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The Impact of Green Corporate Social Responsibility and Greenwashing on Green Packaged FMCG Product Purchase Intention: The Mediating Role of Perception

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ABSTRACT

The present investigation was carried out to examine the influence of green corporate social responsibility (GCSR) and greenwashing (GW) upon consumers' purchase intentions for fast-moving consumer goods (FMCG) wrapped in eco-friendly packaging within Ho Chi Minh City, Viet Nam. Employing quota sampling, the final data set was collected from 308 consumers who showed past, present, or prospective tendency to purchase such FMCG. The dataset experienced strict examination utilising SPSS 26 and AMOS 24. Findings revealed that GW exerts a negative effect upon green-packaged FMCG purchase intention. Furthermore, GCSR, perceived personal responsibility (PPR), environmental awareness (EA), and green packaging perception (PGP) each manifest positive impacts upon green-packaged FMCG purchase intention. The mediatory functions of PPR, EA, and PGP were likewise substantiated. Grounded in these outcomes, the study advances managerial prescriptions designed to augment consumers' propensity to acquire green-packaged FMCG, thereby facilitating enhanced competitiveness within an increasingly ecologically orientated marketplace.

1. INTRODUCTION

In the present-day environmental context, greenhouse gas emissions arising from production and industrial activities constitute the primary driver of environmental pollution, global warming, and the degradation of ecological biodiversity. The global warming induced by the greenhouse effect inflicts substantial damage on sectors such as agriculture, forestry, fisheries, and tourism, with associated mortality risks reportedly elevated by a factor of 15 [1]. This challenge is compounded in Vietnam, where more than 3.1 million tonnes of plastic waste are discharged annually into the environment [2], a significant proportion of which originates from single-use items in the fast-moving consumer goods (FMCG) sector, including plastic packaging, straws, and similar single-use plastics.

Consequently, consumers are exhibiting a growing preference for sustainable consumption practices, motivated principally by dual objectives of environmental protection and personal health. This shift is evidenced by the findings that 55% of consumers purchase green products on the basis of sustainable production processes and natural origin, whilst 59% indicate an intention to increase their consumption of such products in the future [3]. In response, numerous enterprises have adopted varied strategies to meet these evolving demands and enhance their competitive positioning within the sustainable marketplace [4]. Nevertheless, a perceptible trend has emerged whereby certain firms distorted their sustainability commitments and the environmental attributes of their offerings [5]. Such practices include the issuance of vague or inflated environmental claims that completely unclear unsustainable production processes, thereby projecting an ostensibly green corporate image [6, 7]. These behaviours are collectively termed "greenwashing (GW)".

Prior scholarship has investigated GW across various industries [8, 9]. However, these studies have identified contextual limitations and inter-industry variations, leading their authors to recommend that following research examine green purchase intentions and behaviours in additional sectors. Moreover, Huo et al. [8] and Shimul and Cheah [9] clearly advocated for greater attention to internal consumer factors—particularly emotions and perceptions—and their influence on green purchasing decisions. Similarly, Carrión-Bósquez et al. [10] called for future investigations to incorporate greater age diversity (e.g., Generation X and Generation Z) in order to elucidate intergenerational differences in green consumption intentions.

Addressing these gaps and responding to the above-mentioned scholarly appeals, the present study is situated within the FMCG sector. It incorporates internal perceptual constructs as mediating variables and examines respondents across multiple age groups to yield novel insights whilst reinforcing extant findings. Specifically, the research is designed to achieve the following objectives: (1) to evolve and screen a conceptual model examining the interrelationships

among green corporate social responsibility (GCSR), GW, and purchase intention towards FMCG products packaged in green packaging (GPPI), whilst integrating perceptual factors—personal responsibility (PPR), environmental awareness (EA), and green packaging perception (PGP)—within a specific industry context, thereby responding to the recommendations of Huo et al. [8] and Shimul and Cheah [9]; (2) to evaluate the mediating roles of personal responsibility perception, EA, and PGP; and (3) to derive managerial implications that support FMCG firms in formulating effective sustainable competitive strategies. To address the age-related limitation highlighted by Carrión-Bósquez et al. [10], a non-probability quota sampling approach was employed to ensure representation across varied generational groups. Building upon these objectives, this research investigates the following questions:

(1) What is the nature and direction of relationships among GCSR, GW, perceived personal responsibility (PPR), EA, PGP, and purchase intention for FMCG products in green packaging?

(2) What mediating roles do PPR, EA, and PGP play in the associations between GCSR, GW, and green packaging purchase intention (GPPI)?

(3) What managerial implications can be advanced to assist FMCG enterprises in developing marketing strategies that strengthen consumers' green purchase intentions?

The findings of this investigation contribute to theoretical advancement by proffering a more exhaustive understanding of the pathways from GW and GCSR to green purchase intention. By situating the inquiry within the hitherto underexplored FMCG sector, incorporating internal perceptual mediators, and examining intergenerational differences—rather than confining analysis to a single age cohort or neglecting endogenous consumer factors as noted in prior research—the study both strengthens and extends previous scholarship on these constructs.

2. THEORIES AND HYPOTHESES

2.1 Grounded theories and main concept

2.1.1 The S–O–R

The Stimulus–Organism–Response (S–O–R) model was formally conceptualised and published in 1974 by Mehrabian and Russell, representing a significant extension of Woodworth's (1929) earlier Stimulus–Response (S–R) model. Mehrabian and Russell posited that emotional and cognitive states of an individual (O – Organism) function as critical mediating variables, serving as the vital linkage between external environmental stimuli (S – Stimulus) and following behavioural responses (R – Response) exhibited by the consumer.

The framework comprises three core components:

(1) Stimulus: external sets off that initiate behavioural processes. Although stimuli represent necessary roots, they are not sufficient in themselves to extract behaviour; their ultimate effect is contingent upon internal organismic factors. Stimuli may include any object, event, or environmental cue capable of extracting attention or prompting action.

(2) Organism: the internal processing system of the individual, including cognitive evaluations, affective responses, interpretive processes, and other psychological states activated by the stimulus. This component represents the black box of human information processing and emotional experience that transforms external inputs into meaningful internal representations.

(3) Response: the observable behavioural outcomes or approach/avoidance tendencies manifested by the individual, which are profoundly shaped by preceding cognitive and affective organismic states.

The S–O–R framework has been widely adopted and adapted in prior consumer behaviour scholarship across varied contexts, proving instrumental in clarifying the mechanisms through which antecedent factors influence consumers' purchase intentions and actual purchasing behaviour.

2.1.2 Conceptualisation of purchase intention towards FMCG packaged in green packaging

Behavioural intention is defined as the degree of effort an individual is prepared to exert in order to perform a specific action [11]. Building upon this foundation, green purchase intention refers to the likelihood that a consumer will select and purchase environmentally friendly products on the basis of their environmental knowledge and values, reflecting their willingness to pay a premium for goods and services offered by firms demonstrating sustainable practices [12]. Chen and Chang [13] further specified green purchase intention as the extent to which consumers are prepared to favour and pay more for products perceived as environmentally benign and congruent with their ecological concerns. Concurring with this perspective, Ghazali et al. [14] contended that green purchase intention captures an individual's propensity or readiness to choose green, sustainable alternatives over conventional products manufactured using traditional materials and processes. Accordingly, purchase intention towards FMCG packaged in green packaging can be characterised as the degree of willingness exhibited by consumers to pay a premium for FMCG items encased in environmentally sustainable packaging materials, as opposed to comparable products utilising conventional, non-sustainable packaging.

2.2 Hypotheses development

2.2.1 GW and purchase intention towards FMCG packaged in green packaging (GPPI)

GW is defined as a misleading marketing strategy in which firms make false or exaggerated claims regarding the environmental sustainability of their production processes, products, or services [15]. Such practices generate consumer disbelief and prompt avoidance of ostensibly green offerings as a defensive response to perceived corporate duplicity [16]. Furthermore, Nguyen et al. [4] demonstrated that GW extracts negative affective reactions towards the firm, thereby diminishing consumers' green purchase intentions. Accordingly, the following hypothesis is proposed:

H1: *GW exerts a direct and negative effect on purchase intention towards FMCG packaged in green packaging*.

2.2.2 GCSR and purchase intention towards FMCG packaged in green packaging (GPPI)

GCSR manifests through clear environmental stances and actions undertaken by firms [17]. GCSR activities are regarded as one of the most effective means by which organisations can satisfy burgeoning demand for sustainable consumption in an increasingly eco-conscious marketplace [18]. Empirical evidence provided by Ali and Sohail confirms the pronounced influence of CSR initiatives on green purchase intentions [19],

as consumers perceive such actions not only as indicators of product quality but also as opportunities to express environmental concern through their purchasing behaviour [20]. Accordingly, the following hypothesis is advanced:

H2: *GCSR exerts a direct and positive effect on purchase intention towards FMCG packaged in green packaging*.

2.2.3 GW and PPR, EA, and PGP

GW heightens consumer disbelief, undermines motivation for sustainable consumption, and consequently reduces individuals' inclination to engage in pro-environmental behaviour [21]. Consumers may perceive their own efforts as useless when confronted with insincere corporate practices, leading to diminished personal environmental responsibility [22, 23]. With respect to EA, individuals who detect GW tend to exhibit reduced belief in corporate environmental efforts, resulting in a weakened overall environmental concern [24, 25]. Szabo and Webster [26] further argued that GW diminishes perceived urgency of environmental issues by causing consumers to undervalue genuine ecological benefits.

Regarding PGP, GW adversely affects consumers' ability to distinguish authentic sustainable packaging from misleading claims, particularly when knowledge is limited [27]. Some firms exploit green-coloured packaging to create illusory sustainability [28], whereas authentic green packaging mitigates GW perceptions and enhances consumer evaluation [29]. Based on the foregoing arguments, hypotheses are posited as follows:

H3: *GW exerts a direct and negative effect on PPR*.
H4: *GW exerts a direct and negative effect on EA*.
H5: *GW exerts a direct and negative effect on PGP*.

2.2.4 GCSR and PPR

In the context of a growing green consumption market, consumers are highly receptive to firms' environmental initiatives, which encourage interaction with sustainable offerings [30]. Beyond implementing societal initiatives, GCSR actively stimulates consumers' own sense of social and environmental responsibility [31]. Huang et al. [32] observed that individuals are more likely to enact personal environmental responsibility when supported by convincing CSR programmes. Accordingly, the following hypothesis is offered:

H6: *GCSR exerts a direct and positive effect on PPR*.

2.2.5 PPR and purchase intention towards FMCG packaged in green packaging (GPPI)

Individuals exhibiting strong environmental altruism demonstrate greater willingness to pay premiums for green products [33]. Nguyen Quoc et al. [34] similarly found that sustainable purchase intentions are significantly shaped by personal environmental responsibility, with highly responsible consumers displaying a marked preference for sustainable alternatives [9]. This behavioural tendency stems from the belief that individual green actions contribute meaningfully to environmental protection. Prior research has also established that PPR is negatively affected by GW [22, 23] yet positively influenced by authentic GCSR initiatives [32]. Consequently, the following hypotheses are advanced:

H7: *PPR exerts a direct and positive effect on purchase intention towards FMCG packaged in green packaging*.
H8a: *PPR mediates the relationship between GW and purchase intention towards FMCG packaged in green packaging*.
H8b: *PPR mediates the relationship between GCSR and purchase intention towards FMCG packaged in green packaging*.

2.2.6 EA and purchase intention towards FMCG packaged in green packaging (GPPI)

EA manifests in varied pro-environmental behaviours, including the preferential consumption of organic and sustainable products [35]. Rising demand for environmentally friendly offerings exemplifies consumers' heightened ecological awareness [9]. Le et al. [36] reported that purchase decisions are increasingly influenced by environmental considerations, leading consumers to prioritise sustainable alternatives. EA has thus emerged as a hardy predictor of green consumer behaviour [37, 38]. On this basis, hypotheses are posited as follows:

H9: *EA exerts a direct and positive effect on purchase intention towards FMCG packaged in green packaging*.
H10: *EA mediates the relationship between GW and purchase intention towards FMCG packaged in green packaging*.

2.2.7 PGP and purchase intention towards FMCG packaged in green packaging (GPPI)

Product packaging serves both promotional and waste-generation functions, with conventional packaging constituting a substantial environmental burden [15]. Green packaging employs sustainable materials and energy-efficient production techniques [39]. Amid growing environmental concern, consumers associate sustainable packaging with superior quality and view its selection as an expression of ecological consciousness [40]. Empirical studies confirm that green or sustainable packaging significantly enhances green purchase intentions [41]. Drawing on these insights, hypotheses are formulated as follows:

H11: *PGP exerts a direct and positive effect on purchase intention towards FMCG packaged in green packaging*.
H12: *PGP mediates the relationship between GW and purchase intention towards FMCG packaged in green packaging*.

2.3 Research model

Based on the above arguments, the authors propose the following research model in Figure 1.

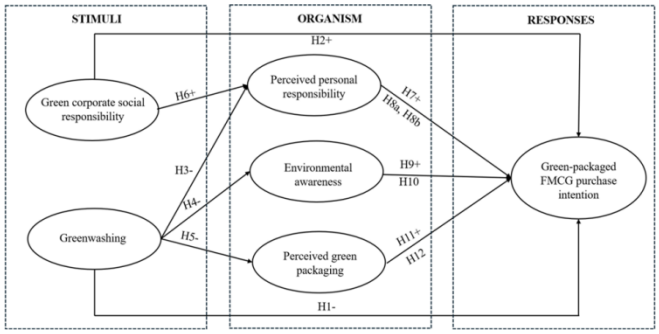

Figure 1. Research model
Source: Compiled by the authors

3. METHOD

3.1 Research method

The present study adopted a sequential mixed-methods design comprising qualitative and quantitative phases.

Qualitative phase: In the initial stage, an extensive review of previously published literature from high-impact peer-reviewed journals was conducted to synthesize present theoretical and empirical insights. This process facilitated the development of the research hypotheses, conceptual framework, and the retrieval of preliminary measurement scales from reputable journals relevant to the green research context. Following the authors conducted in-depth interviews and discussions with 20 consumers to agree on the research model and refine the preliminary measurement scale, aiming for a better understanding through a semi-structured questionnaire. At this point, scales such as GW, GCSR, PPR, PGP, and GPPI were modified and supplemented with phrases related to "green packaging" and "FMCG" to clarify the research scales. Finally, the research model and temporary scales were refined through in-depth consultations with university lecturers specializing in marketing via semi-structured interviews. This process allowed the authors to re-evaluate the suitability of the research model and scales before conducting the preliminary survey. Following these adjustments, a pilot survey was administered to 50 consumers. The results indicated that all scales exhibited high reliability and were largely easy for consumers to understand, thereby confirming their suitability for the main study.

Quantitative phase: The main data collection targeted consumers who had previously purchased, were currently purchasing, or intended to purchase FMCG. Data were collected through two channels: (i) face-to-face interception at shopping malls, supermarkets, and retail outlets, and (ii) online distribution via social media platforms (Facebook and Zalo) using Google Forms. A non-probability quota sampling strategy (Gender and Age) was employed to secure representation across age groups, yielding a total sample size of 450 responses (250 offline and 200 online). This sample size adheres to established guidelines for multivariate analysis [42, 43]. Upon completion of data collection, 142 invalid responses that were filtered were those that did not meet the screening criteria; those that answered unsuitably for demographic questions (e.g., educational level is student, but the age or income range is too high, etc.); those that answered the same question repeatedly or in a zigzag pattern; and those with significantly different answers within the same scale. The final cleaned dataset of 308 responses was subjected to statistical analysis using SPSS version 26 and AMOS version 24.

3.2 Measurement scale

In Table 1, all constructs were measured using previously validated multi-item scales adapted to the Vietnamese FMCG context. Following data collection, a series of careful statistical procedures was performed, including descriptive statistics, reliability assessment via Cronbach's alpha, exploratory factor analysis (EFA) using SPSS, and confirmatory factor analysis (CFA) together with structural equation modelling (SEM) using AMOS. These analyses were conducted to evaluate scale reliability and validity, as well as to test the hypothesised relationships within the proposed conceptual model.

Table 1. Measurement scales employed in the study

Code	Item	Source
	Greenwashing (GW)	
GW1	I believe that some FMCG manufacturers make vague or controversial green claims (e.g., advertising products as environmentally friendly).	[15]
GW2	I believe that certain FMCG products are exaggerated or presented as greener than they actually are.	
GW3	I believe that some FMCG manufacturers omit or conceal important information, making their green claims appear better than reality.	
	Green Corporate Social Responsibility	
GCSR1	I consider it important for companies producing or selling FMCG products to maintain and protect the environment.	[44, 45]
GCSR2	I believe it is the responsibility of FMCG manufacturers and retailers to provide environmentally friendly products.	
GCSR3	I think FMCG companies should participate in community-service projects.	
GCSR4	I believe FMCG companies should avoid causing harm to animals and the environment.	
	Environmental Awareness	
EA1	I believe that human actions are responsible for severe consequences to the natural environment.	[10, 46]
EA2	I believe that humans must live in harmony with nature in order to survive.	
EA3	I am willing to control my consumption habits to ensure sustainable consumption.	
EA4	I believe that every individual has a responsibility to protect the environment.	
	Perceived Personal Responsibility	
PPR1	Contributing to environmental protection makes me feel that I am an environmentally responsible person.	[9, 47]
PPR2	I consider environmental issues when making a purchase.	
PPR3	I am willing to change my essential products for ecological reasons (e.g., using paper bags to reduce plastic waste).	
PPR4	I am prepared to reduce consumption of non-sustainable products (those made from environmentally harmful materials) in order to lessen pollution.	
	Green Packaging Perception	
PGP1	I consider green packaging to be packaging that is reusable.	[13, 48]
PGP2	I purchase green products packaged in green packaging because it is more beneficial for the environment than other alternatives.	
PGP3	I buy products in green packaging because it better reflects my concern for the environment compared with other products.	
PGP4	I purchase products in green packaging because they are environmentally friendly.	
	Green Packaging Purchase Intention	
GPPI1	During the next month, I will consider buying products packaged in green materials because they are environmentally friendly.	[14]
GPPI2	During the next month, I will consider switching to products from other brands for	

Code	Item	Source
	ecological reasons (e.g., paper bags to reduce plastic waste).	
GPPI3	During the next month, I intend to switch to a greener version of the products I currently use (e.g., products packaged in paper bags).	
GPPI4	I will definitely consider purchasing products packaged in green materials.	

Source: Compiled by the author

4. RESULTS AND DISCUSSION

4.1 Results

4.1.1 Descriptive statistics

Following the data collection process, a total of 450 questionnaires were returned, of which 308 responses were deemed valid and retained for analysis (effective response rate: 68.4%). Respondents were categorised according to key demographic characteristics, including gender, age, educational attainment, and monthly income. The descriptive profile of the final sample (n = 308) is presented in Table 2.

Table 2. Demographic profile of respondents (n = 308)

Gender	Male	181	58.8%
	Female	127	41.2%
Age	Under 18	22	7.1%
	18 – under 25	26	8.4%
	25 – under 35	55	17.9%
	35 – under 45	74	24.0%
	45 – under 55	57	18.5%
	55 and above	74	24.0%
Educational Attainment	Below upper secondary	90	29.2%
	Upper secondary	106	34.4%
	Vocational college / Associate	38	12.3%
	Bachelor's degree	66	21.4%
	Postgraduate	8	2.6%
Monthly Income (VND)	Below 1.5 million	31	10.1%
	1.5–under 3 million	28	9.1%
	3–under 4.5 million	23	7.5%
	4.5–under 7.5 million	58	18.8%
	7.5–under 15 million	106	34.4%
	Above 15 million	62	20.1%

Males comprised the majority of the sample (58.8%, n = 181), whilst females explained 41.2% (n = 127). In terms of age distribution, the two largest groups were respondents aged 55 and above and those aged 35 to under 45 (both 24.0%, n = 74), followed by the 45–under 55 group (18.5%, n = 57) and the 25–under 35 group (17.9%, n = 55). The youngest groups (18–under 25 and under 18) represented 8.4% and 7.1%, respectively.

Regarding educational attainment, the highest proportion held upper secondary qualifications (34.4%), followed by those with less than below upper secondary education (29.2%), bachelor's degrees (21.4%), vocational/associate degrees (12.3%), and postgraduate qualifications (2.6%).

With respect to monthly income, the modal category was 7.5–under 15 million VND (34.4%, n = 106), followed by incomes surpassing 15 million VND (20.1%, n = 62) and the 4.5–under 7.5 million VND (18.8%, n = 58). Lower-income segments (below 1.5 million, 1.5–under 3 million, and 3–under 4.5 million VND) constituted 10.1%, 9.1%, and 7.5% of the sample, respectively.

Overall, the sample exhibits sufficient diversity across demographic dimensions, thereby enhancing the applicability of the findings within the Vietnamese FMCG consumer population.

4.1.2 Common method bias

The CMB test in Table 3, using Harman's single factor method, showed that a single factor accounted for only 33.665% (< 50%) of the total extracted variance; therefore, the data did not exhibit general methodological bias [49].

Table 3. Common method bias

Component	Initial Eigenvalues		
	Total	% of Variance	Cumulative %
1	7.743	33.665	33.665

4.1.3 Cronbach's alpha

The upshot of the reliability analysis is presented in Table 4. All constructs exposed Cronbach's alpha coefficients surpassing 0.80, with corrected item-total correlations ranging from 0.570 to 0.778 (all > 0.30). These values confirm that the measurement scales demonstrate high internal consistency and that all observed variables are suitable for retention in the following analyses.

Table 4. Cronbach's alpha reliability coefficients

Factor	Number of Observed Variables	Cronbach's Alpha	Corrected Item - Total Correlation
GW	3	0.814	0.660–0.677
GCSR	4	0.843	0.650–0.701
EA	4	0.891	0.720–0.778
PPR	4	0.857	0.683–0.730
PGP	4	0.807	0.578–0.674
GPPI	4	0.812	0.570–0.680

4.1.4 EFA

EFA was performed separately for the independent, mediating, and dependent variables. Table 5 shows that eigenvalues exceeded 1.0 for each extracted factor.

Table 5. Total variance extracted of the factors

Total Variance Explained				
Factor	Initial Eigenvalues			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total
1	7.743	33.665	33.665	5.461
2	3.019	13.126	46.792	4.198
3	1.637	7.119	53.910	3.701
4	1.455	6.324	60.234	4.856
5	1.300	5.654	65.889	4.727
6	1.015	4.412	70.301	4.839

As shown in Table 6, the Kaiser-Meyer-Olkin (KMO) value is 0.898 (all > 0.50), and Bartlett's test of sphericity was significant at p < 0.000 for all variable groups, confirming the appropriateness of factor analysis. All factor loadings were greater than 0.70, with no evidence of cross-loading or empty variables, thereby supporting unidimensionality and strong

statistical significance of the measurement structure.

Table 6. Results of EFA

Pattern Matrix						
Items	**Factor**					
	1	**2**	**3**	**4**	**5**	**6**
EA1	0.872					
EA3	0.856					
EA2	0.834					
EA4	0.715					
PGP1		0.831				
PGP2		0.794				
PGP4		0.626				
PGP3		0.602				
GCSR2			0.779			
GCSR3			0.755			
GCSR4			0.750			
GCSR1			0.714			
PER3				0.865		
PER4				0.794		
PER1				0.769		
PER2				0.695		
GW2					-0.808	
GW3					-0.800	
GW1					-0.790	
GPPI1						0.912
GPPI4						0.711
GPPI2						0.435
GPPI3						0.311

Extraction Method: Principal Axis Factoring.
Rotation Method: Promax with Kaiser Normalization.
a. Rotation converged in 6 iterations.

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.898
Bartlett's Test of Sphericity	Approx. Chi-Square	3616.313
	df	253
	Sig.	0.000

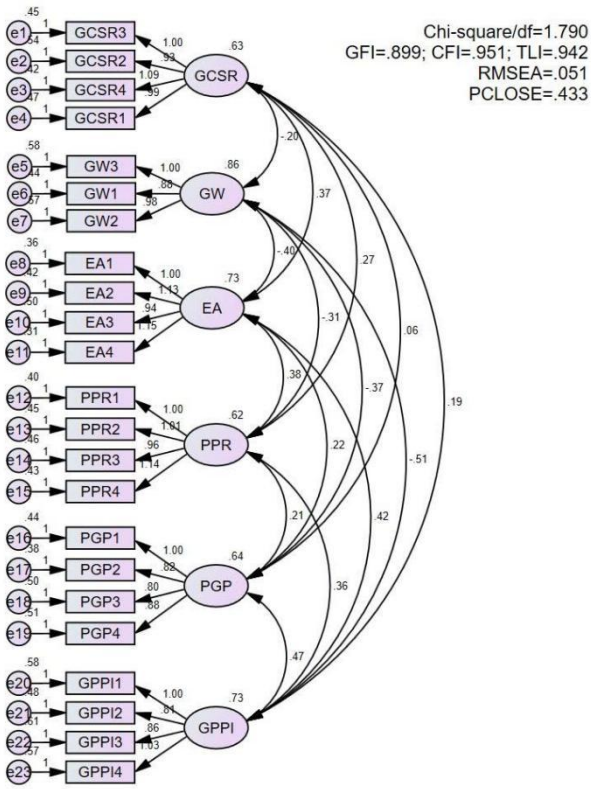

Figure 2. Results of CFA

4.1.5 CFA

CFA was conducted to assess composite reliability (CR), average variance extracted (AVE), convergent validity, and discriminant validity. In Figure 2, the measurement model exhibited satisfactory fit: $\chi^2/df = 1.790$ (< 3.0), $p < 0.001$, CFI = 0.951 (> 0.90), TLI = 0.942 (> 0.90), and RMSEA = 0.051 (< 0.08). The GFI value of 0.899 fell marginally below the conventional threshold of 0.90 recommended by Hair et al. [50]. However, given that GFI is sensitive to sample size and number of observed variables, strict compliance to the 0.90 cut-off is often discouraged [51]. Following Baumgartner and Homburg [52], a GFI ≥ 0.80 is considered acceptable; thus, the model fit is deemed sufficient overall. All following structural analyses are therefore based on this validated measurement model.

Table 7, the evaluation of composite reliability and validity yields the following results: composite reliability (CR) coefficients for all constructs exceed the recommended threshold of 0.70; AVE values are uniformly greater than 0.50; the maximum shared variance (MSV) for each construct is lower than its respective AVE. In Table 8, the square root of the AVE for every construct surpasses its correlations with all other constructs. These findings provide compelling evidence of strong convergent and discriminant validity. Accordingly, the measurement model is deemed psychometrically sound, and the analysis proceeds to the following stage of SEM to test the hypothesised relationships [30].

Table 7. Summary of Composite Reliability and convergent

Factors	CR	AVE	MSV	MaxR(H)
GCSR	0.843	0.574	0.302	0.846
GW	0.816	0.596	0.411	0.816
EA	0.890	0.671	0.334	0.897
PPR	0.857	0.600	0.315	0.859
PGP	0.810	0.516	0.485	0.814
GPPI	0.816	0.525	0.485	0.818

Table 8. Discriminant validity results (Fornell and Larcker)

Factors	GCSR	GW	EA	PPR	PGP	GPPI
GCSR	0.757					
GW	-0.273	0.722				
EA	0.549	-0.509	0.819			
PPR	0.437	-0.423	0.516	0.774		
PGP	0.088	-0.504	0.321	0.337	0.719	
GPPI	0.277	-0.641	0.578	0.533	0.697	0.725

4.1.6 SEM

In Figure 3, the results of the SEM model analysis have a Chi-square value of 470.812 with 220 degrees of freedom (df = 220). Other statistical indicators are all satisfactory and statistically significant, Chi-square/df = 2.140 < 3; $p = 0.000$, showing that the observed variables are statistically significant at a good level. In addition, GFI = 0.879 > 0.8; CFI = 0.928 > 0.9; TLI = 0.917 > 0.9 and RMSEA = 0.061 < 0.08. Based on the analysis results, the author concludes that the model is compatible and can forecast the practical market.

The standardised path coefficients and hypothesis testing outcomes are summarised in Table 9. Of the nine direct-effect hypotheses, eight were supported at $p < 0.05$. GW (GW) exerted significant negative effects on PPR (β = -0.389, $p <$ 0.001), EA (β = -0.570, $p < 0.001$), and PGP (β = -0.522, $p <$ 0.001), thereby supporting H3, H4, and H5. Conversely, GCSR positively influenced PPR (β = 0.308, $p < 0.001$),

supporting H6. EA (β = 0.233, p < 0.001), PPR (β = 0.176, p = 0.006), and PGP (β = 0.458, p < 0.001) all positively predicted GPPI, supporting H9, H7, and H11, respectively. GW also directly and negatively affected GPPI (β = -0.233, p = 0.008), supporting H1. However, the direct path from GCSR to GPPI was non-significant (β = -0.038, p = 0.509); thus, H2 was rejected.

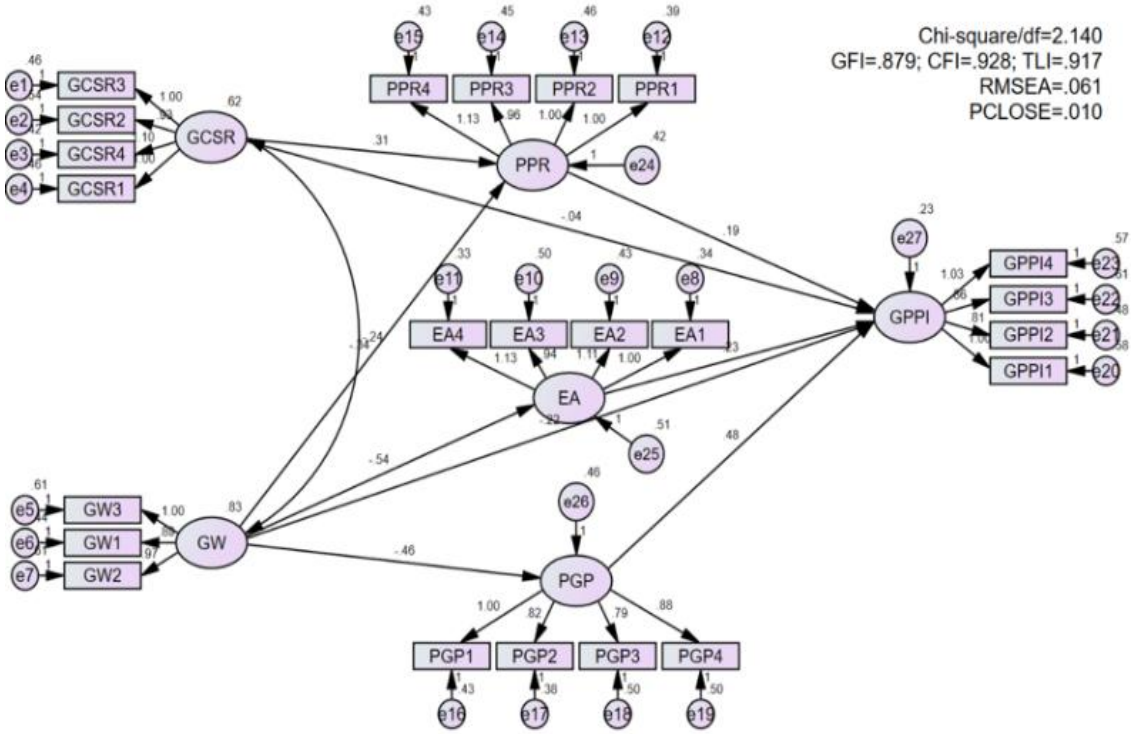

Figure 3. SEM results

Table 9. Standardised regression coefficients and adjusted R^2

Paths	Hypothesis	Unstandardised β	Standardised β	*P*-Value	Result
PPR←GCSR	H6	0.309	0.308	0.000	Supported
PPR←GW	H3	- 0.338	-0.389	0.000	Supported
PGP←GW	H5	-0.545	-0.522	0.000	Supported
EA←GW	H4	-0.459	-0.570	0.000	Supported
GPPI←GCSR	H2	-0.040	-0.038	0.509	Rejected
GPPI←EA	H9	0.226	0.233	0.000	Supported
GPPI←PPR	H7	0.187	0.176	0.006	Supported
GPPI←PGP	H11	0.483	0.458	0.000	Supported
GPPI←GW	H1	-0.216	-0.233	0.008	Supported
Adjusted R^2: R^2_{PRR} = 0.325; R^2_{EA} = 0.325; R^2_{PGP} =0.273; R^2_{GPPI} = 0.671					

Note: GW = Greenwashing; GCSR = Green Corporate Social Responsibility; EA = Environmental Awareness; PPR = Perceived Personal Responsibility; PGP = Green Packaging Perception; GPPI = Green Packaging Purchase Intention.

Table 10. Indirect effects and mediation testing results

Indirect Path	Hypothesis	Standardised Indirect Effect	*P*-Value	Conclusion
GCSR→PPR→GPPI	H8b	0.054	0.009	Supported
GW→PPR→GPPI	H8a	- 0.068	0.011	Supported
GW→EA→GPPI	H10	- 0.133	0.006	Supported
GW→PGP→GPPI	H12	- 0.239	0.001	Supported

Note: GW = Greenwashing; GCSR = Green Corporate Social Responsibility; EA = Environmental Awareness; PPR = Perceived Personal Responsibility; PGP = Green Packaging Perception; GPPI = Green Packaging Purchase Intention.

Table 11. Multi-group SEM

Criteria	Age		Income	
	Chi-Square	df	Chi-Square	df
Constrained model	4117.982	1365	4115.035	1365
Unconstrained model	4043.171	1320	3996.880	1320
Differentiation	74.811	45	118.155	45
Chidist *p*-value	0.00345664		0.00000002	

The adjusted R^2 values indicate substantial explanatory power of the structural model. Specifically, the antecedent constructs accounted for 32.5% of the variance in both PPR and EA ($R^2 = 0.325$ for each), 27.3% of the variance in PGP ($R^2 = 0.273$), and 67.1% of the variance in GPPI ($R^2 = 0.671$). These figures underscore the model's hardy predictive capacity, particularly with respect to the ultimate dependent variable.

Mediation analysis using bootstrapping (5,000 resamples) further revealed significant indirect effects in Table 10. Although GCSR exerted no significant direct influence on GPPI, it positively affected GPPI indirectly through PPR (Standardised indirect effect = 0.054, $p = 0.009$), confirming PPR as a full mediator in the GCSR–GPPI relationship (only H8b supported). In contrast, GW negatively influenced GPPI indirectly via PPR (Standardised indirect effect = -0.068, $p = 0.011$; H8a supported), EA (Standardised indirect effect = -0.133, $p = 0.006$; H10 supported), and PGP (Standardised indirect effect = -0.239, $p = 0.001$; H12 supported). Thus, PPR, EA, and PGP parial mediated the respective relationships involving GW, providing empirical support for hypotheses H8a, H10, and H12. These findings highlight the pivotal role of consumers' internal cognitive and affective processes in channelling the effects of corporate environmental signals—both genuine and deceptive—onto purchase intentions.

4.1.7 Multi-group SEM

According to Table 11, the Chidist p-value differs significantly between age and income groups (< 0.05). Therefore, the results indicate differences in the impact of the model's factors on GPPI [53].

Specifically, in Tables 12 and 13, the impact of GW→GPPI is quite strong in the following age groups: under 18, 18–under 25, and 25–under 35, and at most income levels. The impact of GCSR→GPPI is also quite strong in the following age groups: under 18, 18–under 25, and 25–under 35; and at the following income levels: below 1.5 million VND, 4.5–under 7.5 million VND, over 15 million VND. Furthermore, the impact of GW→PPR is quite strong in the following age groups: under 18, over 55, 35–under 45, 25–under 35; and in the following income levels: below 1.5 million VND, 1.5–3 million VND, 7.5–under 15 million VND, and 4.5–under 7.5 million VND. The impact of GW→EA is also quite strong in the following age groups: over 55, 45–under 55, 35–under 45, and 18–under 25, as well as in most income levels. The impact of GW→PGP is also quite strong in the following age groups: 18–under 25, over 55, 45–under 55, 25–under 35; and across income levels: over 15 million, 1.5–under 3 million, 4.5–under 7.5 million, and below 1.5 million. Additionally, the impact of GCSR→PPR is quite strong in the following age groups: 18–under 25, 25–under 35, and 35–under 45, and across income levels: over 15 million VND, 1.5–under 3 million VND, and 7.5–under 15 million VND. Meanwhile, the impact of PPR→GPPI is quite weak in most age and income groups, with the strongest impact in the 1.5–under 3 million VND. The impact of EA→GPPI is particularly strong in the following age groups: over 55, 25–under 35, and 45–under 55, as well as at income levels of 4.5–under 7.5 million VND, over 15 million VND, below 1.5 million VND, and 7.5–under 15 million VND. Finally, the impact of PGP on GPPI is quite strong in the age groups 45–under 55, 35–under 45, and over 55, as well as at income levels: over 15 million VND, 7.5–under 15 million VND, and the 4.5–7.5 million VND income group.

Table 12. Results of multi-group analysis by age

Paths	Under 18	18–Under 25	25–Under 35	35–Under 45	45–Under 55	Over 55
GW→GPPI	-0.677	-0.310	-0.350	-0.174	-0.019	-0.240
GCSR→GPPI	-0.272	-0.498	0.220	0.082	-0.127	-0.089
GW→PPR	-0.621	0.159	-0.312	-0.416	-0.092	-0.561
GW→EA	-0.139	-0.468	-0.334	-0.581	-0.599	-0.667
GW→PGP	-0.424	-0.778	-0.536	-0.325	-0.554	-0.623
GCSR→PPR	0.216	0.775	0.630	0.413	0.409	0.078
PPR→GPPI	0.002	0.603	0.042	0.157	0.051	0.207
EA→GPPI	0.267	0.381	0.346	0.036	0.311	0.421
PGP→GPPI	0.172	0.229	0.285	0.769	0.775	0.297

Note: GW = Greenwashing; GCSR = Green Corporate Social Responsibility; EA = Environmental Awareness; PPR = Perceived Personal Responsibility; PGP = Green Packaging Perception; GPPI = Green Packaging Purchase Intention.

Table 13. Results of multi-group analysis by income

Paths	Below 1.5 Million VND	1.5–Under 3 Million VND	3–Under 4.5 Million VND	4.5–Under 7.5 Million VND	7.5–Under 15 Million VND	Over 15 Million VND
GW→GPPI	-0.778	-0.380	-0.951	-0.223	-0.256	0.825
GCSR→GPPI	-0.210	0.044	-0.045	-0.372	-0.036	0.159
GW→PPR	-0.497	-0.489	-0.464	-0.398	-0.438	0.146
GW→EA	-0.301	-0.560	-0.776	-0.587	-0.472	-0.556
GW→PGP	-0.472	-0.688	-0.564	-0.121	-0.441	-0.700
GCSR→PPR	0.091	0.490	-0.308	0.238	0.365	0.657
PPR→GPPI	0.002	0.524	0.180	0.264	0.013	0.043
EA→GPPI	0.283	-0.064	0.007	0.572	0.109	0.458
PGP→GPPI	0.100	0.258	0.113	0.295	0.752	1.183

Note: GW = Greenwashing; GCSR = Green Corporate Social Responsibility; EA = Environmental Awareness; PPR = Perceived Personal Responsibility; PGP = Green Packaging Perception; GPPI = Green Packaging Purchase Intention.

4.2 Discussion

The acceptance of H1 (β = -0.233; $p < 0.05$) indicates that contemporary consumers exhibit a heightened ability to detect corporate GW practices. Consequently, such misleading activities generate disbelief, negative emotions, and frustration, as consumers perceive their own pro-environmental efforts to be undermined. From a demographic perspective, this sensitivity to GW extends beyond Generation Z and younger groups. Within the income, all consumers displayed particular wariness, prioritising environmental considerations alongside personal needs during purchasing decisions. These findings are consistent of those reported by Meet et al. [15] and Sun and Shi [54].

Conversely, H2 was rejected (p-value = 0.509 > 0.05), consistent of Saif et al. [31] but unrelated from Huo et al. [8] and Le et al. [36]. Inconsistencies may stem from sampling differences—prior studies predominantly employed convenience sampling, potentially limiting representativeness—or from evolving consumer psychology. Demographically, the present sample comprised a substantial proportion of middle-aged and older respondents. Such consumers may prioritise tangible, practical product attributes over broader societal values, thereby attenuating the direct influence of perceived GCSR on purchase intention compared with younger consumers.

Support for H3, H4, and H5 underscores a growing consumer tendency to reject GW whilst elevating personal environmental responsibility, EA, and accurate perceptions of green packaging. Notably, the sample's balanced age distribution, with the largest groups aged 35–under 45 and 55+, suggests that environmentally responsible consumption is no longer confined to younger demographics but has become more evenly distributed across generational groups. These results corroborate Sun and Shi [54] and Szabo and Webster [26].

Hypothesis H6 is accepted. This result also reflects the influence of GCSR on the intention to purchase FMCG packaged in green packaging. In other words, if businesses make positive contributions to society and the environment, it also strengthens and increases consumers' intention to purchase green products. From a demographic perspective, the higher the age and income, the more concerned consumers are about a company's social and environmental responsibility, in addition to concern about product quality. This research result is consistent with Saif et al. [31].

The acceptance of H7, H9, and H11 highlights that most of consumers with strong EA possess deeper ecological knowledge, heightened personal responsibility, and greater appreciation for authentic green packaging—all of which positively shape purchase intentions. Demographically, heightened awareness transcended age and educational boundaries, though higher-income respondents exhibited particular willingness to pay premiums for sustainable offerings, viewing such purchases as ethical investments in long-term environmental and personal health benefits. These observations are congruent with Carrión-Bósquez et al. [10], Meet et al. [15], and Shimul and Cheah [9].

Support for H8b confirms that PPR serves as a critical full mediator through which GCSR can influence purchase intention. The acceptance of H8b, H10 and H12 further demonstrates that GW distorts PPR, EA and PGPs, thereby indirectly suppressing green purchase intentions. Then, the above factors will play partial mediating roles in the relationship between GW—purchase intention. Notably, EA appears to be democratising across age groups—particularly evident among respondents aged 35–under 45, 45–under 55, and 55+; and educational levels, with even those holding below upper secondary qualifications exhibiting pronounced rejection of misleading practices.

In summary, this study contributes to the existing theoretical framework by expanding and supplementing the research models of previous studies [8-10] through the addition of cognitive factors (PPR, EA, and PGP) to better explain the mechanism of consumer green purchase intention formation. The study of intrinsic consumer factors as mediators also helps clarify and affirm the novelty of the research.

5. CONCLUSION AND IMPLICATIONS

5.1 Conclusion

Of the 13 hypotheses tested, 12 were supported (eight direct effects and four mediation effects), with only one direct hypothesis (H2) rejected. GPPI was most strongly and positively influenced by PGP (PGP, β = 0.458), followed by EA (EA, β = 0.233) and PPR (PPR, β = 0.176), whilst GW exerted a significant negative direct effect (GW, β = -0.233). The mediating roles of PPR, EA, and PGP were all experimentally substantiated.

In summary, the present study makes a detailed contribution to clarifying the mechanisms through which the examined roots influence GPPI. It reinforces the theoretical foundations established by prior scholarship while proposing a novel integrative model that extends the literature on green consumption intentions, both within the specific context of Vietnam. Relative to the stated research objectives, the investigation has achieved them almost in their entirety by (i) developing and experimentally testing a conceptual framework that captures the interplay of GCSR, GW, and associated perceptual constructs on GPPI within the FMCG sector, and (ii) carefully validating the mediating roles of PPR, EA, and PGP.

5.2 Managerial implications

GW: Firms currently engaging in GW should immediately cease such practices. Resources hitherto allocated to misleading green advertising would be better directed towards genuine innovation—developing products with truly sustainable materials or optimising logistics to reduce transport-related carbon emissions. Internally, cultivating an authentic sustainability culture ensures consistent messaging and enables employees to become convincing ambassadors of the firm's green commitments.

GCSR: Given consumers' growing appreciation of ecologically responsible firms, enterprises should integrate environmental impact considerations throughout the entire product lifecycle, not merely focus on output quality. Transparent CSR programmes—such as verifiable carbon-reduction initiatives, support for local environmental projects, or community partnerships—help forge authentic green brand equity and maintain consistency between announced values and operational reality.

EA: Companies should offer products with extended, sustainable lifecycles and accompany them with transparent

educational campaigns that convey both general ecological knowledge and specific benefits of their offerings. Collaborations with NGOs or environmentally conscious influencers for campaigns such as "Plastic-Free Day" can amplify reach and credibility.

PPR: Marketing strategies should empower consumers to enact their environmental responsibility—for instance, through take-back and recycling programmes, premium-yet-sustainable alternatives to single-use items, or carbon-offset initiatives tied to purchases (e.g., tree-planting for every transaction). Such mechanisms transform consumption into visible contributions towards planetary wellbeing.

PGP: Research and Development efforts must prioritise genuinely recyclable or biodegradable materials sourced from certified sustainable suppliers. Transparent communication of production processes—coupled with convincing eco-labels—and aesthetically appealing yet functional green packaging reinforce consumer trust and elevate perceived value.

5.3 Theoretical implications

First, the study extends understanding of green purchase intention within the FMCG sector by bridging existing research gaps concerning the interplay of GW, GCSR, and packaging-specific perceptions. Second, it confirms and sets the scene the Stimulus–Organism–Response framework in a novel empirical setting. Third, it uncovers previously underexplored mediating roles of PPR, EA, and PGP, thereby enriching the theoretical mechanisms linking corporate environmental signals to consumer behaviour. Finally, the research contributes an original model to both Vietnamese and global scholarship on GW and sustainable consumption, whilst suggesting fertile avenues for future inquiry.

5.4 Limitations and directions for future research

First, the sample was limited to consumers in Ho Chi Minh City, Vietnam, where psychological and behavioural patterns may differ from other regions or international markets. Future studies could adopt multi-regional or cross-national designs for broader applicability.

Second, although quota sampling by age improved representativeness over prior convenience samples, additional demographic quotas (income, education, gender) or alternative probabilistic methods could further enhance precision.

Third, whilst the S–O–R framework proved hardy, future investigations might incorporate complementary theories (e.g., psychological contract theory or the theory of reasoned action) to capture additional nuances.

Fourth, the mediating variables explained substantial yet incomplete variance; following research could introduce moderators (e.g., cultural values) or additional mediators to elucidate remaining pathways.

Finally, the study focused exclusively on purchase intention rather than actual behaviour. Given the well-documented intention–behaviour gap, future work should prioritise observed green purchasing or employ longitudinal designs to track behavioural outcomes.

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