# The Impact of Greenwashing Scandals on Brand Loyalty: Will Customers Return?

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| Abstract | Original Research Article |
|---|---|

Green marketing has now formed part and parcel of the business strategies across the globe, but consumer loyalty and trust in businesses have been lost due to the emergence of scandals of greenwashing where companies overstate or lie about their environmental aspects. This paper will set out to investigate how greenwashing scandals affect brand loyalty and find out whether consumers will be ready to revert to brands in the wake of scandals. The study is based on the Attribution Theory, the Commitment-Trust theory and the Brand Forgiveness theory, which is quantitative and employs the Partial Least Squares Structural Equation Modeling (PLS-SEM) methodology using the SmartPLS 4. A sample of 268 Vietnamese customers who had heard of at least one brand that had engaged in a greenwashing scandal was used to gather data on the consumers. The research examines the correlations between Greenwashing Scandal Perception (GSP), Satisfaction (SAT), Trust (TRU), Brand Forgiveness (BF), Perceived Corporate Social Responsibility (CSR) and Customer Anger (ANG) in explaining Brand Loyalty (LOY) and Commitment (COM). The findings indicate that satisfaction is positively affecting loyalty the most, followed by trust, forgiveness and CSR whereas anger has no significant influence on commitment. The conclusions point at the fact that consumers can forgive and be loyal when the brands behave with authenticity, transparency, and accountability. This research study is relevant to the literature of consumer recovery behavior following corporate ethical maltreatment and offers managerial recommendations on how brands can restore consumer trust and loyalty using emotional and relational repair tactics.

**Keywords:** greenwashing, brand loyalty, brand forgiveness, customer trust, corporate social responsibility, PLS-SEM, SmartPLS 4.

## 1. Introduction

In recent years, sustainability has become a central concern for businesses and consumers alike. Companies increasingly incorporate environmental messages into their marketing strategies to attract eco-conscious customers. However, the rapid growth of sustainability communication has also led to the emergence of greenwashing—a practice in which firms exaggerate or falsify their environmental achievements to gain public favor. According to the (Commission, 2023), more than half of corporate environmental claims are misleading, while only 40 percent are supported by verifiable evidence. Similarly, the (Foundation, 2024) revealed that 59 percent of sustainability claims by major fashion brands in the EU and the UK were deceptive,

highlighting that greenwashing has become a pervasive phenomenon in global marketing.

Greenwashing not only distorts competition but also undermines consumer trust and damages the authenticity of brands. Research shows that deceptive environmental claims evoke feelings of skepticism, anger, and disappointment, which ultimately weaken trust and reduce brand loyalty (Xiao, W., Wang, Y., Ji, Y., & Cai, M, 2021). The Volkswagen "Dieselgate" and H&M "Conscious Collection" scandals are notable examples where greenwashing led to a severe loss of consumer confidence and declining sales (News, 2022). In Vietnam, similar outcomes have been reported, as studies found that misleading environmental communication negatively affects consumers' perception, trust, and loyalty (Nguyễn Thị Mai, & Trần Quang Khải, 2021); (Nguyễn Thị Thu Hương & Lê Việt Anh, 2024)

Although numerous studies have examined the relationship between greenwashing, consumer trust, and purchase intention (Yu-Shan Chen & Ching-Hsun Chang , 2013) (Nyilasy, G., Gangadharbatla, H., & Paladino, A, 2014), little attention has been paid to the post-crisis stage-how consumers respond after discovering greenwashing and whether they can rebuild loyalty once trust is broken. Prior research tends to focus mainly on cognitive aspects, such as skepticism or perception of deception, while overlooking emotional and relational mechanisms like forgiveness, satisfaction, and commitment, which could explain loyalty recovery. Furthermore, most existing studies were conducted in developed markets, leaving emerging economies such as Vietnam underexplored, despite their rapid environmental awareness and distinct cultural values (Ha, 2022)

This study addresses these gaps by proposing an integrated model to explain how consumers react and recover loyalty following greenwashing scandals. It draws upon three theoretical foundations: Attribution Theory (Heider F. , 1958); (Weiner B. , 1986) to understand cognitive reasoning behind perceived deception; Commitment–Trust Theory (Morgan, R. M., & Hunt, S. D., 1994) to explain the relational dimension of loyalty restoration; and Brand Forgiveness Theory (Xie, Y., & Peng, S., 2009) to capture the emotional transformation that enables forgiveness and reconnection with brands.

Accordingly, the study aims to

- Assess the impact of Greenwashing Scandal Perception on Brand Loyalty
- Explore the mediating roles of Trust, Satisfaction, and Brand Forgiveness in rebuilding loyalty.
- Evaluate the moderating roles of Customer Anger and Perceived Corporate Social Responsibility on Commitment
- Propose a comprehensive cognitive–affective–relational framework for explaining brand loyalty recovery after greenwashing.

By integrating these theories, this research contributes to understanding how cognitive and emotional processes jointly influence post-crisis consumer behavior. From a managerial standpoint, the findings will provide practical insights into how brands can regain authenticity, rebuild consumer trust, and strengthen long-term relationships through transparency, accountability, and genuine sustainability initiatives.

## 2. Literature Review, Theoretical Foundation and Hypotheses Development

### 2.1. Literature Review

Green marketing and environmental responsibility have become significant differentiating factors for firms aiming to attract environmentally conscious consumers. However, along with this trend, the phenomenon of greenwashing, which refers to the act of misleading consumers about a company's environmental performance or the ecological benefits of its products, has generated growing skepticism regarding the authenticity of environmental claims. According to Delmas and Burbano (2011), greenwashing reflects a gap between what companies communicate about their environmental achievements and their actual environmental performance. This practice creates an illusion of environmental commitment, deceives consumers,

and undermines brand credibility and trust (Chen, Lin, and Chang, 2022).

Empirical evidence suggests that consumers' perception of greenwashing leads to negative evaluations and unfavorable behavioral responses toward brands. When consumers perceive that a company's environmental communication is deceptive, they experience moral outrage and skepticism (Nyilasy and Gangadharbatla, 2024). These negative emotions increase distrust and reduce consumers' intentions to maintain long-term relationships with the brand (Chen and Chang, 2013). Lin and Chen (2020) emphasize that perceived dishonesty in environmental claims disrupts emotional connections and weakens both attitudinal and behavioral loyalty. Consequently, even consumers who previously had favorable attitudes toward a brand may switch to competitors or spread negative word of mouth once greenwashing behavior is revealed (Diandra, 2024).

The relationship between greenwashing and brand loyalty can be interpreted through a trust-based mechanism. Brand trust, defined as consumers' belief in a brand's reliability and integrity, is a crucial antecedent of brand loyalty (Morgan and Hunt, 1994). When greenwashing occurs, the violation of this trust is viewed as a broken psychological contract, leading to a decline not only in satisfaction but also in commitment (Ha, 2022). Scholars such as Parguel, Benoit-Moreau, and Larceneux (2011) emphasize that greenwashing weakens consumers' perceptions of corporate authenticity in socially responsible activities, resulting in skepticism about corporate motives and moral integrity. This skepticism extends beyond environmental issues, damaging the brand's ethical image and overall reputation (Xiao, Wang, Ji, and Cai, 2021).

Although numerous studies have examined the negative impacts of greenwashing, notable research gaps remain. Most prior research has focused on the detrimental effects of greenwashing on trust, satisfaction, and purchase intention, yet few have explored the recovery process following a scandal, specifically whether consumers are capable of forgiving and returning to a brand after a greenwashing crisis (Liu, Hultman, Eisingerich, and Wei, 2020). Furthermore, the majority of these studies have been conducted in Western contexts, while emerging markets such as Vietnam, where environmental awareness and social norms are rapidly evolving, have received limited scholarly attention (Ha, 2022). Cultural factors may influence how consumers interpret corporate misconduct and determine whether they remain loyal to a brand after a trust violation.

| Authors | Focus Areas | Key Findings | Significance |
|---|---|---|---|
| (Rosi & Ekasari, 2023) | Investigated how green perceived value and altruistic value influence brand loyalty, moderated by greenwashing perception | Green perceived value and altruistic value positively affect loyalty; high perception of greenwashing weakens this effect. | Demonstrated that greenwashing perception moderates value–loyalty relationships, implying that overclaiming harms customer retention |
| (Tu, Cui, Liu, & Yang, 2024) | Examined the effect of perceived greenwashing on green brand image and consumer trust in China | Transparent and consistent communication reduces perceived greenwashing | Emphasized authenticity and transparency as essential to building sustainable brand credibility |

| | | and enhances brand image. | |
|---|---|---|---|
| (Saputra, Broek, & Marcelina, 2024) | Analyzed trust, perceived value, and satisfaction as mediators between greenwashing and brand loyalty in Indonesia's cosmetic market | Trust and perceived value affect green satisfaction, which mediates loyalty; excessive greenwashing weakens satisfaction | Highlighted the psychological path from deception to loyalty through satisfaction mechanisms |
| (Hossain, Hossain, & Urme, 2025) | Examined cross-industry differences in the impact of greenwashing on trust and brand loyalty | Greenwashing reduces trust ($\beta = -0.68$) and loyalty ($\beta = -0.45$); impact is stronger in fashion than in food sector | Offered the latest quantitative evidence (2025) demonstrating industry-based variations in greenwashing effects |
| (Veerraju, 2025) | Investigated "greenwashed brand activism" and its influence on customer loyalty in India | Overstated activism and lack of authenticity erode consumer trust and lead to defection | Expanded the greenwashing concept to include deceptive activism, showing its role as a new loyalty risk |

Although numerous studies between 2023 and 2025 have advanced the understanding of how greenwashing shapes consumer behavior, significant gaps remain in the current body of literature. Most recent research, such as (Rosi & Ekasari, 2023), (Tu, Cui, Liu, & Yang, 2024), and (Saputra, Broek, & Marcelina, 2024), has primarily emphasized the direct and mediating relationships among greenwashing perception, trust, and loyalty. These works establish that deceptive environmental communication erodes consumer confidence and weakens brand loyalty. However, they tend to focus on short-term behavioral outcomes and overlook the long-term process of loyalty restoration after a scandal, which is essential for understanding whether customers truly return to previously distrusted brands.

Furthermore, while studies like (Tu, Cui, Liu, & Yang, 2024) have examined corporate transparency and green brand image as protective mechanisms, they mainly investigate cognitive responses such as perceived credibility and satisfaction without sufficiently addressing emotional recovery factors, including forgiveness and moral reconciliation. This omission limits our knowledge of how consumers rebuild relationships with brands following ethical transgressions.

Another key gap concerns cross-industry variation. (Hossain, Hossain, & Urme, 2025) provide valuable insights into how greenwashing affects loyalty differently across industries, noting stronger effects in fashion compared to food. Yet, this line of inquiry remains underdeveloped, especially within emerging markets where cultural norms and

environmental awareness might alter these dynamics. The scarcity of comparative, cross-sectoral evidence restricts the generalizability of existing models.

Finally, while most prior research (Veerraju, 2025) has expanded the greenwashing concept into related domains such as brand activism, few attempts have integrated multiple theoretical perspectives such as Attribution Theory, Commitment–Trust Theory, and Brand Forgiveness Theory into a unified explanatory framework. Integrating these theories could offer a holistic understanding of the cognitive, relational, and emotional pathways through which greenwashing scandals affect post-crisis loyalty.

Therefore, the present study seeks to bridge these gaps by examining whether and how consumers return to brands after greenwashing scandals, combining cognitive (trust), relational (commitment), and emotional (forgiveness) mechanisms to explain loyalty restoration. This integrative approach responds directly to the fragmentation in prior research and contributes to the growing body of literature on sustainable consumer–brand relationships in emerging markets.

## 2.2. Theoritical Foundation

### 2.2.1. Attibution Theory

Attribution Theory is a fundamental framework in social psychology that explains how individuals interpret the causes of behavior and events. The theory was first introduced by (Heider F. , 1958) in The Psychology of Interpersonal Relations, where he proposed that people are "naïve psychologists" who seek to understand the world by attributing causes to observed actions. According to (Heider F. , 1958), individuals tend to infer whether a behavior stems from internal causes (such as personality, motivation, or intention) or external causes (such as situational pressures or environmental circumstances).

Building upon Heider's foundational work, (Kelley, 1971) and (Weiner B. , 1986) refined the theory by formalizing attributional dimensions and emotional consequences. Kelley's Covariation Model proposed that people make causal judgments based on three factors: consistency, distinctiveness, and consensus. If a behavior is consistent across time, unique to a particular stimulus, and not widely shared by others, individuals are likely to attribute it to internal factors. Conversely, behaviors that vary with circumstances or are commonly shared are often attributed to external causes.

(Weiner B. , 1986) extended the theory into the emotional and motivational domain, suggesting that causal attributions are not purely cognitive but also affective. He identified three key dimensions of causal interpretation: locus of causality (internal vs. external), stability (temporary vs. permanent), and controllability (controllable vs. uncontrollable). These dimensions determine how people experience emotions such as pride, guilt, or anger, which subsequently influence their future behavior and decision-making.

In summary, Attribution Theory posits that individuals constantly seek causal explanations for events and behaviors around them. The process of attribution not only shapes how they interpret actions but also influences their emotional reactions and subsequent behavioral intentions. The theory thus serves as a foundational psychological model for understanding how perceptions of cause and responsibility shape human judgment and behavior.

### 2.2.2. Commitment – Trust Theory

Commitment–Trust Theory was proposed by (Morgan, R. M., & Hunt, S. D., 1994) as a central framework in relationship marketing, emphasizing that trust and commitment are the two essential foundations for establishing and maintaining successful relational exchanges between partners. The theory argues that long-term and mutually beneficial relationships are only possible when both parties demonstrate trust in each other's reliability and integrity, and show commitment to maintaining the relationship over time.

According to (Morgan, R. M., & Hunt, S. D., 1994), trust refers to the confidence one party has in the other's reliability and integrity. Reliability is associated with the belief that a partner will fulfill promises, while integrity involves the perception that the partner adheres to acceptable principles and

values. Meanwhile, commitment reflects the enduring desire to maintain a valued relationship, even when faced with difficulties or short-term losses. It is viewed as the psychological attachment that motivates continued cooperation and discourages opportunistic behavior.

The theory posits that both trust and commitment act as key mediating variables that determine relationship success. When trust is present, partners are more likely to share information, reduce perceived risk, and foster collaboration. Commitment strengthens the willingness to invest in the relationship and sustain it despite obstacles. Together, these two constructs build the foundation for relationship stability, satisfaction, and loyalty.

(Morgan, R. M., & Hunt, S. D., 1994) identified five major antecedents of trust and commitment: relationship benefits, shared values, communication, opportunistic behavior, and relationship termination costs. Positive antecedents such as shared values and open communication enhance trust and commitment, while opportunism undermines them. The model further explains that trust and commitment lead to key relational outcomes, including cooperation, functional conflict resolution, and reduced uncertainty.

Since its introduction, the Commitment–Trust Theory has been widely applied in various domains such as marketing channels, supply chain management, service marketing, and consumer and brand relationships. Its strength lies in its ability to explain how psychological constructs translate into long-term relational behaviors, and how these behaviors contribute to brand loyalty and customer retention.

In essence, the theory highlights that successful and enduring relationships depend not on transactional benefits alone, but on the mutual presence of trust and commitment the "cornerstones" of all relationship marketing efforts.

### 2.2.3. Brand Forgiveness

Brand Forgiveness Theory originates from the broader field of social psychology and interpersonal forgiveness, which examines how individuals overcome feelings of anger and resentment toward those who have committed transgressions (McCullough, 1997). Translated into the marketing and branding context, (Xie, Y., & Peng, S., 2009) were among the first to conceptualize forgiveness as a consumer response to brand wrongdoing, proposing that consumers, much like individuals in interpersonal relationships, can forgive a brand following a transgression if certain emotional and cognitive conditions are met.

According to (Xie, Y., & Peng, S., 2009), brand forgiveness refers to a consumer's intentional and affective process of releasing negative emotions such as anger, betrayal, and disappointment toward a brand after it commits an offense. This process allows consumers to restore a positive attitude, rebuild emotional harmony, and reestablish their relationship with the brand. Forgiveness does not imply forgetting or excusing the wrongdoing; rather, it reflects an active decision to replace hostility with understanding, compassion, and acceptance.

The theory posits that forgiveness is influenced by both cognitive appraisals and affective motivations. Cognitive appraisals involve consumers' perceptions of the brand's responsibility, intention, and effort to make amends, while affective motivations stem from emotional attachment, empathy, or moral orientation toward the brand. When consumers perceive a brand's response to be sincere, transparent, and responsible through apology, compensation, or corrective action they are more likely to forgive and continue the relationship.

Furthermore, Brand Forgiveness Theory emphasizes that forgiveness plays a critical role in relationship restoration. It serves as a mediator between negative affect (anger, distrust) and positive behavioral outcomes (repurchase intention, loyalty). Once forgiveness occurs, consumers can transition from a state of resentment to reconciliation, leading to renewed trust and long-term loyalty.

Later extensions of the theory (Yeyi Liu, Magnus Hultman, Andreas B. Eisingerich, Xingjie Wei, 2020) integrated forgiveness into the broader framework of brand relationship quality, showing that brand forgiveness enhances not only trust and satisfaction but also brand advocacy and word-of-

mouth intentions. Hence, the theory provides a psychological explanation for how emotional recovery processes contribute to the sustainability of consumer–brand relationships after a crisis.

In essence, Brand Forgiveness Theory explains the emotional and cognitive mechanisms by which consumers manage and recover from negative brand experiences, highlighting forgiveness as a crucial construct in maintaining durable and resilient brand relationships.

## 2.4. Hypotheses Development

### 2.4.1. Greenwashing Scandal Perception

When consumers perceive that a company engages in greenwashing—using misleading environmental claims to appear more sustainable— they tend to experience distrust and moral disapproval toward the brand (Chen, Y.-S., & Chang, C.-H., 2013) ; (Nyilasy, G., Gangadharbatla, H., & Paladino, A, 2014). According to Attribution Theory (Heider F. , 1958); (Folkes, 1988), individuals interpret such behavior as intentional deception, leading to internal attributions of blame and negative emotional reactions. These perceptions weaken consumers' confidence in the brand's integrity and reliability, which, as explained by Commitment– Trust Theory (Morgan, R. M., & Hunt, S. D., 1994) , are essential elements for sustaining long-term loyalty. Empirical research also demonstrates that perceived greenwashing significantly reduces consumers' trust and willingness to repurchase (Chen, Chang, Li, & Chen, 2020) Therefore, it is hypothesized that the perception of greenwashing scandals negatively affects brand loyalty.

*H1: Greenwashing Scandal Perception has a negative influence on Brand Loyalty*

### 2.4.2. Customer Satisfaction

Customer satisfaction plays a fundamental role in shaping brand loyalty, as satisfied consumers are more likely to maintain long-term relationships with a brand and engage in repeat purchases (Oliver, R. L., 1999) (Srinivasan & Anderson, 2003). Satisfaction reflects the extent to which a brand meets or exceeds customer expectations, generating positive emotions

and reinforcing trust and commitment (Morgan, R. M., & Hunt, S. D., 1994). When consumers consistently experience satisfaction, they develop a stronger emotional attachment, leading to higher attitudinal and behavioral loyalty (Chinomona, 2013). Empirical studies also demonstrate that satisfaction acts as a key antecedent of loyalty across industries, fostering repurchase intentions and positive word-of-mouth (Han & Hyun, 2017). Therefore, this study hypothesizes that customer satisfaction positively influences brand loyalty.

*H2: Customer Satisfaction has a positive impact on Brand Loyalty*

### 2.4.3. Trust

Trust represents consumers' confidence in a brand's integrity, reliability, and benevolence, and it is one of the most critical determinants of brand loyalty (Morgan, R. M., & Hunt, S. D., 1994). When consumers trust a brand, they perceive lower risk in transactions and develop a stable, long-term attachment that translates into repeat purchases and advocacy (Chaudhuri, A., & Holbrook, M. B., 2001). Prior research shows that brand trust strengthens attitudinal and behavioral loyalty by fostering emotional bonds and consistent purchase intentions (Esch, 2006); (Lee, 1999). Therefore, this study posits that higher levels of trust positively influence brand loyalty.

*H3: Trust has a positive influence on the Brand Loyalty*

### 2.4.4. Brand Loyalty

Commitment is defined as a consumer's enduring desire to maintain a valued relationship with a brand (Morgan, R. M., & Hunt, S. D., 1994). It reflects not only emotional attachment but also a psychological willingness to invest time, effort, and resources to sustain the relationship, even under unfavorable circumstances (Fullerton, G, 2003). Prior studies have consistently found that commitment plays a pivotal role in fostering brand loyalty, as committed consumers are less likely to switch brands and more inclined to repurchase or recommend them (Chaudhuri, A., & Holbrook, M. B., 2001); (Kim, 2004). According to the Commitment–Trust Theory,

loyalty is both a behavioral manifestation and an outcome of commitment, indicating a stable relationship based on mutual trust and satisfaction (Morgan, R. M., & Hunt, S. D., 1994). Therefore, the stronger the customer's commitment, the higher their loyalty to the brand.

*H4: Establishing a positive relationship between Brand Loyalty and Commitment*

## 2.4.5. Brand Forgiveness

Brand Forgiveness refers to consumers' willingness to move beyond negative emotions such as anger or betrayal after a brand's transgression, replacing them with understanding and acceptance (Xie, Y., & Peng, S., 2009). When consumers perceive that a brand has genuinely acknowledged its mistakes and taken corrective actions, they are more likely to emotionally recover and renew their relational commitment (Yeyi Liu, Magnus Hultman, Andreas B. Eisingerich, Xingjie Wei, 2020) Forgiveness helps re-establish the psychological bond between consumers and brands, reducing negative affect and restoring trust, which are key antecedents of commitment (Aaker, Fournier, & Brasel, 2004). Empirical studies indicate that consumers who forgive a brand demonstrate higher levels of affective and continuance commitment, as forgiveness nurtures empathy and moral reconciliation (Xie, Y., & Peng, S., 2009); (Eisingerich A. B., 2011). Therefore, it is hypothesized that brand forgiveness positively influences commitment, reinforcing the customer's willingness to maintain a long-term relationship with the brand.

*H5: There is a positive influence of Brand Forgiveness on Commitment*

## 2.4.6. Customer Anger

Customer anger is an intense emotional reaction that arises when consumers perceive unfair treatment or deception by a brand (Bougie, 2003). In the context of greenwashing scandals, anger often results from perceived moral violations or breaches of trust, causing customers to emotionally disengage from the brand (Grégoire, Y., & Fisher, R. J., 2008). According to the Attribution Theory (Weiner B. , 1986), when consumers attribute a brand's misconduct to intentional wrongdoing, they experience stronger anger and a desire for retaliation. This emotion damages the relational foundation necessary for commitment, as anger erodes the sense of attachment, loyalty, and willingness to continue the relationship (Romani, S., Grappi, S., & Bagozzi, R. P., 2013) Empirical research supports that anger decreases consumers' affective and continuance commitment, leading to avoidance or even brand rejection behaviors (Xie, Y., & Peng, S., 2009). Therefore, it is hypothesized that customer anger has a negative impact on commitment.
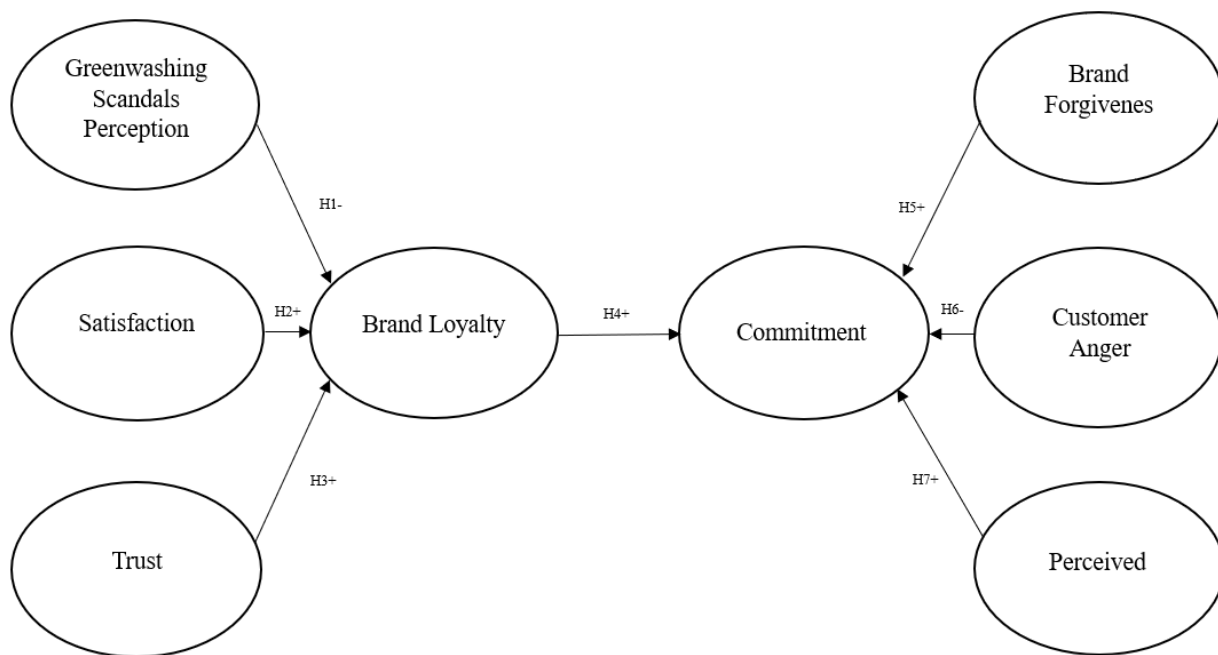
*H6: Customer Anger has a negative implication on Commitment*

## 2.6.7. Corporate Social Responsibility

Perceived Corporate Social Responsibility (CSR) refers to consumers' perception of a company's ethical, environmental, and social practices that contribute positively to society (Carroll A. B., 1991); (Maignan & Ferrell, 2004). When consumers believe that a brand actively engages in socially responsible behavior, they are more likely to develop affective commitment—a sense of emotional attachment and identification with the brand's values (Lichtenstein, Drumwright, & Braig, 2004). CSR initiatives enhance a company's image of integrity and benevolence, which strengthens trust and long-term relational commitment (Du, Bhattacharya, & Sen, 2010). Empirical studies indicate that perceived CSR has a significant positive impact on customer–brand commitment by fostering mutual respect, moral alignment, and loyalty ( (Martínez & Bosque, 2013). Therefore, this study proposes that the perception of CSR is positively associated with consumer commitment to the brand.

*H7: Positive relationship exists between Perceived Corporate Social Responsibility and Commitment*

*Figures 1: Research Model*

## 3. Methodology

### 3.1. Research Design

This study adopts a quantitative research design with a causal and explanatory purpose. The main goal is to examine how consumers respond to greenwashing scandals and to test the proposed conceptual model linking Greenwashing Scandal Perception (GSP) to Brand Loyalty (LOY), through mediating factors such as Trust (TRU), Satisfaction (SAT), and Brand Forgiveness (BF), as well as moderating factors including Customer Anger (ANG) and Perceived Corporate Social Responsibility (CSR). A survey method was employed as it allows for systematic data collection from a large sample of respondents and enables statistical testing of the proposed hypotheses.

Given the study's focus on relationships among multiple latent variables and the inclusion of both mediating and moderating effects, the research utilizes the Partial Least Squares Structural Equation Modeling (PLS-SEM) technique using SmartPLS 4 software. This method is particularly suitable for predictive and theory-building purposes and can handle complex models even when data do not follow a normal distribution (Hair, Hult, Ringle, & Sarstedt, 2022)Thus, this design aligns with a post-positivist paradigm, emphasizing objectivity, hypothesis testing, and empirical model validation.

### 3.2. Sample and Data Collection

The target population of this research comprises Vietnamese consumers who are aware of at least one brand involved in a greenwashing scandal. Such a population is chosen to ensure that respondents possess relevant experience and can accurately evaluate constructs such as anger, forgiveness, trust, and loyalty recovery. The sampling technique used was non-probability purposive sampling, as it allows the researcher to select participants with the necessary awareness of greenwashing events intentionally.

Data were collected through an online questionnaire distributed via digital platforms such as Facebook. The questionnaire was designed based

on prior validated measurement items and adapted to the Vietnamese context to ensure cultural appropriateness. The data collection period took place between October 2025. In total, 268 valid responses were obtained after removing incomplete or inconsistent entries. A minimum of 200 observations is sufficient for SEM analysis; thus, the sample size meets this criterion.

## 3.3. Measurement and Variables

All constructs were measured using multi-item scales derived from prior validated studies. A 7-point Likert scale (1 = Strongly disagree, 2 = Mostly disagree, 3 = Partially disagree, 4 = Neutral, 5 = Partially agree, 6 = Mostly agree, 7 = Strongly agree) was employed for all items.

**Table 1. Questionnaire**

| No | Construct | Iterms | Source |
|---|---|---|---|
| H1 | GSP: Greenwashing Scandal Perception | GSP1: "I am aware that this brand was involved in a greenwashing scandal." GSP2: "I believe the brand exaggerated its green claims." GSP3: "The scandal negatively influenced my overall perception of the brand." | (Chen, Y.-S., & Chang, C.-H., 2013) (Nyilasy, G., Gangadharbatla, H., & Paladino, A, 2014) |
| H2 | SAT: Satisfaction | SAT1: "I am satisfied with how the brand responded to the scandal." SAT2: "I feel the brand took appropriate actions to fix the issue." SAT3: "I am satisfied with my recent experience with this brand." | (Oliver, R. L., 1999) (Uzir, M. U., 2025) |
| H3 | TRU: Trust | TRU1: "I still trust this brand to some extent." TRU2: "I believe this brand is generally trustworthy." TRU3: "I think the brand can improve after the scandal." | (Morgan, R. M., & Hunt, S. D., 1994) (Garbarino, 1999) |
| H4 | LOY: Brand Loyalty | LOY1: "I intend to keep buying from this brand." LOY2: "I am willing to recommend this brand to others." LOY3: "I will maintain my loyalty to this brand in the future." | (Oliver, R. L., 1999) (Chaudhuri, A., & Holbrook, M. B., 2001) |
| | COM: Commitment | COM1: "I have a strong emotional attachment to this brand." (Affective) COM2: "It would be costly or inconvenient to switch to another brand." (Continuance) COM3: "I feel I should continue to support this brand." (Normative) | (Allen, N. J., & Meyer, J. P, 1990) (Morgan, R. M., & Hunt, S. D., 1994) (Fullerton, G, 2003) |
| H5 | FOR: Brand Forgiveness | BF1: "I am willing to forgive this brand after the scandal." | (Xie, Y., & Peng, S., 2009) (Aaker, J., Fournier, S., & |

| | | | |
|---|---|---|---|
| | | BF2: "I believe the brand deserves a second chance."<br>BF3: "I can overlook the brand's mistake and continue using it." | Brasel, S. A., 2004) |
| H6 | ANG: Customer Anger | ANG1: "I feel angry when I learn about the brand's greenwashing."<br>ANG2: "I feel disappointed with this brand."<br>ANG3: "I have negative emotions when I think about this brand after the scandal." | (Romani, S., Grappi, S., & Bagozzi, R. P., 2013) (Grégoire, Y., Tripp, T. M., & Legoux, R., 2009) |
| H7 | CSR: Perceived Corporate Social Responsibility | CSR1: "I believe the brand is genuinely concerned about social and environmental issues."<br>CSR2: "The brand demonstrates its CSR activities authentically."<br>CSR3: "I think the brand engages in CSR sincerely." | (Becker-Olsen, K. L., Cudmore, B. A., & Hill, R. P., 2006) (Pérez, 2015) |

**Source(s):** Author's own work

Before structural analysis, the measurement model was evaluated to ensure its reliability and validity. Internal consistency was tested using Cronbach's Alpha and Composite Reliability, with acceptable values above 0.70. Convergent validity was assessed through Average Variance Extracted (AVE), where values above 0.50 indicated sufficient variance explanation by each construct. Discriminant validity was evaluated using the Fornell-Larcker criterion and the Heterotrait-Monotrait (HTMT) ratio, ensuring that each construct was distinct from the others.

### 3.4. Data Analysis Techniques

Data analysis for this study was performed using SmartPLS 4, adhering to the two-step analytical approach suggested by (Hair, Hult, Ringle, & Sarstedt, 2022). This procedure allows for a systematic evaluation of both the measurement model and the structural model, ensuring the robustness and reliability of the findings.

In the first step, the measurement model was examined to confirm the reliability and validity of all constructs. Key criteria such as indicator loadings, Cronbach's alpha, composite reliability, and average variance extracted (AVE) were assessed to ensure internal consistency and convergent validity. Discriminant validity was also verified using the Fornell–Larcker criterion and the Heterotrait–Monotrait (HTMT) ratio, confirming that the constructs were conceptually distinct.

In the second step, the structural model (also known as the inner model) was analyzed to test the proposed hypotheses and the causal relationships between constructs. Multicollinearity was evaluated through Variance Inflation Factor (VIF) values, all of which were below the threshold of 5, indicating that no serious collinearity issues existed among the predictors. Path coefficients (β values) were then calculated to determine both the direction and strength of relationships. The statistical significance of these relationships was established through the bootstrapping method with 5,000 subsamples, enabling the estimation of standard errors, t-statistics, and 95% confidence intervals for each path.

The model's explanatory and predictive power was further assessed using the $R^2$ and adjusted $R^2$ values for endogenous variables. These coefficients reflected the proportion of variance in key outcomes such as brand loyalty and commitment explained by the independent variables. The effect size ($f^2$) was

computed to evaluate the magnitude of influence that each predictor exerts on dependent variables, while the predictive relevance ($Q^2$) was tested using the blindfolding procedure, confirming that the model possesses satisfactory predictive capability.

Moreover, moderation analyses were carried out to explore whether Customer Anger (ANG) and Perceived Corporate Social Responsibility (CSR) alter the strength of relationships between Commitment and other constructs. This step provided deeper insight into the emotional and ethical mechanisms underlying consumer responses to greenwashing. Through this comprehensive analytical framework, the study captures not only direct but also indirect and moderating effects, illustrating how cognitive evaluations, emotional reactions, and relational factors collectively influence the process of brand loyalty recovery following greenwashing scandals.

## 4. Results and Discussion

### 4.1. Demographics

This research explores the effects of greenwashing scandals on brand loyalty and studies whether customers are willing to repurchase a brand after a scandal occurs. Two hundred respondents from Ho Chi Minh City responded to the survey. The survey contained two main sections: demographic details and respondent evaluations of the constructions in this encapsulated environment. The demographics of the respondents are shown in the table below.

**Table 2: Demographic profiles of respondents**

| Variables | Frequency | Percentage |
|---|---|---|
| **Gender** | | |
| Male | 76 | 38.0% |
| Female | 124 | 62.0% |
| **Age** | | |
| 18–25 years old | 134 | 67.0% |
| 26–30 years old | 38 | 19.0% |
| 31–40 years old | 20 | 10.0% |
| Above 40 years old | 8 | 4.0% |
| **Education level** | | |
| High school | 34 | 17.0% |
| Bachelor's degree | 122 | 61.0% |
| Master/PhD | 28 | 14.0% |
| Other | 16 | 8.0% |
| **Occupation** | | |
| Student | 112 | 56.0% |
| Office worker | 42 | 21.0% |
| Business owner | 30 | 15.0% |
| Other | 16 | 8.0% |
| **Monthly income** | | |
| Under 10 million VND | 88 | 44.0% |
| 10–20 million VND | 56 | 28.0% |
| 21–30 million VND | 34 | 17.0% |
| Above 30 million VND | 22 | 11.0% |
| **Purchase frequency** | | |

| | | |
|---|---|---|
| Weekly | 46 | 23.0% |
| Monthly | 70 | 35.0% |
| Occasionally | 62 | 31.0% |
| Rarely | 22 | 11.0% |
| **Awareness of greenwashing scandals** | | |
| Yes | 150 | 75.0% |
| No | 50 | 25.0% |
| **Industry of known scandal** | | |
| Fashion | 70 | 35.0% |
| Food & Beverage | 46 | 23.0% |
| Cosmetics | 34 | 17.0% |
| Electronics | 28 | 14.0% |
| Other | 22 | 11.0% |
| **Likelihood to continue purchasing after a scandal** | | |
| Very unlikely | 54 | 27.0% |
| Unlikely | 66 | 33.0% |
| Neutral | 46 | 23.0% |
| Likely | 24 | 12.0% |
| Very likely | 10 | 5.0% |

**Source(s):** Author's own work

## 4.2. Common Method Bias

To ensure that the research findings were not affected by Common Method Bias (CMB), two complementary diagnostic procedures were carried out: Harman's single-factor test and the full collinearity assessment. Following the recommendations of (Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P, 2003), all measurement items were subjected to an unrotated principal component analysis (PCA) to determine whether a single latent factor could explain most of the variance in the dataset. The results showed that the first factor accounted for less than 50 percent of the total variance, which indicates that common method bias was unlikely to be a major concern in this study.

In addition, a full collinearity assessment was conducted to provide further statistical evidence for the absence of common method bias. According to (Kock, N, 2015), if the Variance Inflation Factor (VIF) values for all latent constructs are below the threshold of 3.3, it can be concluded that both collinearity and common method bias are not significant threats. The analysis in this research confirmed that all VIF values were well below 3.3, thereby supporting the conclusion that multicollinearity and CMB were not problematic in the dataset.

Taken together, the results from both diagnostic techniques confirm that the data used in this research are free from significant common method bias and are therefore appropriate for subsequent reliability, validity, and structural assessments. This ensures that the observed relationships among constructs are genuine and not the result of systematic measurement errors.

## 4.3. Measurement model assessment

In Partial Least Squares Structural Equation Modeling (PLS-SEM), the evaluation of the measurement model is a critical step in establishing the reliability and validity of the constructs used in the research. According to (Hair, Hult, Ringle, & Sarstedt, 2022) this evaluation involves several key indicators, including the magnitude of outer loadings, internal consistency reliability, convergent validity, and discriminant validity. Each of these criteria serves a distinct purpose in ensuring that the

measurement model is both statistically robust and conceptually sound (T.-Q. Dang, Nguyen, & Thi, 2025; Dao et al., 2023; B.-H. T. Nguyen et al., 2024; B.-T. H. Nguyen et al., 2023; L.-T. Nguyen et al., 2024).

To determine whether an observed indicator meaningfully contributes to its latent construct, the outer loading coefficient is first examined. As suggested by (Hair, Hult, Ringle, & Sarstedt, 2022), an outer loading value greater than 0.70 indicates that the observed variable contributes significantly to explaining its associated construct. Items with lower loading values may still be retained if their removal does not substantially increase the reliability or validity of the construct, but they must be justified theoretically (Duc et al., 2025; L.-T. Nguyen, Duc, et al., 2023; L.-T. Nguyen, Nguyen, et al., 2023; L.-T. Nguyen, Phan, et al., 2025; N. T. T. Nguyen et al., 2024).

Next, internal consistency reliability is assessed through indicators such as Cronbach's Alpha, Composite Reliability rho_c, and rho_A. Among these, (Hair, Hult, Ringle, & Sarstedt, 2022) emphasize that Cronbach's Alpha and Composite Reliability (rho_c) are the most widely used measures. Both coefficients range from 0 to 1, with values closer to 1 reflecting higher reliability. As a rule of thumb, Cronbach's Alpha should exceed 0.70, while Composite Reliability should be greater than 0.60, confirming that the measurement items consistently represent the underlying construct (T. Q. Dang, Nguyen, et al., 2025; Duc et al., 2024; Le, Lin, et al., 2025; L.-T. Nguyen, Tran, et al., 2025; Phan et al., 2025).

The next step is to evaluate convergent validity, which examines whether the indicators of a particular construct share a high proportion of common variance. This is measured using the Average Variance Extracted (AVE) index. According to (Höck & Ringle, 2010), an AVE value of 0.50 or higher indicates acceptable convergent validity, meaning that at least 50 percent of the variance in the indicators is explained by the latent variable (T. Q. Dang, Duc, et al., 2025; T.-Q. Dang, Nguyen, Tran, et al., 2025; Le, Nguyen, et al., 2025; A.-H. D. Nguyen et al., 2024; L.-T. Nguyen et al., 2022).

In contrast, discriminant validity assesses the extent to which a construct is empirically distinct from other constructs within the model. It ensures that each latent variable measures a unique concept. Discriminant validity can be assessed using three primary approaches: the Cross-Loading criterion, the Fornell–Larcker criterion, and the Heterotrait–Monotrait ratio (HTMT). However, as highlighted by (Henseler, 2015), both the Cross-Loading and Fornell–Larcker methods have limitations in detecting lack of discriminant validity. Consequently, the HTMT ratio has become the preferred and more reliable method in recent PLS-SEM studies.

According to (Henseler, 2015) , the discriminant validity between two constructs can be evaluated based on the following thresholds: when the HTMT ratio is greater than 0.90, it indicates that the two constructs lack sufficient discriminant validity. Conversely, when the HTMT ratio is less than or equal to 0.85, discriminant validity is established, confirming that the constructs are empirically distinct from one another.

Together, these criteria provide a comprehensive framework for evaluating the measurement model in PLS-SEM, ensuring that the constructs used in this research are reliable, valid, and conceptually distinct.

**Table 3: Outer loading**

|       | ANG   | BF    | COM | CSR | GSP | LOY | SAT | TRU |
|-------|-------|-------|-----|-----|-----|-----|-----|-----|
| ANG1  | 0.896 |       |     |     |     |     |     |     |
| ANG2  | 0.906 |       |     |     |     |     |     |     |
| ANG3  | 0.837 |       |     |     |     |     |     |     |
| BF1   |       | 0.838 |     |     |     |     |     |     |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **BF2** | 0.887 | | | | | | |
| **BF3** | 0.851 | | | | | | |
| **COM1** | | 0.935 | | | | | |
| **COM2** | | 0.922 | | | | | |
| **COM3** | | 0.904 | | | | | |
| **CSR1** | | | 0.87 | | | | |
| **CSR2** | | | 0.906 | | | | |
| **CSR3** | | | 0.805 | | | | |
| **GSP1** | | | | 0.929 | | | |
| **GSP2** | | | | 0.935 | | | |
| **GSP3** | | | | 0.872 | | | |
| **LOY1** | | | | | 0.93 | | |
| **LOY2** | | | | | 0.896 | | |
| **LOY3** | | | | | 0.917 | | |
| **SAT1** | | | | | | 0.891 | |
| **SAT2** | | | | | | 0.895 | |
| **SAT3** | | | | | | 0.853 | |
| **TRU1** | | | | | | | 0.862 |
| **TRU2** | | | | | | | 0.858 |
| **TRU3** | | | | | | | 0.881 |

**Note(s):** ANG - Customer Anger, BF - Brand Forgiveness, COM - Commitment, CSR - Perceived, GSP - Greenwashing Scandal Peception, LOY - Brand Loyalty, SAT - Satisfaction, TRU - Trust

**Source(s):** Author's own work

In Table 3, it can be seen that all observed variables fluctuate from 0.837 to 0.935, all are in the range from 0 to 1 and greater than 0.7, which proves that the observed variables all achieve statistical significance.

**Table 4: Cronbach's alpha, Composite Reliability và Average Variance Extracted of construct**

| | Cronbach's alpha | Composite reliability (rho_a) | Composite reliability (rho_c) | Average variance extracted (AVE) |
|---|---|---|---|---|
| **ANG** | 0.855 | 0.864 | 0.912 | 0.775 |
| **BF** | 0.822 | 0.823 | 0.894 | 0.738 |
| **COM** | 0.91 | 0.91 | 0.943 | 0.848 |
| **CSR** | 0.826 | 0.841 | 0.896 | 0.742 |
| **GSP** | 0.9 | 0.907 | 0.937 | 0.833 |
| **LOY** | 0.902 | 0.906 | 0.939 | 0.836 |
| **SAT** | 0.854 | 0.859 | 0.911 | 0.774 |

| | | | | |
|---|---|---|---|---|
| **TRU** | 0.835 | 0.836 | 0.901 | 0.752 |

**Note(s):** ANG - Customer Anger, BF - Brand Forgiveness, COM - Commitment, CSR - Perceived, GSP - Greenwashing Scandal Peception, LOY - Brand Loyalty, SAT - Satisfaction, TRU - Trust

**Source(s):** Author's own work

In Table 4, we can see that the Cronbach's Alpha index fluctuates from 0.822 to 0.91 and the Composite reliability rho_c fluctuates from 0.894 to 0.943, which means that this model achieves reliability.

Not only that, Table 3 also shows the convergence value of the scale, in which the values range from 0.738 to 0.848, all satisfying the condition that AVE is greater than 0.5, meaning that this scale achieves convergence value.

**Table 5: Discriminant Validity – HTMT**

| | ANG | BF | COM | CSR | GSP | LOY | SAT | TRU |
|---|---|---|---|---|---|---|---|---|
| **ANG** | | | | | | | | |
| **BF** | 0.843 | | | | | | | |
| **COM** | 0.745 | 0.83 | | | | | | |
| **CSR** | 0.766 | 0.843 | 0.84 | | | | | |
| **GSP** | 0.718 | 0.707 | 0.77 | 0.846 | | | | |
| **LOY** | 0.839 | 0.763 | 0.83 | 0.821 | 0.742 | | | |
| **SAT** | 0.597 | 0.654 | 0.628 | 0.625 | 0.534 | 0.764 | | |
| **TRU** | 0.817 | 0.841 | 0.804 | 0.808 | 0.817 | 0.805 | 0.554 | |

**Note(s):** ANG - Customer Anger, BF - Brand Forgiveness, COM - Commitment, CSR - Perceived, GSP - Greenwashing Scandal Peception, LOY - Brand Loyalty, SAT - Satisfaction, TRU - Trust

**Source(s):** Author's own work

Table 5 shows the discriminant value of the scale, in which the indices ranging from 0.554 to 0.846 are all less than 0.85, meaning that the constructs in this model all achieve differentiation.

**4.4. Structural model assessment**

According to (Hair, Hult, Ringle, & Sarstedt, 2022), a PLS path model is composed of two main components: the measurement model and the structural model. The measurement model defines the relationships between the observed indicators and their underlying latent constructs, while the structural model specifies the relationships among the constructs themselves, thereby illustrating how the theoretical framework operates as a whole.

The structural model plays a crucial role in testing the hypothesized relationships between variables. To evaluate this model, the bootstrapping resampling method is commonly applied in PLS-SEM. This non-parametric approach enables the estimation of standard errors and the testing of statistical significance for each path coefficient without assuming data normality.

In this procedure, two key statistical indicators are examined: the T-statistic and the p-value. As recommended by (Hair, Hult, Ringle, & Sarstedt, 2022), a T-statistic value greater than 1.96 indicates that the path coefficient is statistically significant at the 5 percent level. Similarly, a p-value less than 0.05 confirms that the relationship between constructs is

statistically meaningful. These criteria collectively determine whether a proposed hypothesis is supported or rejected within the structural model.

Therefore, when employing PLS-SEM to test the research hypotheses, it is essential not only to ensure the accuracy and validity of the dataset collected from both qualitative and survey-based stages but also to meet the above statistical requirements. When these conditions are satisfied, the hypothesized relationships can be accepted as significant, reinforcing the overall reliability of the research model.

**Table 6: Structural model assessment**

| Hypothesis | Path | Original sample (O) | Sample mean (M) | Standard deviation (STDEV) | T statistics (|O/STDEV|) | P values | Mark |
|---|---|---|---|---|---|---|---|
| H1 | GSP -> LOY | 0.215 | 0.209 | 0.081 | 2.656 | 0.008 | Supported |
| H2 | SAT -> LOY | 0.41 | 0.407 | 0.064 | 6.368 | 0 | Supported |
| H3 | TRU -> LOY | 0.345 | 0.353 | 0.1 | 3.46 | 0.001 | Supported |
| H4 | LOY -> COM | 0.404 | 0.399 | 0.085 | 4.779 | 0 | Supported |
| H5 | BF -> COM | 0.242 | 0.249 | 0.072 | 3.371 | 0.001 | Supported |
| H6 | CSR -> COM | 0.321 | 0.314 | 0.092 | 3.47 | 0.001 | Supported |
| H7 | ANG -> COM | -0.02 | -0.014 | 0.074 | 0.272 | 0.785 | Unsupported |

**Note(s):** ANG - Customer Anger, BF - Brand Forgiveness, COM - Commitment, CSR - Perceived, GSP - Greenwashing Scandal Peception, LOY - Brand Loyalty, SAT -Satisfaction, TRU - Trust
**Source(s):** Author's own work

The results presented in Table 6 summarize the hypothesis testing outcomes for the structural model. The findings reveal that most of the proposed hypotheses are supported, indicating that the relationships among the constructs are statistically significant and consistent with theoretical expectations.

Specifically, Hypothesis H1, which proposed that Greenwashing Scandal Perception (GSP) influences Brand Loyalty (LOY), was supported. The analysis yielded a T-statistic value of 2.656, exceeding the threshold of 1.96, and a p-value of 0.008, which is below the 0.05 significance level. This result confirms that consumers' perception of greenwashing significantly affects their loyalty toward the brand.

Hypothesis H2, suggesting that Customer Satisfaction (SAT) positively affects Brand Loyalty (LOY), was also confirmed, with a T-statistic of 6.368 (greater than 1.96) and a p-value of 0.000 (less than 0.05). This demonstrates that satisfaction remains a crucial determinant of consumer loyalty, especially in post-crisis contexts.

Similarly, Hypothesis H3, which examined the effect of Trust (TRU) on Brand Loyalty (LOY), was validated with a T-statistic of 3.460 and a p-value of 0.001, confirming a significant positive relationship between the two constructs. Trust, therefore, continues to play a pivotal role in maintaining loyalty after reputational damage.

For Hypothesis H4, the relationship between Brand Loyalty (LOY) and Commitment (COM) was

found to be significant, with a T-statistic of 4.779 and a p-value of 0.000. This indicates that higher loyalty levels lead to stronger emotional and behavioral commitment to the brand.

Hypothesis H5, which tested the impact of Brand Forgiveness (BF) on Commitment (COM), was supported with a T-statistic of 3.371 and a p-value of 0.001, suggesting that forgiveness significantly contributes to rebuilding customer commitment following a greenwashing incident.

Hypothesis H6 proposed that Perceived Corporate Social Responsibility (CSR) has a positive effect on Commitment (COM). The results confirmed this relationship, with a T-statistic of 3.470 and a p-value of 0.001, indicating that consumers who perceive a brand's CSR activities positively are more likely to remain committed to it.

However, Hypothesis H7, which examined the impact of Customer Anger (ANG) on Commitment (COM), was not supported. The analysis produced a T-statistic of 0.272 (less than 1.96) and a p-value of 0.785 (greater than 0.05), suggesting that anger does not have a statistically significant effect on consumer commitment. This implies that while anger is an immediate emotional reaction, it may not have a lasting impact on long-term brand commitment once other relational factors such as satisfaction and trust are considered.

In summary, the structural model results confirm that six out of seven hypotheses (H1 to H6) are supported, while H7 is rejected. These findings emphasize that satisfaction, trust, forgiveness, and CSR play crucial roles in restoring and maintaining brand loyalty and commitment, whereas anger alone does not significantly alter consumer commitment in the post-greenwashing context.
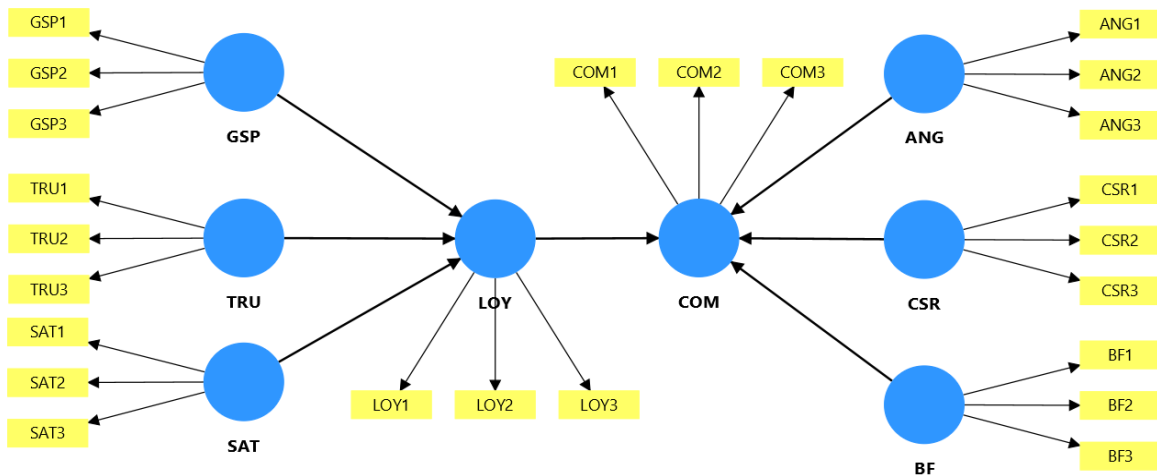


*Figure 1: Structural Model Testing*

**Source(s):** Author's own work

This figure presents the proposed structural model formulated for this study. It visually demonstrates the theoretical relationships among the seven latent variables: Greenwashing Scandal Perception (GSP), Trust (TRU), Satisfaction (SAT), Brand Loyalty (LOY), Commitment (COM), Brand Forgiveness (BF), Customer Anger (ANG), and Perceived Corporate Social Responsibility (CSR).

The model illustrates how consumers' cognitive, emotional, and relational responses interact following a greenwashing scandal. The directional arrows indicate the hypothesized causal paths among these constructs, which were empirically tested using

the Partial Least Squares Structural Equation Modeling (PLS-SEM) technique implemented through SmartPLS 4 software.

Through this model, the research aims to capture both direct and indirect effects of key psychological and relational variables, providing a comprehensive understanding of how trust, satisfaction, forgiveness, and corporate responsibility jointly influence the restoration of brand loyalty and consumer commitment in the aftermath of greenwashing incidents.

### 4.5. Effect size & Predictive Relevance

Effect size is a coefficient that evaluates the impact of each independent variable on the dependent variable. According to (Cohen, 1988) the $f^2$ values were 0.02, 0.15, and 0.35 for small, medium, and large effects, respectively.

**Tables 7: Effect size**

|  | ANG | BF | COM | CSR | GSP | LOY | SAT | TRU |
|---|---|---|---|---|---|---|---|---|
| **ANG** |  |  | 0.002 |  |  |  |  |  |
| **BF** |  |  | 0.084 |  |  |  |  |  |
| **COM** |  |  |  |  |  |  |  |  |
| **CSR** |  |  | 0.138 |  |  |  |  |  |
| **GSP** |  |  |  |  |  | 0.054 |  |  |
| **LOY** |  |  | 0.197 |  |  |  |  |  |
| **SAT** |  |  |  |  |  | 0.375 |  |  |
| **TRU** |  |  |  |  |  | 0.14 |  |  |

**Note(s):** ANG - Customer Anger, BF - Brand Forgiveness, COM - Commitment, CSR - Perceived, GSP - Greenwashing Scandal Peception, LOY - Brand Loyalty, SAT - Satisfaction, TRU - Trust

**Source(s):** Author's own work

According to Table 7, we can see that the independent variables ANG and BF with $f^2$ values of 0.002 and 0.084 have a small effect on the dependent variable COM and the independent variables CSR and LOY with $f^2$ values of 0.138 and 0.197 have a medium effect on COM. In addition, the independent variable GSP with $f^2$ value of 0.054 has a small effect on LOY, the independent variable TRU with $f^2$ value of 0.14 has a medium effect on LOY and the independent variable SAT with $f^2$ value of 0.375 has a large effect on LOY.

In PLS-SEM, each component model will have an $R^2$ value representing the level of explanation of the independent variables on the dependent variable. (Hair J. H., 2017) It is considered difficult to give a rule of thumb for the acceptable value of $R^2$ which depends on the complexity of the model. $R^2$ ranges from 0 to 1, approaching 1 means a high level of explanation for the dependent variable, and approaching 0 means a low level of explanation for the dependent variable.

The Q square value represents the predictive power of the independent variables on the dependent variable. According to (Hair J. R., 2019) has given $Q^2$ levels corresponding to the forecasting ability

$0 < Q^2 < 0.25$: low forecast accuracy

$0.25 \leq Q^2 \leq 0.5$: average forecast accuracy

$Q^2 > 0.5$: high level of forecast accuracy z

**Tables 8: Predictive Relevance & R2**

|  | Q²predict | RMSE | MAE | R-square adjusted |
|---|---|---|---|---|
| **COM** | 0.669 | 0.586 | 0.428 | 0.724 |
| **LOY** | 0.641 | 0.608 | 0.42 | 0.659 |

**Note(s):** COM - Commitment, LOY - Brand Loyalty
**Source(s):** Author's own work

Through Tables 8, it can be seen that COM and LOY have Q2 of 0.669 and 0.641 respectively, both higher than 0.5, so they have a high level of predictive accuracy. In addition, R2 of LOY is 0.659, so the independent variables explain 65.9% of the variation of LOY. For COM, the R2 index has a value of 0.724, which means that the independent variables explain 72.4% of the variation of COM.

## 4.6. Discussion

The findings of this research provide a comprehensive understanding of how consumers react to greenwashing scandals and how these reactions shape their loyalty and long-term commitment to brands. The results demonstrate that satisfaction, trust, forgiveness, and perceived corporate social responsibility act as essential relational and emotional mechanisms that help restore consumer-brand relationships after a crisis. These results validate the conceptual model developed from Attribution Theory, Commitment and Trust Theory, and Brand Forgiveness Theory, showing how cognitive and emotional recovery jointly influence post-crisis loyalty.

First, consumer satisfaction emerged as the most critical determinant of brand loyalty. When consumers perceive that a brand delivers consistent value and transparency even after being involved in a greenwashing incident, they are more inclined to remain loyal. This suggests that satisfaction functions as a stabilizing factor that can buffer the negative effects of reputational crises.

Second, trust continues to serve as the foundation for maintaining consumer relationships. Once lost, it is difficult to regain; however, this research indicates that transparent communication, corrective actions,

and ethical behavior can help rebuild trust and strengthen loyalty. This supports the Commitment and Trust Theory, which posits that trust and commitment are the key components of enduring relationships.

Third, brand forgiveness plays a significant role in facilitating emotional recovery. When brands show genuine remorse, acknowledge their mistakes, and implement corrective measures, consumers may be willing to forgive and maintain their relationship with the brand. This finding reinforces the idea that forgiveness bridges negative affective responses and positive behavioral outcomes.

Fourth, perceived corporate social responsibility positively contributes to consumer commitment. Authentic CSR initiatives help reduce consumer skepticism, reinforce moral legitimacy, and signal long-term ethical orientation. Therefore, CSR acts as a mechanism for reputation repair and relationship renewal after greenwashing.

Finally, the finding that consumer anger did not significantly affect commitment provides an interesting perspective. While anger is a natural emotional response to perceived deception, it may be temporary and less impactful than relational variables such as satisfaction, trust, and forgiveness. Once consumers observe consistent recovery efforts, their initial anger tends to diminish, allowing relational bonds to be restored.

Overall, the findings suggest that while greenwashing scandals can damage brand reputation, they do not necessarily result in irreversible loyalty loss. Through transparent communication, authentic CSR actions, and genuine relationship repair

strategies, brands can regain consumer trust and reestablish loyalty over time.

## 5. Implications, conclusion and limitation and future research direction

### 5.1. Implications

#### 5.1.1. Theoretical Contributions

This study makes several contributions to the theoretical understanding of consumer behavior and brand relationship management in the context of greenwashing scandals. By integrating three complementary frameworks Attribution Theory, Commitment and Trust Theory, and Brand Forgiveness Theory this research proposes a unified model that explains how consumers' cognitive reasoning and emotional responses jointly shape their loyalty and commitment after a crisis. The integration of these perspectives extends existing literature that has often treated cognitive and emotional processes separately.

First, the application of Attribution Theory enriches current knowledge of how consumers interpret corporate motives behind environmental misconduct. When consumers perceive greenwashing as intentional deception, they attribute the cause to internal corporate factors, which in turn triggers moral emotions such as skepticism, disappointment, or anger. However, the study also suggests that when consumers perceive corrective actions and genuine responsibility, they may reinterpret the cause more favorably, leading to a more tolerant attitude. This theoretical insight expands the understanding of moral judgment and attribution in post-crisis consumer behavior.

Second, the incorporation of the Commitment and Trust Theory enhances comprehension of the dynamics of brand relationships after trust violations. The findings confirm that trust and commitment are not static states but relational constructs that can be rebuilt through consumer satisfaction and transparent corporate actions. This reinforces the theoretical argument that long-term loyalty is sustained not only by consistent performance but also by relational recovery processes grounded in trust restoration and emotional assurance.

Third, the study advances the limited application of Brand Forgiveness Theory within marketing literature by framing forgiveness as a central emotional pathway in crisis recovery. The results emphasize that forgiveness is not an automatic response but a deliberate emotional transformation that occurs when consumers recognize genuine efforts from a brand to make amends. This conceptualization adds depth to the understanding of how emotional regulation facilitates loyalty restoration following reputational damage.

In summary, this study contributes to theory by linking cognitive attribution, trust rebuilding, and emotional forgiveness into a cohesive explanatory model. It offers a more comprehensive understanding of post-crisis consumer behavior, highlighting that recovery from greenwashing scandals depends on both rational reassessment and emotional reconciliation. The model thus lays theoretical groundwork for future studies exploring how cognitive and affective mechanisms jointly determine brand loyalty recovery in ethical crises.

### 5.1.2. Managerial Implications

The findings of this study offer several practical implications for managers and organizations seeking to maintain and rebuild consumer trust and loyalty after greenwashing scandals. The results emphasize that consumers' post-crisis behavior is shaped not only by how they perceive the initial misconduct but also by how the firm manages its recovery through transparency, responsibility, and relationship restoration.

First, companies should prioritize transparent communication immediately after a greenwashing incident. Concealing information or providing vague explanations may intensify consumer skepticism and damage long-term trust. Instead, organizations should disclose relevant facts honestly, acknowledge their shortcomings, and clarify specific steps being taken to rectify the issue. Clear and consistent communication can prevent misinformation and demonstrate corporate integrity, which are vital to rebuilding trust.

Second, satisfaction and service quality should be reinforced during the recovery stage. Consumers

who perceive continuous value, responsiveness, and accountability from a brand are more likely to maintain loyalty despite reputational setbacks. Managers should ensure that customer experiences remain positive, reliable, and consistent to restore confidence in the brand's performance.

Third, brands must actively demonstrate genuine corporate social responsibility rather than symbolic or reactive CSR. Post-crisis CSR initiatives should not merely serve as image repair tactics but as long-term commitments to environmental and ethical improvements. Integrating sustainability into core operations—such as supply chain transparency, eco-friendly materials, and measurable sustainability goals—helps demonstrate sincerity and rebuild consumer trust over time.

Fourth, brands should recognize the emotional dimension of consumer-brand relationships. Trust recovery cannot rely solely on rational factors; emotional repair through empathy and apology is equally important. Public apologies that convey authenticity and responsibility can trigger forgiveness and facilitate emotional reconciliation. In addition, initiatives that allow consumers to participate in corrective environmental activities can strengthen their sense of shared purpose with the brand.

Finally, managers should establish early detection mechanisms to prevent future accusations of greenwashing. Internal auditing systems, third-party certifications, and sustainability reporting can enhance accountability and minimize the risk of misleading claims. By institutionalizing ethical communication and proactive sustainability practices, firms can reduce future reputational risks and foster long-term consumer loyalty.

In essence, this study suggests that successful recovery from greenwashing requires a multidimensional approach combining transparency, responsibility, emotional connection, and genuine CSR engagement. Companies that demonstrate sincerity and consistent ethical behavior will not only restore consumer trust but also strengthen brand loyalty in the long run.

## 5.2. Conclusion

This study set out to examine how greenwashing scandals influence consumers' trust, commitment, and loyalty toward brands, while also exploring whether consumers are willing to return to a brand once trust and forgiveness are restored. By integrating Attribution Theory, Commitment and Trust Theory, and Brand Forgiveness Theory, the research developed a comprehensive framework explaining both the cognitive and emotional mechanisms that shape post-crisis consumer behavior.

The findings reveal that greenwashing undermines consumer trust and weakens brand loyalty, yet these effects are not necessarily permanent. Satisfaction, trust, forgiveness, and perceived corporate social responsibility emerge as critical factors in rebuilding consumer-brand relationships after a scandal. When brands acknowledge their mistakes, communicate transparently, and take genuine corrective action, consumers are more likely to forgive and renew their loyalty.

The research further highlights that emotional recovery plays a vital role in the restoration process. While anger and skepticism are natural initial reactions, they can be mitigated through empathy, consistent communication, and meaningful CSR efforts. Trust and forgiveness together form the emotional foundation that enables consumers to re-engage with brands even after reputational damage.

From a theoretical standpoint, this study contributes by linking cognitive attribution and emotional reconciliation in explaining consumer responses to ethical crises. From a managerial perspective, the results suggest that transparent communication, responsible actions, and genuine CSR engagement are key strategies for restoring consumer confidence and loyalty.

In conclusion, greenwashing scandals pose a serious challenge to brand credibility, but they also present an opportunity for transformation. Brands that demonstrate honesty, responsibility, and sincerity in their recovery efforts can not only regain

trust but also build stronger, more resilient relationships with their consumers in the long term.

## 5.3. Limitations and Future Research Directions

This study provides meaningful insights into how greenwashing scandals influence consumer trust, forgiveness, and brand loyalty. However, some limitations should be acknowledged, as they also open up directions for future research.

First, this research employed a cross-sectional design, meaning data were collected at a single point in time. This approach limits the ability to observe changes in consumer attitudes and behaviors throughout the recovery process after a scandal. Future research could employ longitudinal designs to capture the evolution of consumer perceptions and the gradual rebuilding of trust and loyalty over time.

Second, the study focused primarily on the Vietnamese market, which offers an insightful perspective from an emerging economy but restricts generalization to other cultural or economic contexts. Future studies could conduct cross-cultural comparisons to examine how differences in cultural norms, environmental awareness, and ethical expectations influence consumer reactions to greenwashing across regions.

Third, data were collected through self-reported questionnaires, which may be affected by social desirability or memory bias. Future research should consider combining multiple data sources such as interviews, experiments, or sentiment analysis from digital platforms to strengthen the objectivity and reliability of the findings.

Fourth, this study mainly integrated three theoretical perspectives—Attribution Theory, Commitment–Trust Theory, and Brand Forgiveness Theory—to explain post-crisis consumer behavior. Future studies could extend the theoretical framework by incorporating other psychological or ethical perspectives such as Moral Emotions Theory or Relationship Repair Theory. Doing so would allow researchers to better understand the interaction between cognition, emotion, and moral judgment in the recovery of brand loyalty after a greenwashing incident.

Finally, this study examined the phenomenon primarily from the consumer's point of view. Future research could include managerial perspectives to explore how organizations internally manage reputation repair, rebuild stakeholder trust, and implement genuine corporate social responsibility strategies. Integrating both consumer and managerial insights would provide a more holistic understanding of the mechanisms that drive trust restoration and long-term brand loyalty.

## 5.4. Future Research Directions

Although this study provides valuable insights into how greenwashing scandals affect consumers' perceptions and loyalty, several limitations should be acknowledged, which also create opportunities for future research.

First, this research was based on cross-sectional survey data collected at a single time point. This design restricts the ability to observe how consumer attitudes evolve over time as trust and forgiveness gradually develop. Future studies could employ longitudinal approaches to capture the dynamic process of brand loyalty recovery after a greenwashing crisis.

Second, the study focused on the Vietnamese market, which provides rich contextual insights for an emerging economy but limits the generalizability of the findings to other cultural or economic contexts. Future research should conduct comparative studies across regions such as Southeast Asia and Western countries to examine how cultural and economic differences shape consumer reactions toward trust, forgiveness, and loyalty after greenwashing events.

Third, the research relied primarily on self-reported data, which may be influenced by social desirability or recall bias. Future studies could overcome this limitation by adopting experimental methods or behavioral data such as simulated brand crisis experiments or sentiment analysis from online consumer discussions, offering more objective evidence about post-crisis consumer behavior.

In addition, future research can integrate alternative theoretical perspectives such as Moral

Emotions Theory or Relationship Repair Theory to better understand how moral perception and emotional recovery interact in rebuilding brand relationships. The use of advanced technologies such as artificial intelligence or green marketing analytics could also be examined as a means to strengthen transparency and prevent deceptive environmental communication.

Lastly, this study approached the issue mainly from the consumer perspective. Future research could include the managerial viewpoint to explore how companies internally manage reputation repair and rebuild stakeholder trust after accusations of greenwashing. This dual perspective would provide a more complete and realistic understanding of how trust and loyalty are restored in the aftermath of ethical crises.

## References

Aaker, J., Fournier, S., & Brasel, S. A. (2004). When good brands do bad. *Journal of Consumer Research, 31*(1), 1–16. doi:https://doi.org/10.1086/383419

Allen, N. J., & Meyer, J. P. (1990). The measurement and antecedents of affective, continuance and normative commitment. *Journal of Occupational Psychology, 63*(1), 1-18.

Binh, N. T. H., Tri-Quan, D., & and Nguyen, L.-T. (2024). Metaverse: The Future for Immersive Logistics and International Business Education. Journal of Teaching in International Business, 35(3–4), 75–107. https://doi.org/10.1080/08975930.2024.2445861

Becker-Olsen, K. L., Cudmore, B. A., & Hill, R. P. (2006). The impact of perceived corporate social responsibility on consumer behavior. *Journal of Business Research, 59*(1), 46–53. doi:https://doi.org/10.1016/j.jbusres.2005.01.001

Bougie, R. P. (2003). Angry customers don't come back, they get back: The experience and behavioral implications of anger and dissatisfaction in services. *Journal of the Academy of Marketing Science,*, 377-393.

doi:https://doi.org/10.1177/0092070303254412

Carroll, A. B. (1991). The pyramid of corporate social responsibility: Toward the moral management of organizational stakeholders. *Business Horizons*, 39-48. doi:https://doi.org/10.1016/0007-6813(91)90005-G

Carroll, A. B. (1999). Corporate social responsibility: Evolution of a definitional construct. *Business & Society, 38*(3), 268–295. doi:https://doi.org/10.1177/000765039903800303

Chaudhuri, A., & Holbrook, M. B. (2001). The chain of effects from brand trust and brand affect to brand performance: The role of brand loyalty. *Journal of Marketing, 65*(2), 81-93. doi:https://doi.org/10.1509/jmkg.65.2.81.18255

Chen, Y.-S., & Chang, C.-H. (2013). Greenwash and green trust: The mediation effects of green consumer confusion and green perceived risk. *Journal of Business Ethics, 114*(3), 489-500. doi:https://doi.org/10.1007/s10551-012-1360-0

Chen, Y.-S., Chang, T.-W., Li, H.-X., & Chen, Y.-R. (2020). The Influence of Green Brand Affect on Green Purchase Intentions: The Mediation Effects of Green Brand Associations and Green Brand Attitude. *International Journal of Environmental Research and Public Health (IJERPH)*, 4089. doi:doi:10.3390/ijerph17114089

Chiến, N. Đ. (2021). Mối quan hệ giữa chất lượng dịch vụ, hình ảnh thương hiệu, niềm tin và lòng trung thành trong ngành ngân hàng Việt Nam. *Tạp chí Khoa học Đại học Mở TP.HCM, 16*(2), 35-47.

Chinomona, R. (2013). The influence of brand experience on brand satisfaction, trust, and attachment in South Africa. *International Business & Economics Research Journal, 12*(10), 1303-13116. doi:https://doi.org/10.19030/iber.v12i10.8138

Cindy Lombart & Didier Louis. (2014). A study of the impact of Corporate Social Responsibility and price image on retailer personality and consumers' reactions (satisfaction, trust and loyalty to the retailer. *Journal of Retailing and Consumer Services, 21*(4), 630-642. doi:https://doi.org/10.1016/j.jretconser.2013.11.009

Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences (2nd ed.).* Lawrence Erlbaum Associates, Publishers.

Commission, E. (2023). *Brussels: European Commission*. Retrieved from Empowering consumers for the green transition.: https://commission.europa.eu

Đặng Thị Mỹ Hạnh & Lê Minh Quân. (2023). Vai trò của sự tha thứ thương hiệu trong việc giảm thiểu ảnh hưởng của greenwashing đến lòng trung thành khách hàng. *Tạp chí Kinh tế – Quản trị, 18*(4), 45-58.

Du, S., Bhattacharya, C., & Sen, S. (2010). Maximizing Business Returns to Corporate Social Responsibility (CSR): The Role of CSR Communication. *International Journal of Management Reviews*, 8-19. doi:https://doi.org/10.1111/j.1468-2370.2009.00276.x

Dang, T. Q., Duc, D. T. V., Tran, L. H. P., & Nguyen, L. T. (2025). EXAMINING THE IMPACT OF TRUST ON CUSTOMER INTENTION TO USE METAVERSE PAYMENTS: A NEXT-GEN TRANSACTIONS STRATEGIC OUTLOOK. Corporate and Business Strategy Review, 6(1), 166–177. https://doi.org/10.22495/cbsrv6i1art16

Dang, T. Q., Nguyen, L. T., & Duc, D. T. V. (2025). Impulsive Buying and Compulsive Buying in Social Commerce: An Integrated Analysis using the Cognitive-Affective-Behavior Model and Theory of Consumption Values with PLS-SEM. SAGE Open, 15(2). https://doi.org/10.1177/21582440251334215

Dang, T.-Q., Nguyen, L.-T., & Thi, D. D. V. (2025). Comprehensive Analysis of Mobile Payment's Customer Loyalty: The SEM-ANN Approach. Quality-Access to Success, 26(208). https://doi.org/10.47750/QAS/26.208.20

Dang, T.-Q., Nguyen, T.-M., Tran, P.-T., Phan, T.-T. C., Huynh, T.-B., & Nguyen, L.-T. (2025). From reality to virtuality: Unveiling Gen Z's purchasing behavior through virtual influencers in the metaverse. Digital Business, 5(2), 100141. https://doi.org/10.1016/j.digbus.2025.100141

Dao, N.-Y., Nguyen, L.-T., & Dinh, V.-H. (2023). Factors Driving Vietnamese University Students' Adoption in a Smart Learning Environment: The Application of Self-determination Theory and Technology Acceptance Model. In Lecture Notes in Educational Technology (pp. 185–190). Springer Nature Singapore. https://doi.org/https://doi.org/10.1007/978-981-99-5961-7_22

Duc, D. T. V., Mai, L. T. V., Dang, T.-Q., Le, T.-T., & Nguyen, L.-T. (2024). Unlocking impulsive buying behavior in the metaverse commerce: a combined analysis using PLS-SEM and ANN. Global Knowledge, Memory and Communication. https://doi.org/10.1108/GKMC-05-2024-0266

Duc, D. T. V., Phuong, N. M., Nguyen, L.-T., & Dang, T.-Q. (2025). Open government data in Vietnam: The integrated toe and trust theory model. International Journal of Innovative Research and Scientific Studies, 8(6), 2064–2082. https://doi.org/10.53894/ijirss.v8i6.10079

Le, T.-T., Lin, P.-T., Duc, D. T. V., Dang, T.-Q., & Nguyen, L.-T. (2025). Optimizing and restructuring resources for sustainable firm performance in the AI era: the role of dynamic capabilities and circular manufacturing. Sustainable Futures, 10, 101441. https://doi.org/https://doi.org/10.1016/j.sftr.2025.101441

Eisingerich, A. B. (2011). Doing good and doing better despite negative information?: The role of corporate social responsibility in consumer

resistance to negative information. *Journal of Service Research, 14*(1), 247-268. doi:https://doi.org/10.1177/1094670510389164

Eisingerich, A. B. (2011). Why customers stay: How emotional commitment and trust determine relationship longevity. *Journal of Service Research, 14*(1), 1-13.

Ellen Garbarino and Mark S. Johnson. (1999). The different roles of satisfaction, trust, and commitment in customer relationships. *Journal of Marketing, 63*(2), 70-87.

Esch, F. R. (2006). Are brands forever? How brand knowledge and relationships affect current and future purchases. *Journal of Product & Brand Management*, 98-105. doi:https://doi.org/10.1108/10610420610658938

Folkes, V. S. (1988). Recent attribution research in consumer behavior: A review and new directions. *Journal of Consumer Research, 14*(4), 548–565.

Foundation, C. M. (2024). Retrieved from Synthetics Anonymous 3.0: Fashion brands' addiction to fossil fuels: https://changingmarkets.org

Fullerton, G. (2003). When does commitment lead to loyalty? *Journal of Service Research, 5*(4), 333-344.

Garbarino, E. &. (1999). The different roles of satisfaction, trust, and commitment in customer relationships. *Journal of Marketing, 63*(2), 70-87. doi:https://doi.org/10.1177/002224299906300205

Gergely Nyilasy, Harsha Gangadharbatla & Angela Paladino. (2014). Greenwashing: A consumer perspective. *Journal of Business Ethics, 125*(4), 693-707.

Grégoire, Y., & Fisher, R. J. (2008). Customer betrayal and retaliation: when your best customers become your worst enemies. *Journal of Marketing, 36*, 247-261. doi:https://doi.org/10.1007/s11747-007-0054-0

Grégoire, Y., Tripp, T. M., & Legoux, R. (2009). When customer love turns into lasting hate. *Journal of Marketing, 73*(6), 18–32. Retrieved from https://www.researchgate.net/publication/228647163_When_customer_love_turns_into_lasting_hate_the_effects_of_relationship_strength_and_time_on_customer_revenge_and_avoidance

Ha, T. H. (2022). Consumer responses to greenwashing: The role of moral identity and trust. *Asian Journal of Business Research*, 45-58. doi:https://doi.org/10.14707/ajbr.220057

Hair, J. F., Hult, G. T., Ringle, C. M., & Sarstedt, M. (2022). *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)* (3 ed.). Sage Publishing.

Hair, J. H. (2017). *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)* (2nd Edition ed.). Thousand Oaks, CA.: Sage Publications Inc.

Hair, J. R. (2019). When to Use and How to Report the Results of PLS-SEM. *European Business Review*, 2-24. doi:https://doi.org/10.1108/EBR-11-2018-0203

Hair, J.F., Black, W.C., Babin, B.J. and Anderson, R.E. (2010). *Multivariate Data Analysis* (7th ed.). New York: Pearson.

Han, H., & Hyun, S. S. (2017). Impact of hotel-restaurant image and quality of physical-environment, service, and food on satisfaction and intention. *International Journal of Hospitality Management*, 82-92. doi:https://doi.org/10.1016/j.ijhm.2017.03.006

Heider, F. (1958). *The psychology of interpersonal relations.* New York: Wiley.

Heider, F. (1958). *The psychology of interpersonal relations.* New York: Wiley.

Henseler, J. R. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, 115-135.

Hoàng Minh Quân & Nguyễn Thanh Thảo. (2022). Ảnh hưởng của hành vi xin lỗi và khắc phục của thương hiệu đến sự tha thứ của khách hàng Việt Nam. *Tạp chí Công Thương, 10*(5), 112-119.

Höck, M., & Ringle, C. M. (2010). Local strategic networks in the software industry: An empirical analysis of the value continuum. *International Journal of Knowledge Management Studies*. doi:http://dx.doi.org/10.1504/IJKMS.2010.030789

Hossain, M. Z., Hossain, S., & Urme, U. N. (2025). The Impact of Greenwashing on Consumer Trust and Brand Loyalty: The Moderating Role of Industry Type. *Vol. 1 No. 3 (2025): European Journal of Innovative Studies and Sustainability*, 121-133. doi:https://doi.org/10.59324/ejiss.2025.1(3).10

Jennifer L. Aaker & Susan Fournier & Adam Brasel. (2004). When good brands do bad. *Journal of Consumer Research, 31*(1), 1-16.

Joseph F. Hair, Jr., G. Tomas M. Hult, Christian M. Ringle, Marko Sarstedt. (2022). *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)* (3rd ed.). New York: Sage Publishing.

Kelley, H. H. (1971). *Attribution in social interaction.* Morristown: General Learning Press.

Kim, H. S. (2004). The effects of brand commitment and brand trust on brand loyalty. *Korean Journal of Advertising*, 67-92.

Kock, N. (2015). Common method bias in PLS-SEM: A full collinearity assessment approach. *International Journal of e-Collaboration, 11*(4), 1-10. Retrieved from https://www.researchgate.net/publication/285590317_Common_Method_Bias_in_PLS-SEM

Lê Anh Tuấn & Nguyễn Hồng Phúc. (2020). Từ lòng trung thành đến cam kết thương hiệu: Nghiên cứu trong ngành hàng tiêu dùng nhanh tại Việt Nam. *Tạp chí Phát triển Kinh tế, 31*(5), 60-74.

Lee, G. T. (1999). Consumers' Trust in a Brand and the Link to Brand Loyalty. *Journal of Market-Focused Management*, 341-370. doi:https://doi.org/10.1023/A:1009886520142

Lichtenstein, D. R., Drumwright, M. E., & Braig, B. M. (2004). The Effect of Corporate Social Responsibility on Customer Donations to Corporate-Supported Nonprofits. *Journal of Marketing*, 16-32. doi:https://doi.org/10.1509/jmkg.68.4.16.42726

Le, T.-T., Lin, P.-T., Duc, D. T. V., Dang, T.-Q., & Nguyen, L.-T. (2025). Optimizing and restructuring resources for sustainable firm performance in the AI era: the role of dynamic capabilities and circular manufacturing. Sustainable Futures, 10, 101441. https://doi.org/https://doi.org/10.1016/j.sftr.2025.101441

Le, T.-T., Nguyen, L.-T., Truong Pham, N.-U., Minh Huynh, T., Thi Viet Duc, D., Chi, H., Phu, B., & Thanh District, B. (2025). HRM strategies for sustainable performance: A focus on SDG-3 and SDG-8 in the logistics sector. https://doi.org/10.18488/11.v14i3.4427

Maignan, I., & Ferrell, O. C. (2004). Corporate social responsibility and marketing: An integrative framework. *Journal of the Academy of Marketing Science*, 3-19.

Malhotra, N. K. (2017). *Marketing Research: An Applied Orientation* (7th ed.). Harlow: Pearson.

Martínez, P., & Bosque, I. R. (2013). CSR and customer loyalty: The roles of trust, customer identification with the company and satisfaction. *International Journal of Hospitality Management*, 89-99. doi:https://doi.org/10.1016/j.ijhm.2013.05.009

McCullough, M. E. (1997). Interpersonal forgiving in close relationships. *Journal of Personality and Social Psychology*, 321–336. doi:https://psycnet.apa.org/doi/10.1037/0022-3514.73.2.321

Mizerski, R. W. (1979). The attribution process in consumer decision making. *Journal of Consumer Research, 6*(2), 123–140. Retrieved from https://www.jstor.org/stable/2488870

Moorman, C., Zaltman, G., & Deshpandé, R. (1992). Relationships between providers and users of market research: The dynamics of trust. *Journal of Marketing Research, 29*(3), 314–328. doi:https://doi.org/10.2307/3172742

Morgan, R. M., & Hunt, S. D. (1994). The commitment–trust theory of relationship marketing. *Journal of Marketing, 58*(3), 20-38. doi:https://doi.org/10.1177/002224299405800302

News, B. (2022, 12 10). *Volkswagen: The scandal explained*. Retrieved from BBC News: https://www.bbc.com/news/business-34324772

Ngo Minh Vu & Nguyen Huu Huan. (2016). The relationship between service quality, customer satisfaction and customer loyalty: An investigation in Vietnamese retail banking sector. *Journal of Competitiveness, 8*(2), 103-116. doi:https://doi.org/10.7441/joc.2016.02.08

Binh, N. T. H., Tri-Quan, D., & and Nguyen, L.-T. (2024). Metaverse: The Future for Immersive Logistics and International Business Education. Journal of Teaching in International Business, 35(3–4), 75–107. https://doi.org/10.1080/08975930.2024.2445861

Dang, T. Q., Duc, D. T. V., Tran, L. H. P., & Nguyen, L. T. (2025). EXAMINING THE IMPACT OF TRUST ON CUSTOMER INTENTION TO USE METAVERSE PAYMENTS: A NEXT-GEN TRANSACTIONS STRATEGIC OUTLOOK. Corporate and Business Strategy Review, 6(1), 166–177. https://doi.org/10.22495/cbsrv6i1art16

Dang, T. Q., Nguyen, L. T., & Duc, D. T. V. (2025). Impulsive Buying and Compulsive Buying in Social Commerce: An Integrated Analysis using the Cognitive-Affective-Behavior Model and Theory of Consumption Values with PLS-SEM. SAGE Open, 15(2). https://doi.org/10.1177/21582440251334215

Dang, T.-Q., Nguyen, L.-T., & Thi, D. D. V. (2025). Comprehensive Analysis of Mobile Payment's Customer Loyalty: The SEM-ANN Approach. Quality-Access to Success, 26(208). https://doi.org/10.47750/QAS/26.208.20

Dang, T.-Q., Nguyen, T.-M., Tran, P.-T., Phan, T.-T. C., Huynh, T.-B., & Nguyen, L.-T. (2025). From reality to virtuality: Unveiling Gen Z's purchasing behavior through virtual influencers in the metaverse. Digital Business, 5(2), 100141. https://doi.org/10.1016/j.digbus.2025.100141

Dao, N.-Y., Nguyen, L.-T., & Dinh, V.-H. (2023). Factors Driving Vietnamese University Students' Adoption in a Smart Learning Environment: The Application of Self-determination Theory and Technology Acceptance Model. In Lecture Notes in Educational Technology (pp. 185–190). Springer Nature Singapore. https://doi.org/https://doi.org/10.1007/978-981-99-5961-7_22

Duc, D. T. V., Mai, L. T. V., Dang, T.-Q., Le, T.-T., & Nguyen, L.-T. (2024). Unlocking impulsive buying behavior in the metaverse commerce: a combined analysis using PLS-SEM and ANN. Global Knowledge, Memory and Communication. https://doi.org/10.1108/GKMC-05-2024-0266

Duc, D. T. V., Phuong, N. M., Nguyen, L.-T., & Dang, T.-Q. (2025). Open government data in Vietnam: The integrated toe and trust theory model. International Journal of Innovative Research and Scientific Studies, 8(6), 2064–2082. https://doi.org/10.53894/ijirss.v8i6.10079

Le, T.-T., Lin, P.-T., Duc, D. T. V., Dang, T.-Q., & Nguyen, L.-T. (2025). Optimizing and restructuring resources for sustainable firm performance in the AI era: the role of dynamic capabilities and circular manufacturing. Sustainable Futures, 10, 101441. https://doi.org/https://doi.org/10.1016/j.sftr.2025.101441

Le, T.-T., Nguyen, L.-T., Truong Pham, N.-U., Minh Huynh, T., Thi Viet Duc, D., Chi, H., Phu, B.,

& Thanh District, B. (2025). HRM strategies for sustainable performance: A focus on SDG-3 and SDG-8 in the logistics sector. https://doi.org/10.18488/11.v14i3.4427

Nguyen, A.-H. D., Pham, N.-U. T., Lin, P.-T., Dang, T.-Q., Tran, P.-T., Le, T.-T., Phan, T.-T. C., & Nguyen, L.-T. (2024). Acceptance and use of live streaming on metaverse in Vietnam: An analysis with the UTAUT2. Journal of Infrastructure, Policy and Development, 8(8), 6069. https://doi.org/10.24294/jipd.v8i8.6069

Nguyen, B.-H. T., Dang, T.-Q., Nguyen, L.-T., & Tran, T.-T. T. (2024). Are we ready for education in Metaverse? PLS-SEM analysis. Edelweiss Applied Science and Technology, 8(2), 73–83. https://doi.org/10.55214/25768484.v8i2.693

Nguyen, B.-T. H., Le, T. H., Dang, T. Q., & Nguyen, L.-T. (2023). What Role Does AI Chatbot Perform in the F&B Industry? Perspective from Loyalty and Value Co-Creation: Integrated PLS-SEM and ANN Techniques. Journal of Law and Sustainable Development, 44(4), 1–39. https://doi.org/https://doi.org/10.55908/sdgs.v11i4.794

Nguyen, L.-T., Dang, T.-Q., & Duc, D. T. V. (2024). The Dark Sides of AI Advertising: The Integration of Cognitive Appraisal Theory and Information Quality Theory. Social Science Computer Review. https://doi.org/10.1177/08944393241258760

Nguyen, L.-T., Duc, D. T. V., Dang, T.-Q., & Nguyen, D. P. (2023). Metaverse Banking Service: Are We Ready to Adopt? A Deep Learning-Based Dual-Stage SEM-ANN Analysis. Human Behavior and Emerging Technologies, 2023, 6617371. https://doi.org/10.1155/2023/6617371

Nguyen, L.-T., Dwivedi, Y. K., Tan, G. W. H., Aw, E. C. X., Lo, P. S., & Ooi, K. B. (2022). Unlocking Pathways to Mobile Payment Satisfaction and Commitment. Journal of Computer Information Systems, 00(00), 1–18.

https://doi.org/10.1080/08874417.2022.2119444

Nguyen, L.-T., Nguyen, D., Ngoc, K. N.-N., & Duc, D. T. V. (2023). Blockchain adoption in logistics companies in Ho Chi Minh City. Cogent Business & Management, 10(2), 1–24. https://doi.org/10.1080/23311975.2023.2216436

Nguyen, L.-T., Phan, T.-T. C., & Dang, T.-Q. (2025). The Power of Interactive Mobile Advertising: How Self-brand Congruity Shapes Brand Engagement in Self-concept. Journal of Creative Communications. https://doi.org/10.1177/09732586251359718

Nguyen, L.-T., Tran, N.-T. T., Dang, T.-Q., & Duc, D. T. V. (2025). Beyond Transactions: Building Customer Loyalty and Brand Value Cocreation in Vietnamese Financial Apps. Human Behavior and Emerging Technologies, 2025(1). https://doi.org/10.1155/hbe2/5599209

Nguyen, N. T. T., Tran, P. T., Dang, T. Q., & Nguyen, L. T. (2024). The future of non-contact commerce: the role of voice payments. Journal of Financial Services Marketing. https://doi.org/10.1057/s41264-024-00292-6

Nguyễn Hoàng Giang & Lê Bảo Ngọc & Nguyễn Đắc Thành. (2024). NGHIÊN CỨU VỀ HÀNH VI CÔNG DÂN CỦA KHÁCH HÀNG. *Khoa Học Thương Mại*. doi:10.54404/JTS.2024.191V.04

Nguyễn Thị Hồng & Phạm Hồng Lĩnh. (2022). Trách nhiệm xã hội doanh nghiệp (CSR) và niềm tin thương hiệu: Tác động đến lòng trung thành khách hàng. *Tạp chí Nghiên cứu Kinh tế và Kinh doanh, 14*(3), 88-102.

Nguyễn Thị Mai, & Trần Quang Khải. (2021). Tác động của greenwashing đến niềm tin và lòng trung thành thương hiệu của người tiêu dùng Việt Nam. *Tạp chí Kinh tế Phát triển, 33*(9), 85-97.

Nguyễn Thị Thu Hương & Lê Việt Anh. (2024). Ảnh hưởng của hành vi xanh trá hình đến niềm tin và lòng trung thành thương hiệu xanh tại Việt Nam. *Tạp chí Công Thương, 23*(2), 112-121.

Nyilasy, G. G. (2014). Greenwashing: A consumer perspective. *Psychology & Marketing, 31*(6), 1-14. Retrieved from https://www.proquest.com/openview/ae91eb4f4c1fc46e970d3d20cbd0fbfa/1?pq-origsite=gscholar&cbl=1416337

Nyilasy, G., Gangadharbatla, H., & Paladino, A. (2014). Perceived greenwashing: The effects of green marketing on environmental and consumer skepticism. *Journal of Business Research, 67*(12), 1-9.

Oliver, R. L. (1993). Cognitive, affective, and attribute bases of the satisfaction respons. *Journal of Consumer Research, 20*(3), 418–430. Retrieved from https://www.jstor.org/stable/2489356

Oliver, R. L. (1997). Satisfaction: A Behavioral Perspective on the Consumer.

Oliver, R. L. (1999). Whence consumer loyalty? *Journal of Marketing, 63*(4), 33-44.

Pérez, A. &. (2015). Corporate social responsibility and customer loyalty: Exploring the role of identification, satisfaction and type of company. *Journal of Services Marketing, 29*(1), 15–25. doi:https://doi.org/10.1108/JSM-10-2013-0272

Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology, 88*(5), 879-903. doi:https://doi.org/10.1037/0021-9010.88.5.879

Phan, L.-G. N., Tri, D. Q., Dang, S.-H., & Nguyen, L.-T. (2025). Hooked on Livestreaming: What Drives Customer Repurchase Intention in E-Commerce? Journal of Creative Communications. https://doi.org/10.1177/09732586241311001

Phan, T. – T. C., Nguyen, L.-T., & Dang, T.-Q. (2025). Does Impulsive Buying Lead to Compulsive Buying in Metaverse? A Dual-Stage Predictive-Analytics SEM-ANN Analysis. The Empirical Study from Vietnam. Thailand and The World Economy,

43(2), 44–46. https://so05.tci-thaijo.org/index.php/TER/article/view/268273

Robert M. Morgan & Shelby D. Hunt. (1994). The commitment–trust theory of relationship marketing. *Journal of Marketing, 58*(3), 20-38.

Romani, S., Grappi, S., & Bagozzi, R. P. (2013). Explaining consumer reactions to corporate social irresponsibility: The role of moral emotions. *Journal of Business Ethics, 114*(2), 537–549. doi:https://doi.org/10.1007/s10551-012-1337-z

Rosi, F., & Ekasari, A. (2023). Factors that Affect Brand Loyalty and Customer Advocacy: the Moderating Role of Greenwashing. *Journal of Social Research*, 1169-1186. doi:https://doi.org/10.55324/josr.v2i4.788

Saputra, D., Broek, M. v., & Marcelina, N. (2024). Navigating Greenwashing: Exploring the Impact of Trust, Perceived Value, and Green Satisfaction on Brand Loyalty Towards Local Sustainable Cosmetic. *Asia-Pacific Management and Business Application*, 129-144. doi:https://doi.org/10.21776/ub.apmba.2024.013.02.3

Saputra, D., Broek, M. v., & Marcelina, N. (2024). Navigating Greenwashing: Exploring the Impact of Trust, Perceived Value, and Green Satisfaction on Brand Loyalty Towards Local Sustainable Cosmetic. *Asia-Pacific Management and Business Application*, 129-144. doi:https://doi.org/10.21776/ub.apmba.2024.013.02.3

Srinivasan, S. S., & Anderson, R. E. (2003). E-satisfaction and e-loyalty: A contingency framework. *Psychology & Marketing*, 123-138. doi:https://doi.org/10.1002/mar.10063

Trần Minh Hoàng & Phạm Thanh Hằng. (2022). Sự hài lòng và niềm tin như yếu tố quyết định lòng trung thành của khách hàng trong lĩnh vực bán lẻ. *Tạp chí Thương mại & Thị trường, 18*(6), 52-64.

Tu, J.-C., Cui, Y., Liu, L., & Yang, C. (2024). Perceived Greenwashing and Its Impact on the Green Image of Brands. *Sustainability*, 9009. doi:https://doi.org/10.3390/su16209009

Thi Viet, D. D., & Nguyen, L.-T. (2025). Unveiling the Impact of Big Data and Predictive Analytics Adoption on Sustainable Supply Chain Management: An Employee-Centric Perspective. SAGE Open, 15(3). https://doi.org/10.1177/21582440251363128

Tuấn, N. N., Ny, T. Đ. Q., Quỳnh, P. N. N., Giang, N. T. T., & Nguyên, B. T. (2023). *Tác động của Greenwashing lên ý định mua xanh của người tiêu dùng trẻ ở việt Nam.* Thư viện Kon Tum. Retrieved from http://thuvien.kontum.udn.vn:81/thuvienso/bitstream/123456789/1572/2/BCTK.pdf

Uzir, M. U. (2025). Commitment after crisis: The role of emotional attachment in brand loyalty recovery. *Journal of Consumer Psychology, 35*(1), 54-69.

Uzir, M. U. (2025). Green consumer satisfaction and trust after environmental scandal: A post-crisis recovery study. *Journal of Retailing and Consumer Services, 78*, 103578.

Veerraju, B. (2025). Greenwashed brand activism and its impact on customer loyalty. *Asian J Manage Commerce 2025*, 854-858. doi:https://doi.org/10.22271/27084515.2025.v6.i2i.761

Vũ Thị Thanh Bình & Nguyễn Tấn Phát. (2023). Ảnh hưởng của cảm xúc tiêu cực đến hành vi rời bỏ thương hiệu: Nghiên cứu về Customer Anger tại Việt Nam. *Tạp chí Tâm lý học & Hành vi Người tiêu dùng, 9*(1), 33-49.

Weiner, B. (1986). *An attributional theory of motivation and emotion.* New York: Springer-Verlag.

Weiner, B. (1986). *An attributional theory of motivation and emotion.* New York: Springer-Verlag.

Weiner, B. (2000). Intrapersonal and interpersonal theories of motivation from an attributional perspective. *Educational Psychology Review, 12*(1), 1–14.

Xiao, W., Wang, Y., Ji, Y., & Cai, M. (2021). How greenwashing affects consumer responses: The mediating roles of moral emotions and brand trust. *Sustainability, 13*(5), 2752.

Xie, Y., & Peng, S. (2009). How to repair customer trust after negative publicity: The role of competence, integrity, benevolence, and forgiveness. *Psychology & Marketing, 26*(7), 572-589. doi:https://doi.org/10.1002/mar.20289

Yeyi Liu, Magnus Hultman, Andreas B. Eisingerich, Xingjie Wei. (2020, 3). How does brand loyalty interact with tourism destination? Exploring the effect of brand loyalty on place attachment. *Annals of Tourism Research, 81*. doi:https://doi.org/10.1016/j.annals.2020.102879

Yu-Shan Chen & Ching-Hsun Chang . (2013). Greenwash and green trust: The mediation effects of green consumer confusion and green perceived risk. *Journal of Business Ethics, 114*(3), 489-500.