

# **Greenwashing Risk in Green Supply Chain Management: Explaining Greenwashing Through the Discrepancy Between GSCM Practice and Marketing Claims— A Comparative Case Study of H&M and Patagonia**

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## **Abstract**

Growing sustainability expectations have increased concern about greenwashing, yet comparatively little attention has gone to how the mismatch between green supply chain management (GSCM) practice and sustainability communication itself generates that risk. Working from signalling theory and legitimacy theory, this study builds a discrepancy-based framework explaining how misalignment between operational performance and marketing claims shapes greenwashing risk. A comparative case study of H&M and Patagonia examines how different levels of alignment affect claim credibility and stakeholder trust. The findings show that wider discrepancies raise the likelihood of greenwashing accusations, while transparency and independent verification strengthen credibility and trust. The study identifies the supply chain–channel interface as a key source of greenwashing risk and offers a framework for understanding the relationship between discrepancy, greenwashing risk, and stakeholder trust.

## **Keywords**

greenwashing, green supply chain management (GSCM), sustainability communication, signalling theory, stakeholder trust

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## **1. Introduction**

H&M quietly pulled its “Conscious Choice” line in September 2025, twelve years after it launched, following a Dutch regulatory ruling that the sustainability claims attached to the label were vague and under-substantiated. This was not an isolated case — regulators across Europe have brought similar actions against fast-fashion retailers in recent years, and the pattern is consistent: a widening gap between what apparel companies do and what they say has become a growing concern for stakeholders. Investors, regulators, and consumers have all raised their expectations around ESG performance, pushing sustainability-related

marketing to grow accordingly [1, 2]. Apparel is a useful setting for studying this problem because its supply chains are long, global, and outsourced, which makes claims harder to verify and scrutiny sharper.

Recent work on fashion and textiles flags exactly this tension: sustainability marketing is expanding faster than the means to verify it, making the sector a particularly useful setting for greenwashing research [1]. H&M and Patagonia were chosen here because they sit at nearly opposite ends of the transparency spectrum, and the H&M episode above is a fairly concrete illustration of the kind of discrepancy this study examines. Most greenwashing research to date frames the problem as either consumer deception or regulatory non-compliance [3, 4, 5], leaving comparatively little room for the relationship between GSCM practice and sustainability communication itself. This study addresses that gap by examining how discrepancies between GSCM practice and sustainability communication contribute to greenwashing risk, using a comparative analysis of H&M and Patagonia.

## 2. Research Questions and Objectives

Three questions organise this paper. One is largely definitional: what does it mean, in operational terms, for GSCM practice and marketing claims to diverge, and how can that divergence be characterised? A second asks why the divergence happens at all — what structural factors push supply chain progress and external communication out of sync? The third is comparative: given different levels of discrepancy, what happens to greenwashing risk and stakeholder trust, tested here against H&M and Patagonia.

These translate into three working objectives:

**Research Objective 1:** to build a discrepancy-based framework for analysing greenwashing in the GSCM context.

**Research Objective 2:** to identify what drives supply chain–channel misalignment.

**Research Objective 3:** to test the relationship between discrepancy, greenwashing risk, and stakeholder trust against the two cases.

## 3. Theoretical Background

One useful shift in the more recent greenwashing literature is to stop treating it purely as a matter of intent and instead treat it as a matter of alignment — the gap between what a company communicates and what can actually be verified about its performance. Velte [4] and Ziolo et al. [5] call this CSR decoupling, describing the same gap between external communication and internal performance. Recent research extends the point to ESG more broadly: when disclosure and actual performance drift apart, stakeholder trust erodes and reputational risk rises, largely independent of whether anyone intended to mislead [2]. This reframes the question away from managerial motive and towards the alignment between what organisations do and what they say.

A separate but related literature deals with green supply chain management — green procurement, eco-design, reverse logistics, supplier requirements, and collaboration with customers on environmental goals [6]. This research is fairly good at showing that such practices improve environmental and organisational performance. What it says much less about is the second half of the story: how those improvements, once achieved, get translated — or fail to get translated — into what a company actually tells the outside world.

That translation point is what this study calls the supply chain–channel interface: the place, within global outsourced apparel supply chains, where upstream sustainability work turns into external marketing claims. It matters because most stakeholders never observe supply chain activity directly — they rely almost entirely on what companies choose to say about it. As sustainability becomes something firms compete on, the incentive to talk about progress grows, and with it the possibility that operational performance and external claims drift apart.

## 4. Literature Review

Signalling theory, going back to Spence and brought into organisational research by Connelly et al. [7], starts from the observation that stakeholders usually cannot see what a firm is actually doing — there is an information gap by default. Within that gap, some signals are costly: independently verifiable and hard to fake. Others are low-cost: cheap to send regardless of whether the underlying performance backs them up, and correspondingly easier to doubt. In GSCM terms, third-party certification and supplier-level transparency function as costly signals; an unsupported sustainability claim is a low-cost one.

Delmas and Burbano [3], writing earlier, mostly located the cause of misleading environmental claims in managerial intent — companies saying things they know are not fully true. Signalling theory offers a different read: a firm can make a claim in good faith and still end up looking like it is greenwashing, simply because nobody outside the firm can verify whether the claim holds up. That reframing is a large part of why signalling theory fits this problem so well — greenwashing, seen this way, is fundamentally a problem of asymmetric information rather than a lying problem. In outsourced apparel supply chains specifically, stakeholders have essentially no direct line of sight into upstream factories, supplier audits, or sourcing records, so independent verification is hard almost by construction. And when a low-cost signal is later contradicted — by a regulator, by investigative journalism — the damage rarely stays contained to that one claim. Stakeholders tend to generalise: if this claim was hollow, why trust the next one? That is how a single incident becomes a broader trust problem rather than an isolated one.

Legitimacy theory provides a complementary explanation for why firms may rely on such signals. According to Suchman [8], organisations seek legitimacy by aligning their activities with prevailing social expectations and values. As ESG expectations from investors, regulators, and consumers have risen, so has the pressure on firms to demonstrate environmental responsibility — which can push organisations to communicate sustainability progress before the underlying operational improvements are fully verifiable, opening the door to discrepancy.

This pressure has built from several directions at once: institutional investors folding sustainability screening into capital allocation decisions, regulators introducing disclosure requirements (the Netherlands Authority for Consumers and Markets case discussed later in this study is one instance), and consumers paying closer attention to the claims attached to what they buy. The more important point in legitimacy theory, though, is that legitimacy is not something earned once and then kept — it has to be actively maintained as expectations keep shifting, meaning firms cannot rely on a single sustainability initiative and are more or less forced to keep the communication flowing to remain seen as legitimate. Because communicating a commitment is comparatively fast and inexpensive, whereas transforming sourcing practices across multi-tier global supply chains requires sustained investment over several years, the pressure to maintain legitimacy creates a structural tendency for sustainability communication to advance ahead of verifiable operational change.

Legitimacy theory explains why firms feel institutional pressure to communicate environmental achievements; signalling theory explains why stakeholders end up sceptical of the credibility of those claims once made. Neither fully accounts on its own for why discrepancies concentrate specifically at the supply chain–channel interface — it takes both dynamics together, plus the verification gap signalling theory describes, to produce the kind of greenwashing risk this study is interested in. Rising ESG expectations push communication forward; operational transformation inside complex global supply chains requires substantial time and resources and lags behind almost by nature; and the resulting gap between communication and performance is where greenwashing concerns tend to take root.

## 5. Case Analysis

This section puts the discrepancy framework developed in the literature review to work on a comparative analysis of H&M and Patagonia, chosen because they sit at close to opposite ends of the spectrum the framework is meant to explain. H&M represents the fast-fashion model — high volume, heavy outsourcing, and real pressure to show sustainability progress quickly, conditions that favour discrepancy formation almost by structure; its Conscious Choice episode, discussed above, is a documented, regulator-confirmed instance of exactly this dynamic. Patagonia, by contrast, is widely regarded as the industry's benchmark for supply chain transparency, having built its sustainability communication around independently verifiable disclosure rather

than promotional claims. Comparing one firm from each end of this spectrum lets the discrepancy framework be examined across a genuine range of alignment, rather than within a single organisational context. The comparison below focuses on supply chain practice, marketing claims, and the consequences that follow from the gap between the two.

### **5.1 Supply Chain Practice: H&M vs. Patagonia**

H&M runs one of the largest fast-fashion supply chains anywhere, built on high production volumes, rapid product turnover, and extensive outsourcing [1]. Those structural features of the fast-fashion model are not incidental — they create real challenges for supply chain transformation and sustainability implementation, which helps explain why sustainability communication may advance faster than operational change. From a legitimacy theory perspective, growing ESG expectations create pressure for firms to demonstrate environmental progress even when supply chain improvements remain incomplete.

Patagonia has gone the other direction, adopting supply chain transparency as a core strategic commitment through initiatives such as Footprint Chronicles, which discloses supplier information and sourcing practices [9]. This does not mean its environmental record is spotless — challenges clearly remain — but Patagonia maintains relatively low greenwashing risk by aligning its sustainability communication with evidence that can actually be verified.

### **5.2 Marketing Channel Claims: H&M vs. Patagonia**

H&M promoted its Conscious Collection through in-store displays and digital marketing as an environmentally responsible product range, backed by Higg Index-based scorecards communicating information on water consumption, carbon emissions, and material sourcing. These claims were presented as evidence-based assessments of product sustainability.

From a signalling theory perspective, though, that presentation does not automatically make them costly signals: stakeholders had limited ability to independently verify the underlying information, which puts the claims closer to the low-cost end regardless of how confidently they were framed. As a result, the credibility of the communication depended heavily on the accuracy and transparency of the data being reported, and H&M's sustainability communication has faced criticism precisely because some environmental claims were not fully supported by verifiable supply chain performance. For example, H&M's "Conscious" and "Conscious Choice" sustainability claims were investigated by the Netherlands Authority for Consumers and Markets (ACM) in 2022. The regulator concluded that some sustainability claims were unclear and insufficiently substantiated, leading H&M to modify or discontinue certain claims and improve the sustainability information provided to consumers [10]. Read through a signalling theory lens, these issues reduced the credibility of sustainability communication because stakeholders were unable to independently verify whether marketing claims accurately reflected actual environmental performance.

Patagonia's sustainability communication stays closely tied to independently verifiable evidence. Environmental claims are backed by recognised third-party certifications, including Fair Trade USA, bluesign®, and the Global Recycled Standard [9]. The company is also fairly open about where it still falls short. In signalling theory terms, this is what makes a signal costly — the evidence is externally verifiable and difficult to imitate. The practical effect is a narrower gap between what is communicated and what is actually happening on the ground, which both strengthens stakeholder trust and lowers greenwashing risk.

### **5.3 Discrepancy and Greenwashing Consequences: H&M vs. Patagonia**

The gap between H&M's supply chain practices and its sustainability communication became highly visible once investigations identified inaccuracies in the environmental information presented through Higg-based product scorecards. These findings raised concerns about the reliability of the company's sustainability claims and contributed to allegations of greenwashing. Seen through the discrepancy framework, the issue was not simply that environmental claims were made, but that the scope and certainty of the claims exceeded what could be independently verified at the time. Consistent with signalling theory, low-cost signals become vulnerable exactly when stakeholders obtain contradictory information, and the resulting scrutiny contributed to reputational damage, regulatory attention, and reduced stakeholder trust.

Patagonia's record looks different. It has faced relatively few credible greenwashing accusations despite actively promoting its sustainability initiatives, largely because it does not hide the environmental challenges it still has within its supply chain — these limitations are openly acknowledged in its communications. By relying on transparent disclosure and third-party verification, Patagonia maintains a relatively small gap between operational performance and sustainability communication. This alignment strengthens signal credibility, supports organisational legitimacy, and reduces greenwashing risk.

Taken together, the comparison suggests that greenwashing risk is not simply a function of sustainability performance itself, but depends just as much on the degree of alignment between what organisations do and what they communicate. Greater discrepancies appear to increase the likelihood of greenwashing accusations, whereas stronger alignment contributes to higher levels of stakeholder trust, even where performance itself is imperfect.

## **6. Key Finding**

Pulling the case comparison together points to three findings worth stating plainly about the relationship between supply chain–channel discrepancy, greenwashing risk, and stakeholder trust. Read as a set, they suggest greenwashing risk is better understood as an ongoing alignment problem than as a one-time issue of intentional deception. How closely sustainability communication tracks operational reality appears to be a critical determinant of stakeholder perceptions and greenwashing outcomes.

### **6.1 Operationalising the Discrepancy**

Supply chain–channel discrepancy, on this reading, is the gap between verifiable supply chain performance and the scope of sustainability communication. This perspective extends greenwashing beyond deliberate deception by highlighting the importance of alignment between operational practices and external claims. Organisations may therefore face greenwashing accusations even when sustainability initiatives are genuine, simply because communication exceeds what can be independently verified.

### **6.2 Structural Causes of the Discrepancy**

Three factors seem to drive discrepancy formation, and they interact rather than operate independently. Information asymmetry is the baseline condition — stakeholders cannot directly verify supply chain performance, so they end up relying on corporate communication almost by default. On top of that, operational transformation typically occurs more slowly than communication cycles, opening a temporal gap between actual progress and reported achievements. And rising ESG expectations from investors, regulators, and consumers add a third pressure, pushing firms to communicate environmental commitment even when implementation remains incomplete. None of these three factors is sufficient alone, but together they make it fairly likely that sustainability communication will exceed verifiable operational performance, contributing to discrepancy formation.

### **6.3 Discrepancy, Greenwashing Risk, and Brand Trust**

The relationship that emerges between discrepancy magnitude and greenwashing risk is broadly positive. Larger discrepancies increase vulnerability to stakeholder scrutiny and regulatory challenge, whereas lower levels of discrepancy strengthen communication credibility and stakeholder trust.

## **7. Discussion**

### **7.1 Theoretical Contributions**

This study's main theoretical contribution is fairly straightforward to state: it reframes greenwashing as a discrepancy between supply chain practice and sustainability communication, rather than treating it as deliberate deception by default. Doing so bridges two streams of research that have largely developed on separate tracks — greenwashing studies on one side, green supply chain management (GSCM) research on the other.

A second contribution is identifying the supply chain–channel interface specifically as the point at which discrepancies between operational performance and marketing communication tend to emerge. Most existing explanations focus primarily on misleading claims or disclosure practice in general; positioning this interface as a key source of greenwashing risk points to a more specific mechanism than either framing offers on its own.

Finally, the study integrates signalling theory and legitimacy theory into a single analytical framework rather than treating them as competing accounts. Legitimacy theory explains why organisations may communicate sustainability achievements ahead of operational transformation; signalling theory explains how stakeholders evaluate the credibility of such claims once verification is hard to come by. Together, these perspectives offer a more complete explanation of greenwashing risk in GSCM contexts than either theory could alone.

## 7.2 Alternative Explanations and Limitations

A few alternative explanations are worth at least a mention, even though this study does not test them directly. Organisational capability constraints may simply limit a firm's ability to monitor sustainability performance across supply chains this complex, independent of any communication strategy. The structural characteristics of the fast-fashion business model may make alignment between operational practice and sustainability communication inherently difficult almost regardless of intent. And weaknesses in ESG measurement systems — concerns have been raised about the reliability of sustainability assessment tools such as the Higg Index — could produce apparent discrepancies that have as much to do with how sustainability performance is measured as with a firm's actual conduct.

This study has real limitations too. The analysis focuses on two firms within the apparel industry, which limits how far the findings generalise to other sectors. It also relies primarily on secondary data, which may carry reporting bias and gaps in what is available. And stakeholder responses are inferred from existing evidence rather than measured directly.

Cross-industry studies, longitudinal analyses tracking discrepancy over time within a single firm, and primary data on stakeholder perceptions would all be natural extensions of the framework developed here.

## 8. Conclusion

This study set out to explain greenwashing through the discrepancy between green supply chain management (GSCM) practices and sustainability communication. Working from signalling theory and legitimacy theory together, it argues that greenwashing should not be understood solely as deliberate deception, but also as a structural risk arising from misalignment between operational performance and external claims.

The comparison between H&M and Patagonia broadly supports the conclusion. Larger discrepancies increase exposure to stakeholder scrutiny and regulatory challenge, whereas transparency and third-party verification strengthen credibility and trust even where performance itself is imperfect.

The supply chain–channel interface, in other words, is where this risk tends to originate. As ESG expectations continue to rise, the practical implication for organisations is not simply to communicate more about sustainability, but to keep that communication grounded in verifiable operational performance.

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## Conflicts of Interest

The authors declare no conflict of interest.

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