitly equate Taxonomy alignment with prudence or safety, the classification system may contribute to what this paper conceptualises as perceptual greenwashing – not through false statements, but through the unregulated semiotic power of sustainability labels.

The Taxonomy is scientifically technical. Its application depends on delegated acts and complex screening criteria. Retail investors are unlikely to examine these criteria in detail. Instead, they encounter simplified percentages and ESG summaries. In this context, the mere existence of a harmonised EU sustainability framework may produce a halo effect: if it is EU-certified, it must be safe. Yet EU certification of environmental sustainability does not equate to certification of financial stability. The Regulation does not amend capital requirements, volatility thresholds, or loss-bearing capacity assessments under MiFID II. It operates in a parallel normative domain.

Within the broader objective of protecting vulnerable retail investors, this distinction is decisive. The EU Taxonomy enhances definitional clarity and combats arbitrary sustainability claims. However, it does not address the cognitive interpretation of Taxonomy alignment in retail markets. As with SFDR, transparency and classification are necessary conditions for reducing greenwashing. They are not sufficient conditions for preventing misleading perceptions regarding financial safety.

Thus, while the Taxonomy Regulation represents a milestone in sustainable finance law, it also illustrates the core tension underlying this paper: ESG frameworks may be scientifically robust and environmentally meaningful, yet they remain financially neutral. When neutrality is not clearly communicated, sustainability alignment risks being interpreted as an implicit risk signal. The challenge for EU law is therefore not only to define what is green, but to ensure that green is not misunderstood as safe.

5.4. Unfair Commercial Practices Directive (UCPD)

While MiFID II governs suitability and SFDR and the Taxonomy regulate sustainability disclosure, the Directive 2005/29/EC (Unfair Commercial Practices Directive, UCPD) provides the horizontal consumer protection framework applicable to misleading ESG marketing. Unlike these sector-specific financial instruments, the UCPD addresses commercial conduct more broadly. Its relevance lies in its potential to regulate greenwashing where sustainability claims distort consumer decision-making.

Article 5(2) of the UCPD establishes the general prohibition of unfair commercial practices. A practice is unfair if it is *"contrary to the requirements of professional diligence" and "materially distorts or is likely to materially distort the economic behaviour of the average consumer"* (UCPD, art. 5(2)). The Directive thus introduces a behavioural standard: distortion of economic behaviour.

More specifically, Article 6(1) provides that a commercial practice shall be regarded as misleading if it contains false information or *"in any way, including in its overall presentation, deceives or is likely to deceive the average consumer"* even if the information is factually correct, where it causes or is likely to cause the consumer to take a transactional decision that he would not otherwise have taken (UCPD, art. 6(1)). This formulation is particularly significant for ESG contexts. The provision explicitly recognises that deception may arise through "overall presentation", not merely through explicit falsehoods.

In addition, Article 7 addresses misleading omissions. A commercial practice is misleading if it omits *"material information that the average consumer needs, according to the context, to take an informed transactional decision"* (UCPD, art. 7(1)). In the ESG investment context, the omission of a clarification that sustainability characteristics do not imply reduced financial risk may fall within this logic if such an omission materially affects investor behaviour.

The UCPD therefore differs structurally from SFDR. SFDR focuses on sustainability disclosure obligations for financial market participants. The UCPD focuses on the impact of marketing practices on consumer decision-making. The test is not whether sustainability information is disclosed, but whether the overall presentation is misleading.

This distinction becomes crucial in the context of ESG-labelled financial products. As discussed in earlier sections, SFDR and the Taxonomy create legally neutral sustainability classifications. However, if ESG labelling is presented in a manner that implicitly associates "green" with "safe", the question arises whether such framing may constitute a misleading commercial practice under Article 6 of the UCPD.

The relevance of "overall presentation" echoes the dynamics observed in the Wirecard and OneCoin scandals. In the Wirecard case, the company's reputation as a fintech innovator created a halo effect that overshadowed financial irregularities (ESMA, 2022c). In OneCoin, the narrative of blockchain innovation misled investors even where explicit claims were difficult to verify (U.S. Attorney's Office, Southern District of New York, 2023). In both cases, distortion arose not only from false statements but from persuasive framing.

The UCPD's concept of material distortion focuses on the "average consumer". Yet Article 5(3) introduces a heightened standard for vulnerable consumers.

Where a commercial practice is directed to a *"clearly identifiable group of consumers who are particularly vulnerable"* due to mental or physical infirmity, age, or credulity, the assessment must be made from the perspective of the average member of that group (UCPD, art. 5(3)). This provision is especially relevant for vulnerable retail investors with limited financial literacy or strong moral motivation towards sustainability.

In the ESG context, vulnerability may not arise from physical infirmity, but from informational asymmetry and behavioural bias. Retail investors motivated by climate concerns may be particularly receptive to sustainability framing. If ESG labels function as moral cues that influence perceived risk, the interaction between the UCPD and sustainable finance law becomes critical.

Importantly, the UCPD does not require proof that a statement is objectively false. Article 6 covers practices that "deceive or are likely to deceive", including through presentation. This opens the possibility that ESG marketing which emphasises sustainability credentials while downplaying volatility exposure may be problematic even if it is technically compliant with SFDR disclosure obligations.

However, enforcement challenges remain. The Directive is implemented at Member State level, leading to fragmented application. Moreover, proving that sustainability framing "materially distorted" investor behaviour requires demonstrating a causal influence on transactional decisions, which is a high evidentiary threshold.

From a systemic perspective, the UCPD fills part of the regulatory gap left by SFDR and the Taxonomy. Whereas those instruments regulate what sustainability information must be disclosed, the UCPD regulates how that information is presented and perceived. Yet the Directive was not designed specifically for complex financial instruments. Its consumer-protection logic may be strained when applied to sophisticated investment products marketed through digital platforms.

Within the broader argument of this paper, the UCPD illustrates the final layer of the EU investor protection architecture. MiFID II ensures suitability. SFDR ensures sustainability transparency. The Taxonomy defines environmental criteria. The UCPD addresses misleading marketing. However, none of these instruments explicitly confront the behavioural convergence between "green" and "safe". If ESG labelling influences investor perception of risk without containing false information, the regulatory system may technically comply with all four instruments while still permitting perceptual greenwashing. The law distinguishes sustainability from financial safety. Market perception may not.

Thus, the central tension persists: EU law provides multiple safeguards against explicit deception, but it does not yet fully regulate the semiotic power of ESG branding in retail financial markets. Where "green" becomes a proxy for prudence in the eyes of vulnerable investors, the boundaries between lawful sustainability marketing and misleading commercial practice become increasingly blurred.

6. What Should Be Done?

The analysis above shows that the core regulatory challenge is not the absence of rules, but the structural limits of disclosure-based protection. EU sustainable finance law has significantly improved transparency through the SFDR, the Taxonomy Regulation, and related instruments. However, transparency alone does not eliminate behavioural vulnerability.

If ESG labelling shapes investor perception in a way that suggests prudence, safety, or lower risk, then formal legal compliance may still coexist with substantive misunderstanding. In other words, a product may comply with disclosure requirements, yet still create misleading impressions about its actual risk profile.

Therefore, the real question is not whether regulation exists, but whether current regulation effectively protects investors from future harm. To prevent future losses for investors, especially in cases where investment products present themselves as "sustainable," "green," or implicitly "safe", several reforms should be considered. Based on the research conducted in this study, the following measures are necessary.

6.1. Clarifying the Legal Meaning of ESG Labels

The first step in reducing greenwashing is clarifying the legal meaning of ESG labels. Today, terms such as "sustainable," "green," "impact," or "ESG-compliant" are widely used in fund names, marketing materials, and corporate communication. However, in practice, these terms are often vague, inconsistently applied, or poorly understood by retail investors.

ESMA (2024), in its Final Report on guidelines for funds' names using ESG or sustainability-related terms, recognises that fund names can strongly influence investor decisions. For this reason, ESMA introduced quantitative thresholds and exclusion criteria to ensure that funds using ESG-related terms genuinely reflect sustainability characteristics in their investment strategy. For example, where ESG terms are used, at least 80% of investments must align with the promoted sustainability characteristics. This approach attempts to move ESG terminology from marketing language toward legally measurable standards.

In addition, ESMA's 2025 Thematic Notes on sustainability-related claims emphasise that ESG claims must be "clear, fair and not misleading". According to ESMA, sustainability claims should be accurate, accessible, substantiated, and up to date. This means that ESG labels cannot be used as symbolic branding tools without proper explanation of their methodology, scope, limitations, and verification. Misleading practices may include exaggeration, cherry-picking favourable data, omitting negative aspects, or relying on outdated credentials (ESMA, 2025).

However, clarifying ESG labels in today's complex financial system is not simple. Sustainability reporting frameworks (such as the CSRD and SFDR), voluntary standards, ratings agencies, and industry initiatives operate simultaneously. As highlighted in the regulatory outlook by HSF Kramer (2024), firms face overlapping disclosure regimes and increasing anti-greenwashing scrutiny across jurisdictions. While regulation is expanding, fragmentation remains a challenge.

Therefore, clarifying the legal meaning of ESG labels requires more than adding new disclosure rules. It requires:

- clear definitions linked to measurable criteria (as ESMA (2024) attempts to provide);
- consistent supervisory interpretation across Member States;
- stronger enforcement when misleading labels are used; and
- alignment between marketing language and underlying regulatory classifications.

In a highly complex financial environment, the key is legal precision. ESG labels should not function as reputational shortcuts but as legally defined categories with objective thresholds, transparent methodology, and verifiable substance. Only then can investor trust be protected and greenwashing risks effectively reduced.

6.2. Strengthening Sustainability Assurance Standards

One important way to reduce greenwashing and improve the credibility of ESG disclosures is to strengthen sustainability assurance standards. In 2025, the International Auditing and Assurance Standards Board (IAASB) and the International Ethics Standards Board for Accountants (IESBA) introduced two new global standards: ISSA 5000 and IESSA. These standards aim to enhance transparency, independence, and consistency in sustainability reporting assurance (London Reporting Academy, 2025).

ISSA 5000 establishes a unified global framework for the assurance of sustainability reports. It applies to both limited and reasonable assurance

engagements and is designed to align with international reporting frameworks such as GRI, ESRS, and IFRS sustainability standards (London Reporting Academy, 2025). By embedding sustainability assurance within firms' quality management systems, ISSA 5000 seeks to improve the reliability and comparability of ESG data across jurisdictions. This is particularly important as investors increasingly rely on sustainability disclosures when making financial decisions.

In parallel, IESSA strengthens ethical requirements and independence rules for professionals involved in sustainability assurance. It introduces stricter safeguards against conflicts of interest and expands the application of ethical standards beyond traditional auditors to all professionals involved in sustainability reporting (London Reporting Academy, 2025). The standard also sets requirements regarding the involvement of external experts, ensuring that third-party consultants comply with independence and integrity principles.

These standards are expected to apply to reporting periods beginning on 15 December 2026, with early adoption permitted (London Reporting Academy, 2025). Their implementation represents a significant step towards the global harmonisation of sustainability assurance practices. By increasing audit quality and reinforcing ethical safeguards, ISSA 5000 and IESSA help mitigate greenwashing risks and strengthen investor trust. In the EU context, stronger assurance standards can complement disclosure frameworks such as the CSRD by ensuring that sustainability claims are not only reported, but also independently verified.

6.3. Behaviourally Informed Investor Protection

Behaviourally informed investor protection recognises that retail investors do not always make fully rational decisions. Investment choices are often influenced by complexity, digital design, marketing techniques, and emotional triggers. The ESMA Final Report on Retail Investor Protection highlights that current disclosure rules must better reflect how investors actually process information in practice (ESMA, 2022a).

First, ESMA stresses that information should not only be legally complete, but also easy to understand and easy to navigate. When disclosures are too long, too technical, or presented in large blocks of text, investors may ignore them or misunderstand key risks (ESMA, 2022a). Therefore, firms should present vital information in a clear, structured, and visually accessible way. Important risk elements should be prominent rather than hidden in detailed annexes.

Second, digital environments can influence behaviour. ESMA notes that online interfaces, gamification techniques, social media promotion, and "choice

architecture" can nudge investors towards higher risk-taking (ESMA, 2022a). Gamification that encourages frequent trading or addictive behaviour is considered inconsistent with the investor's best interest. Behaviourally informed protection therefore requires supervision not only of product content, but also of digital design and marketing strategies.

Third, risk warnings must be effective. ESMA recommends that authorities should have the power to require standardised risk warnings for complex or risky products targeted at retail investors (ESMA, 2022a). Risk warnings should be visible, understandable, and proportionate to the level of risk involved.

Finally, ESMA emphasises that investor education and empowerment are important complements to regulation (ESMA, 2022a). However, education alone is not sufficient. Firms remain responsible for ensuring that their communication is fair, clear, and not misleading, regardless of whether it is delivered through paper-based disclosures, websites, apps, or social media channels.

In sum, behaviourally informed investor protection shifts the focus from formal disclosure compliance to practical investor understanding. It requires regulators and firms to consider how information is framed, delivered, and experienced by retail investors in real-world digital environments (ESMA, 2022a).

6.4. Enhancing Verification of ESG-Labelled Products

The rapid expansion of ESG-labelled investment products has exposed a structural weakness in current verification systems. Although sustainability disclosures have become more sophisticated, the credibility of ESG claims still depends heavily on third-party assurance mechanisms that are vulnerable to conflicts of interest and procedural inconsistencies. Strengthening verification is therefore not merely a technical matter, but a structural governance imperative.

A recent model proposed by Liu et al. (2024) introduces a blockchain-based verification architecture called "Veri-Green" that integrates artificial intelligence and incentive-compatible mechanisms to improve the integrity of ESG reporting. While primarily developed from a technological perspective, the framework has clear regulatory implications: verification must be designed to resist manipulation structurally, rather than relying solely on ex post compliance checks.

First, verifier selection should be depersonalised and competence-based. Liu et al. (2024) demonstrate that AI-driven clustering and predictive matching can allocate verification tasks to groups of qualified verifiers based on historical performance data. This reduces the risk of issuer–verifier capture and enhances objectivity in the assurance process. Second, verification systems must incentivise truthfulness. By embedding a Vickrey–Clarke–Groves (VCG) auction

mechanism, the model ensures that verifiers are encouraged to disclose their true costs and capabilities. Such an incentive-compatible structure aligns economic motivation with verification accuracy, thereby reducing the risk of superficial or strategically biased ESG validation. Third, verification outcomes should be tamper-resistant and auditable. Liu et al. (2024) propose storing verified ESG certifications on a blockchain infrastructure, ensuring immutability, traceability, and transparency. From a regulatory standpoint, immutable certification logs strengthen evidentiary reliability and reduce the possibility of post-verification data alteration.

However, Liu et al. (2024) also acknowledge that technological innovation alone cannot resolve all verification challenges. Algorithmic bias, scalability limitations, and governance oversight remain critical considerations. Therefore, enhanced verification of ESG-labelled products requires not only technological reform, but also institutional safeguards to ensure accountability and supervisory coherence. In sum, improving ESG-labelled product verification requires a structural shift from issuer-controlled assurance towards system-governed verification ecosystems. As Liu et al. (2024) suggest, integrating AI-based selection, incentive-compatible mechanisms, and blockchain-based certification may significantly enhance trust in ESG reporting, thereby reducing greenwashing risks and strengthening investor protection.

Finally, preventing future financial scandals does not require overregulation, but regulatory refinement. The lesson from past European financial failures is that reputational framing can substitute for substantive scrutiny. ESG products are not inherently fraudulent, yet the symbolic power of sustainability narratives can distort perception in ways that law must anticipate. EU sustainable finance law has made important progress in transparency. The next step is to ensure that "green" does not implicitly mean "safe," and that vulnerable retail investors are protected not only against false statements, but also against misleading impressions.

7. Conclusion

This paper asked whether ESG and "green" labels in EU financial markets may unintentionally create a perception of safety that the law does not actually guarantee. The analysis shows that the problem is not a lack of regulation. The EU has developed a detailed framework through MiFID II, the SFDR, the EU Taxonomy, and the UCPD. These rules improve transparency, define sustainability criteria, and prohibit misleading practices. However, sustainability and financial risk remain legally separate. None of these instruments state that ESG-aligned products are less volatile or financially safer. The EU framework

focuses on disclosure and environmental classification, not on capital protection.

At the same time, past financial scandals demonstrate how reputation, innovation, or complexity can create misplaced investor trust. In a similar way, ESG labels may function as powerful signals in retail markets. Even without false statements, sustainability branding can influence perception. Investors may associate "green" with prudence or stability, even though the law does not support this assumption. This creates what the paper describes as a perceptual gap: the law treats sustainability and risk separately, but investor perception may combine them. As a result, greenwashing can occur not only through false information, but also through framing and presentation.

The solution is not overregulation, but refinement. ESG labels must be clearly defined and consistently supervised. Sustainability claims should be properly verified. Most importantly, investor protection must consider behavioural realities, especially in digital markets where simplified ESG signals are highly visible. If sustainable finance is to remain credible, "green" must not silently become a synonym for "safe." Protecting retail investors requires not only transparency, but also clarity about what ESG labels do and do not mean.

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