

Greenwashing in Sustainability Communication: Effects on Green Trust, Green Confusion, and Green Brand Equity in the Indonesian Fast-Food Industry

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Abstract

This study examines the effect of greenwashing on green brand equity through green trust and green confusion in Yogyakarta's fast-food industry. Concerns over sustainability communication credibility have increased uncertainty regarding the alignment between corporate environmental claims and consumers' perceptions of actual practices. The analysis applies the Stimulus-Organism-Response (S-O-R) framework to explain how consumers' perceptions of environmental claims influence these variables. A quantitative research design was adopted, drawing on primary data derived from respondents' answers to an online questionnaire. All constructs were operationalized and measured using a five-point Likert response scale. The study sample comprised 200 eligible respondents selected through a purposive sampling procedure within a non-probability sampling framework. The empirical model was analyzed using PLS-SEM in SmartPLS 4 through assessments of the measurement and structural models. Greenwashing weakens green trust and green brand equity while amplifying green confusion. Furthermore, the empirical evidence suggests that green trust contributes positively to the development of green brand equity, whereas green confusion exerts an adverse influence on this construct. In addition, the impact of greenwashing on green brand equity operates through two significant mediating mechanisms, namely green trust and green confusion, with the former exerting the greater mediating influence.

Keywords: *Greenwashing, Green Brand Equity, Green Trust, Green Confusion, Stimulus Organism Response*

1. Introduction

Sustainability has become increasingly relevant in Indonesia as consumers demonstrate greater awareness of health, environmental, and sustainability issues. Indonesia witnessed sustained expansion in the organic packaged food market, with a CAGR of 8.2% during 2018–2021, followed by an estimated consumption value of approximately USD 15.7 million in 2022 (Ozbun, 2025b). The rising consumption and steady growth rate suggest that sustainability-oriented products have become increasingly relevant in the Indonesian market, thereby encouraging firms to strengthen their environmental positioning strategies. Growing environmental awareness has reshaped consumer purchasing behavior, encouraging greater acceptance of premium-priced green products, reduced food waste, and the preference for environmentally friendly packaging (Ozbun, 2025a). Rising environmental awareness among the public has led companies to embed sustainability-oriented marketing practices into their business strategies, thereby reinforcing consumers' trust in the company's commitment to sustainability (Wu & Liu, 2022).

In the fast food industry, the issue of greenwashing has become increasingly relevant due to the industry's association with the extensive use of single-use packaging and high levels of plastic waste. McDonald's became the leading limited-service restaurant in Indonesia based on sales value in 2023 (Statista, 2025). As part of its environmental strategy, McDonald's has established a 2025 goal of converting all primary customer packaging to materials that are renewable, recycled, or certified (McDonald's Corporation, 2025). However, the company reported that it had achieved 90.93% of this target by the end of 2024 and continues to face challenges in replacing certain packaging components, such as lids and linings, with commercially scalable sustainable alternatives. McDonald's has promoted various sustainability initiatives, including the use of environmentally friendly packaging and the #McDGreen campaign. Nevertheless, McDonald's "paper-based" packaging is often still coated with plastic or other materials, which ultimately complicates the recycling process (Chaudhuri, 2025). These conditions raise questions regarding the alignment between the sustainability narrative communicated by the company and the operational practices perceived by consumers. These circumstances may create ambiguity regarding the actual environmental benefits of the company's sustainability initiatives.

Consumers who perceive inconsistencies between environmental claims and operational realities may experience green confusion and exhibit lower levels of trust in a company's environmental commitments. Such perceptions may ultimately influence the formation of green brand equity. A decline in consumers' confidence, accompanied by confusion

over a company's environmental commitment, can undermine the value of its green brand equity. In contrast, the development of green trust encourages consumers to evaluate green brand equity more positively (Tung & Vigneron, 2024). Consumer confidence tends to increase when green marketing delivers transparent and consistent environmental claims, thereby fostering green trust (Alhomaïd, 2025).

However, the increasing popularity of green marketing has coincided with a growing occurrence of greenwashing. A company may be considered to engage in greenwashing when it disseminates environmental information that cannot be objectively verified and strategically employs such communication to strengthen its competitive position through favorable consumer evaluations (Spaniol et al., 2024). Greenwashing can generate negative consequences, as consumers may become confused by the environmental information provided by companies, a condition known as green confusion (Tarabieh, 2021). Moreover, greenwashing may adversely affect green trust if consumers conclude that a company's sustainability commitments are not supported by its actual operational practices (Rahman et al., 2026). Ultimately, these conditions may alter the way consumers assess a firm's green brand equity.

Guided by the Stimulus-Organism-Response (S-O-R) framework, this research examines the process through which external stimuli evoke internal psychological reactions that ultimately translate into behavioral and evaluative outcomes (Mehrabian & Russell, 1974). According to the S-O-R perspective, consumers' exposure to greenwashing initiates internal psychological processes, manifested through green confusion and green trust as the organism components of the model. These psychological states ultimately manifest in consumers' evaluations of green brand equity. The framework broadens the understanding of consumers' interpretation of environmental information by recognizing psychological processes beyond simple causal effects. The literature indicates that greenwashing plays a significant role in generating adverse consumer responses. However, the existing literature has predominantly investigated the direct influence of greenwashing on green trust and green brand equity, while overlooking the integrated cognitive and affective processes through which consumers respond (Amer & Ezz, 2023).

Nevertheless, whether greenwashing influences green brand equity remains a matter of debate in the existing literature. Qayyum presented empirical evidence indicating that greenwashing has an adverse impact on green brand equity. In contrast, Ha (2022) presented empirical evidence showing no significant influence of greenwashing on green brand equity, implying that consumer evaluations of greenwashing do not consistently result in negative responses. Because prior studies have produced divergent

results, the effect of greenwashing on green brand equity has not been definitively established and merits additional empirical inquiry.

Studies examining green trust and green confusion as underlying mechanisms that explain how greenwashing influences green brand equity remain relatively limited, particularly within the fast food industry in Indonesia. Limited attention has been devoted to understanding the cognitive and affective mechanisms underlying consumers' evaluations of environmental claims, as previous studies have mainly emphasized the direct impact of greenwashing on green brand equity. This limitation is important because consumers may respond to greenwashing not only through trust-related judgments but also through cognitive uncertainty in interpreting environmental information. Therefore, a more comprehensive understanding of these dual psychological responses is needed to explain how greenwashing translates into perceptions of green brand equity.

The identified research gaps and the observed phenomena in the fast-food industry provide the basis for integrating green trust and green confusion into the Stimulus–Organism–Response (S-O-R) framework, thereby expanding current knowledge on greenwashing. From a managerial perspective, the results support the development of long-term initiatives designed to reinforce consumer-based green brand equity.

The proposed hypotheses are derived from the integration of theoretical perspectives and empirical evidence to examine the effects of greenwashing on green trust, green confusion, and green brand equity.

Greenwashing practices can create consumer distrust toward a company's environmental claims, thereby reducing consumers' level of trust in brands perceived as environmentally friendly (Santos et al., 2024; Tarabieh et al., 2026). Consumer confidence in a company's environmental communication tends to diminish when greenwashing creates doubts about the authenticity and credibility of sustainability-related information (Ha, 2022). Inconsistencies between environmental communication and the company's actual practices tend to lead to lower trust in the company (Rahman et al., 2026). The preceding theoretical and empirical arguments provide the basis for proposing the following hypothesis:

H1: Greenwashing has a negative and significant effect on green trust

Green confusion is characterized by consumers' uncertainty in interpreting environmental information, arising from sustainability communication that is ambiguous or inconsistent (Liang & Cheng, 2025). Consumers are more likely to experience green confusion when environmental communication lacks credible evidence and conveys misleading sustainability messages, a condition commonly associated with greenwashing (Tarabieh et al., 2026). Greenwashing fosters green

consumer confusion by obscuring the credibility of environmental claims, making their authenticity more difficult to evaluate (Nguyen & Duong, 2025). Consumers with lower environmental awareness are more likely to experience confusion when exposed to superficial sustainability-related communication (Apostolopoulos et al., 2025). Accordingly, the hypothesis proposed in this study is as follows:

H2: Greenwashing has a positive and significant effect on green confusion

Greenwashing occurs when companies communicate environmental claims that appear environmentally responsible, despite the actual practices being inconsistent with those claims, thereby potentially misleading consumers regarding the firm's true environmental performance (Fella & Bausa, 2024). Green brand equity may deteriorate when greenwashing creates skepticism and reduces the perceived credibility of environmental information, leading consumers to evaluate a brand's environmental commitment less favorably (Hong et al., 2026). Based on the theoretical rationale and empirical evidence presented above, the hypothesis proposed in this research is as follows:

H3: Greenwashing has a negative and significant effect on green brand equity

Green trust represents consumers' confidence that a company or brand consistently demonstrates credible environmental responsibility and sustainability performance. Higher consumer confidence in the credibility of a company's environmental communication and sustainability practices contributes to more favorable evaluations of green brand equity (Dangaiso, 2024). Consumers are more likely to evaluate a brand positively when they consider its environmental commitments to be credible, highlighting the contribution of green trust to green brand equity (Ha, 2022). The theoretical rationale presented above supports the development of the following hypothesis:

H4: Green trust has a positive and significant effect on green brand equity

Green confusion may shape consumers' evaluations of green brand equity, as uncertainty surrounding environmental information reduces their ability to assess the credibility of a company's sustainability initiatives (Yang et al., 2021). Previous studies have suggested that ambiguous environmental information may weaken consumers' positive perceptions of green brands. Challenges in differentiating genuine environmental commitment from promotional sustainability communication can lead to less favorable evaluations of green brand equity.

The preceding discussion establishes the foundation for proposing the hypothesis below:

H5: Green confusion has a negative and significant effect on green brand equity

Greenwashing can reduce green trust because consumers tend to perceive the company's environmental claims as misleading or inconsistent with its actual practices (Rahman et al., 2026). Greenwashing can reduce green trust by increasing consumers' skepticism toward a company's environmental claims, while lower green trust may subsequently weaken consumers' perceptions of green brand equity (Hong et al., 2026). Prior empirical evidence supports the mediating role of green trust in explaining how greenwashing affects consumers' evaluations of green brand equity (Ha, 2022). The hypothesis presented below is derived from the theoretical rationale and empirical evidence discussed above:

H6: Green trust mediates the effect of greenwashing on green brand equity

Greenwashing can increase green confusion due to ambiguous and difficult-to-verify environmental claims, which subsequently weakens consumers' perceptions of green brand equity (Apostolopoulos et al., 2025; Yang et al., 2021). Previous studies have suggested that green confusion plays an important role in shaping consumers' evaluations of green brands when environmental information is perceived as misleading or unclear. Therefore, the following hypothesis is proposed:

H7: Green confusion mediates the effect of greenwashing on green brand equity

Based on the formulated hypotheses, the conceptual framework illustrating the proposed relationships among the study variables is presented in the following figure.

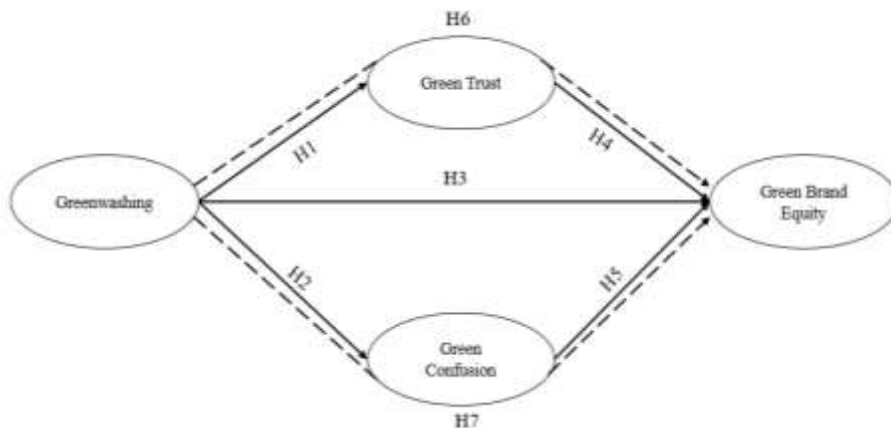


Figure 1. Research Design Framework

2. Method

This study was conducted through five stages: research identification, literature review and conceptual framework development, research methodology and data collection, data analysis and hypothesis testing, and discussion and conclusion. The study began by identifying the research phenomenon and gap, followed by the development of the theoretical framework and hypotheses. Following data collection, the proposed model was evaluated using the PLS-SEM technique implemented in SmartPLS 4, and the resulting evidence informed the discussion of practical implications, research constraints, and future research directions.

Focusing on McDonald's consumers in Yogyakarta, Indonesia, this research utilized a quantitative design to evaluate the proposed conceptual model involving greenwashing, green trust, green confusion, and green brand equity. Respondents completed an online questionnaire that was disseminated through multiple social media platforms, including WhatsApp, Instagram, X, and TikTok, to obtain the required research data. All constructs were operationalized using a five-point Likert-type response scale, anchored by strongly disagree (1) and strongly agree (5). Participant recruitment followed a purposive non-probability sampling strategy, restricting the sample to individuals who satisfied the predefined inclusion criteria (Sekaran & Bougie, 2019).

According to Hair et al., (2019) A sample comprising approximately 100–200 observations is widely considered adequate for PLS-SEM, particularly in research involving small or moderate sample sizes. The final analytical sample comprised 200 respondents who fulfilled the predefined inclusion criteria. The final sample included McDonald's consumers who fulfilled the predefined inclusion criteria, namely individuals aged 17 years or older, consumers with purchase experience within the previous six months, and those exposed to the company's environmental campaigns.

The analytical procedures were carried out using Partial Least Squares Structural Equation Modeling (PLS-SEM) implemented in SmartPLS 4. The analysis was conducted through outer model and inner model testing. Construct validity and reliability were evaluated through the outer model by examining convergent validity, discriminant validity, composite reliability, and Cronbach's alpha. The structural model was evaluated through the inner model using path coefficients, R-square, Q-square, F-square, t-statistics, and p-values estimated via the bootstrapping procedure. Model adequacy was verified using the Standardized Root Mean Square Residual (SRMR) and Normed Fit Index (NFI), whereas collinearity diagnostics were performed using the Variance Inflation Factor (VIF).

3. Result

3.1 Respondents Characteristics

Descriptive statistical findings summarize the respondents' demographic profile, thereby providing an overview of the study sample composition. Male participants accounted for a slightly larger proportion of the sample (62.5%) than female participants (37.5%). Participants aged 22–25 years comprised 70% of the study sample, indicating that the research predominantly reflects the perspectives of young adult consumers in the context of green sustainability within emerging urban markets. Regarding educational background, more than half of the respondents hold a bachelor's degree (56.5%), reflecting a relatively well-educated sample with a higher potential awareness of environmental and sustainability issues. Students comprised 48% of the respondent pool, indicating that the study largely captured responses from a young and relatively well-educated population. The dominant income category comprised respondents earning between IDR 6,000,000 and IDR 9,000,000 per month (34%), indicating a level of purchasing capacity that may encourage sustainable consumption practices.

3.2 Instrument Quality Testing

The evaluation of the research instrument relied on Partial Least Squares Structural Equation Modeling (PLS-SEM) in SmartPLS to verify its validity and reliability. Prior to structural model analysis, the measurement items are verified to determine whether they provide an adequate representation of the intended constructs (Ghozali & Kusumadewi, 2023). Convergent validity and discriminant validity served as the principal criteria for evaluating the measurement model.

Evidence of convergent validity was established through outer loadings and Average Variance Extracted (AVE). Measurement quality is regarded as acceptable when outer loadings exceed 0.70, and AVE falls within the 0.50–0.70 range (Ghozali & Kusumadewi, 2023). Evidence of discriminant validity was verified through the Fornell–Larcker criterion together with HTMT, for which values below 0.90 are regarded as satisfactory (Franke & Sarstedt, 2019). Evidence of reliability was established using Composite Reliability and Cronbach's Alpha, as coefficients above 0.70 are generally regarded as demonstrating satisfactory internal consistency among the measurement items (Hair et al., 2021).

Figure 2 presents the measurement model, and Table 1 reports the corresponding convergent validity and discriminant validity results.

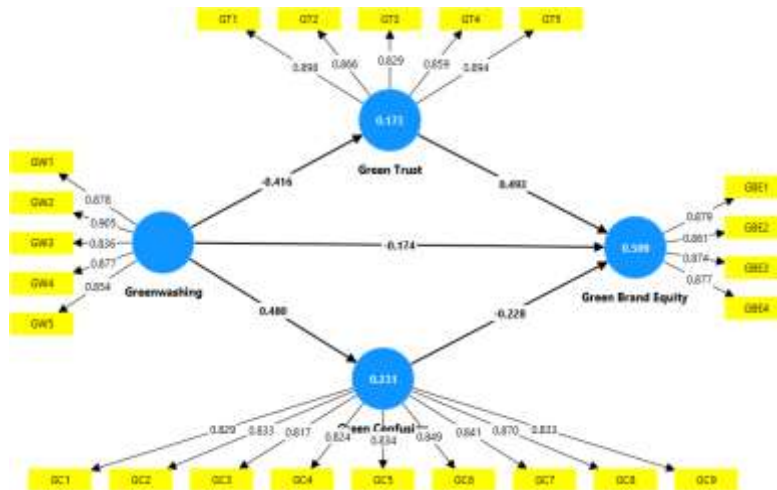


Figure 2. Outer Model Output

Source: processed data with SmartPLS4 (2026)

Table 1. Measurement Model Assessment

Construct	Outer Loadings	Convergent Validity (AVE)	Construct Reliability	
			Cronbach's Alpha	Composite Reliability
Greenwashing (GW)		0.758	0.920	0.922
GW1-Misleading verbal claims	0.878			
GW2-Misleading visual claims	0.905			
GW3-Ambiguous or unverifiable claims	0.836			
GW4-Exaggerated claims	0.877			
GW5-Concealment of negative information	0.854			
Green Trust (GT)		0.756	0.919	0.923
GT1-The trustworthiness	0.898			

Construct	Outer Loadings	Convergent Validity (AVE)	Construct Reliability	
			Cronbach's Alpha	Composite Reliability
of this product's environmental reputation is inherent.				
GT2-The reliability of this product's environmental performance can be assured.	0.866			
GT3-The credibility of the environmental claims made by this product is acceptable.	0.829			
GT4-The environmental commitment demonstrated by this product is aligned with my needs.	0.859			
GT5-This product consistently fulfills its environmental promises and commitments.	0.894			
Green		0.701	0.947	0.947
Confusion (GC)				
GC1-Similarities among green brands	0.829			
GC2-Uncertainty regarding product origin	0.833			

Construct	Outer Loadings	Convergent Validity (AVE)	Construct Reliability	
			Cronbach's Alpha	Composite Reliability
GC3-Difficulty in finding specific products	0.817			
GC4-Uncertainty in brand selection	0.824			
GC5 - Excessive green claims in the market	0.834			
GC6-Difficulty in determining purchase locations	0.849			
GC7-Difficulty in comparing green brands	0.841			
GC8-Doubts about the quality of green products	0.870			
GC9-Dependence on external assistance	0.833			
Green Brand Equity (GBE)		0.761	0.896	0.897
GBE1-Preference for the brand's environmental commitment	0.879			
GBE2- Loyalty toward green brands	0.861			
GBE3-Repurchase decisions based on green value	0.874			
GBE4-Perceived environmental	0.877			

Construct	Outer Loadings	Convergent Validity (AVE)	Construct Reliability	
			Cronbach's Alpha	Composite Reliability
superiority of the brand				

Source: processed data with SmartPLS4 (2026)

Table 1 reports the convergent validity and discriminant validity assessment for all research constructs. The Greenwashing construct was assessed through six measurement items adapted from Chen & Chang, (2013)The Green Trust construct was assessed through five measurement items adapted from Ha, (2022)The Green Confusion construct was represented by nine measurement items adapted from Yang et al., (2021)The Green Brand Equity construct was assessed through four measurement items adapted from Chen, (2010). Evidence from the outer loading assessment indicates that every indicator surpassed the recommended cutoff value of 0.70, confirming an acceptable representation of the research constructs (Hair et al., 2017). All research constructs demonstrated Average Variance Extracted (AVE) values above 0.50, comprising greenwashing (0.758), green trust (0.756), green confusion (0.701), and green brand equity (0.761). Compliance with the convergent validity criteria was achieved across all research constructs.

Evidence of reliability was established across all research constructs, as both Cronbach's Alpha and Composite Reliability coefficients surpassed the minimum criterion of 0.70. Cronbach's Alpha and Composite Reliability coefficients were recorded at 0.920 and 0.922 for greenwashing, 0.919 and 0.923 for green trust, 0.947 and 0.947 for green confusion, and 0.896 and 0.897 for green brand equity, respectively. Compliance with the reliability criteria was achieved across all research variables, providing adequate internal consistency for subsequent structural model analysis. Additional evidence of discriminant validity was obtained through the Heterotrait-Monotrait Ratio (HTMT), demonstrating sufficient differentiation across the research constructs. Table 2 summarizes the HTMT assessment results.

Table 2. Results of the HTMT Discriminant Validity Assessment

	Green Brand Equity	Green Confusion	Green Trust	Greenwashing
Green Brand Equity				
Green Confusion	0.512			

	Green Brand Equity	Green Confusion	Green Trust	Greenw ashing
Green Trust	0.702	0.351		
Greenwashing	0.536	0.511	0.452	

Source: processed data with SmartPLS4 (2026)

HTMT values below 0.90 are generally considered acceptable, whereas a stricter threshold of 0.85 is often recommended for constructs with high conceptual relatedness to reinforce evidence of discriminant validity. (Hair et al., 2017). Acceptable discriminant validity was established across all research variables, with HTMT values for every construct pair remaining below the recommended threshold of 0.90. Conceptual and empirical differentiation was successfully established across all research constructs.

The measurement model fulfilled the required validity criteria, thereby supporting its use in subsequent structural model analysis. A supplementary evaluation based on the Fornell–Larcker criterion was conducted, and its outcomes are summarized in Table 3.

Table 3. Results of Fornell-Larcker Discriminant Validity Assessment

	Green Brand Equity	Green Confusio n	Gree n Trust	Greenwashin g
Green Brand Equity	0.873			
Green Confusion	-0.474	0.837		
Green Trust	0.640	-0.329	0.869	
Greenwashing	-0.489	0.480	-0.416	0.870

Source: processed data with SmartPLS4 (2026)

Table 3 confirms compliance with the Fornell–Larcker criterion, as the square root of the Average Variance Extracted (AVE) for every construct is higher than the corresponding correlations with the remaining constructs. These findings provide evidence that each construct shares stronger variance with its respective indicators than with the other constructs included in the model. Taken together, the findings demonstrate an adequate measurement model and provide robust evidence of construct validity.

As part of the structural model assessment, the R-square (R^2) statistic was used to quantify the explanatory contribution of the independent variables to the dependent variable in the research model. The explanatory capacity of the exogenous constructs is quantified through the

R-square (R^2) statistic, which represents the proportion of variance accounted for in the endogenous construct (Hair et al., 2017). The R-square (R^2) values are reported in Table 4.

Table 4. R-Square Assessment

	R-square	R-Adjusted
Green Brand Equity	0.509	0.502
Green Confusion	0.231	0.227
Green Trust	0.173	0.169

Source: processed data with SmartPLS4 (2026)

The R-square (R^2) statistic quantifies the explanatory contribution of the exogenous constructs to the variance observed in the endogenous constructs of the research model. According (Ghozali & Kusumadewi, 2023) Based on the recommended classification, predictive power is categorized as high, moderate, or low when R^2 reaches 0.75, 0.50, and 0.25, respectively. The R^2 value of 0.509 indicates that Green Brand Equity possesses moderate explanatory power. Meanwhile, Green Confusion ($R^2 = 0.231$) and Green Trust ($R^2 = 0.173$) fall within the weak category, indicating relatively low explanatory power. However, the results remain meaningful, suggesting that while the model contributes to explaining these constructs, additional factors outside the model may also influence them.

Alongside R^2 , the Q^2 statistic was applied to evaluate predictive relevance. According to Hair et al., (2021) The Q^2 statistic provides evidence of predictive relevance only when it exceeds zero ($Q^2 > 0$); conversely, values of zero or below ($Q^2 \leq 0$) indicate that predictive relevance is not achieved. The results show that Green Brand Equity ($Q^2 = 0.381$) demonstrates strong predictive relevance. Green Confusion ($Q^2 = 0.159$) and Green Trust ($Q^2 = 0.128$) indicate relatively moderate to low predictive relevance.

The contribution of each exogenous construct to the endogenous variables was quantified through the effect size (f^2) statistic within the structural model. The effect size (f^2) statistic evaluates the contribution of individual predictors by estimating the reduction in explained variance of the endogenous constructs following their removal from the model. The assessment results are summarized in Table 5.

Table 5. F-Square Assessment

	Green Brand Equity	Green Confusion	Green Trust	Greenw ashing
Green Brand Equity				
Green Confusion	0.080			
Green Trust	0.399			
Greenwashing	0.043	0.300	0.2 09	

Source: processed data with SmartPLS4 (2026)

According to Hair et al., (2017)Based on the established classification, effect sizes are categorized as small, medium, or large at f^2 values of 0.02, 0.15, and 0.35, respectively. Effect size analysis identified a small contribution of Green Confusion to Green Brand Equity ($f^2 = 0.080$). In comparison, Green Trust exhibited a large effect ($f^2 = 0.399$), providing substantial explanatory power for Green Brand Equity. The effect of Greenwashing on Green Brand Equity is small ($f^2 = 0.043$). Furthermore, the effect of Greenwashing on Green Confusion is classified as medium ($f^2 = 0.300$), whereas its effect on Green Trust is categorized as small to medium ($f^2 = 0.209$).

According to Hair et al., (2021) The Standardized Root Mean Square Residual (SRMR) and the Normed Fit Index (NFI) serve as indicators of model fit in PLS-SEM. Model fit is considered acceptable when SRMR is below 0.08, and NFI approaches or exceeds 0.90. The model fit assessment confirms acceptable fit for the saturated model. The SRMR statistic reached 0.043, meeting the recommended cutoff value and providing evidence of good model fit with the observed data. Furthermore, the obtained NFI (0.898) is close to the recommended cutoff of 0.90, supporting acceptable model fit. The model fulfilled the required fit criteria, supporting its use in structural model evaluation and hypothesis assessment.

The collinearity assessment relied on the Variance Inflation Factor (VIF) to detect potential multicollinearity among the predictor constructs. According to Hair et al., (2021)All VIF values remained below 5, confirming the absence of problematic multicollinearity and supporting subsequent structural model analysis. Table 6 summarizes the VIF assessment results.

Table 6. Collinearity with VIF Assessment

Direct Effect	VIF
Green Confusion → Green Brand Equity	1.335

Direct Effect	VIF
Green Trust → Green Brand Equity	1.242
Greenwashing → Green Brand Equity	1.439
Greenwashing → Green Confusion	1.000
Greenwashing → Green Trust	1.000

Source: processed data with SmartPLS4 (2026)

Table 6 indicates that the VIF statistics vary between 1.000 and 1.439, thereby fulfilling the recommended collinearity criterion (< 5). The analysis confirms that multicollinearity is not present across the predictor constructs. Therefore, the structural model satisfies the collinearity requirement and can be considered robust for hypothesis testing and subsequent structural model evaluation (Hair et al., 2021).

3.3 Hypothesis Result

The bootstrapping procedure implemented in SmartPLS 4 facilitated hypothesis evaluation and significance testing of the structural relationships. Following the recommendations of Hair et al., (2021) The statistical significance of the path coefficients was evaluated through bootstrapping with 5,000 resamples, from which the corresponding standard errors, t-statistics, and p-values were derived. At the 5% significance level, support for a hypothesis requires t-statistics above 1.96 together with p-values below 0.05 (Ghozali & Kusumadewi, 2023). The direction of the relationship between variables is interpreted based on the path coefficient values, which indicate either positive or negative relationships. Table 7 reports the estimated structural model and the corresponding hypothesis testing results:

Table 7. Result of Hypothesis

Hypothesis	Original sample (O)	Sample mean (M)	T-Statistic	P-Value	Confidence Intervals		Result
					2.5 %	97.5 %	
Direct Effect							
H1: Greenwashing → Green Trust	-0.416	-0.421	6.330	0.000	-0.547	-0.291	Accepted
H2: Greenwashing	0.480	0.484	7.653	0.000	0.357	0.603	Accepted

Hypothesis	Original sample (O)	Sample mean (M)	T-Statistic	P-Value	Confidence Intervals		Result
					2.5 %	97.5 %	
→ Green Confusion							
H3: Greenwashing → Green Brand Equity	-0.174	-0.174	2.828	0.005	-0.295	-0.056	Accepted
H4: Green Trust → Green Brand Equity	0.493	0.492	8.270	0.000	0.369	0.604	Accepted
H5: Green Confusion → Green Brand Equity	-0.228	-0.231	3.867	0.000	-0.348	-0.118	Accepted
Indirect Effect							
H6: Greenwashing → Green Trust → Green Brand Equity	-0.205	-0.206	5.396	0.000	-0.283	-0.175	Accepted
H7: Greenwashing → Green Confusion → Green Brand Equity	-0.110	-0.112	3.432	0.001	-0.179	-0.055	Accepted

Source: processed data with SmartPLS4 (2026)

All seven proposed hypotheses received empirical support, as evidenced by the SmartPLS bootstrapping results summarized in Table 5. The relationship between Greenwashing and Green Trust is negative and statistically significant (T-Statistic = 6.330; P-Value = 0.000); therefore, H1 is accepted. In addition, the relationship between Greenwashing and Green Confusion is positive and statistically significant (T-Statistic = 7.653; P-Value = 0.000); therefore, H2 is accepted. Furthermore, the

relationship between Greenwashing and Green Brand Equity is negative and statistically significant (T-Statistic = 2.828; P-Value = 0.005); therefore, H3 is accepted. The relationship between Green Trust and Green Brand Equity is positive and statistically significant (T-Statistic = 8.270; P-Value = 0.000); therefore, H4 is accepted. Support for H5 is provided by the statistically significant negative association between Green Confusion and Green Brand Equity, evidenced by a T-Statistic of 3.867 and a P-Value of 0.000.

Support for H6 is provided by the statistically significant indirect association between Greenwashing and Green Brand Equity via Green Trust, evidenced by a T-Statistic of 5.396 and a P-Value of 0.000. Support for H7 is provided by the statistically significant indirect association between Greenwashing and Green Brand Equity via Green Confusion, evidenced by a T-Statistic of 3.432 and a P-Value of 0.001. The relationship between Greenwashing and Green Brand Equity is significantly mediated by Green Trust and Green Confusion.

4. Discussion

The conceptual model of this research follows the Stimulus–Organism–Response (S-O-R) framework (Mehrabian & Russell, 1974), where consumers' psychological states mediate the influence of environmental stimuli on behavioral and evaluative responses. Following the S-O-R perspective, Greenwashing is treated as the stimulus, while consumers' affective and cognitive responses to environmental claims are represented by Green Trust and Green Confusion within the organism stage. These psychological responses subsequently influence green brand equity. In line with the S-O-R framework, Greenwashing influences Green Brand Equity indirectly through consumers' cognitive and affective processes rather than eliciting an immediate response.

Greenwashing is negatively associated with Green Trust and positively associated with Green Confusion. Consumers who perceive stronger Greenwashing practices tend to exhibit lower Green Trust while experiencing greater confusion about environmental information. The S-O-R framework conceptualizes misleading environmental claims as external stimuli that elicit negative psychological reactions among consumers. Perceptions of inconsistency between a company's environmental claims and its actual practices undermine the credibility of the information provided and contribute to lower trust. At the same time, inconsistencies and ambiguities in environmental communication increase consumers' difficulty in evaluating the actual environmental performance of the company, thereby creating confusion. This is consistent with previous studies, which suggest that ambiguous environmental claims can

increase consumer skepticism and confusion (Apostolopoulos et al., 2025; Tarabieh et al., 2026).

However, this finding differs from the study Khoiriah & Imaningsih, (2025) which revealed no statistically significant association between Greenwashing and Green Trust among consumers of eco-friendly packaged FMCG products in Indonesia. A possible explanation for this discrepancy lies in the nature of the products and the way consumers evaluate environmental claims. Consumers may continue to trust environmental claims when they are supported by visible cues such as eco-labels or environmental certifications, despite potential concerns regarding greenwashing. In contrast, sustainability initiatives in the fast-food industry are often embedded in operational practices, such as packaging materials and waste management programs, which may be more difficult for consumers to verify. Consequently, Green Trust declines as consumers recognize inconsistencies between environmental claims and the company's actual practices.

Greenwashing is negatively associated with Green Brand Equity. Consumers who perceive misleading environmental claims tend to evaluate the brand less favorably. Based on the S-O-R framework, consumers' evaluative responses toward the brand are influenced by Greenwashing as a negative stimulus. Earlier research also reported that misleading environmental communication undermines brand equity (Hong et al., 2026). Furthermore, stronger consumer trust in a brand's environmental commitment contributes to higher Green Brand Equity. The S-O-R framework conceptualizes Green Trust as an affective state that contributes to more positive brand perceptions. These findings align with earlier studies indicating that green trust plays a crucial role in enhancing green brand equity (Dangaiso, 2024). Meanwhile, increased consumer confusion regarding environmental claims can reduce the strength of green brand equity by limiting consumers' understanding and assessment of a brand's sustainability performance. As a cognitive response within the S-O-R framework, green confusion increases uncertainty regarding a brand's environmental performance, thereby weakening green brand equity. The observed relationship confirms prior evidence that unclear environmental messages may negatively influence the development of green brand equity (Yang et al., 2021).

The empirical evidence demonstrates that green trust acts as a mediator that connects greenwashing with variations in green brand equity. The S-O-R perspective explains this mechanism as an affective response, in which unfavorable environmental stimuli decrease trust and lead to less positive brand evaluations. In other words, the impact of greenwashing on green brand equity is partly explained by the decline in

consumer trust toward the brand's environmental commitments. The empirical evidence supports (2022) and Hong et al., who demonstrate that sustainability-related perceptions are more likely to enhance brand equity when supported by strong consumer trust. In addition, green confusion plays a mediating role by explaining how greenwashing contributes to changes in green brand equity. This finding suggests that ambiguous sustainability claims generate cognitive uncertainty among consumers, making it more difficult for them to form favorable evaluations of the brand. This result indicates that greenwashing practices may generate greater uncertainty among consumers, thereby reducing the strength of green brand equity. Compared with green confusion, green trust provides a stronger mechanism for understanding the extent to which greenwashing affects green brand equity. Consumer distrust has a greater influence on explaining the mechanism than cognitive confusion. This mechanism aligns with the S-O-R model, where affective reactions play a central role in shaping consumers' evaluations relative to cognitive processes. Green trust reflects a stable evaluative judgment formed from perceptions of credibility, reliability, and consistency of a brand's environmental performance, which tends to directly shape long-term brand equity formation. In contrast, green confusion represents a more situational and information-driven cognitive state arising from similarities among green brands, uncertainty in product evaluation, difficulty in comparison, and ambiguity in environmental claims. Because cognitive confusion is often context dependent and may fluctuate across decision situations, its influence on brand equity is less stable compared to trust. Therefore, affective mechanisms such as green trust play a more dominant role than cognitive mechanisms such as green confusion in explaining how greenwashing translates into green brand equity.

These results suggest strategic actions that companies can undertake to build and strengthen green brand equity. Evidence from this study shows that exposure to greenwashing negatively influences green brand equity through decreased consumer trust and increased uncertainty related to sustainability claims. Therefore, companies are encouraged to communicate their sustainability initiatives through reliable messages that can be validated by objective evidence. Since misleading visual claims and misleading verbal claims are the strongest indicators of greenwashing, the company should avoid exaggerated environmental messages and ensure that sustainability-related information reflects actual business practices.

The results also show that green trust has the strongest positive effect on green brand equity. This suggests that building consumer trust should become a strategic priority. Given that trustworthiness of environmental reputation and consistency in fulfilling environmental

promises are the most important aspects of green trust, companies should communicate their sustainability initiatives consistently and provide tangible evidence of their environmental commitments.

Furthermore, green confusion was found to negatively influence green brand equity. Consumers tend to experience confusion when evaluating the quality and credibility of green products and environmental claims. Therefore, companies should simplify their environmental communication and provide clear, easy-to-understand information regarding their sustainability efforts. Clear communication can help reduce consumer uncertainty and strengthen positive perceptions of the brand. Overall, the S-O-R framework provides a valuable theoretical foundation for analyzing consumer reactions related to green marketing practices. Exposure to greenwashing generates negative consumer responses related to green trust and green confusion, thereby influencing evaluations of green brand equity. Therefore, managers should recognize that consumers do not respond solely to environmental claims themselves, but also to how such claims are psychologically processed. Effective sustainability communication should thus focus on strengthening positive affective responses (green trust) while minimizing negative cognitive responses (green confusion) to foster stronger green brand equity.

5. Conclusion

The theoretical contribution of this research lies in demonstrating that green trust, as an affective response, is more influential than green confusion, as a cognitive response, in the formation of green brand equity. The result highlights that emotional evaluations play a more significant role than cognitive uncertainty in explaining consumer judgments regarding greenwashing practices at McDonald's in the Indonesian fast-food sector. The analysis reveals that exposure to greenwashing is associated with lower levels of green trust and higher levels of green confusion. These findings suggest that misleading or difficult-to-verify environmental claims reduce consumers' trust in McDonald's environmental commitment while simultaneously increasing confusion regarding the company's environmental information. Furthermore, green trust was found to positively and significantly influence green brand equity, whereas green confusion negatively and significantly affects green brand equity. This indicates that consumers who trust McDonald's environmental commitment tend to have stronger perceptions of the brand's environmental value, while higher levels of confusion weaken such perceptions.

Evidence from this study shows that exposure to greenwashing contributes to a decline in green brand equity through a direct negative

effect. The study demonstrates that perceptions of greenwashing in McDonald's sustainability communication can reduce consumers' favorable evaluations of the brand's environmental value. Strengthening the credibility of environmental claims is essential for maintaining positive consumer perceptions and enhancing green brand equity in the long term. The negative impact of greenwashing is reflected in reduced green trust, greater green confusion, and the decline of green brand equity. Moreover, green trust and green confusion function as important mechanisms that explain the effect of greenwashing on green brand equity. The study confirms that greenwashing affects green brand equity through multiple pathways, including direct influence and indirect effects involving green trust and green confusion.

The results should be evaluated while taking into account the constraints associated with the research design and methodology. First, this study obtained data using online surveys distributed across various social media platforms, such as WhatsApp, Instagram, X, and TikTok. This approach reflects a practical data collection strategy but may result in variations in respondent accessibility and participation patterns. Second, the study was conducted in Yogyakarta, which represents a specific urban consumer context in Indonesia. While this setting provides valuable insights into consumer behavior toward green marketing in an emerging urban market, the findings may have limited applicability to consumers in regions with different demographic and socio-economic profiles. Third, the sample is largely composed of young and educated respondents, particularly students, which reflects an important segment of McDonald's consumers but may not fully represent the broader population. Fourth, the reliance on respondents' subjective evaluations may affect the objectivity of the results, given that the data are influenced by personal perceptions. Fifth, the adoption of a cross-sectional design limits the examination of dynamic changes in consumer behavior over time.

Expanding the scope of this research, subsequent studies may examine the proposed model across multiple industries that utilize green marketing approaches, extending beyond the fast-food sector to areas such as fashion, cosmetics, beauty, hospitality, retail, and e-commerce. Extending the research scope may provide stronger empirical support for applying the findings to different contexts while enriching knowledge of greenwashing mechanisms across varied consumer and market environments.

In addition, subsequent research may examine the influence of other sustainability-related factors, including consumers' satisfaction, environmental concern, perceived value of green initiatives, and loyalty toward green brands, to provide a broader explanation of responses to

greenwashing. The integration of these constructs may expand the organism dimension of the S-O-R framework by offering a more comprehensive view of how consumers process and evaluate greenwashing-related information. Furthermore, extending the methodological scope through longitudinal designs and cross-country comparisons may provide deeper insights for future research. A longitudinal approach may capture the dynamic nature of consumer responses, while cross-country comparisons may contribute to understanding cultural differences in processing sustainability communication and its effects on cognitive and affective evaluations. Overall, these proposed extensions have the potential to enrich S-O-R-based explanations of greenwashing and generate broader managerial understanding of consumer responses to green marketing practices under varying market conditions.

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