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Greenwashing and green purchase intention: The moderating role of responsibility

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ABSTRACT

This research is based on the theory of planned behavior and theory of perceived risk (PR) where the impact of perceived greenwashing (PG) on purchase intention (PI) is assessed, as well as the mediating roles of green brand image, brand trust, PR, and attitudes towards green products. The research broadens the theoretical frame by checking the moderating impact of personal environmental responsibility (ER). Data were gathered from 502 Vietnamese consumers who had bought green products and thought a brand had used greenwashing practices. Structural interrelationships were analyzed through partial least squares structural equation modeling using SmartPLS 4. Results show that PG has a statistically significant but not major direct influence on PI and can indirectly affect it through mediators. Moreover, ER acts as a moderator between PG, PR, and PI. These results offer insights into consumer responses to greenwashing in Vietnam.

Keywords: greenwashing, purchase intention, environmental responsibility, perceived risk

INTRODUCTION

Climate change is one of the most important challenges the world is facing nowadays that has brought along the problem of natural resource scarcity (UNEP, 2019). Promoting a green economy and encouraging sustainable consumption has become a key factor to ensure long-term development, according to the Ministry of Ngọc Hân (2024). Sustainable consumption refers to the effective use of products and services to meet basic needs without affecting the environment and without harming the rights of future generations (UNEP, 2019). Recently, the green market in Vietnam has been on the rise. As stated by the Ministry of (Ngọc Hân, 2024), the Vietnamese market experienced a remarkable surge in the green consumption sector during the period between 2021 and 2023, with a yearly average growth of 15%. A lot of research has supported the argument that there is a gradual transition of consumers from buying conventional products to ones that are environmentally friendly (Vũ Nhung, 2025). This indicates that environmental accountability has been increasingly prioritized in consumer spending, which in turn creates space for the development of sustainability.

Past experiments have also indicated that greenwashing has negative effects on consumers' intention to buy green products. Greenwashing refers to consumers' perception that an organization disseminates misleading or false environmental information, thereby creating an impression of environmental responsibility (ER) without corresponding substantive practices. Specifically, when people doubt the greenness of a product, they tend to be more negative and have less willingness to buy it (Barbosa et al., 2024; Lu et al., 2022; Nguyen et al., 2019; Zhang et al., 2018). The situation is no different with the customers that are already using the product. When they discover greenwashing, they are inclined to subtract value from "green" ads and break the trust on the brand. This, in turn, results in consumers becoming less responsive to the promotion of green products from that business (Chen & Chang, 2013; Guerreiro & Pacheco, 2021; Vilkaitė-Vaitonė, 2024). Overall, greenwashing is not only a deceptive practice but also increases buyers' risk perception (when they are concerned about the accuracy of information), reduces green satisfaction (Ha, 2022), and lowers brand attachment (Guerreiro & Pacheco, 2021).

Previous studies have explored the relationship between greenwashing and green purchase intention (PI). Green PI refers to an individual's willingness and conscious plan to purchase environmentally friendly products that are perceived to minimize negative impacts on the environment (Singh et al., 2025). Lu et al. (2022) further demonstrated the negative effects of greenwashing on perceived risk (PR) and PI toward environmentally friendly products. Other studies have highlighted the role of brand-related factors, including brand trust (BT), brand image (BI), PR, and attitudes toward green products (ATT), in shaping consumers' responses to environmental claims. In addition, ER has been examined as a

moderating factor in the relationship between perceived greenwashing (PG) and PI (Sun & Shi, 2022). However, prior research has rarely examined an integrated framework that simultaneously considers these factors, and the moderating role of ER in the relationship between PR and green PI remains underexplored, particularly in emerging market contexts such as Vietnam.

This study is novel in several respects. First, it develops an integrated model that simultaneously examines the effects of PG, PR, BT, BI, and ATT on green PI. Second, it extends prior research by investigating the moderating role of ER not only in the greenwashing-PI relationship but also in the link between PR and green PI. Finally, the study provides empirical evidence from Vietnam, an emerging market context that has received limited attention in the greenwashing literature. Accordingly, this study aims to address these gaps by examining ER as a moderator in the relationship between PR and green PI, while integrating BT, BI, and ATT as mediators in the relationship between PG and green PI.

This study is conducted based on two theoretical foundations: the theory of planned behavior (TPB) (Ajzen, 1991) and the theory of perceived risk (TPR). The key elements of this study are expressed in the following paragraphs: the theoretical framework, the hypotheses, and the research model, with the methodology and outcome stated next. The last point is the discussion of managerial implications and limitations.

THEORETICAL REVIEW

Greenwashing

Greenwashing has become more common in companies, especially the ones that mislead consumers about the ecological performance of a company or the environmental benefits of a product or service (Delmas & Burbano, 2011). The primary reason for doing greenwashing is sometimes to achieve a good public image and thus, build a positive BI without spending as much as was required for the real environmental initiatives (Chen & Chang, 2013). The fastest and most important outcome of greenwashing is the drop of consumer confidence in ambiental assertions and green brands, which results in more skepticism in the truthfulness of the environmental data (de Freitas Netto et al., 2020) Given the negative impact of greenwashing on consumer trust, our study hypothesizes that PG will negatively affect BI and trust, which in turn reduces consumers' green PI The deliberate deception of the companies about their environmental activities not only decreases the degree of environmental improvement but also creates instability in the green product market, causing people to doubt the companies' promises of being sustainable (Chen et al., 2014). Thus, although greenwashing may offer short-term competitive advantages in terms of cost savings or BI, it ultimately results in serious long-term consequences for consumer green trust and brand value (Delmas & Burbano, 2011).

Environmental Responsibility

ER here refers to an individual's awareness of their own responsibility and ethical duty in protecting the environment and maintaining the sustainable development of ecosystems (Sun & Shi, 2022). ER plays a critical moderating role in shaping consumer responses to greenwashing, as more eco-conscious consumers are more likely to perceive greenwashing as a deceptive practice, which further diminishes their trust and PI. Green consumption behavior is a psychological aspect that has a certain significance in terms of this. For example, a person who exercises it may decide on a product that affects the environment less instead of a conventional product, or it may even be influenced by the brand it is a (falsely claimed) producer of some kind of pollutant (Schmuck et al., 2018).

People who are eco-conscious buy green products from companies with such practices being nonsensical (Newton et al., 2015). When these persons are presented with such actions, their first reaction is usually a drop in trust in the brand, as a result, it is combined with their will to implement green choices. Besides, on the contrary, these people make more requests and are more careful when there is unclear information or ambiguous signs from firms even with the strong intention to choose green products. They are capable of recognizing possible hazards effortlessly and are highly likely to react unfavorably if they feel that a product does not genuinely fit the sustainable principles they presume (Chen et al., 2020).

Theory of Planned Behavior

This theory integrates several core concepts in the social and behavioral sciences, defining them in a way that enables the prediction and understanding of specific behaviors in particular contexts. Key determinants such as behavior, subjective norms, and perceived behavioral control have been found to predict behavioral intentions with high accuracy (Ajzen, 1991). The TPB has been extensively used in empirical research (Bosnjak et al., 2020). By applying TPB and TPR, our research aims to understand how consumer attitudes towards greenwashing and PR influence green PI. Specifically, we explore how perceived control over environmentally responsible purchasing decisions, combined with consumer skepticism towards greenwashing, affects buying behaviors. In recent years, TPB has also been applied in studies related to greenwashing. For instance, Shojaei et al. (2024) and researchers such as Wu and Chen (2014) have employed this theory in their work

Theory of Perceived Risk

The hypothesis of visible risk in customer behavior was first recommended by Bauer, who believed that buying behavior is a form of risk-taking due to the unpredictability of unfavorable outcomes. Uncertainty in the consequences of consumer decisions is a major factor affecting risk perception (Bauer, 1960). After that, Stone and Grønhaug (1993) regarded the PR as an essential concept in consumer research. It is generally characterized by the potential losses that consumers may suffer from their purchasing decisions. Jacoby and Kaplan (1972) added to this by distinguishing the different types of risks–psychological, physical, financial, social, and performance. This multidimensionality helps clarify the complex nature of risk assessments in consumer decision-making. In the context of greenwashing research, this theory has been widely applied, as seen in studies by Lu et al. (2022),

Chen and Chang (2013), Shojaei et al. (2024), Wu and Chen (2014), and there are many other studies on greenwashing.

RESEARCH MODEL AND HYPOTHESES

Perceived Greenwashing and the Purchase Intention on Green Product

Greenwashing is the practice by which businesses over-promote or misrepresent their environmental performance (Delmas & Burbano, 2011; Seele & Gatti, 2017). When consumers discover that the environmental commitments made in the ads do not properly reflect the reality of the business's operations, they will feel cheated, lose trust, and this will reduce the desire to make a purchase (Tarabieh, 2021). Research of Sun and Shi (2022) also said that awareness of greenwashing significantly reduces consumers' green purchasing behavior. Therefore, the hypothesis is proposed as follows:

H1. PG has a direct negative (-) impact on the PI on green product

Perceived Greenwashing and Brand Image, Perceived Risk, Attitude Towards Green Products

Green BI is a set of consumers' associations and environmental issue-related perceptions for a specific brand (Chen, 2010). Favorable green BI arises from believing company promises and green initiatives for the environment. However, sincerity for the image may decrease substantially as a result of greenwashing.

Greenwashing denotes the gap and inconsistency between the symbolic message ("words") and substantive actions ("works") by a company towards environmental issues (Bowen & Aragon-Correa, 2014). The empirical study by Chen and colleagues provided clear empirical evidence for this linkage. Specifically, when customers get to know a brand does "greenwashing", they would suspect the sincerity of the claim of the brand and damage and downrank the BI in their thoughts (Chen et al., 2020).

This argument would also find more support against the background of the current market, which observes increased proactivity and sensibility of consumers during the evaluation of sustainable products (Islam & Ali Khan, 2024). The research team, from the analysis and empirical evidence from pre-existing studies, suggests the following hypothesis:

H2. PG has a direct negative (-) impact on BI.

After Dowling and Staelin (1994) Consumer risk perception from the perspective of the consumer perception approach is specified as the level of uncertainty and negative effects which the consumers would potentially undergo when determining whether or not they would buy a product or use a service, including Psychological risk, Physical, financial, social, as well as performance risk (Chen & Chang, 2013). As also witnessed by the results of other studies, greenwashing also appears as a positively impacting factor for risk. As presented by the theory base and empirical support proposed, the research team proposed the hypothesis:

H3. PG has a positive (+) direct impact on PR.

After Ajzen's (1991) TPB attitude significantly influences buying intention as well as behavior. When consumers notice the unconventional green marketing practice of corporations, this not only reduces the PI but also impacts on the product attitude negatively (Barbosa et al., 2024; Chang & Hung, 2023; Rehman et al., 2025). ATT has also been established by previous research to positively affect PIs, as the more favorable the attitude, the higher the PI (Barbosa et al., 2024; Chang & Hung, 2023). The research group thus proposed the assumption, from the illustrated theoretical background as well as empirical evidence:

H4. PG has a direct negative (-) impact on ATT.

Brand Image and Brand Trust

As green marketing strategies get more popular, BI also contributes importantly towards creating and developing customer confidence. It captures customers' internalized beliefs and images of the brand (Keller, 1993). Good BI helps customers remember easily, discriminate, and develop a positive sentiment towards a brand, which illustrates the insight they form from the cumulative brand-related actions of a company (Park et al., 1986).

A green BI not only augments the value felt by customers but also significantly contributes to the development of a brand's trust, primarily when there is a risk of greenwashing (Chen & Chang, 2013). A robust, socially-responsible BI reduces doubt among customers, increasing the receptiveness and believing green claims even without the latter's strict confirmation (Chen, 2010). From the premises stated above, the research introduces a hypothesis:

H5. BI has a positive (+) direct impact on BT.

Brand Trust, Perceived Risk, Attitude, and Intention to Buy Green Products

In green consumption, green product buying behavior is facilitated by BT since consumers place significant dependence on the environmental behavior of a firm, especially as greenwashing concerns keep rising (Mu & Lee, 2023). Where greenwashing undermines trust, green PI declines significantly, highlighting the mediating role of BT in the customer's purchase decision (Isac et al., 2024).

Eco-conscious customers judge green communication more critically, which makes the level of BT more critical for sustaining and increasing PI (Haque & Lang, 2025). In today's competitive market, green brands for the formation of green trust not only reduce the doubts of the customer but also create an eco-loyalty which serves as a valuable stimulant for green purchase behavior (Islam & Ali Khan, 2024; Mu & Lee, 2023). Combining from the above theoretical and experimental evidences, the research team hypothesized

H6. BT has a positive (+) direct impact on PI.

When the relationship between risk perception and PG holds a positive sign, this implies when consumers get the word about corporations selling green products for fraudulent purposes, it would enhance the suspicion and risk perception of the consumers (Lin et al., 2017). And green product PI would decrease when consumers get the word about the risk for the product (Lu et al., 2022; Mitchell, 1999). When consumers doubt a product cannot be trusted, they would doubt a risk

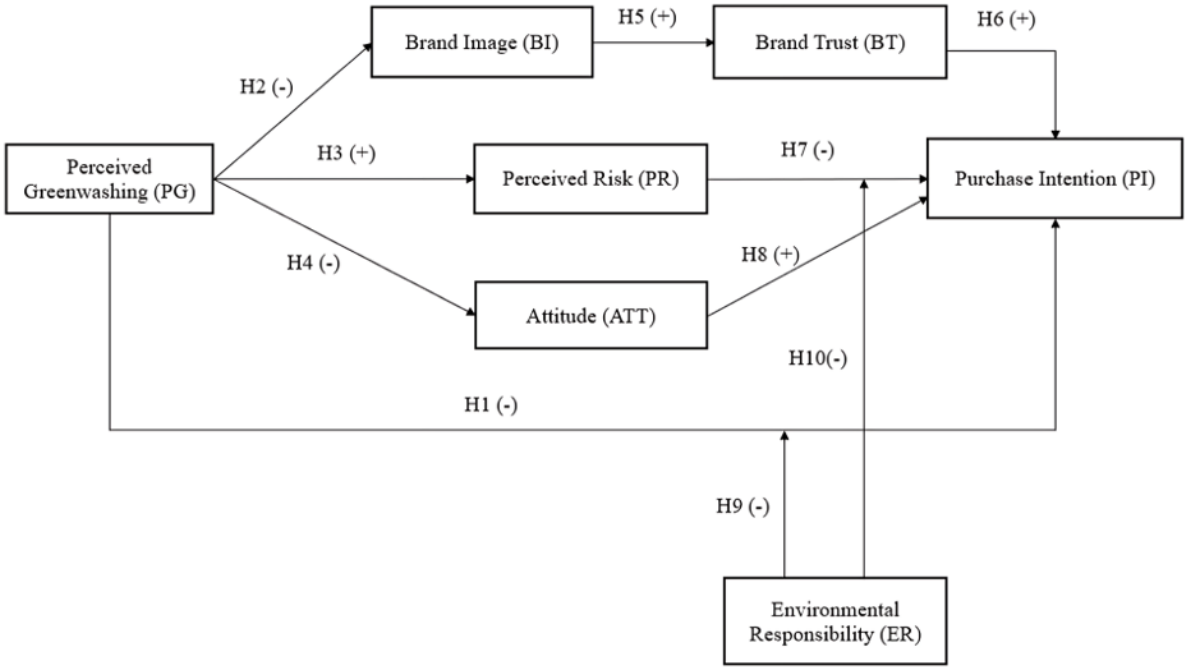

Figure 1. Research model of the article (Source: Authors' own elaboration)

exists and hence decrease the likelihood of the product purchase (Mitchell, 1999). Previous studies also established the fact that as the user's risk perception increases, the PI for green products would decrease. The research team, from the theoretical support and empirical evidence, thus came up with the hypothesis:

H7. PR has a direct negative (-) impact on green product PI.

PG means the customers' perception when the companies falsely market their green behaviors (Nyilasy et al., 2014). After Ajzen's (1991) TPB attitude also demonstrates a critical factor which impacts PI and behavior. When consumers observe the unconventional green ad behavior of the companies, not only does the green product buy intention reduced but also the ATT gets negatively (Barbosa et al., 2024; Chang & Hung, 2023; Rehman et al., 2025). ATT additionally have been identified by the earlier studies as positively affecting PIs, when the attitude becomes more positive, the higher the PI. Based upon the theoretical base as well as empirical support presented, the research team proposed the hypothesis:

H8. ATTs have a positive (+) direct impact on the PI on green products.

Environmental Responsibility

ER is the personal sentiment of a customer to ensure the protection of the environment (Sun & Shi, 2022). The higher the awareness of ER, the more the customer negatively and strongly reacts against brands for greenwashing (Schmuck et al., 2018). If a person owes a responsibility for the protection of the environment, he or she would wish for green products when they consume (Hines et al., 1987).

The prior studies essentially involved the moderator of ER for the greenwash-green PI relationship (Lu et al., 2022). Although often overlooked when speaking of customer risk the risk inherent to green products, green responsible customers lean towards active sustainable consumptions but also more protective and cautious against authenticity, efficacy, and transparency (Chen et al., 2020). As a result, a sort of perceptual gap might occur for the same risky state, those consumers for whom ER is higher tend to respond more negatively.

As the theory and the empirical research presented indicate, the research team formulated the following hypothesis:

H9. ER moderates the relationship between PG and green PI. The negative impact of perceived geenwashing on green PI is stronger among consumers with higher levels of ER.

H10. ER moderates the relationship between risk perception and green PI. The negative impact of risk perception on green PI is stronger among consumers with higher levels of ER.

Figure 1 illustrates the research model of the paper, showing the relationships between factors influencing PI. PG negatively impacts BI and BT, while positively impacting PR. BI positively influences BT, and BT positively impacts PI. ATT and PR also influence PI, with both positive and negative relationships. ER modifies these relationships, influencing perceptions of greenwashing and PI.

RESEARCH METHODS

Research Design

This study employed a mixed-methods of research design, integrating qualitative and quantitative approaches to comprehensively examine the proposed research model and validate the measurement instruments. The qualitative phase was conducted at the preliminary stage to refine the constructs and ensure the contextual appropriateness of the measurement scales in the Vietnamese market. Subsequently,

a quantitative, cross-sectional survey design was implemented to collect primary data for hypothesis testing.

Qualitative Research and Instrument Refinement

The qualitative phase aimed to assess the face validity and cultural suitability of the measurement items adapted from prior studies. This phase consisted of an extensive literature review followed by in-depth interviews with five participants, including two academic experts in marketing from the Industrial University of Ho Chi Minh City and three consumers who had previously expressed skepticism toward environmental claims made by brands.

Insights obtained from these interviews were used to refine the wording, clarity, and relevance of the questionnaire items. Following this step, a pilot test was conducted with ten respondents to evaluate the questionnaire's logical structure, clarity, and completion time. Feedback from the pilot test and the supervising professor led to further adjustments before finalizing the survey instrument for large-scale data collection.

Sample and Data Collection

The target population of this study comprised Vietnamese consumers who met the following criteria:

(1) having purchased eco-friendly products within the past six months and

(2) having experienced skepticism regarding a brand's environmental claims (i.e., PG).

A non-probability quota sampling technique was employed to ensure adequate representation across key demographic characteristics, including gender, age, income, and education level. However, the use of quota sampling may limit the generalizability of the findings due to the non-random nature of the sample. Other sampling methods, such as stratified random sampling, could provide more robust and generalizable results by ensuring that the sample better represents the target population.

Data were collected through an online survey administered via Google Forms and distributed through social media platforms and green consumer communities. Prior to participation, respondents were required to pass a screening question to confirm their eligibility. Once the quota for each demographic group was reached, no further responses from that group were recorded.

A total of 515 responses were collected. After data screening, 502 valid responses were retained for subsequent analysis. The demographic characteristics of the study sample are summarized in **Table 1**.

Measurement Instruments

The measurement model consisted of seven latent constructs (variables) adapted from established literature, including PG, BI, BT, PR, ATT, ER, and green PI. All measurement items were assessed using a five-point Likert scale, ranging from 1 ("strongly disagree") to 5 ("strongly agree").

Given differences in research contexts and cultural settings between prior studies and the current research, the measurement scales were modified based on insights obtained from the qualitative phase to ensure clarity and contextual relevance for Vietnamese consumers. Detailed measurement items and their corresponding sources are presented in **Table 2**.

Table 1. Description of study sample characteristics (n = 502)

Characteristic		Quantity	Ratio (%)
Gender	Male	231	46.0
	Female	271	54.0
Age	Mean	2.47	
	Minimum-maximum	1-4	
Education level	High school	31	6.2
	College	105	20.9
	University	350	69.7
	Postgraduate	16	3.2
	Total	502	100
Monthly income (million VND)	< 3 million	84	16.7
	3 million - < 6 million VND	123	24.5
	6 million - < 10 million VND	189	37.6
	⩾ 10 million	106	21.1
	Total	502	100

Validation and Reliability Assessment

To ensure the reliability and validity of the measurement model, several validation procedures were conducted. The items for each construct were carefully selected based on their relevance to the research context and were refined during the qualitative phase to ensure they were appropriate for the Vietnamese market. This process involved adapting items from prior studies to match the local cultural and environmental factors, ensuring that the measurement scales captured the specific nuances of consumer behavior in Vietnam. Internal consistency reliability was assessed using Cronbach's alpha (α) and composite reliability (CR). Convergent validity was evaluated through average variance extracted (AVE), while discriminant validity was examined using the heterotrait-monotrait (HTMT) ratio.

In addition, potential common method bias was assessed using the full collinearity variance inflation factor (VIF) approach. The results indicated that all VIF values were below the recommended threshold of 5, suggesting that no serious common method bias was present. These validation procedures confirmed the adequacy of the measurement model for subsequent hypothesis testing.

Data Analysis and Hypothesis Testing

Data analysis was conducted using SmartPLS 4. Partial least squares structural equation modeling (PLS-SEM) was employed to evaluate both the measurement model and the structural model. The results of the PLS-SEM analysis revealed a weak relationship between PG and BI (coefficient of determination [R^2] = 0.12), which, although low, remained statistically significant ($p < 0.05$). Despite the low R^2, this relationship holds meaning, indicating that even a weak association can influence consumers' perceptions. Additionally, the HTMT ratio between BT and BI exceeded 0.90, suggesting potential multicollinearity issues. These results warrant a closer look and could benefit from further model re-specification to address potential issues. Bootstrapping with 5000 resamples was used to assess the significance of path coefficients and to examine the mediating

Table 2. Reliability and convergent validity

Concepts	Items	FL	α	CR	AVE
BI (Chen, 2010)	BI1. I believe that green brands are considered role models in their commitment to environmental protection.	0.808	0.884	0.916	0.685
	BI2. I believe that green brands have a high reputation in environmental protection activities.	0.780			
	BI3. I believe that green brands are effective in implementing environmental commitments.	0.885			
	BI4. I find that green brands clearly show concern for environmental issues.	0.779			
	BI5. I believe that green brands are serious about their environmental commitments.	0.881			
PG (Chen & Chang, 2013)	PG1. I believe that green brands have been misleading verbally in describing the environmental features of their products.	0.887	0.891	0.919	0.695
	PG2. I believe that green brands have been misleading graphically or visually in communicating the environmental features of their products.	0.774			
	PG3. I believe that green brands have made vague or unverifiable green claims.	0.840			
	PG4. I believe that green brands have exaggerated or overstated the environmental features of their products.	0.824			
	PG5. I believe that green brands have omitted or concealed important information, making green claims sound better than they actually are.	0.838			
ER (Sun & Shi, 2022)	ER1. I am willing to take action to improve the environment.	0.881	0.938	0.953	0.802
	ER2. I actively seek to learn about ways to protect the environment in my daily life.	0.906			
	ER3. I believe that I have the ability to contribute to protecting the environment.	0.903			
	ER4. I am aware that my actions can impact the environment.	0.888			
	ER5. I believe that I can make a positive change for the environment.	0.899			
PR (Pahlevi & Suhartanto, 2020)	PR1. I am concerned that green brands may not perform as expected.	0.854	0.906	0.929	0.723
	PR2. I feel that using products from green brands may be harmful to my health.	0.857			
	PR3. I am concerned that using products from green brands may negatively affect my image or reputation.	0.786			
	PR4. I am concerned that green brands may cause harm to others if used.	0.872			
	PR5. I feel that using products from green brands may result in unexpected financial losses.	0.878			
BT (Chen, 2010)	BT1. I feel that the environmental commitments of green brands are credible.	0.867	0.906	0.930	0.728
	BT2. I feel that the environmental performance of green brands is generally credible.	0.849			
	BT3. I feel that the arguments that green brands make about the environment are convincing.	0.775			
	BT4. I think that the level of concern that green brands have for the environment meets my expectations.	0.887			
	BT5. I believe that green brands live up to their commitments to protecting the environment.	0.883			
ATT (Wu & Chen, 2014)	ATT1. I recognize that green consumption is a necessary ethical behavior.	0.859	0.856	0.902	0.697
	ATT2. I believe that green consumption is a behavior that brings positive values, both at the individual and community levels.	0.843			
	ATT3. I believe that green consumption brings positive experiences.	0.833			
	ATT4. I believe that green consumption is a rational choice, reflecting thoughtful consideration.	0.804			
PI (Chen & Chang, 2013)	PI1. I am willing to recommend green brands to others because of their efforts in protecting the environment.	0.844	0.856	0.903	0.699
	PI2. I feel satisfied when purchasing products from green brands because they are environmentally responsible.	0.876			
	PI3. I tend to buy more products from green brands because of the positive environmental impact they bring.	0.800			
	PI4. I have a positive impression of green brands because they adhere to the principles of sustainable development	0.822			

Note. FL: Factor loadings

effects of BI, PR, ATT, and BT. The results of the structural model evaluation and hypothesis testing are presented in the following sections.

RESULTS

Measurement Model Assessment

Table 2 presents the results of the measurement model assessment. All indicator loadings exceeded the recommended threshold of 0.70, ranging from 0.774 to 0.906, indicating satisfactory indicator reliability (Hair et al., 2006). Internal consistency reliability was confirmed, as α and CR values for all constructs were above 0.70.

Convergent validity was also supported, with AVE values exceeding the recommended minimum of 0.50, ranging from 0.685 to 0.802 (Hair et al., 2006).

Discriminant validity was assessed using the HTMT ratio. According to Henseler et al. (2015), discriminant validity between two constructs is established when the HTMT value is below 0.90, while Garson (2016) suggests that HTMT values below 1.00 may still be acceptable.

As shown in **Table 3**, most construct pairs demonstrate satisfactory discriminant validity. However, the HTMT value between BT and BI reaches 0.998, which exceeds the recommended threshold proposed by Henseler et al. (2015).

Table 3. HTMT ratio

	1	2	3	4	5	6	7
1. BI							
2. PG	0.205						
3. ER	0.509	0.159					
4. PR	0.216	0.559	0.119				
5. BT	0.998	0.182	0.490	0.203			
6. ATT	0.761	0.256	0.579	0.204	0.744		
7. PI	0.831	0.376	0.601	0.168	0.798	0.835	

Table 4. Hypothesis testing results

Path	β	SE	p	H test	VIF
H1. PG->PI	-0.093	0.033	0.005	Supported	1.763
H2. PG->BI	-0.188	0.051	0.000	Supported	1.000
H3. PG->PR	0.514	0.039	0.000	Supported	1.000
H4. PG->ATT	-0.248	0.053	0.000	Supported	1.000
H5. BI->BT	0.898	0.009	0.000	Supported	1.000
H6. BT->PI	0.382	0.037	0.000	Supported	1.903
H7. PR->PI	-0.112	0.033	0.001	Supported	1.512
H8. ATT->PI	0.359	0.040	0.000	Supported	2.148
H9. ER*PG->PI	-0.078	0.037	0.033	Supported	1.894
H10. ER*PR->PI	0.091	0.031	0.003	Supported	1.667
Endogenous variables		**R^2**		**Q^2**	
BI		0.035		0.030	
PR		0.062		0.260	
BT		0.680		0.022	
ATT		0.035		0.055	
PI		0.264		0.274	

Structural Model Assessment

From the results of **Table 4**, we can see that there is no problem of multicollinearity in the structural model, the values of the VIF are all less than 5. In addition, the R^2 representing the level of explanation of the independent variables on the dependent variable in the model are all suitable: the results are strong for BT (0.680), and weak for BI (0.035), PR (0.062), ATT (0.035), and PI (0.264). The coefficients assessing the out-of-sample predictive ability (Q^2) are all greater than 0, indicating that the overall structural model of the study achieves overall quality according to Tenenhaus et al. (2005).

From bootstrapping analysis on SMART-PLS4, the results show that the hypotheses proposed from **H1** to **H10** are all accepted with $p < 0.05$, value range from 0.000 to 0.033.

DISCUSSION

Based on 502 valid survey responses, the research findings confirm that PG, BI, PR, BT, ATT, and PI are closely interconnected in the context of green consumption in Vietnam. The discussion below interprets these results by relating them to existing empirical findings and theoretical perspectives used in this study.

The results for **H1** indicate that PG has a statistically significant but relatively weak negative effect on PI. This finding is consistent with previous studies showing that when consumers perceive greenwashing, their willingness to purchase green products tends to decline due to increased skepticism toward environmental claims (Tarabieh, 2021; Vilkaitė-Vaitonė, 2024). However, the modest magnitude of this direct effect suggests that the influence of greenwashing on PI is not dominant and may operate more strongly through indirect mechanisms.

Regarding **H2**, the negative relationship between PG and BI supports earlier research indicating that greenwashing undermines consumers' positive associations with a brand and damages its environmental credibility (Chen et al., 2020). This finding reinforces the argument that inconsistencies between communicated green claims and actual practices weaken green brand positioning (Bowen & Aragon-Correa, 2014; Delmas & Burbano, 2011).

The positive association between PG and PR (**H3**) aligns with prior studies suggesting that misleading or ambiguous environmental information increases consumers' uncertainty and perceived potential losses (Chen & Chang, 2012; Chen et al., 2016; Lu et al., 2022). From the perspective of TPR, such uncertainty discourages confident decision-making and heightens concern regarding green product performance and authenticity.

Similarly, the results for **H4** show that PG negatively affects ATT. This finding is consistent with earlier research demonstrating that greenwashing leads to unfavorable evaluations and emotional responses toward green consumption (Barbosa et al., 2024; Chang & Hung, 2023). In line with the TPB, negative ATTs may subsequently weaken consumers' behavioral intentions (Ajzen, 1991).

The results for **H5** and **H6** confirm the central role of brand-related mechanisms in green purchasing behavior. Specifically, a favorable BI positively influences BT, which in turn enhances PI. These findings are consistent with prior studies emphasizing that strong green BI and trust are essential for sustaining consumers' confidence in green products, particularly in contexts where environmental claims are difficult to verify (Chen, 2010; Chen & Chang, 2013; Haque & Lang, 2025; Isac et al., 2024; Mu & Lee, 2023).

The negative effect of PR on PI (**H7**) supports earlier evidence that higher PR reduces consumers' likelihood of purchasing green products (Lu et al., 2022; Mitchell, 1999). This finding confirms the applicability of TPR in explaining green consumption behavior, particularly when consumers doubt product performance or credibility.

Consistent with **H8**, ATT positively affects PI. This result aligns with prior empirical findings showing that favorable ATTs significantly encourage green purchasing decisions (Barbosa et al., 2024; Chang & Hung, 2023; Wu & Chen, 2014).

With respect to the moderating effects, the results for **H9** indicate that ER strengthens the negative impact of PG on PI. This suggests that consumers with higher ER are more sensitive to greenwashing practices and respond more critically when they perceive misleading environmental claims. This finding is consistent with previous research highlighting that environmentally responsible consumers hold higher ethical expectations and react more strongly to perceived inconsistencies in firms' environmental (Chen et al., 2020; Hoang & Tung, 2024; Schmuck et al., 2018).

Finally, the results for **H10** show that ER moderates the relationship between PR and PI in a positive direction. Although PR generally reduces PI, this effect becomes weaker

among consumers with higher ER. Prior studies suggest that environmentally responsible consumers may be willing to tolerate higher levels of PR when purchasing green products, as such decisions are aligned with their moral values and sense of responsibility toward environmental protection (Hines et al., 1987; Newton et al., 2015; Sun & Shi, 2022). Accordingly, rather than contradicting existing findings, this result indicates that ER reshapes how PR translates into PI, particularly in green consumption contexts where ethical considerations may compensate for perceived uncertainty.

CONCLUSION AND IMPLICATIONS

Conclusion

This study clarifies the impact of PG on green product PI through mediating variables, including BI, BT, PR, and ATT, along with the moderating role of ER. The results indicate that PG not only has a direct effect on PI but also indirectly influences it by diminishing BI and BT, increasing PR, and generating negative ATT. At the same time, ER is shown to be a significant moderating variable: consumers with higher environmental awareness react more strongly to greenwashing practices yet also tend to tolerate higher levels of risk in order to continue supporting brands they perceive as environmentally responsible.

These findings provide clear evidence that greenwashing produces multi-layered negative consequences for green PI, not only through the erosion of trust but also through complex cognitive and emotional mechanisms such as PR and consumer attitude. However, in certain specific contexts, a high level of ER may mitigate or even reverse the negative effect of PR, suggesting a "psychological offsetting" role of personal values in sustainable PI.

Theoretical Implications

The initial theoretical contribution extends the comprehension of the consumers' sense of ER in the light of the increasing occurrence of greenwashing. The research is looking into how the internalized beliefs of consumers regarding ER can serve as a psychological buffer to deal with uncertainty and risk when encountering potential misleading information. In contrast to former studies that propose the PR decreases the PI, this analysis shows that the significantly high weight of the ER could compensate for the loss of positive effect of PR and actually expand the intention to buy green products. This lays the groundwork for developing non-linear or value-moderated models of green consumer behavior, rather than relying solely on direct variable relationships.

In this way, the work goes a step further toward a clearer understanding of the indirect pathway that greenwashing can take to affect the intention to buy green by mediating factors such as the BI and the risk/perception attitude. It has shown that the issue of greenwashing has an inverse effect on these mediators, which, the opposite side, results in decreasing consumers' willingness to purchase eco-friendly products. The conclusion of this is that the greenwashing effect is not merely a direct or linear one, but it often takes the form of emotional and cognitive processing at different levels. Accordingly, the study provides a more complicated explanation of how the ethical approach of a brand and authenticity impacts the behavior of consumers in a sustainable way, thus contributing to the build-up of better and more advanced psychological models.

Third, although the PG-PI relationship has been affirmed in prior studies, the Vietnamese sample in this study suggests that the direct effect is statistically significant but modest, and that the overall influence of PG is better explained through mediated pathways (e.g., BI, BT, PR, and ATT). This, in turn, indicates that Vietnamese consumers might not be the type to respond instantly and negatively when experiencing greenwashing; they are, however, more likely to do so through emotional and cognitive aspects such as BT, ATT, and perceived image. This insight brings into focus the impact of cultural and market-specific factors on consumer behavior and urges a reconsideration of established theories on consumer behavior in emerging markets like Vietnam.

Practical Implications

In Vietnam and many other developing countries in the Asian region, empirical studies on the phenomenon of greenwashing remain very limited. The purpose of this study was to address that gap through the collection and analysis of quantitative data, hence it clarified the influence of greenwashing on consumer awareness and sustainable consumption habits. The results contribute to enhancing practical understanding of the factors influencing green product PI, thus providing guidance for businesses in building responsible green marketing strategies. To build brand credibility and public trust, businesses should prioritize transparency in environmental claims. Practical steps include sharing eco-friendly practices online, obtaining third-party certifications, and publishing sustainability reports. These actions will not only reinforce the brand's reputation but also prevent consumer distrust caused by misleading claims.

The research points out that transparency and authenticity are the key factors in environmental claims for the businesses that are adopting a green strategy. To be precise, they should share on the web detailed information about their eco-friendly practices, seek third-party certifications, and carry out sustainability information campaigns. These are the actions that not only reinforce the brand's reputation but also avert the customer distrust due to the wrong claims. In developed markets, the activity of greenwashing is strictly forbidden and can lead to severe consequences such as penalties and reputational harm. For Vietnamese companies, transparency and environmental accountability should be viewed as strategic priorities. By adopting transparent marketing practices, businesses can attract a growing segment of consumers willing to pay a premium for genuinely sustainable products.

Managers should ensure sustainability communications are clear and verified through internal control mechanisms that authenticate environmental claims, preventing the rapid loss of trust when greenwashing is discovered.

Finally, the study also highlights the vital role of consumer vigilance in verifying the authenticity of green products. Consumers must enhance their awareness, seek out information, and compare environmental certifications before making purchasing decisions. When it comes to the topic of

advertisers, deceiving consumers is less likely having well-informed individuals. The survey results show that there are many people who are even more inclined to buy products from the companies that are really committed to sustainability. Therefore, consumer education campaigns on greenwashing are crucial in helping consumers differentiate between "genuinely green" and "falsely green" products.

Limitations and Future Research

This study still has some limitations. First, the small sample size in the qualitative research reduces the objectivity of the results. Therefore, future studies should increase the sample size or apply other sampling methods to improve the results of qualitative research. Second, the online survey via Google Forms also reduces the reliability of the responses, as some participants may provide careless answers, affecting the research outcomes. This issue is further compounded by the self-reported nature of the data, which could introduce response bias, potentially limiting the validity of the findings.

Finally, the current study was conducted only in Vietnam, a single cultural context, which may limit the generalizability of the research. Therefore, future studies should consider applying comparative methods and cross-cultural research with different cultures to help clarify the role of cultural, economic, and environmental awareness factors in shaping green consumer behavior. Longitudinal studies could also provide insights into how greenwashing affects consumer behavior over time, contributing to the development of the theoretical framework for sustainable consumer behavior in a global context.

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