Green Marketing and the Purchase Behavior of Green Real Estate: The Role of Social Norms and Electronic Word of Mouth

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ABSTRACT

This study investigates the impact of Green Marketing on the purchase behavior of green real estate, examining the mediating role of Electronic Word of Mouth (eWOM) and the moderating role of Social Norms. Data were collected from 387 respondents who have purchased or intend to purchase green real estate in Vietnam and analyzed using SPSS 26 and SmartPLS 4 with the PLS-SEM model. Results reveal that Green Marketing exerts the strongest influence on purchase behavior, both directly and indirectly through eWOM. eWOM partially mediates this relationship, while Social Norms have a direct effect and strengthen the influence of Green Marketing. The model explains 40.1% of the variance in purchase behavior, confirming its suitability and practical value in promoting sustainable real estate consumption.

Keywords: Electronic Word of Mouth; Environmental Awareness; Green Certification; Green Marketing; Green Real Estate; Mediation; PLS-SEM; Purchase Behavior; Social Norms; Sustainable Consumption; Theory of Planned Behavior

INTRODUCTION:

Amid climate change and the growing demand for sustainable development, the shift toward environmentally friendly consumption and investment models has become an inevitable trend. Green real estate has emerged as a critical sector to meet the requirements for energy efficiency, greenhouse gas emission reduction, environmental protection, and improved quality of life in urban communities (Nguyen et al., 2025). Despite increasing consumer awareness of the benefits of green real estate, actual purchase behavior remains limited, falling short of the sector's development potential and supportive government policies. This raises the question: What factors truly drive customers to decide to purchase green real estate?

Based on Ajzen's (1991) Theory of Planned Behavior (TPB), human behavior is shaped and guided by attitudes, subjective norms, and perceived behavioral control. Understanding the factors influencing the intention and behavior of purchasing green real estate is essential for devising effective marketing strategies to promote sustainable consumption.

Among the influential factors, Green Marketing (GM) is considered a key tool for businesses to communicate environmental values, build a sustainable brand image, and positively influence consumers' attitudes and purchase behaviors (Skackauskiene & Vilkaite-Vaitone, 2022; Cai et al., 2025). Effective green marketing strategies can enhance awareness, foster trust, and guide responsible environmental consumption behavior (Nguyen et al., 2025).

Social Norms (SN) play a significant role in guiding and reinforcing green consumption behavior, as individuals tend to align with the values and expectations of their social groups (Kelman, 1958; Stern et al., 1999; Hu & Hu, 2024). As the "green living" trend becomes a socially accepted norm, community consensus pressure can lead consumers to adjust their behavior to align with sustainable values (Anand & Sharma, 2023).

In the digital era, Electronic Word of Mouth (eWOM) has become a powerful communication channel influencing consumer perceptions, attitudes, and purchase intentions. eWOM amplifies information, spreads consumer experiences, and shapes opinions through online platforms, thereby influencing purchase behavior (Al-Gasawneh & Al-Adamat, 2020; Al-Gasawneh et al., 2023). Recent studies confirm that eWOM not only independently affects purchase behavior but also mediates the relationship between marketing activities (such as content marketing, social media marketing, or green marketing) and green consumption intentions (Cai et al., 2025).

Based on this foundation, this study aims to clarify the impact of green marketing on the purchase behavior of green real estate, while analyzing the mediating role of electronic Word of Mouth (eWOM) and the moderating role of social norms in this relationship. The study not

only contributes to the theoretical foundation of green consumption behavior but also provides practical managerial implications for real estate businesses in developing marketing strategies aligned with sustainable development trends.

2. THEORETICAL FRAMEWORK

2.1. Green Marketing and Purchase Behavior

Green Marketing is defined as a marketing strategy that emphasizes environmental values in product design, communication, and distribution (Skackauskiene & Vilkaite-Vaitone, 2022). Studies have shown that green marketing positively influences sustainable consumption intentions and behaviors (Cai et al., 2025).

2.2. Electronic Word of Mouth (eWOM)

eWOM refers to the process of sharing information and product reviews through online platforms. Al-Gasawneh and Al-Adamat (2020) confirmed that eWOM serves as a mediator between content marketing and green purchase intentions, particularly in the real estate sector (Al-Gasawneh et al., 2023).

2.3. Social Norms

According to Ajzen (1991), social norms influence behavior through social pressure and the desire for conformity. Hu and Hu (2024) assert that social norms

reinforce positive attitudes toward green consumption. The Value-Belief-Norm model (Stern et al., 1999) also emphasizes the role of social norms in guiding actions for the collective good.

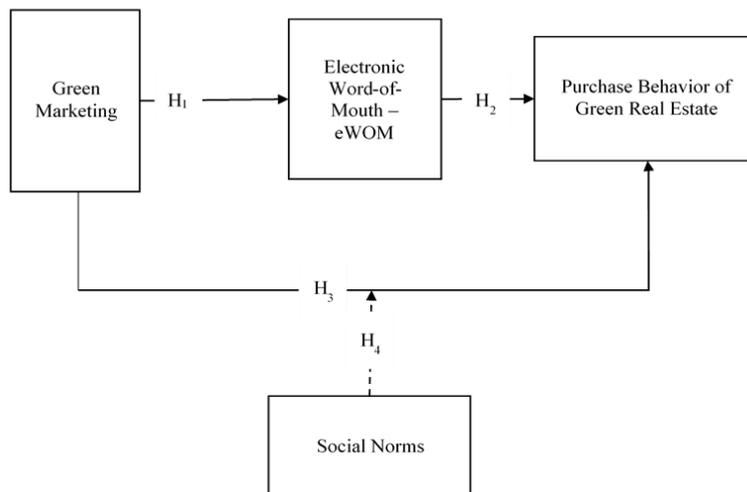### 2.4. Purchase Behavior of Green Real Estate

This behavior is influenced not only by economic factors but also by environmental values, symbolic significance, and social norms. Mehrabian and Russell's (1974) Stimulus-Organism-Response model suggests that environmental stimuli evoke emotional responses, leading to behaviors, which is relevant in explaining the motivations of green real estate buyers.

2.5. Hypothesis Development and Research Model

Drawing on prior studies on green consumption behavior and influencing factors such as Green Marketing (Skackauskiene & Vilkaite-Vaitone, 2022; Cai et al., 2025), Electronic Word of Mouth (Al-Gasawneh & Al-Adamat, 2020; Al-Gasawneh et al., 2023), and Social Norms (Ajzen, 1991; Hu & Hu, 2024), this study proposes the following model:

Insert Figure 1 here:

Figure 1. Proposed Research Model

Hypotheses:

H1: Green Marketing positively affects Electronic Word of Mouth (eWOM).

H2: Electronic Word of Mouth (eWOM) positively affects the purchase behavior of green real estate.

H3: Green Marketing directly and positively affects the purchase behavior of green real estate.

H4: Social Norms moderate the relationship between Green Marketing and the purchase behavior of green real estate, strengthening this relationship.

3. RESEARCH METHODOLOGY

This study employs a quantitative approach to test the impact of Green Marketing (GM) on the Purchase Behavior (PB) of green real estate, while examining the mediating role of Electronic Word of Mouth (eWOM) and the moderating role of Social Norms (SN).

Data were collected through an online questionnaire using a 5-point Likert scale, comprising 19 observed variables adapted from studies by Skackauskiene and Vilkaite-Vaitone (2022), Cai et al. (2025), Al-Gasawneh and Al-Adamat (2020), Ajzen (1991), and Hu and Hu (2024). The target population consisted of individuals who have

purchased or intend to purchase green real estate in Vietnam. After removing invalid responses, 387 valid samples were obtained using convenience sampling.

Data were processed using SPSS 26 and SmartPLS 4 through the following steps: (1) Descriptive statistics; (2) Scale reliability testing (Cronbach's Alpha); (3) Exploratory Factor Analysis (EFA); (4) Evaluation of the measurement and structural models using PLS-SEM, with the Bootstrapping technique (5,000 samples) to test the hypotheses.

4.1. Descriptive Statistics

The study surveyed 387 individuals who have purchased or intend to purchase green real estate in Vietnam.

Regarding gender distribution, the sample is fairly balanced, with 206 males (53.2%) and 181 females (46.8%). The minimal gender disparity indicates that both men and women are equally interested in purchasing green real estate, consistent with current market trends where home-buying decisions often involve both genders.

The results show that the 25–34 age group has the highest representation with 133 individuals (34.4%), followed by the 35–44 age group with 108 individuals (27.9%). Together, these two groups account for 62.3% of the sample. This reflects the primary customer segment in the real estate market, working-age individuals with stable incomes and housing needs. The under-25 group comprises only 11.6%, likely due to limited financial capacity, while the 45–54 group accounts for 8.3%. Notably, the 55-and-above group represents 17.8%, surpassing the 45–54 group, possibly due to greater financial accumulation and a focus on quality of life.

The sample's education level is relatively high, with 243 individuals holding university degrees (62.8%), 65 with postgraduate qualifications (16.8%), and 79 with college degrees (20.4%). This suggests that those interested in green real estate are often well-educated, knowledgeable, and capable of accessing information about environmental benefits. The notable proportion of postgraduate respondents aligns with a group that has higher income and environmental awareness.

Regarding occupation, office workers constitute the largest group with 142 individuals (36.7%), reflecting their prevalence in modern society. Business owners rank second with 87 individuals (22.5%), a group with strong financial capacity to afford green real estate despite its higher cost. Managers account for 76 individuals (19.6%), and lecturers/researchers 63 (16.3%). The "other" occupation group is minor, at 4.9%. This occupational structure aligns with the target audience for green real estate, individuals with stable jobs, good incomes, and environmental awareness.

Monthly income distribution is diverse. The 20–30 million VND group is the largest, with 130 individuals (33.6%), followed by the under-10 million VND group with 96 individuals (24.8%). The 10–20 million VND group includes 77 individuals (19.9%). Higher-income groups are less represented, with 50 individuals (12.9%) in the 30–50 million VND range and 34 (8.8%) earning over 50 million VND. This indicates that green real estate appeals not only to high-income individuals but also to

those with middle incomes, likely due to awareness of its long-term benefits.

The majority of respondents reside in major cities, with 179 individuals (46.3%), where green real estate projects and environmental awareness are more prevalent. Towns/cities account for 106 individuals (27.4%), and rural areas 102 (26.4%). The small gap between the latter two groups suggests that green real estate is gaining attention in rural and smaller urban areas, not just major cities.

All 387 respondents (100%) have either purchased or intend to purchase green real estate, meeting the study's sample selection criteria to ensure relevance to the research objective of examining green real estate purchase behavior.

The results of the demographic analysis are presented in the following table 1.

Insert Table 1 here:

Table 1. Demographic Characteristics

	Frequency	Percentage (%)
Gender		
Male	206	53.2
Female	181	46.8
Total	387	100
Age Group		
Under 25	45	11.6
25–34	133	34.4
35–44	108	27.9
45–54	32	8.3
55 and above	69	17.8
Total	387	100
Education Level		
College	79	20.4
University	243	62.8
Postgraduate	65	16.8
Total	387	100
Occupation		
Office Worker	142	36.7
Business Owner	87	22.5
Manager	76	19.6
Lecturer/Researcher	63	16.3
Other	19	4.9
Total	387	100
Income (million VND/month)		
Under 10	96	24.8
10–20	77	19.9
20–30	130	33.6
30–50	50	12.9
Over 50	34	8.8
Total	387	100
Residential Area		
Major City	179	46.3
Town/City	106	27.4
Rural	102	26.4
Total	387	100
Purchase Intention		
Yes	387	100
Total	387	100

4.2. Scale Evaluation

4.2.1. Reliability Testing and Exploratory Factor Analysis (EFA)

Before testing the research model and hypotheses, the quality of the measurement scales was evaluated through two steps: reliability testing using Cronbach's Alpha and Exploratory Factor Analysis (EFA). The purpose was to eliminate variables that did not meet requirements, ensure internal consistency of the scales, and confirm the structure of latent factors. According to Hair et al. (2010), a Cronbach's Alpha of 0.6 or higher is acceptable, 0.7–0.8 is good, and 0.8–0.9 is very good. The Corrected Item-Total Correlation should exceed 0.3 to retain a variable. For EFA, the Kaiser-Meyer-Olkin (KMO) coefficient should be greater than 0.5, Bartlett's test should be statistically significant (p < 0.05), extracted variance should be 40% or higher, and factor loadings should exceed 0.45.

Insert Table 2 here:

Table 2. Cronbach's Alpha and Rotated Factor Matrix Results

Scale	Variable	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	Factor Loading	Cronbach's Alpha	Number of Items
Social Norms (SN)	SN1	9.97	3.237	0.617	0.663	0.795	0.756	4
	SN2	9.91	3.456	0.538	0.708	0.601		
	SN3	9.86	3.742	0.507	0.724	0.54		
	SN4	9.8	3.4	0.554	0.699	0.649		
Electronic Word of Mouth (EW)	EW1	13.56	5.268	0.526	0.712	0.624	0.757	5
	EW2	13.51	5.168	0.539	0.708	0.698		
	EW3	13.56	5.475	0.502	0.721	0.608		
	EW4	13.67	5.541	0.463	0.734	0.45		
	EW5	13.58	4.814	0.588	0.689	0.62		
Green Marketing (GM)	GM1	13.66	6.159	0.497	0.753	0.56	0.777	5
	GM2	13.63	5.808	0.585	0.724	0.667		
	GM3	13.69	6.096	0.523	0.745	0.559		
	GM4	13.62	5.905	0.542	0.739	0.554		
	GM5	13.69	5.737	0.604	0.717	0.776		
Purchase Behavior (PB)	PB1	13.02	6.401	0.638	0.820	0.679	0.847	5
	PB2	13.02	6.466	0.633	0.822	0.646		
	PB3	12.96	6.097	0.691	0.806	0.78		
	PB4	13.07	6.391	0.663	0.814	0.723		
	PB5	13.1	6.547	0.651	0.817	0.691		

(Source: Data processed using SPSS)
Note: EFA extraction method: Principal Axis Factoring; Rotation method: Promax with Kaiser Normalization

Cronbach's Alpha results indicate that all four scales demonstrate good reliability, with coefficients ranging from 0.756 to 0.847, exceeding the 0.7 threshold. The Purchase Behavior scale has the highest reliability with a Cronbach's Alpha of 0.847, followed by Green Marketing (0.777), Electronic Word of Mouth (0.757), and Social Norms (0.756). All observed variables have Corrected

Item-Total Correlations above 0.3, ranging from 0.463 to 0.691, indicating strong associations with their respective scales. No variables were removed, as all met reliability requirements. Thus, all 19 original observed variables were retained for EFA.

Following reliability confirmation, EFA was conducted to identify the structure of latent factors and assess convergent and discriminant validity. The Principal Axis Factoring method with Promax rotation was used, suitable for correlated factors. The rotated factor matrix in Table 4.9 shows that the 19 observed variables grouped into four distinct factors, corresponding to the four initial research constructs. All variables have factor loadings above 0.45, meeting the minimum requirement per Hair et al. (2010). Variables loaded onto their expected factors without cross-loading, confirming good discriminant validity of the scales.

Insert Table 3 here:

Table 3. KMO, Bartlett's Test, and Total Variance Extracted

Test Metric	Value
KMO and Bartlett's Test	
KMO Coefficient	0.890
Bartlett's Test – Chi-square	2446.411
Degrees of Freedom (df)	171
Significance (Sig.)	0.0000
Total Variance Extracted	
Factor 1 – Eigenvalue	5.556
Factor 1 – Variance Extracted (%)	29.243
Factor 2 – Eigenvalue	1.190
Factor 2 – Variance Extracted (%)	6.264
Factor 3 – Eigenvalue	1.004
Factor 3 – Variance Extracted (%)	5.283
Factor 4 – Eigenvalue	0.845
Factor 4 – Variance Extracted (%)	4.445
Total Cumulative Variance Extracted (%)	45.234

(Source: Data processed using SPSS)

The KMO coefficient of 0.890, well above the 0.5 threshold and close to 0.9, indicates that the data are highly suitable for factor analysis. Bartlett's test yields a Chi-square value of 2446.411 with a significance level of 0.000 ($p < 0.05$), rejecting the null hypothesis that the variables are uncorrelated in the population. This confirms strong correlations among observed variables, making them suitable for EFA. The analysis extracted four factors with a total variance explained of 45.234%. Although this is below the ideal 50% threshold often recommended in social science research, Hair et al. (2010) note that a variance extracted of 40% or higher is acceptable for complex constructs in consumer behavior studies. The first factor explains 29.243% of the variance, the highest among the four, followed by 6.264%, 5.283%, and 4.445%. All factors have Eigenvalues at or near 1, meeting the retention criterion. The EFA results confirm a research model with four independent constructs, suitable for regression analysis to test the hypotheses.

4.2.2. Measurement Model Evaluation Using PLS-SEM

After EFA, the study proceeded with Partial Least Squares Structural Equation Modeling (PLS-SEM) to evaluate the measurement model. This method is appropriate for exploratory research and can handle complex models with moderate sample sizes. The evaluation included assessing reliability, convergent validity, and discriminant validity through metrics such as outer loadings, composite reliability, average variance extracted (AVE), and discriminant validity criteria.

Insert Table 4 here:

Table 4. Outer Loadings Matrix

Variable	EW	GM	PB	SN	SN x GM
EW1	0.686				
EW2	0.709				
EW3	0.663				
EW4	0.688				
EW5	0.800				
GM1		0.675			
GM2		0.755			
GM3		0.707			
GM4		0.736			
GM5		0.760			
PB1			0.776		
PB2			0.771		
PB3			0.814		
PB4			0.792		
PB5			0.785		
SN1				0.795	
SN2				0.773	
SN3				0.733	
SN4				0.736	
SN x GM					1.000

(Source: Data processed using SmartPLS)

The outer loadings matrix shows that all observed variables have loadings above 0.6, meeting the minimum threshold recommended by Hair et al. (2017) for exploratory research. For the Electronic Word of Mouth (EW) scale, loadings range from 0.663 to 0.800, with EW5 having the highest. The Green Marketing (GM) scale has loadings from 0.675 to 0.760, with GM5 being the highest. The Purchase Behavior (PB) scale has loadings from 0.771 to 0.814, with PB3 at 0.814. The Social Norms (SN) scale has loadings from 0.733 to 0.795, with SN1 at the highest. The interaction variable SN x GM has a loading of 1.000, as it is derived from the product of the two original variables. All loadings exceed 0.6, indicating that the observed variables effectively measure their respective latent constructs.

4.3. Model Estimation

After confirming the measurement model's reliability and validity, the study proceeded to estimate the structural model to test the relationships between latent constructs. The Bootstrapping technique with 5,000 samples was used to assess the reliability of the estimates through t-

statistics and p-values. According to Hair et al. (2017), a relationship is statistically significant when the p-value is less than 0.05 (corresponding to a t-statistic greater than 1.96 at a 95% confidence level).

4.3.1. Direct and Indirect Effect

Insert Table 5 here:

Table 5. Results of Direct and Indirect Effect Testing

Hypothesis	Relationship	Path Coefficient (β)	Sample Mean	Standard Deviation	T-Value	P-Value	Conclusion
Direct Effects							
H1	GM → PB	0.329	0.327	0.062	5.351	0.000	Accepted
H2	GM → EW	0.425	0.429	0.047	9.003	0.000	Accepted
H3	EW → PB	0.210	0.210	0.051	4.109	0.000	Accepted
H4	SN → PB	0.262	0.268	0.056	4.707	0.000	Accepted
H5	SN x GM → PB	0.081	0.078	0.04	2.038	0.042	Accepted
Indirect Effects	GM → EW → PB	0.089	0.090	0.024	3.715	0.000	Significant

(Source: Data processed using SmartPLS)

The analysis results show that all hypotheses regarding direct effects are accepted with statistical significance (p < 0.05). Hypothesis H1, testing the effect of Green Marketing (GM) on Purchase Behavior (PB), is accepted with a path coefficient β = 0.329 (t = 5.351, p = 0.000), indicating that GM has a significant positive impact on PB. A one-unit increase in GM activities emphasizing environmental benefits and green certifications increases PB by 0.329 units. Hypothesis H2, examining the effect of GM on Electronic Word of Mouth (EW), has the strongest relationship in the model with β = 0.425 (t = 9.003, p = 0.000), suggesting that effective green marketing campaigns stimulate discussions and information sharing on online platforms.

Hypothesis H3, testing the effect of EW on PB, is accepted with β = 0.210 (t = 4.109, p = 0.000), confirming that positive online reviews and comments significantly influence green real estate purchase decisions. Hypothesis H4, assessing the effect of Social Norms (SN) on PB, is

accepted with β = 0.262 (t = 4.707, p = 0.000), indicating that social pressures and expectations regarding environmentally friendly behavior significantly affect purchase decisions. Hypothesis H5, examining the moderating role of SN in the GM–PB relationship, is accepted with β = 0.081 (t = 2.038, p = 0.042), though the effect size is smaller than other direct relationships. This suggests that higher social norms enhance the effectiveness of green marketing on purchase behavior.

The analysis of indirect effects shows that Electronic Word of Mouth (EW) mediates the relationship between Green Marketing (GM) and Purchase Behavior (PB) with an indirect effect coefficient β = 0.089 (t = 3.715, p = 0.000). This indicates that GM not only directly affects PB (β = 0.329) but also indirectly through EW with a coefficient of 0.089. The total effect of GM on PB is 0.418 (0.329 + 0.089), with the direct effect being more dominant. This result confirms a partial mediation role of EW, meaning that green marketing campaigns influence purchase behavior both directly and indirectly by fostering positive online discussions and reviews that enhance purchase decisions.

4.3.2. Model Coefficients

Insert Table 6 here:

Table 6. R² Determination Coefficient, Q² Predictive Relevance, and f² Effect Size

Dependent Variable	R²	Adjusted R²	Q²	RMSE	MAE	Evaluation
Electronic Word of Mouth (EW)	0.181	0.179	0.172	0.916	0.723	Weak
Purchase Behavior (PB)	0.401	0.395	0.345	0.814	0.595	Moderate

Relationship	f² Coefficient		Effect Size
GM → EW	0.221		Moderate
GM → PB	0.137		Small
EW → PB	0.055		Small
SN → PB	0.094		Small
SN x GM → PB	0.017		Very Small

(Source: Data processed using SmartPLS)

The R² coefficient indicates the proportion of variance in the dependent variable explained by the independent variables. For Electronic Word of Mouth (EW), R² = 0.181, meaning GM explains 18.1% of the variance in EW. According to Cohen (1988), an R² of 0.13–0.26 is considered weak, suggesting that other factors, such as

personal experiences, project quality, or developer reputation, also influence EW.

For Purchase Behavior (PB), R² = 0.401, indicating that GM, EW, SN, and the interaction term explain 40.1% of the variance in PB. Per Cohen (1988), an R² of 0.26–0.51 is moderate, making this level of explanation acceptable. The adjusted R² of 0.395 is close to the original R², confirming that the model is not overfitted.

The Q² (Stone-Geisser) index, assessed via blindfolding, evaluates the model's predictive relevance. Q² values greater than 0 indicate good predictive ability. The Q² for EW is 0.172, and for PB, it is 0.345, both above 0, confirming acceptable predictive relevance. Lower RMSE (Root Mean Square Error) and MAE (Mean Absolute Error) values indicate higher prediction accuracy. PB has lower RMSE (0.814) and MAE (0.595) compared to EW (RMSE = 0.916, MAE = 0.723), suggesting better predictive accuracy for PB.

The f² coefficient measures the effect size of an independent variable on a dependent variable when removed from the model. According to Cohen (1988), f² = 0.02 indicates a small effect, f² = 0.15 a moderate effect, and f² = 0.35 a large effect. GM has a moderate effect on EW (f² = 0.221), the highest in the model. GM has a small effect on PB (f² = 0.137), as does EW on PB (f² = 0.055) and SN on PB (f² = 0.094). The interaction term SN x GM has a very small effect on PB (f² = 0.017), close to the minimum threshold of 0.02. Despite the small f² values, all relationships are statistically significant, as shown in Section 4.3.1.

In summary, the research model demonstrates that Green Marketing, Electronic Word of Mouth, and Social Norms positively and significantly impact the Purchase Behavior of green real estate. EW partially mediates the relationship between GM and PB, while SN moderates the GM–PB relationship, though with a limited effect size. The model explains 40.1% of the variance in PB and exhibits acceptable predictive relevance with Q² = 0.345.

4.4. Discussion and Hypothesis Testing

This section presents the results of hypothesis testing based on the PLS-SEM structural model analysis and discusses the implications of the findings. The study proposed five main hypotheses regarding the effects of Green Marketing (GM), Electronic Word of Mouth (eWOM), and Social Norms (SN) on Purchase Behavior (PB) of green real estate, as well as the mediating and moderating roles in these relationships.

Insert Table 7 here:

Table 7. Summary of Hypothesis Testing Results

Hypothesis	Content	β Coefficient	T-Value	P-Value	Result	Level of Support
H1	Green Marketing positively affects Purchase Behavior of green real estate	0.329	5.351	0.000	Accepted	Strong
H2	Green Marketing positively affects Electronic Word of Mouth	0.425	9.003	0.000	Accepted	Very Strong
H3	Electronic Word of Mouth positively affects Purchase Behavior of green real estate	0.210	4.109	0.000	Accepted	Moderate
H4	Social Norms positively affect Purchase Behavior of green real estate	0.262	4.707	0.000	Accepted	Strong
H5	Social Norms positively moderate the relationship between Green Marketing and Purchase Behavior	0.081	2.038	0.042	Accepted	Weak

H6 (implicit)	Electronic Word of Mouth mediates the relationship between Green Marketing and Purchase Behavior	0.089	3.715	0.000	Accepted	Moderate

(Source: Compiled from research results)

Hypothesis H1: Green Marketing positively affects Purchase Behavior of green real estate

H1 is accepted with a path coefficient β = 0.329, t-value = 5.351, and p = 0.000, indicating a significant and positive impact of GM on PB. This suggests that when developers enhance marketing activities emphasizing environmental benefits, green certifications, and social responsibility, the likelihood of consumers purchasing green real estate increases significantly. Specifically, a one-unit increase in GM leads to a 0.329-unit increase in PB, holding other factors constant.

This finding highlights the critical role of marketing in shaping consumer behavior in the green real estate market. In Vietnam, projects with certifications like LEED, LOTUS, or EDGE are gaining attention, and marketing campaigns focusing on energy savings, reduced operating costs, and healthy living environments have attracted consumer interest. However, the effect size ($f^2 = 0.137$) indicates a small impact compared to other variables, suggesting that GM should be combined with other factors to maximize effectiveness.

Hypothesis H2: Green Marketing positively affects Electronic Word of Mouth

H2 is accepted with β = 0.425, t = 9.003, and p = 0.000, representing the strongest relationship in the model. This shows that effective GM campaigns not only directly influence consumers but also encourage them to discuss and share project information on online platforms. The moderate effect size ($f^2 = 0.221$) reinforces the importance of GM in generating eWOM.

This can be attributed to the socially engaging nature of environmental marketing messages, which spark community interest and discussion. When projects are promoted with clear green benefits, such as energy efficiency, green spaces, or modern waste management, consumers are likely to share this information with friends, family, or on platforms like Facebook, Zalo, and real estate forums.

Hypothesis H3: Electronic Word of Mouth positively affects Purchase Behavior of green real estate

H3 is accepted with β = 0.210, t = 4.109, and p = 0.000, confirming that eWOM significantly influences PB. However, the effect of eWOM (β = 0.210) is weaker than that of GM (β = 0.329) and SN (β = 0.262), indicating it is not the primary determinant.

This can be explained by the nature of real estate as a high-value product, where purchase decisions depend heavily on financial capacity, location, legal aspects, and on-site experiences rather than solely online reviews. Nevertheless, positive online comments play a crucial role in the initial information-gathering phase, boosting confidence in project quality and developer reputation. The small effect size ($f^2 = 0.055$) reflects eWOM's supportive rather than dominant role in purchase decisions.

Hypothesis H4: Social Norms positively affect Purchase Behavior of green real estate

H4 is accepted with β = 0.262, t = 4.707, and p = 0.000, demonstrating a strong positive effect of SN on PB. This confirms the role of social pressure and expectations in shaping green purchase behavior, with SN being the second most influential factor after GM.

This finding aligns with Vietnam's cultural context, where opinions from family and friends significantly influence individual decisions. As green living becomes associated with modernity and civic responsibility, purchasing green real estate fulfills personal needs while signaling social responsibility and status. Consumers feel pressure to consider environmental factors, believing that owning green real estate earns positive social recognition. The small effect size ($f^2 = 0.094$) still underscores the importance of this factor.

Hypothesis H5: Social Norms positively moderate the relationship between Green Marketing and Purchase Behavior

H5 is accepted with β = 0.081, t = 2.038, and p = 0.042. Although the effect size is small and the t-value barely exceeds 1.96, the result is statistically significant at the 95% confidence level. This indicates that the effectiveness of GM on PB is enhanced when consumers perceive strong social norms favoring environmental protection.

Specifically, when SN is high, i.e., when family, friends, and society value eco-friendly products,the impact of green marketing messages on purchase decisions is stronger. Conversely, when SN is low, with less societal pressure to act environmentally, GM's effectiveness is reduced. However, the very small effect size ($f^2 = 0.017$), close to the minimum threshold of 0.02, suggests that this moderating effect is not substantial, indicating that GM's impact remains relatively stable across varying levels of SN.

Mediating Role of Electronic Word of Mouth

Although not explicitly stated in the initial hypotheses, the analysis reveals that eWOM mediates the relationship between GM and PB with an indirect effect of β = 0.089, t = 3.715, and p = 0.000. This shows that GM influences PB both directly (β = 0.329) and indirectly through eWOM. The total effect of GM on PB is 0.418, with the

direct effect accounting for 78.5% and the indirect effect 21.5%.

This partial mediation role is practically significant. It indicates that effective GM campaigns create two pathways: directly persuading consumers about product benefits and indirectly fostering discussions and positive reviews that amplify purchase intentions. This is particularly relevant in the real estate market, where high-stakes decisions prompt consumers to seek multiple information sources for validation.

In conclusion, all hypotheses are accepted with high statistical significance, confirming the model's applicability to Vietnam's green real estate market. Green Marketing plays a central role, impacting PB both directly and indirectly through eWOM. Social Norms exert a direct influence and moderately enhance GM's effectiveness, though the moderating effect is weak. These findings offer valuable insights for real estate developers in crafting marketing strategies and positioning green products in the market.

5. CONCLUSION AND RECOMMENDATIONS

5.1. Conclusion

The study's findings demonstrate that Green Marketing (GM), Electronic Word of Mouth (eWOM), and Social Norms (SN) all have significant and positive effects on the Purchase Behavior (PB) of green real estate in Vietnam.

Specifically, Green Marketing exerts the strongest influence, impacting PB both directly and indirectly through eWOM. eWOM serves as a partial mediator, amplifying information dissemination and reinforcing consumer trust. Social Norms not only directly influence PB but also enhance the effectiveness of GM when community awareness of "green living" is high.

The research model explains 40.1% of the variance in PB, affirming its suitability and practical value in the context of a real estate market oriented toward sustainable development.

5.2. Recommendations

For real estate businesses, it is essential to strengthen transparent green marketing strategies that emphasize environmental benefits, energy efficiency, and recognized green certifications such as LEED, LOTUS, or EDGE. At the same time, companies should leverage electronic Word of Mouth by encouraging customers to share positive experiences, collaborating with Key Opinion Leaders (KOLs), and actively managing online feedback to build trust and engagement. Moreover, incorporating social elements into marketing communications, such as promoting green lifestyles, community responsibility, and urban civility, can enhance consumers' sense of belonging and reinforce their commitment to sustainable choices.

For government and regulatory agencies, providing clear standards and incentive policies for green real estate projects is crucial to stimulate market development. In addition, public communication and educational campaigns should be strengthened to raise awareness of the benefits of green consumption, thereby fostering a more environmentally conscious society.

For future research, expanding the survey scope to different regions will allow for comparative analysis of green consumption behaviors across diverse demographic and cultural contexts. Researchers should also consider integrating additional factors such as personal values, brand trust, emotional influences, and perceived risks to further refine and enrich the research model.

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