



Perceived greenwashing: where does scepticism come from?

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HIGHLIGHTS

- Clarity and accuracy help companies avoid greenwashing and ensure credible sustainability claims.
- Avoiding greenwashing promotes sustainable products through transparency and traceability.
- Traceability and transparency enable product tracking, supporting repair, reuse, and recycling.

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ABSTRACT

Greenwashing practices can lead to consumer scepticism and negative perceptions of green marketing claims. Perceived greenwashing refers to consumers' ability to detect greenwashing intentions in product advertisements. Hence, all companies and sectors need to better understand how their claims and corporate credibility affect consumers' perceptions. According to the Theory of Planned Behaviour (TPB), this research investigates how consumer experience influences perceptions of a company's green claims, thereby influencing their willingness to pay. Based on a survey of 2426 participants, the results showed a significant positive relationship between consumers' experience and their perception of the company's green claims, leading to consumer scepticism. Results revealed that consumers have a high level of environmental consideration and are more willing to pay for eco-friendly products when they are less sceptical towards environmental claims and have enough insight regarding greenwashing tactics. Hence, when consumers have limited awareness or understanding of environmental issues and their own environmental experiences, they may be more susceptible to misleading practices by companies. As a main contribution of the research, this research used TPB to investigate the heterogeneous effectiveness of consumer experience on scepticism. Besides the concept of scepticism, this research added a new layer to TPB by indicating the role of positive experiences that can lead to a more favourable attitude, perceived social approval for trust, and perceived behavioural control by consumers. The results will offer novel ideas that highlight the concept of scepticism to environmental improvements, especially in the fashion industry.

1. Introduction

Increased levels of consumers' environmental insight have resulted in a greater demand for environmentally friendly (green) products (Parguel et al., 2015). Subsequently, consumers' willingness to pay a price for goods and services with all environmentally friendly products led some companies to make false claims to get ahead of their competition. This is called greenwashing (Li et al., 2023a).

Greenwashing is an act of misleading consumers regarding the environmentally friendly practices of a company (Yu et al., 2024) when it claims that an organization uses sustainable processes and practices in business (Dutta-Powell et al., 2023). While greenwashing is fundamentally a strategic organizational behaviour aimed at securing environmental legitimacy across multiple stakeholder groups, including regulators, investors, business partners, and society at large (Vangeli et al., 2023), the present study focuses specifically on how such

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corporate practices are perceived at the consumer level and how these perceptions influence behaviour outcomes.

Furthermore, greenwashing practices can lead to consumer scepticism and negative perceptions of green marketing claims. Hence, all companies and sectors need to better understand how their claims and corporate credibility affect consumers' perceptions (Ma et al., 2024). Various scholars have drawn attention to the prevalence of greenwashing in organizations' communication (e.g., Berrone et al., 2017). Greenwashing is cited as an essential reason for consumer scepticism toward sustainable communications and green claims, and its prevalence threatens the global development of sustainable societies (e.g., Nygaard and Silkoset, 2023; Dutta-Powell et al., 2023).

Hence, academic attention to greenwashing is rapidly increasing (Ferrón-Vílchez et al., 2021; Li et al., 2023a). In recent years, the literature has extensively focused on the practice of greenwashing (Berrone et al., 2017). Most of them have focused on the definitions, forms, and characteristics of greenwashing; however, less attention is paid to understanding where the consumer is sceptical about the green claims for fashion products comes from.

This research believes that the focus on the fashion industry is needed because the majority of sustainability claims by large European players in the industry can be considered unsubstantiated or misleading; greenwashing applied to the context of fashion constitutes a significant issue in the pursuit of sustainability since it involves prominent players in the industry. In the fashion industry context, greenwashing can be observed, for instance, as a green claim of sustainable products without improving the recycling materials and promoting take-back programs on a large scale (Adamkiewicz et al., 2022). As a research gap, it is important to investigate whether scepticism develops from the consumer experience, making consumers more sceptical about similar green claims in the future.

To fill the research gap, this paper attempts to suggest that when consumers have limited awareness or understanding of environmental issues and their own environmental experiences, they may be more susceptible to misleading practices by companies. This lack of perception can lead consumers to falsely believe that the products they purchase are more sustainable than they actually are. As a result, consumers might unknowingly support or engage with companies that adopt deceptive practices, ultimately contributing to environmental harm under the illusion of making eco-friendly choices. The paper will highlight the importance of increasing environmental awareness and transparency to empower consumers to make truly sustainable decisions.

The core theoretical framework is based on the Theory of Planned Behaviour (TPB) (Ajzen, 1985), which shows how environmental factors influence consumers' TPB factors and, ultimately, their willingness to pay for fashion products. Indeed, the current paper investigates and empirically tests the relationship between consumer experience and their perception of a company's green claims, which leads to consumer scepticism about green claims.

We focus on the attitudinal pathway (consumer perception of firms' green claims) and control-related factors (consumer experience) because, for this demographic, normative pressure is plausibly overshadowed by internally formed scepticism. We also emphasize that this is not a claim that subjective norms are irrelevant in general, but rather that they may exert weaker effects in this specific population and decision context. This framing strengthens the theoretical coherence of our model and positions the omission of subjective norms as a theoretically motivated boundary condition rather than an oversight.

The established Theory of Planned Behaviour (TPB) predicts that behaviour is driven by behaviour intentions, which are formed by three main components. The first is attitudes, which are an individual's overall evaluation of the behaviour. The second is subjective norms, which consist of a person's beliefs from important others regarding whether they should perform a particular behaviour. It reflects the extent to which a person believes that other influential figures expect them to engage or not engage in behaviour. The third measures the extent to

which the individual perceives that the behaviour is under their personal control and is labelled as perceived behaviour control (PBC) (Conner, 2001). Hence, the core framework of the TPB is suitable for this research, but newer theories involve extending the model by incorporating additional variables, such as socio-demographic factors, cultural dimensions, and psychological factors like self-regulation, to better predict behaviour in specific contexts, and by decomposing core beliefs (behaviour, normative, and control) into more specific underlying factors. On this basis, future research can adapt the TPB for technology adoption and combine it with other models like the Technology Acceptance Model (TAM) to provide a more comprehensive understanding of behaviour intentions (Wei et al., 2025).

The TPB theory offers a well-established framework for understanding the psychological factors (Camacho et al., 2025), and its key innovation is extending the earlier theory of reasoned action by adding perceived behaviour control, which accounts for factors beyond a person's direct control. Following the TPB, this paper examines how behaviour is determined by attitudes (positive or negative evaluation), subjective norms (perceived social pressure), perceived behaviour control (belief in the ability to perform the behaviour), and intention (conscious plan to act).

This research conducted a structured questionnaire survey of 2426 participants to cope with such a research aim. While a wide range of demographics have been the subject of sustainable consumption research, there is a clear knowledge gap regarding the unique preferences and behaviour of Gen Z and Millennials (Baum, 2020). This study aims to fill this gap by analysing their attitudes and purchasing decisions, which show a stronger tendency towards sustainable consumption due to their unique experiences and values. Based on this, the participants who were students attending one of the Italian Universities (i.e., Bocconi University) (Gen Z) and SDA Bocconi School of Management (Millennials), and also experts from the PwC Company (Gen Z & Millennials) survey panel, as part of the collaboration for the SDA Bocconi Monitor for Circular Fashion in 2023. Hence, this study focused on the Italian context, where highly educated people are the empirical setting. This can be attributed to greater environmental awareness, more vital critical thinking skills, and this group's adoption of new trends and technologies. The research analysis reveals a behaviour relation between consumer scepticism, environmental knowledge and concern, and willingness to pay for eco-friendly products.

There are several contributions to the extant literature. First, this paper is particularly timely and relevant, considering that many European initiatives are pushing for strengthening consumer protection legislation against misleading information on the sustainability performance of products in the fashion industry by introducing labelling requirements and rules on substantiating green claims. Among the directives, the European Proposal for a Directive on Green Claims (European Commission, 2023) will require companies to prove their environmental declarations against a standardized methodology. The European Proposal for a Directive on empowering consumers for the green transition (European Commission, 2022a) aims to fight against unfair commercial practices that prevent consumers from making the right choices for greener or more circular products and services. According to the European Commission reports, doing so will help avoid greenwashing.

Second, for further attempts at TPB theory, the environmental aspects were included to capture the variation of the present study entirely (Berrone et al., 2017). Hence, this research used TPB to investigate the heterogeneous effectiveness of consumer experience on scepticism. Besides the concept of scepticism, this research added a new layer to TPB by indicating the role of positive experiences that can lead to a more favourable attitude, perceived social approval for trust, and perceived behaviour control by consumers (Shi et al., 2020; Yadav and Pathak, 2016). Third, the results will offer novel ideas that highlight the concept of scepticism to environmental improvements, especially in the fashion industry.

2. Theoretical framework and hypotheses

In this section, the TPB and its advantages are described. The TPB is used as a fundamental theoretical framework when predicting environmental behaviour and studying consumers who are sceptical about the green claims to participate in environmentally friendly activities (Ma et al., 2024). Moreover, TPB is highly adaptable, allowing researchers to enhance explanatory power by incorporating elements from other models into the original model. Hence, scepticism towards green claims and consumer perception of a company's environmental initiatives can significantly impact their behaviour, as predicted by the TPB.

In the TPB framework, three variables, "Attitude" toward the behaviour, "Subjective norm," and "Perceived behaviour control", lead to forming a 'behaviour intention,' which influences the behaviour (Yadav and Pathak, 2016).

Although subjective norms are a central component of the TPB, their explanatory power is context-dependent and may weaken in decision settings where individuals rely more on internally formed evaluations and evidence-based scrutiny than on social conformity cues (Sun, 2020). In the context of green claims where information asymmetry and scepticism are salient and within our highly educated Gen Z/Millennial sample, behaviour responses are plausibly driven primarily by cognitive scrutiny and internalized scepticism rather than perceived social pressure. Therefore, consistent with a context-bound application of the TPB, our model prioritizes the perceptual/attitudinal pathway (consumer perception of company green claims) and experience-related drivers, while recognizing that future research may re-incorporate subjective norms in alternative populations and cultural contexts.

Hence, regarding the TPB theory (Ajzen, 1985), this research refined attitude, subjective norm, and perceived behaviour control through four empirical components of consumer experience. Indeed, environmental knowledge and environmental concern reflect the attitudinal dimension, indicating individuals' evaluative and affective orientations toward green behaviour. Consumer innovativeness is positioned as an expression of the subjective norm dimension because innovative consumers are more responsive to social cues that endorse novel and pro-environmental behaviour. Moreover, pro-environmental behaviour captures the perceived behaviour control dimension, as it represents consumers' self-efficacy and capability to act sustainably.

When scepticism arises about consumers' personal experiences, this can lead to a negative attitude toward the company and its products. In other words, according to TPB, consumer scepticism towards green claims can lead to a negative attitude towards the product, reducing a person's intention to purchase it (Tao and Chao, 2024). Companies with unclear environmental practices might not be perceived favourably by environmentally conscious peers, impacting the subjective norm (Wang et al., 2023).

Furthermore, knowledge about environmental issues is important to consumers' understanding of environmental involvement (Parguel et al., 2015; Gao and Wei, 2025). Previous research revealed that ecological knowledge could be a crucial moderator of adverse effects and an important factor in assessing the credibility of advertising claims, mainly when such claims are ambiguous (Li et al., 2023a). Hence, environmental knowledge is a better indicator of a consumer's ability to perceive greenwashing in advertising and promotions (Schmuck et al., 2018). Consumers with a more substantial environmental background are better equipped to analyse green claims critically. Regarding the abovementioned citations, this research obtained the following central hypothesis:

H1. Environmental Knowledge will positively impact Consumer Perception of the Company's Green Claims.

In the literature, there is no universally accepted definition of environmental concerns. Environmental concerns are defined by Takács-Sánta (2007) as affective attitudes about the importance of environmental problems. It also means positive affective attitudes about

enhancing environmental capabilities and reducing environmental problems. Zhang et al. (2018) addressed ecological concerns, which are defined as the level of emotional involvement in the environment. Personal experience can breed scepticism towards greenwashing. Consumers who have witnessed environmental damage are less likely to take a company's claims at face value. They will critically evaluate the evidence behind the claims. In this vein, researchers mentioned the effect of ecological and environmental concerns on the level of perceived greenwashing (Nygaard and Silkoset, 2023; Li et al., 2023b). Hence, this research obtained the following main hypothesis:

H2. Environmental Concerns will positively impact Consumer Perception of the Company's Green Claims.

Consumer innovativeness has traditionally been conceptualised as a tendency to adopt novel products and ideas earlier than others. However, beyond novelty-seeking behaviour, innovativeness also reflects a proactive cognitive orientation toward information acquisition and evaluation. Innovative consumers tend to engage more intensively in information search, apply higher cognitive scrutiny, and actively reduce uncertainty before forming judgments (Klink and Athaide, 2010).

Drawing on Signaling Theory, corporate green claims can be interpreted as signals transmitted under conditions of information asymmetry between firms and consumers (Berrone et al., 2017). In the context of greenwashing, these signals may be symbolic rather than substantive, requiring cognitive effort to decode their credibility. Consumers differ in their ability and motivation to interpret such signals. Innovative consumers, due to their proactive information-seeking behaviour and higher engagement with product-related information, function as more effective "signal decoders." They are better equipped to scrutinize environmental claims, detect ambiguities, and evaluate the consistency between communicated sustainability messages and underlying corporate practices. Consequently, consumer innovativeness enhances the capacity to form more informed perceptions of a company's green claims.

Therefore:

H3. Consumer Innovativeness positively impacts Consumer Perception of the Company's Green Claims.

Gomes et al. (2024) identified environmentally significant behaviour encompassing green purchasing behaviour and organizational decisions. Kurisu (2015) also suggested that there are essentially two options to define pro-environmental behaviour, including conserving environmental resources and cultivating environmental consciousness. Although several pro-environmental behaviours have been classified, recent empirical research has found a certain coherence between green purchasing and environmental behaviours (Gomes et al., 2024; Schmuck et al., 2018). As mentioned by Tao and Chao (2024), greenwashing suppresses pro-environmental behaviour. Personal experience with eco-friendly practices can make consumers more discerning when evaluating a company's claims. They can better understand the effort involved and identify potentially misleading greenwashing attempts. Thus, this research obtained the following main hypothesis:

H4. Pro-environmental behaviour will positively impact Consumer Perception of the Company's Green Claims.

Few studies are available on the topic of the greenwashing issue, using scepticism toward the unambiguous green promotion (Leonidou and Skarmas, 2017; Schmuck et al., 2018). Chen and Duan (2023) investigated how greenwashing practices influence consumer behaviours. Literature review revealed that consumers' feelings towards the green attributes of products positively influence purchase intention and willingness to pay a premium for products (Paladino and Ng, 2013). A clear understanding of greenwashing can improve consumers' willingness to pay for genuinely sustainable products (Gao and Wei, 2025), while exposure to deceptive environmental claims can hurt consumer trust and, consequently, their willingness to pay. Global attitudes

toward the environment were positively related to consumers' desire to pay for green products (Zhao and Lee, 2024). By addressing consumer scepticism, companies can leverage the TPB to encourage environmentally conscious purchase decisions (Wang et al., 2023). On this basis, this research obtained the following main hypothesis:

H5. Consumer Perception of the Company's Green Claims will positively impact reducing Consumer sceptical willingness to pay.

The research model of the relationship between four elements of consumer experience (Environmental Knowledge, Environmental Concerns, Consumer Innovativeness, and Pro-Environmental Behaviour) in the Consumer Perception on Company's Green Claims (H1 to H4), in addition to the effect of Consumer Perception on Company's Green Claims in the Consumer sceptical willingness to pay (H5), can be drawn as Fig. 1.

3. Methodology

3.1. Sample data analysis

The methodological approach applied was a quantitative analysis to gather data in 2023 from a sample of Italian and international undergraduate and graduate university students living in Italy. For this purpose, this research developed a structured questionnaire surveying participants who were attending sustainable fashion courses at Bocconi University (Gen Z) and SDA Bocconi (mainly Millennials) and respondents from the PwC Gen Z & Millennials survey panel as part of the collaboration for the SDA Bocconi Monitor for Circular Fashion 2023.

To create a representative panel, PwC Italy involved Gen Z & Millennials university students through the junior enterprises network Italy

(<https://website.juniorenterprises.it/network/>) across different regions, from North to South. A Junior Enterprise is a non-profit organization managed by students from the best Italian universities. The Junior Enterprise movement is widespread globally. In Europe, 14 National Confederations (including JE Italy) coordinate 365 European Junior Enterprises. PwC Italy also shared the survey with Gen Z & Millennial employees, considering that the average age of employees is 32. Given the survey length, the number of respondents was randomly selected from the number of people who received the survey (about 8000). Hence, using the coefficient of Cronbach's alpha, a sample size of 2426 participants was selected for further analyses. This research developed a structured questionnaire and selected 21 questions and six characteristic sample profiles (e.g., year of birth, gender, status, nationality, how they received the questionnaire, and their attendance in the course). These were extracted from a larger dataset of 130 questions due to their relationship with the perceived greenwashing concept in the fashion industry. Moreover, the sample of respondents represents the Italian population from all over Italy.

This research used partial least squares structural equation modelling (PLS-SEM) to analyse the data. However, before the modelling process, Harman's single-factor test to assess common method bias was done based on Podsakoff et al. (2003). The first factor accounted for 23.81% of the total variance, as below the 50% threshold. In addition, five components had eigenvalues greater than 1, suggesting a multi-factorial structure rather than dominance of a single factor (Table 1). These results indicated that common method bias is not a serious concern in the data. Also, multivariate outliers were assessed using Mahalanobis distance (Tabachnick and Fidell, 2001). At the most conservative criterion ($p < 0.001$), 117 cases (4.8%) were identified as outliers (Table 2). Given the amount of sample size, this proportion is

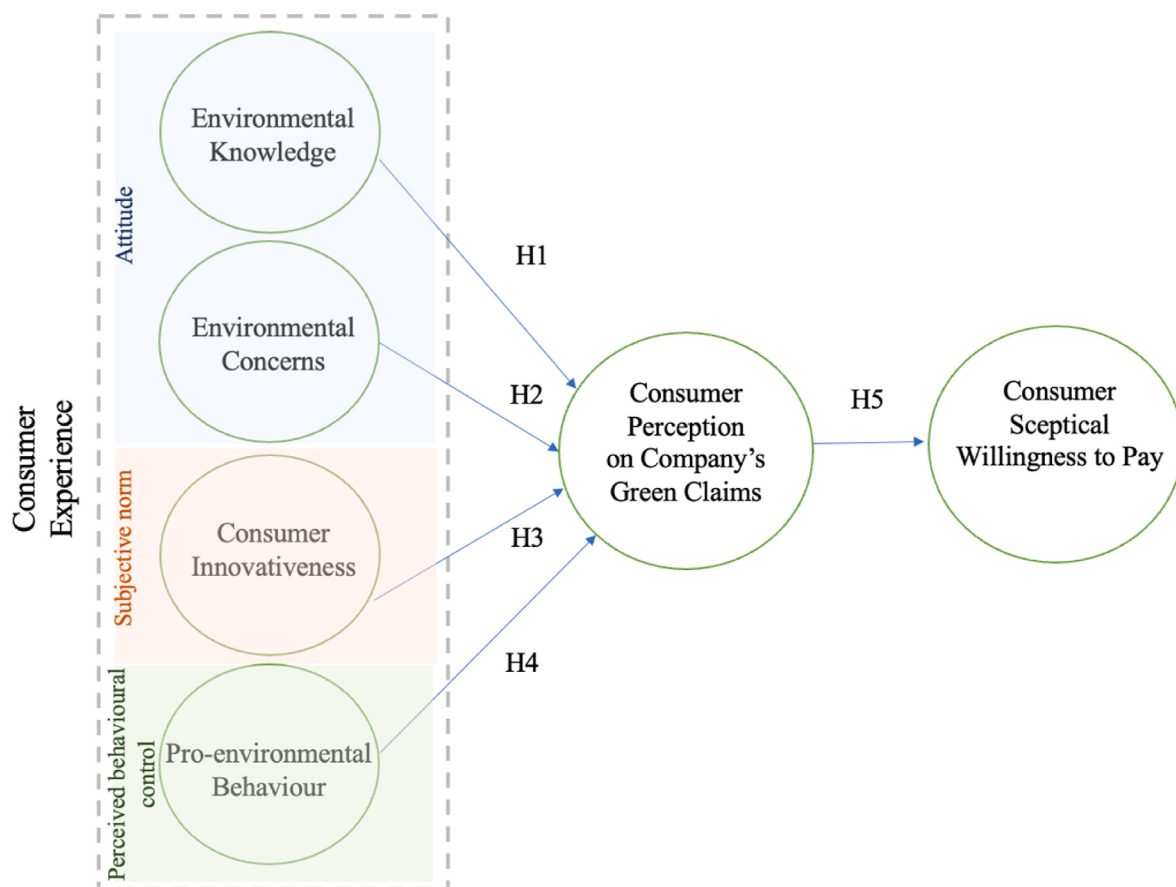


Fig. 1. Research model: Linking consumer experience with perception of green claims and willingness to pay. (For interpretation of the references to colour in this figure legend, the reader is referred to the Web version of this article.)

Table 1
Harman's single factor test for common method bias.

Questions	Eigenvalue	Variance_%	Cumulative_%
1	5.002	23.808	23.808
2	4.122	19.621	43.429
3	1.416	6.739	50.168
4	1.122	5.339	55.507
5	1.057	5.033	60.540
6	0.953	4.536	65.076
7	0.929	4.423	69.499
8	0.869	4.136	73.636
9	0.765	3.640	77.275
10	0.681	3.243	80.519
11	0.646	3.074	83.593
12	0.582	2.771	86.364
13	0.533	2.539	88.902
14	0.502	2.388	91.290
15	0.380	1.807	93.098
16	0.354	1.683	94.780
17	0.307	1.460	96.241
18	0.246	1.172	97.413
19	0.208	0.991	98.403
20	0.177	0.842	99.246
21	0.158	0.754	100.000

Table 2
Mahalanobis distance test for outlier detection.

Significance level	Chi-Square threshold	Outliers	% of total sample (N = 2426)
p < 0.05	32.671	341	14.1%
p < 0.01	38.932	202	8.3%
p < 0.001	46.797	117	4.8%

relatively small and does not substantially threaten the robustness of the results.

According to Cohen (1988), the effect size (f^2) analysis revealed that the relationships between consumer experience constructs and consumer perception of companies' green claims were small, ranging from 0.004 to 0.045. In contrast, the effect of consumer perception on companies' green claims on consumers is sceptical about the green claims is estimated as 3.578, exceeding a large effect. These results highlighted the mediating role of consumer perception, while consumer experience variables exert only minor direct effects; perception itself exerts a dominant influence on consumer scepticism and willingness to pay (Table 3). Ultimately, the Stone–Geisser's (Q^2) values were assessed through the blindfolding procedure in SmartPLS (Hair et al., 2017). All constructs showed positive Q^2 values (ranging from 0.14 to 0.31), which indicates that the structural model has acceptable predictive relevance. Specifically, consumer perception of the company's green claims ($Q^2 = 0.31$) demonstrated the highest predictive relevance (Table 4).

Table 3
Effect size (f^2) results.

Path (Relationship)	f^2 value
Consumer Innovativeness → Consumer Perception on Company's Green Claims	0.004
Environmental Concerns → Consumer Perception on Company's Green Claims	0.008
Environmental Knowledge → Consumer Perception on Company's Green Claims	0.018
Pro-environmental Behaviour → Consumer Perception on Company's Green Claims	0.045
Consumer Perception on Company's Green Claims → Consumer sceptical willingness to pay	3.578

Table 4
Predictive relevance (Q^2) results.

Construct	Q^2 (Stone–Geisser)
Environmental Knowledge	0.21
Environmental Concerns	0.14
Consumer Innovativeness	0.19
Pro-environmental Behaviour	0.24
Consumer Perception on Company's Green Claims	0.31
Consumer sceptical willingness to pay	0.27

3.2. Description of variables

The research model of this study was made based on the literature review and theoretical frameworks, including three key variables: “Consumer Experience”, “Consumer Perception of Company's Green Claims”, and “Consumer Sceptical Willingness to pay”. The description of the research variables and questions is shown in Table 5.

The first variable is assumed as consumer experience with four constructive components of [1] Environmental Knowledge, [2] Environmental Concerns, [3] Consumer Innovativeness, and [4] Pro-environmental Behaviour, as obtained from Schmuck et al. (2018) and Testa et al. (2020). Environmental Knowledge refers to consumers' awareness and understanding of environmental issues, concepts, and the ecological impact of their actions. Higher levels of environmental knowledge are associated with increased pro-environmental attitudes and behaviour (Li et al., 2023b). Environmental Concerns refer to the degree of consumers' awareness and worry about environmental issues and their perceived importance of ecological sustainability. Consumers with greater environmental concerns tend to exhibit stronger intentions to engage in sustainable behaviours (Balaskas et al., 2023). Consumer Innovativeness is the willingness and propensity of consumers to try new products, services, or ideas, including environmentally innovative products (Li et al., 2021). Pro-Environmental Behaviour (PEB) encompasses actions undertaken by consumers that contribute to environmental preservation, such as recycling, conserving energy, and purchasing eco-friendly products (Baran and Sypniewska, 2024). On this basis, 12 questions have been used to measure the consumer experience. All these questions refer to personal experiences. The second variable is referred to as consumer perception of the company's green claims, which has been probed in the studies of Chen and Chang (2013), Ma et al. (2024), and Schmuck et al. (2018), describing the insight for consumers to struggle with confusing information about untrustworthy advertising for evaluating green products or services.

Several studies showed that information provided by companies directly influences consumers' perceptions of brands, leading to their attitudes and purchase intentions (Kim et al., 2015; Kong et al., 2021; Xi et al., 2022). Hence, Consumer perception serves as a valuable proxy for consumer attitude because it reflects a consumer's unique interpretations, beliefs, and feelings about a product, brand, or service, which are the building blocks of their overall attitude. Indeed, in line with attitude, we conceptualise consumer perception of the company's green claims as an object-specific attitudinal evaluation. Attitude is defined as a person's overall favourable or unfavourable evaluation of an object or behaviour, formed based on salient beliefs and their evaluation (Fishbein and Ajzen, 1975, 2010). In our context, the “object” is the company's green communication. In the present study, seven questions were assumed to assess consumer perception. These belief-based evaluations underlie a negative attitude toward the company's green claims. Thus, consumer perception of green claims is treated as the attitudinal component of TPB in our model.

As the third variable, “Consumer sceptical willingness to pay” has been measured using two questions (see Appendix). Green purchasing is the specific purchase of environmentally beneficial products and avoiding products harmful to the environment (Chan, 2001). Furthermore, green purchasing, often measured as green purchase intention,

Table 5

Description of the research variables, components, and questions.

Variables		Previous analysis by scholars	Questions
Consumers Experience	Environmental Knowledge	Schmuck et al. (2018) The relevant items that they tested are: “(consumers)believed there are many individuals can do to improve the environment”; “(consumers) believed there are many corporations can do to improve the environment.”	Q1: Understanding environmental-friendly issues when choosing one brand of fashion and accessories. Q2: Keeping ourselves informed about sustainability issues. Q3: Believing important environmental information on packages. Q4: Understanding the concept of environmental certification. Q5: Worrying about the future of the environment. Q6: The environment's condition influences life quality.
	Environmental Concerns	Schmuck et al. (2018) The relevant items that they test are: “The condition of the environment affects the quality of my life”; “(consumers) willing to make sacrifices to protect the environment.”	
	Consumer Innovativeness	Vandecasteele and Geuens (2010) The relevant items that they tested are: “using innovative products to solve the complications of everyday life gives me satisfaction” and “buying innovative products because they stimulate my desire to learn and be at the forefront.”	Q7: Willing to recognize the environmental impact of digital product passports. Q8: Willing to recognize the enhanced circularity and sustainability practices of digital product passports.
	Pro-environmental Behaviours	Larson et al. (2015); Testa et al. (2020) The relevant items that they tested are: “(consumers)talk to others about environmental issues”; “(consumers) make donations and sign petitions to support environmental protection.”	Q9: Environmental sustainability recognizes the purchasing behaviour. Q10: Purchasing behaviour in terms of environmental and social sustainability. Q11: Willing to change consumer habits to protect the environment. Q12: Working with others to solve environmental problems.
Consumer Perception on Company's Green Claims		Chen and Chang (2013) and Ma et al., (2024) The relevant items they tested are: “the green product or brand overstates or exaggerates its functionality in terms of supporting the environment”; “the green product or brand makes vague or seemingly unprovable claims of environmental protection.”	Q13: Irrelevant characteristics of sustainability influencing buying a green product/service. Q14: Misleading words about promoting sustainability influence people to buy a green product/service. Q15: Confusing graphics about promoting sustainability influence people to buy a green product/service. Q16: Vague and unprovable claims about environmental protection influencing the purchase of a green product/service. Q17: Exaggerating functions about environmental supports influencing to buy a green product/service. Q18: Masking important environmental information influences buying a green product/service. Q19: Greenwashing issues prevent purchasing sustainable clothing, footwear, and accessories.
Consumer sceptical willingness to pay		Chen et al. (2019) The relevant items that they tested are: “In our country, we are not doing enough to encourage waste recycling”; “I am concerned about the environment.”	Q20: Willing to pay a higher price for purchasing natural and fashion and accessories products with assuming the possible green claims. Q21: Willing to pay for fashion and accessories products with a lower environmental impact with assuming the possible green claims.

refers to consumers' willingness to pay for fashion products under corporate green claims, which are embedded in the broader corporate environmental communication strategy. ([Chen and Duan, 2023](#)). In this study, green purchasing is operationalized as consumers' willingness to pay for fashion products under corporate green claims, which are embedded within broader corporate environmental communication strategies. Thus, while the behaviour outcome is measured at the product level, the focal stimulus remains firm-level environmental positioning.

4. Results and discussion

4.1. Questionnaire survey

After the selection of questions and items from the literature review, the 26 partners of the SDA Bocconi Monitor for Circular Fashion SDA Bocconi - involving both companies upstream and downstream in the fashion value chain – were asked to give feedback and suggestions to finalize the survey. Academic experts (professors at the university) used concept and content analysis to test the validity of the questionnaire. This helped experts ensure that the questionnaire includes questions that tap into all relevant aspects of the construct. The reliability of the questionnaire, including 21 questions in addition to six characteristic

sample profiles, was assessed using the coefficient of Cronbach's alpha as 0.9. After that, a sample size of 2426 participants was selected, as indicated above. Participants were approached randomly among university students (45.71%) and graduates (54.29%), and there were quite similar numbers of males (47.94%) and females (52.06%) ([Table 6](#)). The receiving format of the questionnaire was categorized as online internet and media pages (45.42%) or enterprise and university presence documents (54.58%). Also, those attending a fashion sustainability course were classified as participants who fully attended courses (27.95%) or participants who did not participate (72.05%).

4.2. Initial data analysis

In the first step, a quick reanalysis skimming on the filled questionnaire forms in [Table 7](#) revealed that an average of 61.71% of total answers (which are most of them related to environmental concerns) (1497 cases from 2426 cases) were positive responses (agreed or preferred). This fact reveals that most participants had a suitable background regarding three key variables: Consumer Experience, Consumer Perception of the Company's Green Claims, and Consumer is sceptical about the green claims (see [Table 8](#)).

To analyse the extracted data, this research adopted SmartPLS software. Model fit measures how closely the model's parameters are

Table 6
Demographic profile of participants.

No.	Question	Category	Frequency	Percentage (%)
1	Year of Birth	<1993 (below 30 years old)	754	31.08
		>1993	1672	68.92
2	Gender	Male	1163	47.94
		Female	1263	52.06
3	Academic status	Student-master degree and post-graduate	675	27.82
		Student-bachelor degree and college	434	17.89
		Graduate-employed	1317	54.29
4	Nationality	Italian	2378	98.02
		European countries	31	1.28
		Other countries	17	0.70
5	Receiving format of the questionnaire	Internet and media	1102	45.42
		Enterprise	1224	50.45
		University	100	4.12
6	Attending a fashion sustainability course	Yes, or interested	678	27.95
		No	1748	72.05

Table 7
Reanalysed skimming of the survey.

Variable		Questions	Positive response (agree and prefer)	
			No.	%
Consumer Experience	Environmental Knowledge	Q1	2016	83.1
		Q2	1588	65.46
		Q3	1864	76.83
		Q4	1632	67.27
	Environmental Concerns	Q5	1990	82.03
		Q6	1781	73.41
	Consumer Innovativeness	Q7	911	37.55
		Q8	1561	64.34
	Pro-environmental Behaviour	Q9	1026	42.29
		Q10	1636	67.44
		Q11	1552	63.97
Consumer Perception on Company's Green Claims		Q12	857	35.33
		Q13	1334	54.99
		Q14	1367	56.35
		Q15	1406	57.96
		Q16	1365	56.27
		Q17	1404	57.87
		Q18	1375	56.68
		Q19	1744	71.89
Consumer sceptical willingness to pay		Q20	1183	48.76
		Q21	1845	76.05

adjusted to best match the patterns and relationships within a given

Table 8
Measurement and structural model of hypothesized variables.

Measurements		R ²	Cronbach's alpha	Composite reliability	Average variance extracted (AVE)	Discriminant Validity	
						Perception of Consumer on company's green claims	Consumer scepticism on green claims
Consumer Experience	Environmental Knowledge	-	0.937	0.963	0.837	0.276	
	Environmental Concerns		0.89	0.922	0.899	-0.146	
	Consumer Innovativeness		0.743	0.766	0.793	0.177	
	Pro-environmental Behaviours		0.9	0.909	0.77	0.615	
	Consumer Perception on Company's Green Claims	0.8	0.997	0.997	0.984	*	0.845
Consumer sceptical willingness to pay		0.782	0.726	0.762	0.78		*

dataset. In this research, the data quality was controlled by computing Pearson's correlation coefficient matrix at the 0.05 level, indicating the reasonable commonalities of mean $R > 0.76$. Moreover, the Hausman test automatically referred to estimations using the SmartPLS software to rectify the possible endogeneity problem. The results of the measurement and structural model of hypothesized variables were produced in Table 6, revealing the discriminated validities obtained as 0.210–0.814 (below one), explaining the possible indirect correlations between the key variables. However, strong correlations between the variables were revealed by the approximate higher Cronbach's alphas and average variance extracted (AVE) values of 0.89 and 0.73, respectively. Cronbach's alphas and AVE values confirmed the study's bias, which demonstrated the internal uniformity of indicators and convergence of validities (Khatami et al., 2020).

4.3. Determining the relationships

The regression models produced by SmartPLS are displayed in Table 9, in which the P-values are < 0.01 (when the significance level is < 0.05). Therefore, all T-statistics with values > 1 depended on more evidence against the null hypothesis and supported all hypotheses of this study at a confidence level of significance ($P > 99\%$).

Based on the PLS-SEM analysis's findings, the effect of four elements of Consumer Experience (Environmental knowledge, Environmental concerns, Consumer innovativeness, and Pro-environmental behaviour) on the Consumer Perception of the Company's Green Claims can be confirmed positively respectively, as shown by the T-value of 6.553, 7.945, 3.004 and 8.646 and the P-value of 0.000 revealing the confirmation of hypothesis H1, H2, H3 and H4. Also, the effect of Consumer Perception of the Company's Green Claims on the Consumer's sceptical willingness to pay can be confirmed positively, as shown by the T-value of 143.01 and the P-value of 0.000. On this basis, hypothesis H5 is also accepted.

Consequently, the results of the data analysis using Smart PLS software were summarized as a schematic pattern of the estimated model, describing the correlations between Consumer Experience, Consumer Perception of the Company's Green Claims, and Consumer sceptical willingness to pay in Fig. 2. This figure represents the relationships between the mentioned three variables and their contributing components and related 21 questions.

4.4. Discussion

Although there has been academic research to investigate the concept of greenwashing, there is a lack of studies to examine the factors that affect scepticism, especially in the fashion industry, through the lens of TPB. Accordingly, the current study's focus is to indicate the role of consumers' experiences on consumer perception of a company's green claims. This theoretical framework provides a deep understanding of

Table 9
Regression coefficients test results using SmartPLS.

Relationships	Original	Mean	Standard deviation	T-statistics	P-values
Consumer Innovativeness - > Consumer sceptical willingness to pay	0.15	0.149	0.05	3.013	0.003
Consumer Innovativeness - > Consumer Perception on Company's Green Claims	0.177	0.177	0.059	3.004	0.003
Environmental Knowledge - > Consumer sceptical willingness to pay	0.233	0.234	0.036	6.56	0
Environmental Knowledge - > Consumer Perception on Company's Green Claims	0.276	0.277	0.042	6.553	0
Environmental Concerns - > Consumer sceptical willingness to pay	-0.123	-0.123	0.016	7.941	0
Environmental Concerns - > Consumer Perception on Company's Green Claims	-0.146	-0.146	0.018	7.945	0
Consumer Perception on Company's Green Claims - > Consumer sceptical willingness to pay	0.845	0.845	0.006	143.015	0
Pro-environmental Behaviour - > Consumer sceptical willingness to pay	0.52	0.52	0.061	8.542	0
Pro-environmental Behaviour - > Consumer Perception on Company's Green Claims	0.615	0.615	0.071	8.646	0

consumer behaviour, leading to their scepticism of green claims and the related consumers' willingness to pay for genuinely sustainable fashion products. In contrast, exposure to deceptive environmental claims can hurt consumer trust and, consequently, their willingness to pay.

Our results show that the positive and significant correlation between components of consumer experience and the Consumer Perception of the Company's Green Claims variables can confirm hypotheses H1 to H4. This result suggests that consumers were aware of the green claims made in the context of greenwashing (Nygaard and Silkset, 2023) and tried to show the positive impact of different consumer experience elements on consumer perception. Past experiences can play a stronger role in shaping scepticism. Scepticism from experiences encourages consumers to be more critical thinkers, which leads them to make better decisions and seek evidence and different perspectives before purchasing fashion products. Hence, experience-based scepticism can become a shield that helps consumers who identify misleading green claims and protects them from deceptive practices.

Furthermore, the results support the correlation between consumers' perception of the company's green claims and willingness to pay variables, confirming hypothesis H5. The result can be expanding previous works, such as Leonidou and Skarmas (2017), by presenting other elements that lead to scepticism. This means that when consumers are less sceptical and have enough insight regarding greenwashing, they have a

high level of environmental concern and a more vital willingness to pay for eco-friendly products.

An important finding of this study is that consumer perception of corporate green claims has a markedly stronger effect on willingness to pay than the experience-related variables, which show relatively smaller effect sizes. This pattern suggests a proximal–distal relationship among the constructs. Environmental knowledge, concerns, innovativeness, and pro-environmental behaviour operate as background dispositions that shape consumers' interpretive frameworks (Ajzen, 1985; Fishbein and Ajzen, 2010). However, behaviour decisions particularly those involving credence attributes such as sustainability are more directly driven by object-specific evaluations (Chen and Chang, 2013; Schmuck et al., 2018). In the context of green claims, perception functions as the immediate cognitive filter through which corporate signals are assessed (Parguel et al., 2015; Vangeli et al., 2023). Under conditions of information asymmetry, willingness to pay is less contingent on general environmental orientation and more on the perceived credibility of the firm's communication. This finding highlights perception as the central mediating mechanism linking consumer experience to market outcomes, underscoring the importance of signal credibility in green marketing contexts. The relationship between consumer scepticism, environmental insight, and purchasing behaviour has significant implications for understanding sustainable consumption patterns (Mabkhot, 2024). When consumers exhibit lower scepticism towards environmental claims, meaning they are less doubtful or suspicious of green marketing tactics, they are more likely to accept the authenticity of eco-friendly claims made by producers. Coupled with possessing adequate knowledge and understanding of greenwashing tactics, consumers can accurately discern genuine environmental initiatives from superficial or deceptive marketing strategies. This heightened environmental insight fosters a deeper emotional and cognitive engagement with ecological issues, leading to elevated levels of environmental concern. Such concern reflects an internalized motivation to support sustainable practices and reduces cognitive dissonance associated with consumption choices. Consequently, consumers with these traits demonstrate a greater willingness to pay a premium for products that are genuinely environmentally friendly, recognizing the value and impact of their purchases on ecological well-being. This dynamic suggests a positive feedback loop where increased awareness and trust in authentic green products reinforce environmentally responsible behaviour, thus encouraging producers to adopt more transparent and credible sustainability practices. Hence, this fact interplay underscores the importance of consumer education and transparency in marketing to promote environmentally conscious consumption and facilitate the transition toward a more sustainable economy.

Moreover, experience-based scepticism can influence the TPB in several ways. Past experiences associated with behaviour can make consumers' perceptions of green claims less favourable. It is believable that a consumer who fails to purchase a fashion product due to misleading information might be sceptical of trying a new one and willing to pay for it in general. Also, a consumer struggling with a behaviour due to a lack of information about greenwashing can make others sceptical and hesitant to engage in that behaviour, and have less willingness to pay for that fashion product.

Experience-based scepticism can significantly influence the TPB by shaping individuals' attitudes, subjective norms, and perceived behavioural control, which are the core components of the model. When individuals encounter experiences that challenge their beliefs or expectations regarding a particular behaviour, their confidence and intentions related to that behaviour may change accordingly. For example, if someone attempts a new activity or adopts a certain behaviour but encounters negative outcomes or difficulties, their scepticism rooted in these experiences can lead to a more cautious attitude towards engaging in similar behaviour in the future. This change in attitude can decrease their intention to perform the behaviour. Similarly, personal experiences that conflict with social norms or expectations may alter perceptions of

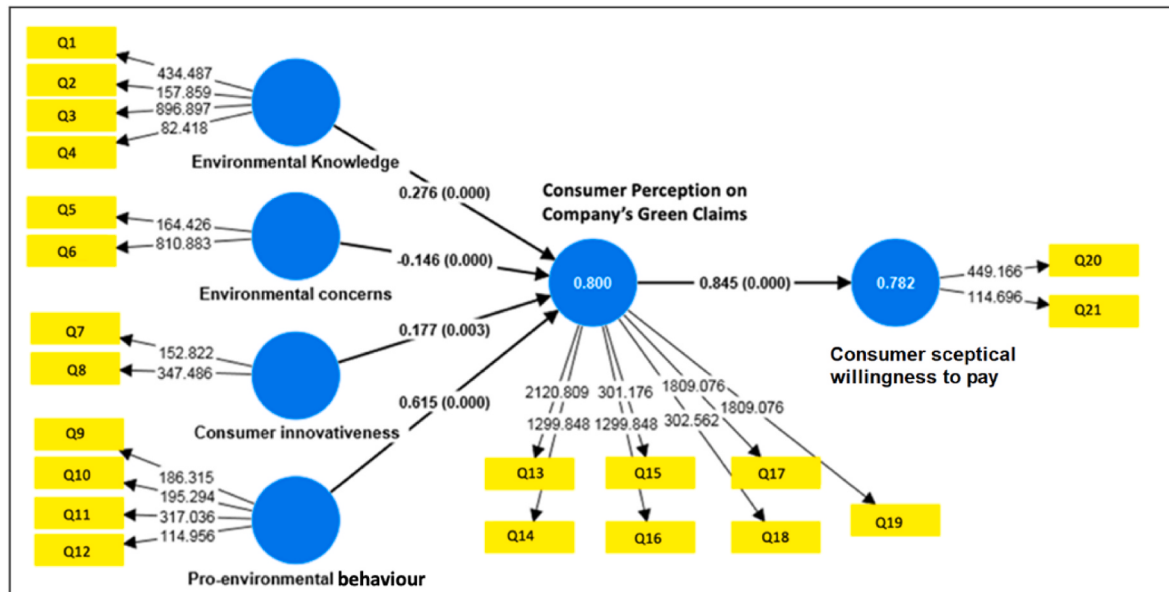


Fig. 2. Schematic pattern of the estimated model based on the SmartPLS output.

subjective norms, making individuals less influenced by perceived social pressures or endorsements (see Sun, 2020; Brazel et al., 2022). Furthermore, experience-based scepticism can impact perceived behaviour control by highlighting barriers or obstacles encountered during previous attempts. If past experiences suggest that a behaviour is difficult to perform or unlikely to succeed, individuals may feel less capable or confident in their ability to carry out the behaviour again, thereby reducing their intention to act (see Artino, 2012). Overall, experience-based scepticism acts as a feedback mechanism within the TPB framework, modifying the underlying beliefs that drive intentions. As individuals accumulate experiences, positive or negative, they continuously update their attitudes, perceptions of social expectations, and perceived control, which in turn influence their future behaviour intentions and actions.

5. Theoretical and practical implications

5.1. Theoretical implications

Our research has several contributions to the greenwashing literature. First, it shows the importance of attention to the concept of scepticism (Leonidou and Skarmas, 2017). This novel idea that stems from environmental experience, in addition to supporting consumers in their future intention to buy products, could affect companies' performance by considering principles such as transparency to increase and keep their customers (Li et al., 2022). This also implies that when companies do not follow these rules, it could result in a lower level of sustainability performance as well (Wang et al., 2023).

Second, by interpreting the study's results through the lens of TPB, this research concluded the importance of the role of consumers' experiences and their perception of scepticism (Ma et al., 2024; Li et al., 2022; Ferrón-Vílchez et al., 2021). Moreover, the present study underscores the implications of TPB in shaping consumer perceptions of a company's green claims by demonstrating that subjective norms regarding environmental values can influence the scrutiny of green claims (Yadav and Pathak, 2016). Specifically, this research highlighted the influence of subjective norms. In the context of green claims, consumers who perceive that their social circle values (Long et al., 2025) environmentally friendly choices are more likely to scrutinize a company's claims and seek evidence before purchasing. This highlights the need to refine the TPB model to account for the moderating effect of

scepticism in the context of green marketing claims. Another point concerns consumers' belief in their ability to find fashion products.

Third, in contrast to earlier works on greenwashing (Ma et al., 2024; Tao & Chao, 2024; Berrone et al., 2017), this research claimed that a lack of perception of environmental experiences can lead consumers to engage in the deceitful behaviour of companies that results in buying products that are not as sustainable as they believe. This means the lack of purposeful behaviour can lead to decreased environmental improvements (Kudiak, 2024).

5.2. Practical implications

Recent studies offer valuable management insights by presenting evidence that supports the claims made and disclosed to the audience, so they know the supporting data (Yu et al., 2024). Ethical businesses should avoid greenwashing and focus on genuine sustainability practices (Shi et al., 2020). This builds trust, fosters a level playing field, and benefits the environment.

Business ethics guide a company to be transparent about its environmental impact and minimize it (Nygaard and Silkset, 2023; Li et al., 2023a). Indeed, if a company like EcoClean wants to avoid greenwashing, it should rely on data and embrace credible third-party certification.

On the other hand, as Ferrón-Vílchez et al. (2021) and Ma et al. (2024) mentioned, understanding the influence of greenwashing on managerial decision-making and the impact of managerial values, or green attitudes, on decision processes in the context of greenwashing is of paramount importance. Managers have to monitor consumer scepticism of fashion products and control this issue. Companies should test their claims against some simple rules to avoid misleading claims (Tao and Chao, 2024; Luo et al., 2020; Leonidou and Skarmas, 2017). They should be clear and understandable and contain accurate information. Still, even if factually accurate, it should not mislead customers by giving them a false impression of the sustainability aspects of a product, a process, or an organization (Gao and Wei, 2025).

Claims can also go beyond simply informing consumers about the sustainability aspects of products, involving them in acting more sustainably during consumption and post-consumption phases. It is key that brands inform and educate consumers about the sustainability attributes of their product claims. When well-designed, sustainability claims can significantly influence consumers' purchasing behaviour. Under these

conditions, claims can be a powerful tool to guide and shape consumer behaviour toward more sustainable choices. Using a well-designed claim will also be one of the most effective ways for businesses to demonstrate to consumers that they are meeting high environmental and social standards.

From the policymaker's point of view, it needs to evaluate and control the real damage from scepticism (Luo et al., 2020; Leonidou and Skarmas, 2017). For instance, in 2022, the European Commission adopted a package of proposals to make "sustainable products the norm" (European Commission, 2022b). Traceability and transparency are essential enablers for sustainability and circularity, guaranteeing the right of consumers and other stakeholders to make informed decisions (UNECE, 2021). The Strategy for Sustainable and Circular Textiles includes - among its measures - actions to tackle greenwashing and the introduction of a digital product passport for fashion products. The digital product passports are intended to make it easier to track products' value chain journeys and to make it easier to repair or recycle them. Tighter controls on greenwashing would include stricter rules to build reliable sustainability claims to protect consumers, leveraging a common traceability and transparency standard (Rinaldi et al., 2022), and the digital product passports represent a great opportunity in the long journey to fight greenwashing. Policymakers can adopt this by a) developing and implementing clear guidelines for the content and format of digital product passports, ensuring they provide accurate and comprehensive information about a product's life cycle; b) requiring all fashion products sold within the EU to have a digital product passport. This will increase transparency and make it easier to track products' journeys (Nygaard and Silkset, 2023; Yu et al., 2024).

Key guidelines and Practical recommendations for managers and policymakers. In conclusion, to avoid greenwashing and ensure that sustainability claims are effective and credible, companies should adhere to several key guidelines as follows:

1. To develop sustainability messages within the marketing funnel, anti-greenwashing tools are essential. Based on the findings of Sheehan et al. (2023), a Sustainability Claims Toolkit was developed to guide managers in crafting sustainability claims. This tool aims to assist in creating transparent, relevant, and evidence-based claims that align with both consumer expectations and regulatory standards.
2. It is important to educate and inform consumers about your sustainability efforts. Hence, investing in consumer education campaigns can effectively inform consumers about the genuine sustainability attributes of your products. Clear communication has the potential to reduce scepticism and build trust.
3. Enhancing product transparency is crucial for building credibility. Regularly update consumers with transparent information regarding your sustainability practices and product quality. Providing easy access to the evidence that supports your claims is also vital.

6. Conclusions, limitations, and future research

The concept of "greenwashing," blamed for contributing significantly to consumer scepticism of communications and environmentally friendly claims, influences the advancement of sustainable societies globally. As a result, the phenomenon of "greenwashing" is receiving a lot more scholarly attention. As a research gap, it is important to investigate the impact of consumer scepticism on purchasing decisions and consumer willingness to pay, particularly for fashion products. This paper attempted to highlight the correlation between consumer experiences and the possible role of consumer scepticism as an antecedent of willingness to pay for sustainable fashion products.

There are several limitations to this research. The main limitation was that it only focused on the consumer side in the fashion sector. At the same time, the greenwashing discussion can discuss a number of management and marketing-related topics regarding relationships

between companies and consumers (Vangeli et al., 2023). Hence, future studies should consider both company and consumer aspects in the research of perceived greenwashing analysis. Another limitation of this research was its focus on the general category of fashion products: future studies could expand to the segments of the fashion sector, such as luxury brands or particular products and accessories. This paper aims to guide future research towards the search for other consumer variables that may affect the willingness to pay for sustainable products. Moreover, the third limitation was the limited sample size and data collection.

To overcome this limitation, additional research could be carried out by comparing two or more countries with a control group or by investigating a more diverse geographic context worldwide. While the present study focuses on highly educated Gen Z and Millennial consumers in Italy, this demographic context is theoretically meaningful for examining perceived greenwashing. As digital natives, these consumers have grown up in information-rich environments characterized by high exposure to corporate sustainability messaging and frequent instances of symbolic environmental communication. Such exposure may foster stronger critical thinking skills, heightened scepticism, and more proactive information-verification behaviour than those of the broader population. Consequently, their behaviour responses may rely more heavily on evidence-based evaluation of corporate claims than on social conformity or passive acceptance of marketing signals. Future research should examine whether similar patterns hold across less digitally engaged or more educationally diverse populations, thereby testing the boundary conditions of the present findings. behaviour.

As the present study does not consider the characteristics of consumers, such as cultural background differences, future studies should consider the impact of cultural differences on consumers' willingness to pay for green-claimed goods. Also, future research can adapt the TPB for technology adoption and combine it with other models like the Technology Acceptance Model (TAM) to provide a more comprehensive understanding of behaviour intentions. Nevertheless, this paper thinks the current findings can help businesses and researchers by raising policymakers' awareness of the essential components and resources required to determine the most crucial priorities in the battle against greenwashing.

CRedit authorship contribution statement

Francesca Romana Rinaldi: Writing – review & editing, Supervision, Project administration, Conceptualization. **Fahimeh Khatami:** Writing – review & editing, Writing – original draft, Validation, Software, Methodology, Investigation, Data curation, Conceptualization. **Enrico Cagno:** Writing – review & editing, Validation, Supervision. **Alberto Ferraris:** Writing – review & editing, Visualization, Formal analysis.

The role of AI in our paper

We did not use AI in any part of the paper.

Declaration of competing interest

I have nothing to declare.

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Appendix 1. The questions regarding three research variables

Variables	Questions
Consumers Experience	Q1: How much do you consider fashion and accessories brands that consider environmentally friendly issues? Q2: How much do you consider environmental sustainability impacts on products when making purchasing decisions? Q3: How much do you consider environmental and social sustainability on products when making purchasing decisions? Q4: How much do you consider the environment's future when making decisions? Q5: How much do you consider the environment's condition influencing life quality when making decisions? Q6: Are you changing your consumption habits to protect the environment? Q7: Are you willing to solve environmental problems? Q8: Do you consider keeping yourself informed about sustainability issues? Q9: Do you consider the importance of the environmental information on packaging? Q10: Do you understand the concept of environmental certification? Q11: Do you recognize the environmental impact of digital product passports? Q12: Do you believe digital product passports are enhancing circularity and sustainability?
Consumer Perception on Company's Green Claims	Q13: Have you encountered irrelevant characteristics of sustainability influencing your decision to purchase green products/services? Q14: Have you encountered misleading sustainability claims influencing you to buy green products/services? Q15: Have you encountered confusing sustainability graphics that influenced you to buy green products/services? Q16: Have you encountered vague and unprovable environmental claims about protection influencing your decision to purchase green products/services? Q17: Have you encountered exaggerated claims about environmental benefits influencing you to buy green products/services? Q18: Have you encountered important environmental information being hidden or downplayed when buying green products/services?
Consumer sceptical willingness to pay	Q19: Have you encountered greenwashing issues preventing you from buying sustainable clothing, footwear, and accessories? Q20: Are you willing to pay a higher price for purchasing natural and eco-friendly fashion and accessories products with assuming the possible green claims? Q21: Are you willing to pay for fashion and accessories products with a lower environmental impact with assuming the possible green claims?

Data availability

Data will be made available on request.

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