

## Article

# How Does Young Consumers' Greenwashing Perception Impact Their Green Purchase Intention in the Fast Fashion Industry? An Analysis from the Perspective of Perceived Risk Theory

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**Abstract:** The fast fashion industry is criticized for its unsustainable development. With the rise of the green economy and the awakening of consumers' awareness of sustainable consumption, more and more companies realize the significance of green marketing in improving brand performance. However, it is undeniable that many fast fashion companies tend to take advantage of information asymmetry and cover up the unsustainable part of their business activities through fake green marketing campaigns to gain more potential consumers. There is a limited number of green marketing studies investigating consumers' perception of greenwashing, while it is naturally important to explore the demand side responses to greenwashing in different industries. Therefore, this paper examines whether and how consumers' perception of greenwashing in the fast fashion industry impacts their green purchase intention. The study explores the mediating role of perceived risk and the moderating role of consumers' impulsive buying. In this paper, 433 valid questionnaires are collected from mainland China, and the Partial Least Square-Structural Equation (PLS-SEM) is used to test the hypotheses. We draw the following conclusions: (1) consumers' perception of greenwashing in the fast fashion industry has a direct negative effect on their green purchase intention; (2) greenwashing perception has an indirect negative effect through consumers' risk perception, including financial perceived risk and green perceived risk; (3) consumers' impulsive buying in the fast fashion industry reinforces the positive effect of greenwashing on their financial risk perceptions as a moderating variable. The conclusion of this paper has implications for the sustainable development of China and other emerging economies, which highlights the importance of pursuing information symmetry in green marketing to reduce consumers' perceived risk and encourages companies to make substantial, sustainable development initiatives.

**Keywords:** greenwashing; sustainability; fast fashion; perceived risk; green purchase intention; impulsive buying; consumer behavior



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## 1. Introduction

Since the 21st century, a series of multinational fast fashion companies have entered the Chinese market, bringing inexpensive fashion products to consumers. As a business model that relies on a resilient supply chain and low-cost control, it satisfies the short-cycle fashion needs of many consumers, thus is highly sought after by consumers and stimulates impulsive consumption behavior and waste [1]. According to the United Nations [2], the global population will reach 8.5 billion by 2030, and the consumption of the fashion industry will skyrocket from 62 million tons to 102 million tons. Ultimately, the pollution caused by the fashion industry's polluting manufacturing and "disposable consumption culture" will be detrimental to ecological sustainability. With the rise of the green economy and the awakening of consumers' awareness of sustainability, green marketing has become an important tool to gain a competitive advantage in the market. At the same time,

the act of greenwashing is increasing, which is defined by the Concise Oxford English Dictionary (10th edition) as a kind of “disinformation disseminated by an organization so as to present an environmentally responsible public image”. The fast fashion industry is no exception. The point is that many consumers see no contradiction between buying fast fashion products and pursuing sustainability, and many studies suggest that people who have a genuine need for fast fashion products are less concerned about environmental impact or do not see a connection between fast fashion and sustainability [3]. Fast fashion products are particularly attractive to consumers who prioritize fashion consumption and subscribe to an impulse-buying culture [4]. Thus, fast fashion consumers’ purchasing behavior is not entirely rational. The “environmental needs” of the fast fashion industry are at risk of being ignored by consumers, which increases the possibility of false green marketing by fast fashion companies. Kim [5] also argues that fast fashion brands are prone to opportunistic behavior such as greenwashing. In this context, it is necessary to study the effect of greenwashing on consumers’ willingness to buy green in the context of the fast fashion industry.

As a deceptive green marketing practice, greenwashing may increase consumers’ “perceived risk”. That is to say, they face uncertainty in making the right decision in the process of decision-making, so in the case of greenwashing, consumers’ perception of risk may become a key factor influencing fast fashion consumers’ purchase intention and purchase behavior. Risk is something that consumers must consider when making formal purchase decisions. Therefore, it is meaningful to examine the role of greenwashing in the fast fashion industry from the perspective of consumer risk perception.

The existing literature mainly focuses on the manifestations and motivations of greenwashing behavior. There have been several studies analyzing the impact of greenwashing on purchasing behavior from the consumer’s perspective, and the number of related studies has been on the rise during the past decade. After a company’s greenwashing behavior, consumers may suspect the motives of the company’s greenwashing, thus further affecting consumers’ continued purchase decisions [6]. Akturan [7] explores the influence of greenwashing on consumers’ purchase decisions from the mediating role of corporate brand equity. Zhang et al. explore the mediating role of word-of-mouth and the moderating role of green concern to discuss the mechanisms of greenwashing perception on green purchase intention [8]. A lot of findings show that consumers’ purchase intentions are negatively affected by greenwashing. In practice, studying the mechanism of greenwashing is of great significance for companies, markets, and governments to further understand the behavior and psychology of consumers, which is also a key research element to promoting sustainable development of the industry and the whole society. Therefore, it is necessary to further explore the mechanism of greenwashing on consumers’ purchasing behavior from the perspective of risk perception because most consumers are risk averse.

In most cases, risk increases consumer anxiety and motivates consumers to adopt risk-reducing behaviors [9]. Mitchell [10] argues that consumers tend to reduce their perceived risk rather than maximize their perceived benefit when purchasing. The perception of risk can reasonably explain the purchasing behavior of consumers. In particular, in fast-fashion environments, which are prone to impulsive shopping, when the likelihood of purchase risk and poor decision-making increases, it is more likely that consumers will be inhibited from unsustainable consumption behavior. For the fast fashion industry, its growth depends on sacrificing the environment [11]. The concept of “fast” fully reflects the unfriendly nature of the fast fashion industry, which needs to keep up with fashion trends, produce clothes quickly, and use short product life designs to stimulate customers to overspend and impulsively satisfy the desire for fashion because of its low price and limited quantity. To the best of our knowledge, there is no comprehensive study of the impact of greenwashing on consumer behavior in specific sectors from the perspective of perceived risk, which is probably due to the fact that perceived risk is a complicated concept with different implications across specific contexts. Meanwhile, lots of research in

the area of “fast fashion sustainability” has focused on consumer reactions to the emergence of fast fashion green products.

In order to fill this gap, this paper constructs a research framework based on perceived risk theory and empirically examines the mechanism of greenwashing on consumers’ willingness to purchase green products in the fast fashion industry. This paper contributes to the literature in the field of greenwashing and fast fashion sustainability research as follows. First, although there is a large body of literature on the issue of greenwashing, few studies have so far focused on the greenwashing behavior of companies in developing markets, especially in Asia. Using data from Chinese consumers, we investigate the influence of greenwashing perception on green purchase intention in the fast fashion context, which has implications for sustainable development in emerging economies. Second, the mediating role of risk perception and the moderating role of impulsive buying are introduced to extend the influence mechanism of greenwashing perception on green purchase intention.

This paper mainly addresses the following issues:

1. Will greenwashing affect consumers’ willingness to buy green products in the fast fashion industry?
2. Does the greenwashing of the fast fashion industry influence the willingness to buy green products through consumers’ perception of risk, and how do they work?

The paper is organized as follows. In Section 2, the relevant literature will be reviewed, and hypotheses will be developed. In Section 3, the association between variables will be established, and hypothesis models will be proposed based on the theoretical derivation. The data collection process will also be described in Section 3. The results and analysis will be in Section 4. Section 5 will conclude the findings and provide related implications.

## 2. Literature Review and Hypothesis Development

### 2.1. Theoretical Background

#### 2.1.1. Greenwashing

Consumers’ growing ability to pay for green products provides business organizations with an incentive to change their business strategies [12]. If a company implements a corporate social responsibility strategy, it will increase its attractiveness to specific stakeholders, leading to positive consumer emotional orientation and purchase intention [13]. Consequently, greenwashing has become an important tool to compete with rivals in the market. If competitors’ greenwashing strategy improves their image, reduces their capital costs, and increases revenues by attracting responsible consumers and investors, it can lead to the spread of greenwashing in other organizations [14]. Nyilasy et al. [15] argue that greenwashing is a deliberate deception. In recent decades, the definition of greenwashing has become more precise. Lyon and Maxwell [16] consider that greenwashing refers to the selective disclosure of positive information about a company’s social or environmental actions rather than exclusively negative information. TerraChoice [17] defines the seven sins of greenwashing: sin of the hidden trade-off, sin of no proof, sin of vagueness, sin of worshipping a fake, and sin of misrepresentation. Walker et al. [18] define greenwashing as the gap between “symbolic” and “substantive” corporate social action, bridging the gap between concerns about greenwashing using image advertising, visual images, and ambiguous statements.

For existing stakeholders, while greenwashing may benefit the company by increasing additional profits, it can have a negative impact on the sustainability of society as a whole. A large number of studies show that the dangers of greenwashing are well documented, as the brand trust between green brands and their stakeholders is greatly damaged after the implementation of greenwashing [19]. Greenwashing also has a negative impact on corporate social responsibility and reputation, thus further influencing consumers’ behavioral intentions [20]. In addition, greenwashing has negative externalities, as greenwashing by one brand can negatively affect consumers’ willingness to purchase green products from other brands in the industry [21]. In the extensive literature on greenwashing, which

focuses on consumers' behavior, many scholars have discussed the relationship between greenwashing and various specific topics such as green confidence, brand image, green brand loyalty, green skepticism, and green word of mouth [8,22–24].

The literature on greenwashing and fast fashion has been growing in recent years, especially in terms of studying the causes and impact mechanisms of greenwashing. Studies have been conducted to examine the mechanisms by which greenwashing affect consumers, investors, businesses and other stakeholders.

### 2.1.2. The Perceived Risk Theory

The original concept of perceived risk was extended from psychological concepts by Bauer [25]. He claimed that consumers could not be sure whether the expected outcome of their purchase behavior is correct, and this kind of uncertainty makes consumers unpleasant. From a psychological point of view, the human brain likes certainty and stability, while risk implies uncertainty. As highlighted by Cunningham [26], risk includes uncertainty and consequences. Therefore, uncertainty regarding the outcome is implicit in consumers' purchase decisions, and this uncertainty causes consumers to perceive a certain degree of risk in making real purchase decisions [27]. Perceived risk is linked to possible consequences under wrong decisions, and some scholars point out that risk is the product of the probability of consequences and the negative consequences of poor brand choice [28]. Similarly, perceived risk induces selective information retrieval behavior in consumers. Gemünden [29] argues that perceived risk as a state of cognitive dissonance induces a selective search for consistent information and active avoidance of potentially inconsistent information. Dowling and Staelin [9] also found that experimental subjects would tend to engage in risk-reducing activities in order to reduce their perceived risk level. In addition, perceived risk varies not only by degree but also by category. Jacoby and Kaplan [30] classified perceived risk into five types: financial risk, social risk, psychological risk, performance risk, and physical risk, which may seem suitable to analyze the risks in decision-making. However, the focus of risk perception varies in different scenarios, and there is no unified paradigm and structure in academia.

### 2.1.3. Impulsive Buying in the Fast Fashion Industry

Fast fashion is a low-cost clothing line that differs from current high-cost luxury fashion trends. It refers to a business strategy that responds quickly to emerging trends by enhancing design tastes and product design to add value to products and meet the demand for short-cycle fashion products. It is essentially a rapid response system that encourages one-time processing [31]. In order to keep customers coming back, companies look for new trends in the field and purchase new products weekly to replenish their inventory [32]. Many consumers do not realize the connection between sustainability and the fast fashion industry, and even when consumers are aware of the environmental impact of fast fashion, they seem to block it from their consciousness [31]. The pursuit of fashion far outweighs environmental ethics. Niinimäki [32] notices that although the number of ethical hardliners is increasing, this number is still low. Furthermore, Niinimäki argues that cost is far from the only obstacle to embracing eco-fashion: style, quality, color, compatibility with existing closets, and the continued desire for new clothes also influence consumers' purchasing decisions. Due to price and its scarcity in terms of quantity and style, the characteristics of the fast fashion industry tend to provide consumers with a tendency to spend more impulsively. Fast fashion retailers are able to satisfy young consumers' desire for seasonal fashion products at low prices and frequently introduce scarce items putting consumers in a dilemma. Just as the products are scarce, consumers may feel pressured to purchase these items immediately [33]. Impulsive buying has been considered a short-sighted and inconsistent action [34], and this behavior will have a negative impact on personal finances [35]. Consumers in the fast fashion consumer environment are likely to be influenced by price, and perceived scarcity, thus increasing their attitude towards fast

fashion retailers, then forming an impulsive spending tendency and making unsustainable purchasing decisions [1].

## 2.2. Hypothesis Development

### 2.2.1. Greenwashing Perception and Green Purchase Intention

Greenwashing, in general, refers to a proxy for a firm or company sharing false or misleading information about sustainability programs for marketing purposes and thereby disguising its environment-unfriendly behavior [36], which can provide consumers with false perceptions. Dodd and Monroe et al. [37] argue that purchase intention is the subjective probability that a consumer will purchase a particular product. Chinese scholars Han and Tian [14] consider purchase intention as the likelihood that a consumer will purchase a product, while green purchase intention refers to the likelihood that a consumer will purchase a particular product because of their environmental views, and it represents the extent to which consumers are prepared to purchase products and services from companies with an environmental reputation [38].

Greenwashing affects consumer perceptions and attitudes, such as suspicion and distrust of corporate green advertising practices [7,39], and reduces consumers' green purchasing power [40]. Greenwashing has a negative impact on consumer behavior [41]. When consumers are aware of the discrepancy between company performance and green advertising, they may act in a suspicious manner and negatively understand the reasons behind the company's secret motives [42]. Consumers' knowledge of greenwashing also affects their brand attitudes, green brand equity, and purchase intention [8,9,43]. If companies use greenwashing to deceive consumers, consumers may be reluctant to build trust or long-term relationships with companies, ultimately reducing their purchase intention [21]. Based on the existing literature and the above argument, we propose the following hypothesis.

**Hypothesis 1.** *Consumers' greenwashing perception has a direct negative effect on green purchase intention in the fast fashion industry.*

### 2.2.2. Greenwashing and Financial Perceived Risk

The environmental characteristics and sustainability of products can reduce the price sensitivity of consumers [44]. However, in the context of greenwashing, consumers are likely to perceive the potential risks that greenwashing may bring to their purchasing behavior. Their perceptions of the value of the product may change accordingly, especially if consumers have a general perception of a premium for green products. Thus, it seems that the greenwashing of a product may affect the reasonableness of its price premium and create perceived price risk for consumers. Kelly and Stephenson [45] consider value as the basis of price perception. The perceived value represents consumers' assessment of product benefits compared to sacrifices [46]. Users with green consumption awareness may be more sensitive to price in situations where they find that the product does not achieve its environmental value, and this sensitivity reflects, to some extent, the customer's perception of the green premium. Consequently, consumers may feel the financial risk which refers to the risk that the purchased service may not bring the best possible monetary benefit to consumers [30]. Based on the existing literature and the above argument, we propose the following hypothesis.

**Hypothesis 2.** *Greenwashing perception has a positive effect on perceived financial risk.*

### 2.2.3. Greenwashing Perception and Green Perceived Risk

In addition to financial risks, there are social risks, psychological risks, performance risks, and physical risks. Mohr [47] proposes green perceived risk in addition to physical risk, which further expands the study in specific scenarios. Chen and Chang [12] define green perceived risk as "the expectation of negative environmental consequences associated with purchase behavior" and confirm these possibilities with significant loading scores.

They note that it is an expectation of negative outcomes associated with environmental outcomes. The emergence of greenwashing behavior may trigger consumers' uncertainty about the green performance of companies. Therefore, we propose the following hypothesis.

**Hypothesis 3.** *Greenwashing perception positively affects green perceived risk.*

#### 2.2.4. Perceived Risk and Green Purchase Intention

Dowling and Staelin [9] observe that experimental subjects in their study tend to engage in risk-reducing activities in order to reduce the level of perceived risk. The reduction of perceived risk leads to an increase in the probability of purchase and the customer's willingness to purchase; thus, perceived risk is negatively related to willingness to purchase [10]. Information asymmetry makes consumers judge and doubt the actual value of the product before purchasing, which affects their willingness to buy. This situation allows the seller to act opportunistically [48]. If consumers perceive a high risk for a product, they are less likely to purchase it [10]. Therefore, existing literature suggests that a reduction in perceived risk can increase customers' willingness to buy, and we propose the following two hypotheses.

**Hypothesis 4.** *Financial perceived risk negatively affects consumers' green purchase intention.*

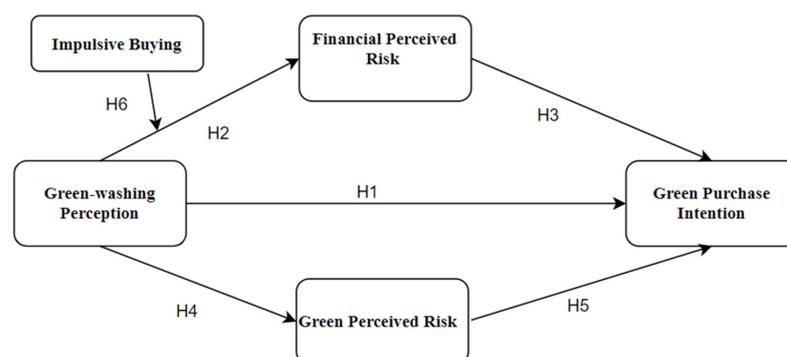
**Hypothesis 5.** *Green perceived risk negatively affects consumers' green purchase intention.*

#### 2.2.5. Impulsive Buying and Financial Perceived Risk

Fast fashion, due to its low price and scarcity of quantity and style, stimulates impulsive buying [1]. Impulsive buying, as irrational consumer behavior, is manifested in the fast fashion industry by buying more than needed, instinctively and impulsively, exceeding the purchase plan, and generating waste. As a personal trait, it is not the same among people. It is often considered to be an irrational purchase and a lack of consideration for the environment and sustainability and can have a negative impact on personal finances [35]. Consumers in a fast fashion environment are likely to be influenced by the perceived scarcity of price, quantity, and style, which increases their attitudes toward fast fashion retailers; thus, in turn, creating a tendency to consume impulsively and make unsustainable purchasing decisions [1]. Consumers with impulsive purchasing tendencies are more likely to develop negative post-purchase emotions that may increase their perception of financial risk in future purchases. Accordingly, we propose the following hypothesis.

**Hypothesis 6.** *Impulsive buying plays a moderating role in the effect of greenwashing perception on perceived financial risk.*

Based on the above analysis, the conceptual model and relationship hypothesis of the influence mechanism of greenwashing perception on green purchase intention is shown in Figure 1.



**Figure 1.** Conceptual model and relationship hypotheses.

### 3. Research Method

#### 3.1. Research Design

For fast fashion brands such as UNIQLO, H&M, ZARA, GAP, SHEIN, etc., the limited functional life design of clothing is the core of their business operations. In the starting point of commercial interests and improving supply chain efficiency, fast fashion companies have enough motivation to greenwash. For example, they may promote the recyclability of clothing and the environmental features of the cloth materials. This provides reasonable support for the situation assumptions in the questionnaire below.

In order to better test the hypotheses, we used Credamo, which is the world's first one-step smart research platform, to distribute online questionnaires for research. Before the formal start of the survey, the purpose of the survey needed to be declared to the respondents. Meanwhile, the respondents of this study were mainly consumers of fast fashion brands. Therefore, we used the question "How often do you buy fast fashion clothing?" at the beginning of the questionnaire to filter the target study population. Then, virtual fast fashion brand A is set up in the survey with a short description of its environmental claims and manifesto. After that, a description of destructive negative behavior is shown, which contrasts with the previous environmental commitment. The situation set in the questionnaire is as follows:

"A is a fast fashion company that follows fashion trends and provides consumers with affordable and fashionable designs of clothing. It is committed to being a green pioneer, insisting on creating symbiotic values with consumers, eco-partners, the environment, and society, and moving towards the goal of sustainable development. It promotes A brand's business of recycling used clothes to offset the purchase of new clothes and the recyclable material of clothes. Meanwhile, it promises to re-process or sell used clothes to promote green consumption and development. Such activities have been well received by consumers. However, recently, it has been questioned as 'deceptive green propaganda' for its suspected incineration of large quantities of clothes to clear inventory. There has been no official word from the company since the incident."

After reading the situational materials, respondents were asked to complete a questionnaire. The questionnaire was designed based on indicators (shown in Table 1) from the classical literature and adapted to the actual situation.

We used a seven-point Likert scale, where respondents were asked to choose from a scale of "strongly disagree" to "strongly agree". Matell et al. [49] found that the proportion of respondents choosing a midpoint decreased as the scale level increased. Therefore, the choice of a seven-point scale reduces the error introduced by a neutral midpoint. In the survey, the respondents were required to choose on a scale of 1–7. The following are the details of the scale.

**Table 1.** Measurement scale.

Construct	Items	Source
Greenwashing perception	This product misleads with words in its environmental features. (GWP 1)	[6,12,50]
	This product misleads with visuals or graphics in its environmental features. (GWP 2)	
	This product possesses a green claim that is vague or seemingly un-provable. (GWP 3)	
	This product overstates or exaggerates how its green functionality actually is. (GWP 4)	
	This product leaves out or masks important information, making the green claim sound better than it is. (GWP 5)	

Table 1. Cont.

Construct	Items	Source
Green Perceived Risk	<p>There is a chance that there will be something wrong with the environmental performance of this product. (GPR 1)</p> <p>There is a chance that this product will not work properly with respect to its environmental design. (GPR 2)</p> <p>There is a chance that using this product will negatively affect the environment. (GPR 3)</p> <p>Using this product would damage your green reputation or image. (GPR 4)</p>	[12]
Financial Perceived Risk	<p>Product may not be worth the money I spent. (FRP 1)</p> <p>I might be overcharged. (FRP 2)</p> <p>I tend to overspend. (FRP 3)</p> <p>Purchasing this product can involve a waste of money. (FRP 4)</p> <p>I do not trust the greenwashing brand. (FRP 5)</p>	[51]
Green purchase Intention	<p>Because brand A is concerned about the environment, I tend to buy products from this fast fashion brand. (GPI 1)</p> <p>Because of the performance of A regarding the environment, there is a great possibility that I might buy products from this fast fashion brand. (GPI 2)</p> <p>I am happy to buy products from A because it is environmentally friendly. (GPI 3)</p> <p>I would also recommend others to buy products from A. (GPI 4)</p>	[34,52,53]
Impulsive Buying	<p>I often buy things spontaneously from fast fashion retailers. (IB 1)</p> <p>“Just do it” describes the way I buy things from fast fashion retailers. (IB 2)</p> <p>“I see it, I buy it” describes the way I buy things from fast fashion retailers. (IB 3)</p> <p>“Buy now, think about it later” describes the way I buy things from fast fashion retailers. (IB 4)</p> <p>I often do not think long when buying things from fast fashion retailers. (IB 5)</p>	[54,55]

### 3.2. Data Collection

Before formally starting the questionnaire, 40 questionnaires were distributed randomly through the Credamo platform to check for ambiguities of expression to improve the fitness of the questions. After confirming the questionnaire was feasible, the survey began.

The survey was distributed by the author through Credamo platforms in September 2022 and remained open to participants for approximately 5 days. Data were collected using an online questionnaire, which was also completed and collected anonymously to ensure objectivity and authenticity. In total, 509 questionnaires were received during the open period, of which 433 were valid. Some questionnaires were excluded because they did not pass the screening questions, or the response time was too short. Thus, the questionnaire validity rate is approximately 85.07%.

### 3.3. Data Analysis

The study examines the effect of greenwashing perception on green purchase intention. The metrics of perception advocates the use of latent constructs and various indicators. Hence, we adopt the Partial Least Squares Structural Equation Modeling (PLS-SEM) ap-

proach in this paper. PLS-SEM is built on Structural Equation Modeling (SEM) theory. It is useful because (1) it contains two components, the measurement model and the institutional model, which allow the latent variables and their corresponding observed variables to be brought into a unified framework [56]. (2) Without imposing distributional assumptions on the data, it allows causal predictive analysis of data with high complexity but low theoretical support [57,58]. (3) Compared to regression analysis, it can better address endogeneity problems caused by measurement errors [59]. Regarding the estimation of the PLS-SEM model, much user-friendly software is available, such as PLS-Graph and Smart-PLS [57]. The data of this survey were analyzed by Smart-PLS (Version 4), and the data were cleaned before formal analysis.

### 3.4. Participants

The demographic characteristics of the valid respondents are summarized in Table 2. In the sample, male and female respondents accounted for 31.2% and 68.8%, respectively; all age groups are well surveyed, with 93.08% of the respondents aged between 18 and 40. The age distribution matches the industry survey for the consumers of the fast fashion industry in China by the Qianzhan Report, which is a famous Chinese consulting service provider. The findings of the questionnaire collection in Peng and Hermann's research [60] also confirm it. Therefore, statistically, people 18–40 years dominate the market for the fast fashion industry. However, people in other age ranges are not negligible since they are also an important part of the consumers in the market. In particular, the population of consumers may not be perfectly relevant to the purchasing power of the consumers. It is not uncommon that people aged above 50 buy significantly more products from some brands, say, UNIQLO. Therefore, these consumers may be more important for the enterprises, and so are the marketing strategies. In terms of education level, 0.2% of the respondents received junior high school education or below, 2.5% received a high school education or technical secondary school education, and 83.6% received undergraduate or junior college education. The frequency of buying fast fashion products is mainly concentrated to once or twice a month. In terms of income, the dominant part of them earned more than 6000 CNY monthly, which is over two times the average income in China. Therefore, it is still reasonable to assume that they are able to make autonomous purchase decisions. Accordingly, we think some of them can be "impulsive buyers". In particular, the price for the majority of fast fashion products is around CNY 300, according to the official websites of some fast fashion brand products such as UNIQLO. As shown by Cook and Yurchisin's research [1], this price is low enough to trigger "impulsive purchase".

**Table 2.** Demographic profile of the respondents.

Gender	N	%
Male	135	31.20%
Female	298	68.80%
<b>Age</b>		
18 years	9	2.08%
18–25 years	133	30.72%
26–30 years	128	29.56%
31–40 years	133	30.72%
41–50 years	19	4.39%
51–60 years	10	2.31%
Over 60 years	1	0.23%
<b>Income (CNY)</b>		
2000 or below	56	12.93%
2001–4000	59	13.63%
4001–6000	50	11.54%
6001–8000	122	27.71%
8001–10,000	83	16.16%
above 10,000	63	14.55%

Table 2. Cont.

Gender	N	%
<b>Education</b>		
Middle School or below	1	0.20%
High School or Technical secondary school	11	2.50%
Undergraduate or Junior college	362	83.60%
Postgraduate or above	59	13.60%
<b>Purchase Frequency</b>		
Once or twice a week (or more)	56	12.90%
Once or twice a month	292	67.40%
Once or twice half a year	75	17.30%
Once or twice a year	10	2.30%

## 4. Results and Analysis

### 4.1. Reliability and Validity

For the 433 valid questionnaires collected, this paper conducts the reliability and validity analysis of the data. Cronbach's alpha coefficient and composite reliability coefficient are used to analyze the reliability of the questionnaire. Table 3 shows the results of the Cronbach's alpha coefficient of the model by dimension, and the Cronbach's alpha coefficients of greenwashing perception, financial perceived risk, green perceived risk, green purchase intention, and impulsive buying are 0.782, 0.777, 0.775, 0.804, and 0.915, indicating that the reliability of the questionnaire is acceptable. Convergent validity was assessed using the factor loading method. Factor loadings of 0.6 or more indicate reasonable convergent validity [61]. As shown in Table 4, factor loadings for all latent variables are above 0.6, indicating good convergent validity of the factors. Average variance extraction (AVE) is used to assess the discriminant validity of the measure [62]. Specifically, the square root of AVE must exceed the correlation between the variable and other variables. As shown in Table 3, the square root of the AVE of all variables is higher than the correlation between all constructs in Table 3, indicating that the discriminant validity of this measure is accepted. Furthermore, the AVEs of greenwashing perception, financial perceived risk, green perceived risk, green purchase intention, and impulsive buying are 0.534, 0.531, 0.599, 0.630, and 0.746, respectively. All of the AVEs are higher than the minimum level of 0.5, indicating that the convergent validity of this measure is also acceptable. Moreover, the questions in the scale are all from other classical literature that had been tested to ensure content validity.

Table 3. Square root of AVE and correlation analysis.

Variables	Cronbach's Alpha Coefficient	Composite Reliability Coefficient	GWP	FPR	GPR	GPI	IB
GWP	0.782	0.851	(0.731)				
FPR	0.777	0.849	0.605	(0.729)			
GPR	0.775	0.856	0.683	0.643	(0.774)		
GPI	0.804	0.872	−0.614	−0.626	−0.614	(0.794)	
IB	0.915	0.936	−0.003	−0.029	−0.038	0.112	(0.864)

Table 4. Factor loadings.

GWP	FPR	GPR	GPI	IB
GWP1:0.708	FPR1:0.734	GPR1:0.780	GPI1:0.816	IB1:0.861
GWP2:0.738	FPR2:0.754	GPR2:0.749	GPI2:0.796	IB2:0.888
GWP3:0.726	FPR3:0.640	GPR3:0.829	GPI3:0.807	IB3:0.827
GWP4:0.739	FPR4:0.790	FPR4:0.734	GPI4:0.753	IB4:0.875
GWP5:0.743	FPR5:0.716			IB5:0.865

Multiple covariances is tested using a full variance inflation factor (VIF). If the VIF value is five or more, we may infer that there is a problem of co-linearity between the latent variables. The results of the multicollinearity test are presented in Table 5. The highest VIF for the potential variables is 2.355, indicating that multicollinearity is not a concern in this study.

**Table 5.** VIF test.

Variables	GWP	FPR	GPR	GPI	IB
VIF	2.134	2.094	2.355	1.981	1.019

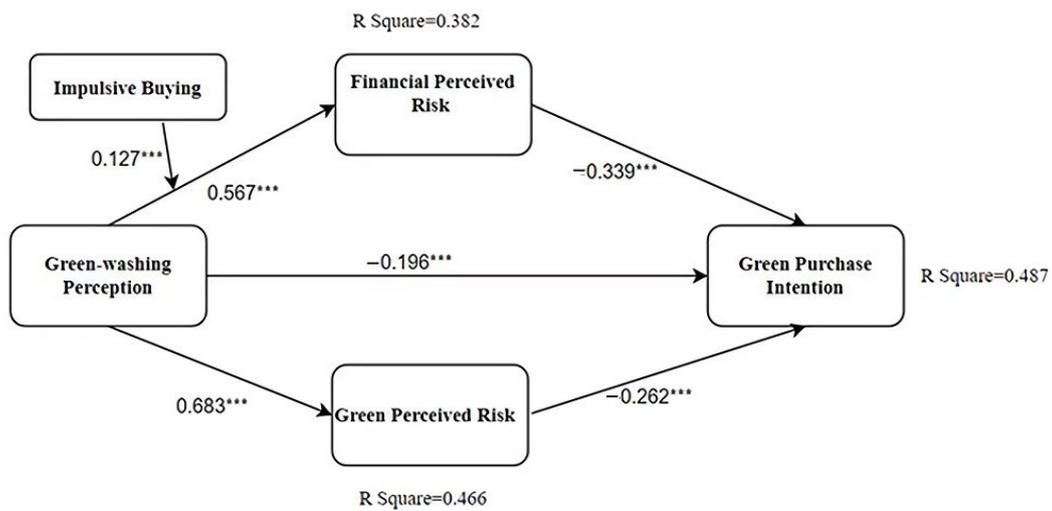
#### 4.2. The Common Method Bias

Common Method Bias (CMB) refers to artificial covariation between predictor and effector variables due to the same data source, the same measurement environment, the item context, and the characteristics of the item itself. Harman's single-factor test is applied to measure the CMB in this study. Using exploratory factor analysis (EFA) and restricting the extraction to one factor, we could suspect the presence of common method bias if the variance explained by this factor reaches more than 50%. The results show that the variance explained by the first factor is 32.425%, which is less than 50%, so there is no common method bias.

#### 4.3. Hypothesis Testing

##### 4.3.1. Direct Effect Test

The results of the PLS-SEM analysis are summarized in Figure 2. The results show that the perception of greenwashing has a significant negative effect on green purchase intention ( $\beta = -0.196, p < 0.001$ ). The higher the perception of greenwashing, the lower the willingness to buy green products, so Hypothesis 1 is supported. The coefficient of the path from greenwashing perception to perceived financial risk is significantly positive ( $\beta = 0.567, p < 0.001$ ). Thus, Hypothesis 2 is supported. Financial perceived risk has a significant negative effect on green purchase intention with a larger coefficient than the greenwashing perception ( $\beta = -0.339, p < 0.001$ ), which statistically supports Hypothesis 3. Among all the latent variables in the full model, the strongest standardized regression weight exists between greenwashing perception and green perceived risk ( $\beta = 0.683, p < 0.001$ ). This demonstrates that greenwashing perception has the strongest positive effect on perceived green risk, so Hypothesis 4 is supported. The negative effect of green perceived risk on green purchase intention, as suggested by Hypothesis 5, is also supported ( $\beta = -0.262, p < 0.001$ ). Finally, the R-squares from the analysis are reported as follows. The R-square associated with financial perceived risk indicated that greenwashing perception could explain financial perceived risk by 38.2%. The R-square associated with green perceived risk indicated that greenwashing perception could explain green perceived risk by 46.6%. The R-square associated with green purchase intention indicated that greenwashing perception, financial perceived risk, and green perceived risk altogether could explain green purchase intention by 48.7%.



Note: \*\*\*  $p < 0.001$

Figure 2. Results from PLS-SEM analysis.

4.3.2. Mediating Effect Test

Following Zhao et al. [63], we adopt the bootstrap method to estimate the mediating effects of financial perceived risk and green perceived risk. There are 433 original samples, and each time they are put back to draw 433. We set the program to repeat the sampling 1000 times and then estimate each of these 1000 samples to obtain 1000 estimates. The confidence interval is set at 95%. If the test finds that the upper and lower bounds of the indirect effect within the confidence interval do not include 0, then the existence of mediating effect is confirmed. Otherwise, there is no mediating effect.

The results in Table 6 show that the confidence intervals for both mediating effect paths do not include 0. Therefore, both perceived financial risk and green perceived risk play a negative mediating role in greenwashing perceptions and green purchase intention. The indirect effect of financial perceived risk is  $-0.192$ , and the indirect effect of green perceived risk is  $-0.179$ . This suggests a greater mediating role for financial perceived risk.

Table 6. Mediating effect results.

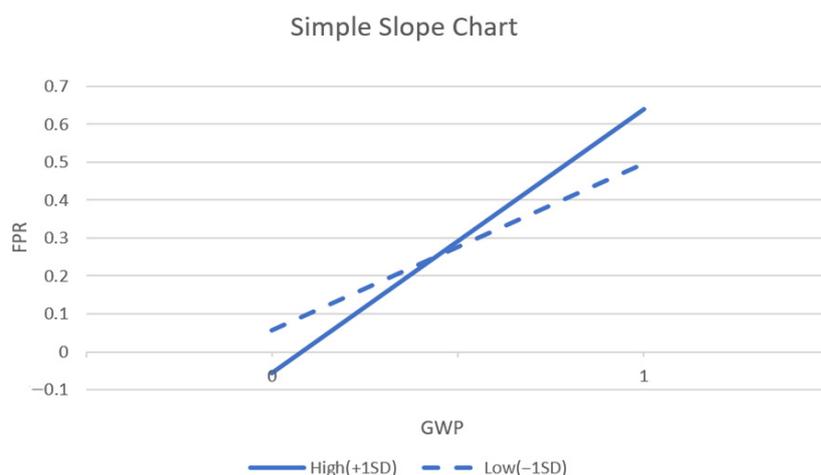
Path	Standardized Path Coefficient	95% BootCI	
		Lower Bound	Upper Bound
Mediating Effects			
GWP→FPR→GPI	$-0.192$ ***	$-0.262$	$-0.122$
GWP→GPR→GPI	$-0.179$ ***	$-0.276$	$-0.096$

Note: \*\*\*  $p < 0.001$ .

4.3.3. Moderating Effect Test

To test the moderating role of impulsive buying to consumption in perceptions of greenwashing and financial risk, interaction terms were first created for the independent variable greenwashing perceptions and the moderating variable impulsive buying. The results show that the coefficient of the interaction between greenwashing perception and financial perceived risk is positive and statistically significant ( $\beta = 0.127, p < 0.01$ ). Therefore, Hypothesis 6 is supported. To further clarify the significance of the moderating effect, this study uses the simple slope test to analyze the predictive effect of greenwashing perception on financial perceived risk at different levels of impulsive buying. The regression lines that represent the association between greenwashing perception and financial

perceived risk moderated by impulsive buying are created by using the standardized scores of the variables. Figure 3 demonstrates that the moderating effect of greenwashing perception on impulse-prone consumers is greater than that on non-impulse-prone consumers. While increases in financial perceived risk are associated with increases in greenwashing perception, the rate of change is higher for impulse-prone consumers than for non-impulse-prone consumers. Therefore, impulsive spending tendency reinforces the positive effect of greenwashing perception on financial perceived risk.



**Figure 3.** Simple slope analysis.

## 5. Conclusions and Implications

Based on the specific situation of the fast fashion industry, this paper discusses the mechanism of consumers' perception of greenwashing on their green purchase intention and considers the mediating effect of perceived risk and the moderating effect of impulsive buying on the mediating effect. By collecting 433 valid questionnaires in China, this study uses statistical analysis to test hypotheses and draws the following conclusions: consumers' perception of greenwashing in the fast fashion industry has a direct negative impact on their green purchase intention and an indirect negative impact through perceived risk. At the same time, the moderating variable of impulsive buying strengthens the positive impact of consumers' greenwashing perception on their financial perceived risk.

The study has practical implications. First, the more consumers perceive a company's greenwashing behavior, the more it will weaken their willingness to purchase related products. This requires companies to take substantial sustainability measures and adopt a factual approach without exaggeration or concealment. The exposure of greenwashing may damage the brand's reputation and have a series of collateral effects on the consumer market, and companies need to consider the risks to their own development and brand performance when deciding to greenwash again.

Second, the mediating role of perceived risk suggests that companies need to reduce consumers' perceived risk and thus increase their green purchasing intentions through more informative certifications. It is important to adopt a more authentic communication strategy when making "green" declarations and statements and to provide various certifications, such as demonstrating the actual processing of recycled clothing, etc. Gazzola et al. [64] investigated the behavior of younger consumers regarding emerging trends in fashion and found a growing interest in sustainability issues and the application of circular economy principles in fashion among young people. It is worthwhile for brands that are mired in greenwashing to reflect and make substantial sustainability measures.

Third, when consumers perceive the "false green marketing" of companies, their impulsive purchase tendency in the fast fashion industry reinforces the positive effect of greenwashing perceptions on perceived financial risk. This means that consumers with high impulsive buying levels are more sensitive to the financial risk caused by greenwashing

behavior. Therefore, it is more important for fast fashion companies to encourage and educate consumers to raise their awareness of sustainability and establish the correct consumption concept.

Fourth, due to the prevalence of consumerism, impulse buying by consumers is advocated. Our empirical results show that impulsive buying has a positive effect on perceived financial risk. Therefore, we suggest that leaders should intervene in the social culture of impulsive consumption. According to the relevant literature, consumers' environmental attitudes can influence consumers' willingness to purchase green products. People who really care about the environment may impose their green beliefs on green consumption habits and reduce their irresponsible purchase intentions [65]. Those consumers are more likely to have a strong sense of environmental responsibility and to implement environmentally friendly behaviors [66]. With the popularity of online shopping in China, "consumerism" is prevalent. "Web celebrity" amplifies desire-based consumption by advocating fashion and stimulating impulsive buying behavior, while few "opinion leaders" truly advocate environmental protection. There are few "opinion leaders" who actually advocate environmental protection. In order to pursue fashion needs, consumers may selectively ignore their preference for "green". This requires more relevant parties to make substantive measures to increase the publicity of environmental protection and deepen the public's understanding of the fast fashion industry and encourage environmental opinion leaders to take the lead in promoting consumer awareness of sustainable development. However, raising awareness is not enough, and there is still a large gap between sustainable awareness and green purchasing behavior, so policy interventions such as taxes and subsidies are needed to promote sustainability in the fast fashion industry [67].

Fifth, because the supply chain of the fast fashion industry is complex and highly decentralized across the globe, the fashion manufacturing industry is even more opaque than agribusiness [68]. Consumers often do not easily perceive greenwashing behavior, which makes it more important for the government and other social forces to help consumers understand the fast fashion industry better and strengthen the power of regulation. In addition, the global COVID epidemic has had a profound impact on the sustainable purchasing behavior of consumers around the world, making it even more important for governments to take appropriate measures to address the new changes in consumer behavior [69]. By relying on carbon emission monitoring, carbon footprint tracking technology, and power data blockchain technology to develop greenwashing identification products, a steady environmental efficiency monitoring system can be built. Standardized and high-frequency green information disclosure products can be used to force fast fashion enterprises to take practical and sustainable actions.

Sixth, fast fashion enterprises need to actively innovate. After 2020, the "double carbon and emission reduction" strategy has become China's strategic national policy. How to deal with the "storm of ethical consumption" in the fast fashion industry is related to the survival and development of enterprises. The internal reason for the unsustainability of the fast fashion industry is that it is difficult to eliminate a large amount of production waste and consumerism in its original business genes, which requires that in the new era, the relevant enterprises need to start internal review and self-optimization to upgrade the original brand concept and promote sustainable development.

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