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The Influence of Green Demarketing on Brand Credibility, Green Authenticity, and Greenwashing in the Food Industry

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Abstract: In the age where environmental sustainability issues are progressively prioritized, green demarketing has risen as a strategic choice for organizations aiming to decrease customer demand for unsustainable services/products and stimulate more eco-friendly substitutes. This paper investigates the impact of green demarketing on brand credibility, green authenticity, and perceptions of greenwashing. This paper examines how restaurants that are engaged in green demarketing practices are perceived with regard to their commitment toward the environment and whether such practices improve or reduce a brand's credibility. Moreover, this study explores green authenticity and explores how an organization's brand looks in its sustainability practices when employing demarketing activities. The proper consequences of greenwashing, where customers might perceive these tactics as insincere or misleading, are also significantly explored. By employing a survey research method, 414 restaurant customers were targeted, and the gathered data were analyzed employing partial least square structural equation modeling (PLS-SEM). This study's results might contribute to the increasing interest in sustainable marketing activities and deliver practical implications for restaurants aiming to navigate the complex multi-dynamics of ecofriendly responsibility and consumer credibility.

Keywords: green demarketing; brand credibility; green authenticity; greenwashing; restaurant industry; food waste

1. Introduction

The global sector of foodservice provision generates significant quantities of food waste. Food waste is a well-known global environmental, social, and economic problem [1]. In many countries, food waste generated by consumers in out-of-home dining accounts for an average of 50% of the food waste generated in the foodservice industry and about one-fifth of total food waste worldwide [2]. The global foodservice sector is required to support food waste reduction [3,4].

In order to solve the health and environmental problems caused by excessive food consumption, in this regard, green demarketing is an effective strategy that promises to contribute to sustainability across the economic, social, and environmental aspects of business. It is interesting to note that demarketing is as old as marketing itself, yet its

application has only grown in the past two decades [5]. Green demarketing has continued to draw the attention of academicians and marketers globally over the past few years. Green demarketing refers to reducing consumers' purchasing behaviors in order to mitigate environmental degradation due to overconsumption [6]. Green demarketing can effectively help reduce excessive food consumption to modify the habits of consumers [7], enhance public safety and health [8], and improve green brands [9–11].

Consequently, many firms strive to improve their environmental positions by applying green marketing strategies to help raise their competitive advantage and appeal to ecologically conscious consumers. However, not all green marketing claims accurately reflect firms' environmental conduct. This phenomenon is known as greenwashing. Within the context of green demarketing, the concept of greenwashing emerged as a related issue. Greenwashing is a misleading action in which green marketing is used deceptively to promote the perception that a firm's products, aims, and policies are environmentally friendly, and it endangers investors' confidence and causes adverse market reactions [12].

However, studies investigating the effectiveness of green demarketing in the food industry are still few. UNEP [13] calls for dedicated research on food waste in the food industries of developing nations. This study responds to the call by UNEP [13] with the study of Egypt, a developing country in the Middle East, to use green demarketing to promote a brand as environmentally friendly and health conscious by lowering food consumption.

To fill this research gap, this study investigated how the green demarketing strategy affects restaurant customers' reactions toward reducing food consumption and positive attitudes toward the brand, which leads to higher creditability and brand authenticity [14,15]. More importantly, the study investigates the mediating effects of credibility and authenticity on the relationship between green demarketing and greenwashing, because green demarketing reduces perceived greenwashing due to its role in increasing the credibility and authenticity of brands.

For these purposes, this study aims to identify how to use a green demarketing strategy to reduce consumer skepticism and promote brand creditability and authenticity, decreasing restaurant customers' perceived greenwashing. So, this study can help restaurant managers implement an effective green demarketing strategy that changes customers' attitudes and behavioral intentions to improve their green evaluation of the brand. On the other hand, this study recommends that hotels wishing to adopt green demarketing strategies separate the price of food and beverages from the price of other hotel services so that customers realize the extent of transparency and credibility in the hotels' marketing policies.

2. Literature Review and Hypothesis Development

2.1. Theoretical Background of the Study

In the social sciences, Deegan et al. [16] demonstrated that gaining profound insights through more than one theory is always preferable to achieving a more complete grasp. Hence, this investigation attempts to create an integrated theoretical model that integrates several theories to illustrate the connection between green demarketing, brand credibility, and customers' perceived greenwashing in the food industry. First, the current study used signaling theory to demonstrate that the marketing strategy created for a particular brand is responsible for conveying a series of educational signals to its customers [17]. Second, attribution theory explains the relationship between the attributes of brand trust and perceived greenwashing acts [18]. This theory argues that an individual's views about the causes of their previous actions influence their future behavior and response [19]. Third, according to the theory of cognitive dissonance [20], if a person holds two cognitions that are inconsistent with one another, he or she will experience dissonance and will try to reduce it in one of three ways: remove the dissonant cognitions, add new consonant cognitions, or reduce the importance of the dissonant cognitions. Consequently, this theory was suitable for justifying the connection between green demarketing and greenwashing because green demarketing tactics remove dissonant cognitions and add new consonant cognitions. Fourth, social exchange theory (SET) was established on reciprocity. On this

basis, it might be presumed that whenever an environmentally friendly good or service is distinct, genuine, and truthful in its claims and devoid of falsity, this leads to increased customer confidence in a company's capacity to fulfill its commitments and dispel any doubts, giving customers confidence about the brand's credibility and authenticity [21]. Finally, in social psychology and marketing literature, Reasoned Action Theory [22] and Planned Behavior Theory [23] have been used to understand consumer green purchasing behavior and to explain why people choose to engage in a variety of behaviors [24]. Therefore, these two theories were suitable to rely on to justify the construction of the relationships of the current study model.

2.2. Green Demarketing (GD) and Greenwashing (GW)

Marketing is sometimes accused of focusing merely on growth goals and disregarding the impact on the community's environment and social life [25]. Conversely, demarketing refers to an intentional effort to employ marketing strategies to persuade customers to alter their purchasing patterns and behavior with regard to goods and services where the environmental effects are greatest [26]. Further, it has been proposed that demarketing is a good way to shift stakeholders' perspectives about destination development to one that is more resource-based [27]. Armstrong and Kern [28] argued that demarketing is frequently employed as a persuasive communication technique to mold consumer behavior and compel shifts toward more sustainable and healthful consumption patterns like promoting the usage of public transportation when traveling. Demarketing can be defined as combining every aspect of the marketing mix with the goal of changing policy to encourage and support healthier and more socially conscious consumer behavior [29]. In order to protect the environment, Varadarajan [30] advocates for a more proactive form of demarketing and recommends concentrating on insufficient or inefficient investments in infrastructure, such as power and water. As a result, demarketing has evolved to encompass more proactive and deliberate initiatives in situations when it is necessary to make plans for preserving control over consumer behavior [31].

Public policy makers use a variety of economic, legal, technological, and demarketing strategies in an effort to modify consumer behavior in light of environmental concerns [32]. This idea is utilized to reduce consumption or harmful consumption, and it looks like there is something to this idea that could support the sustainability agenda [33]. Similarly, Armstrong Soule and Sekhon [34] discovered that individuals with low to moderate levels of environmental concern and moderate to high levels of status-seeking demonstrated a propensity for anti-consumption behavior, as well as an increased readiness to pay for companies that prominently display anti-consumption messaging. Hence, the target audience for pro-environmental marketing and demarketing initiatives is growing as the number of environmentally conscious consumers rises steadily [10]. Demarketing has changed over time to incorporate ideas like green demarketing [6]. Green demarketing is an extreme form of sustainability that incorporates anti-consumption messaging, whereas green marketing encourages greener consumption [35], it may also help consumers forge enduring bonds with one another [36]. Moreover, green demarketing aims to boost brand sales while simultaneously reducing product usage at the category level in order to protect the environment [10,37].

Customers' views and behavioral intentions are more positively impacted by green demarketing advertisements whether they possess analytical or intuitive cognitive types [38]. Additionally, there is a growing public awareness of the greenwashing phenomenon, but it is unclear if consumers who are highly skeptical of businesses' green initiatives are also skeptical of green demarketing strategies, which are a known effective alternative to green marketing [10]. Academics have taken an interest in the concept of "greenwashing" primarily in the context of marketing [39]. Businesses may be inclined to lie or exaggerate about their environmental initiatives or products/services, known as "greenwashing [40]. Therefore, companies may act as though they are environmentally conscious, but their actions may not match their slogans [41]. Hence, lying is a fundamental component of

greenwashing [42]. When a company engages in "greenwashing," it deliberately misleads customers about the benefits of its products or environmental policies, which goes against the expectations of consumers [43]. In addition, Chen and Chang [44] propose that a consumer's purchasing intention may decrease if they develop doubts about a product or brand. Similarly, customers that are exposed to greenwashing experience feelings of being overwhelmed, confusion, and frustration once it is revealed [45]. According to Neureiter and Matthes [46], perceptions of greenwashing harm brand ratings. Consequently, consumers' behavior is negatively impacted by greenwashing [47]. Teichmann et al. [48] claimed that greenwashing refers particularly to the faking of environmental-related corporate social responsibility behavior. Furthermore, it is clear that investment firms run a significant reputational risk when involved in greenwashing incidents as their good name is damaged by a poor public image [48]. We can formulate the following hypothesis in light of these considerations:

H1. *Green demarketing (GD) is negatively correlated with greenwashing (GW).*

2.3. Green Demarketing (GD) and Brand Credibility (BC)

Demarketing could boost a company's credibility while assisting customers and society in moving toward more environmentally friendly alternatives [49]. A brand's credibility is the primary factor influencing consumer choice in a market setting where consumer ambiguity exists [50]. Further, the credibility of an organization's corporate brand has a significant impact on its performance and reputation [51]. Moreover, the credibility of the brand is thought to have a significant influence on the number of customers and market share of the brand [52]. Consequently, it may be concluded that purchase intention increases with corporate-brand credibility [53]. Adopting a clear brand architecture strategy can support brand credibility. The process establishes which brand components, such as names, logos, and symbols, a business should use for both new and existing products. Thus, through this strategy, organizations can help customers comprehend the products and services they deliver and organize them in their minds [54,55]. In the same vein, according to Zinkan [56], brand architecture describes how businesses organize and maintain the connections between their many brands. It explains the hierarchy and relationships between brands inside a corporation [57]. It helps consumers comprehend and arrange brands in their minds [58]. Additionally, it is suggested that brand architecture could help companies internally steer toward the future [59]. Given that, businesses employ brands as signals to successfully tell customers about the quality of their goods or services [17]. Customers may utilize branding to reflect their attitudes, interests, preferences, and general personalities [60]. It is now evident that associating the organization's names, logos, and symbols with green orientations will contribute to its distinction and uniqueness. Additionally, the consumer's perception of the brand shapes the ideal customer [61]. Likewise, positioning is a tactic for controlling how a consumer views a brand [62] in order to create a long-lasting brand image and ensure that consumers will be attached to this brand. According to Aulina and Yuliati [62] and Borah et al. [63], if the company's green brand positioning (GBP) is weak, customers will not be aware of its initiative. GBP also plays a critical role in enhancing the success of new products. Hartmann et al. ([64], p. 10) defined GBP as the "active communication and differentiation of the brand from its competitors through its environmentally sound attributes".

The concept of brand credibility originated with signaling theory, which is mostly focused on the information economy [65]. Companies use their brands to convey a series of educational signals to the consumer [66]. The marketing strategy created for a certain brand is responsible for transmitting these messages [17]. According to Haq et al. [67], brand credibility is the degree to which customers believe a corporate brand can live up to its promises and satisfy their needs and expectations. Bougoure et al. [68] proved that a powerful service brand makes customers more confident about the intangible qualities of services and aids in their understanding of them. Nelson and Deborah [69] and Perera et al. [17]

found that two main factors are regarded to determine a brand's credibility: trustworthiness, which takes into account a company's willingness to keep its promises, and expertise, which refers to a company's competence to keep its promises. Likewise, brand credibility requires a company to invest in its brands in order to show consumers that it is committed to the brand over the long term and that its promises will be fulfilled [53]. Additionally, Rosli et al. [65] argued that brand credibility refers to the customer's perception of the brand's honesty. It is possible to construct the following hypothesis from this discussion:

H2. *Green demarketing (GD) is positively correlated with brand credibility (BC).*

2.4. Green Demarketing (GD) and Green Authenticity (GA)

Green demarketing, ostensibly driven by environmental considerations, encourages consumers to purchase the emphasized brand, hence deterring consumption within the category [6]. Green demarketing, also referred to as demarketing, is an extreme type of sustainability that combines anti-consumption messaging, whereas green marketing promotes more ecologically responsible consumption [35]. In order to safeguard the environment, green demarketing seeks to increase brand sales while concurrently lowering product usage at the category level [10,37]. According to Fritz et al. [70], consumption acts as a conduit for authenticity, turning it into a metric for the quality, effectiveness, and truthfulness of an individual's experience in a given context. Green authenticity, according to Akbar and Wymer [71], is the degree to which an environmentally friendly good or service is seen as distinct, genuine, and truthful in its claims and devoid of falsity. The goal of establishing brand authenticity is to increase consumer confidence in a company's capacity to fulfill its commitments and to dispel any doubts [72]. Green authenticity refers to the degree to which a company's sustainability assertions are credible and true [73]. The market's evaluation of a brand's green authenticity is critical for green marketing because it gives customers confidence about the veracity of the brand's green features [21]. Consequently, businesses are being pushed more and more these days to embrace environmentally friendly procedures and position themselves as green brands [43]. Thus, keeping their environmental assets is crucial for green hotels to uphold their reputation and earn the trust of their patrons [74]. In light of these factors, we can formulate the following hypothesis:

H3. *Green demarketing (GD) is positively correlated with green authenticity (GA).*

2.5. Brand Credibility (BC) and Greenwashing (GW)

According to Hyun Baek and Whitehill King [50], a brand's credibility is the primary factor affecting a consumer's decision in a market setting when customer ambiguity is present. Further, propaganda aims to mislead customers, control the flow of information, spread deception [75], and deliberately mislead the public to give their sender preference over others [76]. As a result, the propagandists' main objective is to alter people's beliefs and behaviors [77]. Customers who trust a credible brand minimize their risks because they believe the brand's specs and have strong psychological reasons to believe that the product is acceptable [78]. Companies may feel pressured to fabricate or overstate the benefits of their environmental programs, goods, or services; this is referred to as "greenwashing" [40]. However, if a company does not provide truly eco-friendly products and services, then their green marketing tactics could be viewed as greenwashing [79]. Employees may believe that senior management, the business, or specific employees are trustworthy and dishonest due to the dishonesty of greenwashing [80]. Greenwashing is a fraudulent activity that is usually governed by consumer law's definition of misleading and deceptive conduct, which generally states that companies are required to refrain from any actions that could mislead or defraud customers [18]. After this conversation, the following hypothesis is put forth:

H4. *Brand credibility (BC) is negatively correlated with greenwashing (GW).*

2.6. Green Authenticity (GA) and Greenwashing (GW)

Akbar and Wymer [71] define green authenticity as the extent to which an environmentally friendly product or service is regarded as unique, real, accurate in its claims, and free of deception. As a consequence, authenticity can be used as a limit on how customers perceive and behave [81]. Based on Gatti et al. [42], lying is a basic element of greenwashing. When a business purposefully misleads consumers about the advantages of its products or environmental policies, it is engaging in "greenwashing," which goes against what customers' expectations [43]. Nonetheless, He et al. [72] argued that increasing customer trust in a company's ability to keep its promises and eliminating any concerns is the aim of building brand authenticity. Hence, a brand's green authenticity plays a crucial role in green marketing as it instills trust in customers regarding the legitimacy of the brand's green attributes [21]. Consumers who are exposed to greenwashing feel overwhelmed, perplexed, and frustrated [45]. According to Neureiter and Matthes [46], perceptions of greenwashing harm brand ratings, have a negative effect on customer behavior [47], and hinder consumers' capacity to make genuine, thoughtful, and informed decisions [18]. Based on this discussion, we assume the following hypothesis

H5. *Green authenticity (GA) is negatively correlated with greenwashing (GW).*

2.7. Brand Credibility (BC) Mediates the Relationship Between Green Demarketing (GD) and Greenwashing (GW)

Bougoure et al. [68] proved that a powerful service brand makes customers more confident about the intangible qualities of services and aids in their understanding of them. According to Ramirez et al. [49], demarketing has the potential to increase a company's credibility while supporting consumers and society in their transition to greener options. Haq et al. [67] defined brand credibility as consumers' perception of a corporate brand's ability to fulfill their demands and expectations and keep its word. Further, employees may believe that senior management, the business, or specific employees are untrustworthy and dishonest due to the dishonesty of greenwashing [80]. The credibility of a brand is the primary factor influencing a consumer's decision in a market when there is customer ambiguity [50]. Because they believe the brand's specifications and have strong psychological reasons to assume that the product is appropriate, customers who trust credible brands reduce their risks [78]. Due to the dishonesty of greenwashing, workers may think that senior management, the company, or particular personnel are unreliable and dishonest [80]. Based on the conversation above, a hypothesis can be proposed:

H6. *Brand credibility (BC) mediates the relationship between green demarketing (GD) and greenwashing (GW).*

2.8. Green Authenticity (GA) Mediates the Relationship Between Green Demarketing (GD) and Greenwashing (GW)

Fritz et al. [70] claim that consumption serves as an indicator for authenticity, transforming it into a measure of the caliber, efficacy, and veracity of a person's experience within a particular setting. Moreover, increasing customer trust in a company's ability to keep its promises and eliminating any concerns is the aim of building brand authenticity [72]. Consumers' perception of a brand's green authenticity is based on the market's evaluation of the brand, which is important for green demarketing [21]. Within the hospitality industry, in order to keep up their good reputation and win over customers, green hotels must uphold their environmental claims [74]. He et al. [72] contended that the goal of developing brand authenticity is to remove any doubts and boost customer trust in a company's capacity to fulfill its commitments. Therefore, a brand's green authenticity is essential to green marketing because it gives consumers confidence that the company's green claims are real [21]. Greenwashing, as defined by Gatti et al. [42], is the practice of misleading consumers about the benefits of a company's products or environmental

policies. This goes against what consumers expect and is ultimately a form of deception [43]. We provide the following hypothesis in light of this argument:

H7. *Green authenticity (GA) mediates the relationship between green demarketing (GD) and greenwashing (GW).*

The conceptual framework for the current research was constructed based on the literature and hypotheses described in the preceding sections, and it is graphically displayed in Figure 1.
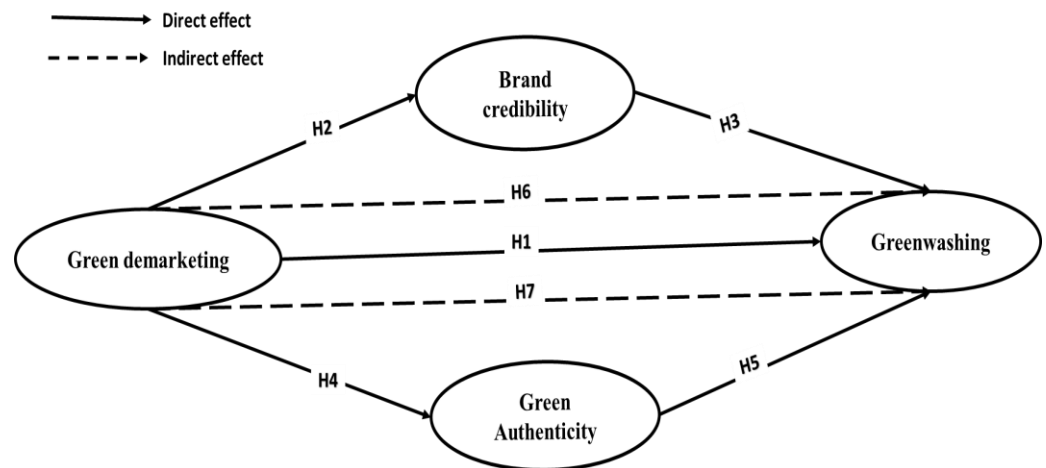

Figure 1. Conceptual model of the study.

3. Methods

3.1. Research Design

This research focused on the impact of green demarketing on greenwashing behavior with the mediating role of brand credibility and green authenticity among restaurant customers in Egypt. A quantitative research approach was employed to collect and analyze the data and test the relationships between the study variables using PLS-SEM by SmartPLS V. 3.

3.2. Instrument

This study used a survey instrument with six sections to estimate the examined variables. The first part of the survey explained to the participants the need for the survey, the rights to anonymity, and the option of confidentiality. The following section includes primary demographic data of participants, such as age, gender, and educational level. The third part focused on scaling green demarketing variables. Section four measured the perceived brand credibility variable, and section five strived to measure perceived green authenticity. Last, section six includes measures of perceived greenwashing.

The measures of the variables of this study were adopted from prior research. Green demarketing was operationalized employing a scale with three items derived from Reich and Soule's study [9]. The perceived brand credibility was measured by six indicators derived from the work of Newell and Goldsmith [82], while the perceived green authenticity was operationalized using six items from the study of Alyahia et al. [74]. Lastly, perceived greenwashing was measured by five statements from Chen and Chang's study [83] (See Appendix A). All scale items were operationalized on a five-point Likert scale, where 1 = "strongly disagree" and 5 = "strongly agree".

3.3. Participants

Considering the resources and accessibility associated with collecting primary data, the data from the targeted population were gathered operating a convenience sample

method. The study population consists of Egyptian restaurant customers. An online forms survey was utilized to gather data from March to June 2024. After removing 23 unqualified responses, 414 questionnaires were approved. We started the questionnaire introduction with a statement outlining the study's primary goal and the secrecy that will be maintained with any data acquired. We recognize that respondents' privacy is a significant concern. Additionally, we confirmed that responding to the questionnaire meant obtaining informed consent and signing a consent form. Twenty-three academic specialists and restaurant executives assessed the validity of the survey items. Minor modifications were made, leading to the paraphrasing of some questionnaire statements. Furthermore, the study operated Harman's single-factor approach with SPSS v22 to examine for common method variance (CMV) by analyzing all study variables through exploratory factor analysis (EFA) without rotating the factors. Consequently, they discovered that a single dimension could account for 39.9% of the variation, suggesting that CMV is not a problem in this investigation [84]. Analyzing the VIF data also confirmed the previous findings, which showed that CMV is not a problem in our study because no value was more than 5 (Table 1). The sample comprised 234 (56.4%) males and 180 (43.5%) females aged between 21 and 56. Also, 273 customers (65.9%) had a university degree, followed by 96 (23.2%) with intermediate education.

Table 1. Reliability and construct validity.

Constructs	VIF	Loadings	t-Value
A. Green demarketing (α = 0.886; CR = 0.929; AVE = 0.814)			
GDM_1	2.764	0.910	77.07 *
GDM_2	2.738	0.914	74.23 *
GDM_3	2.246	0.883	67.19 *
B. Brand credibility (R^2 = 0.233; Q^2 = 0.157) (α = 0.922; CR = 0.939; AVE = 0.721)			
BC_1	2.641	0.854	55.55 *
BC_2	2.344	0.827	38.61 *
BC_3	2.648	0.856	48.28 *
BC_4	2.924	0.873	55.98 *
BC_5	2.782	0.865	46.69 *
BC_6	2.260	0.818	32.87 *
C. Green authenticity (R^2 = 0.354; Q^2 = 0.247) (α = 0.933; CR = 0.947; AVE = 0.748)			
GA_1	3.022	0.853	51.91 *
GA_2	3.612	0.870	53.36 *
GA_3	3.207	0.880	56.40 *
GA_4	3.390	0.886	91.14 *
GA_5	3.086	0.848	59.97 *
GA_6	3.007	0.853	67.72 *
D. Greenwashing (R^2 = 0.378; Q^2 = 0.241) (α = 0.899; CR = 0.925; AVE = 0.712)			
GW_1	1.746	0.716	16.83 *
GW_2	3.797	0.891	59.87 *
GW_3	3.662	0.890	64.69 *
GW_4	2.425	0.871	75.38 *
GW_5	2.182	0.840	51.59 *

* $p < 0.001$.

3.4. Data Analysis

The study operated PLS-SEM to test the hypotheses of the suggested model because this method enables the researchers to assess connections among factors in the inner model and their associated latent indicators in the outer model. Second, the technique works ably

with complex research models, particularly those that contain moderation and mediation. Thirdly, PLS has a graphical user interface that is simpler to use than that of AMOS v21 and other path modeling applications. Lastly, this approach has been used widely in previous studies [85]. According to this approach, the analysis goes through two stages: evaluating the measurement (outer) and structural (inner) models [86].

4. Results

4.1. Measurement Model

Reliability and Construct Validity

The reliability of the measurement scales was confirmed by examining various statistics (Table 1). The values of Cronbach's alpha ($0.886 \leq \alpha \leq 0.933$) and Composite Reliability ($0.925 \leq CR \leq 0.947$) significantly passed the threshold of 0.70, which ensured the internal consistency of all scales. Likewise, the convergent validity was established where the outer loadings of all indicators were significant and surpassed the threshold of 0.7 ($0.716 \leq \lambda \leq 0.914$; $16.83 \leq t \leq 77.07$). Similarly, the Average Variance Extracted exceeded the value of 0.5 ($0.712 \leq AVE \leq 0.814$), indicating that the study measures are convergently validated.

Furthermore, discriminant validity was also established through inspecting recommended statistics (Table 2). Specifically, the correspondent square roots of AVE ($0.228 \leq \phi \leq 0.595$; $0.844 \leq \sqrt{AVE} \leq 0.902$) were significantly higher than the correlation coefficients [87]. Additionally, there was no heterotrait–monotrait (HTMT) ratio greater than the threshold of 0.90, as advised by [88].

Table 2. Discriminant validity of the constructs.

	Fornell and Larcker Criterion				HTMT			
	1	2	3	4	1	2	3	4
1. Brand credibility	0.849							
2. Green authenticity	0.228	0.865			0.243			
3. Green demarketing	0.483	0.595	0.902		0.534	0.652		
4. Greenwashing	−0.518	−0.424	−0.480	0.844	0.543	0.453	0.516	

The values of the square root of the AVE are in bold, the upper triangle shows HTMT ratios, and the lower triangle depicts bivariate correlation coefficients.

4.2. Structural Model

The results, as shown in Table 3 and Figure 2, demonstrated that green demarketing has negatively and significantly affected the perceived greenwashing variable ($\beta = -0.141$; $t = 2.332$) and positively affected brand credibility ($\beta = 0.483$; $t = 10.346$) and green authenticity ($\beta3 = 0.595$; $t = 17.694$). These results provide support for hypotheses 1, 2, and 3. The effect of perceived brand credibility on perceived greenwashing was significant and negative ($\beta = -0.393$; $t = 7.231$; $p = 0.000$). Likewise, the impact of green authenticity on greenwashing was also negative ($\beta = -0.251$) and significant ($t = 4.641$; $p = 0.000$). Consequently, both hypotheses 4 and 6 are supported. Considering Cohen's [89] recommendations regarding effect size using the F square test, the results showed that all independent variables have reasonable effect size on their intended dependent variables ($0.017 \leq F2 \leq 0.548$).

Table 3. Hypotheses testing (inner model results).

| Hypotheses	B	t-Value	*p*-Values	F2	Results
Direct Paths					
H1-Green demarketing → Greenwashing	−0.141	2.332	0.020	0.017	✓
H2-Green demarketing → Brand credibility	0.483	10.346	0.000	0.304	✓
H3-Green demarketing → Green authenticity	0.595	17.694	0.000	0.548	✓
H4-Brand credibility → Greenwashing	−0.393	7.231	0.000	0.189	✓
H5-Green authenticity → Greenwashing	−0.251	4.641	0.000	0.065	✓
Indirect Mediating Paths					
H6-Green demarketing → Brand credibility → Greenwashing	−0.190	6.354	0.000		✓
H7-Green demarketing → Green authenticity → Greenwashing	−0.149	4.646	0.000		✓
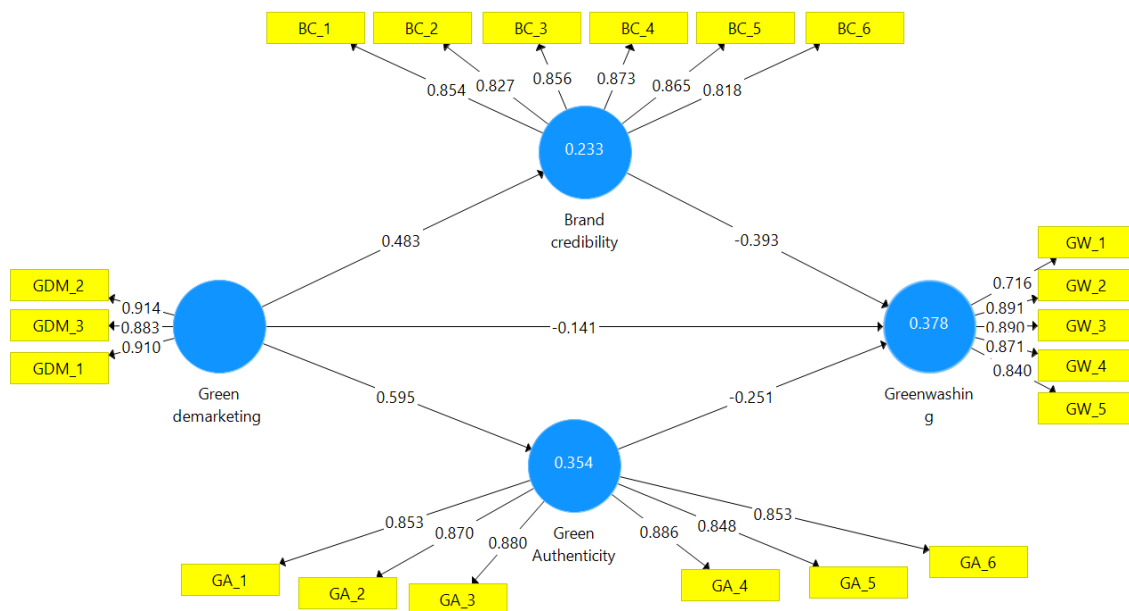
Figure 2. The structural and measurement model.

A mediation test was conducted to investigate the mediation impacts of both brand credibility and green authenticity in the connection between green demarketing and greenwashing (Table 3). The results revealed that brand credibility significantly and negatively mediated the association between green demarketing and greenwashing (effect = −0.190; t = 6.354; *p* = 0.000). Similarly, green authenticity also significantly and negatively mediates the connection between green demarketing and greenwashing (effect = −0.149; t = 4.646; *p* = 0.000). Thus, hypotheses 6 and 7 are accepted.

5. Discussion and Theoretical Contribution

The addition of this study was dedicated to the literature in the field of the food industry by exploring the influence of green demarketing on brand credibility and green authenticity and greenwashing. As global markets evolve, sustainability has become a critical part of many marketing strategies, which has prompted consumers and firms to adopt more sustainable and environmentally responsible practices [90]. In order to create consumer demand, foodservice providers have promoted green products by emphasizing their environmental friendliness or health benefits [14]. Green demarketing is an extreme form of sustainability that incorporates anti-consumption messaging [35] Moreover, it aims to boost brand sales while simultaneously reducing product usage at the category level in

order to protect the environment [10,37]. Because of this, the strategy has many benefits for customers and brands [15].

The findings corroborate with the first hypothesis of the study, that green demarketing is negatively correlated with greenwashing. The results demonstrated that green demarketing has negatively and significantly affected the perceived greenwashing variable ($\beta = -0.141$; t = 2.332). This result provides support for the first hypothesis, an extension of demarketing that discourages demand for products for the sake of the environment [91]. However, if a company does not provide truly eco-friendly products and services, then their green marketing tactics could be viewed as greenwashing [79].

The study results were also consistent with the second hypothesis as they supported that green demarketing is positively correlated with brand credibility ($\beta = 0.483$; t = 10.346). These results agree with Ramirez et al. [49], who revealed that demarketing could boost a company's credibility while assisting customers and society in moving toward more environmentally friendly alternatives.

Regarding the third hypothesis, green demarketing is positively correlated with green authenticity. The results demonstrated that green demarketing is positively correlated with green authenticity ($\beta 3 = 0.595$; t = 17.694). A brand's green authenticity gives customers confidence about the veracity of the brand's green features [21]. Thus, keeping their environmental assets through green marketing application is crucial to uphold their reputation and earn the trust of their patrons [74].

Concerning the fourth hypothesis, brand credibility is negatively correlated with greenwashing. The effect of perceived brand credibility on perceived greenwashing was significant and negative ($\beta = -0.393$; t= 7.231; $p = 0.000$). Depending on attribution theory, which argues that an individual's views about the causes of their previous actions influence their future behavior and response [19], this can be investigating the relation between greenwashing and brand credibility. Based on the attribution theory model, it is acceptable to suppose that when customers receive green information on a product, they may interpret it as misleading and intended to highlight the products' fake environmental advantages. Findings are consistent with other researchers' opinions, such as Y.-S. Chen and Chang, 2013 [18,92,93], who claimed that greenwashing confuses consumers, heightens risk perception, and undermines green trust. Consequently, consumers assign an adverse association to this situation, which has negative consequences such as lowering brand credibility. In this regard, it is concluded that reducing greenwashing practices would increase customers' perceptions of brand credibility.

Regarding the fifth hypothesis, green authenticity is negatively correlated with greenwashing; the impact of green authenticity on greenwashing was also negative ($\beta = -0.251$, t = 4.641). This result agrees with Gatti et al. [42], who claimed that lying is a basic element of greenwashing. When a business purposefully misleads consumers about the advantages of its products or environmental policies, it is engaging in "greenwashing," which goes against what customers expect and brand authenticity [43].

For the sixth hypothesis, brand credibility mediates the relationship between green demarketing and greenwashing, a mediation test was conducted to investigate the mediation impacts of brand credibility in the connection between green demarketing and greenwashing. The results revealed that brand credibility significantly and negatively mediated the association between green demarketing and greenwashing (effect = -0.190; t = 6.354; $p = 0.000$). Thus, hypothesis six is accepted. Bougoure et al. [68] proved that a powerful service brand makes customers more confident about the intangible qualities of services and aids in their understanding of them. According to Ramirez et al. [49], demarketing has the potential to increase a company's credibility while supporting consumers and society in their transition to greener options. Because they believe the brand's specifications and have strong psychological reasons to assume that the product is appropriate, customers who trust credible brands reduce their risks [78]. Due to the dishonesty of greenwashing, workers may think that senior management, the company, or particular personnel are unreliable and dishonest [80].

For the seventh hypothesis, green authenticity mediates the relationship between green demarketing and greenwashing, a mediation test was conducted to investigate the mediation impacts of green authenticity in the connection between green demarketing and greenwashing. The results revealed that green authenticity also significantly and negatively mediates the connection between green demarketing and greenwashing (effect = −0.149; t = 4.646; p = 0.000). Thus, hypothesis seven is accepted. The findings indicate that the goal of developing brand authenticity is to remove any doubts and boost customer trust in a company's capacity to fulfill its commitments [72]. Therefore, a brand's green authenticity is essential to green marketing because it gives consumers confidence that the company's green claims are real [21]. Greenwashing, as defined by Gatti et al. [42], is the practice of misleading consumers about the benefits of a company's products or environmental policies. This goes against what consumers expect and is ultimately a form of deception [43].

6. Practical Implications

Businesses, social and environmental activists, and governments can all benefit from this study's important theoretical and practical implications for promoting environmental sustainability. These include enhancing consumer and company awareness of environmental issues, fostering a strong sense of interest in and trust in demarketing initiatives, and creating green pledges and recycling attitudes. Under the same conditions, the tendency to take the social aspects of sustainable consumption into account has led to an increase in the focus on the manufacturing process. In addition to potential consequences on the environment and human health, a growing number of consumers are worried about the effects of product consumption on the labor force and other resources used in manufacturing. Because of this, policies and programs related to sustainable consumption are expanding to consider the effects of products, processes, and the supply of services, in addition to goods.

In addition, green demarketing is a complex and sensitive societal issue that goes beyond managers' obligations to maximize profits and serve shareholders. It has morals and values at its core. Additionally, the study's findings also highlight the significance of demarketing procedures in discouraging environmentally detrimental behavior and the growing necessity of collaboration between the public, private, and nonprofit sectors. Customers view brands that promote reduced consumption favorably because they generate or endorse consumer-generated anti-consumption signals [34]. The consumer is prepared to give in by altering his behavior or increasing his payment in order to preserve the longevity of the planet. He is prepared to consume in a responsible manner and is conscious of his role in contributing to environmental change. Therefore, customers are willing to comply with the demarketing initiatives and are more accepting of them. Likewise, a demarketing approach could reduce consumer dissatisfaction if it is followed by a product promotional ad. To accomplish this, make sure the refocusing advertisements appear on websites with less serious content, including those for shopping and enjoyment. Aiming to raise consumer awareness of environmental issues and challenges and foster pro-environmental attitudes, stakeholders must focus on improving consumer readiness and participation in demarketing efforts in order to develop strong intentions that go beyond simply opposing the use of environmentally harmful products. Further, green demarketing encourages businesses to use greener practices by highlighting the advantages that their goods and services have for the environment. Moreover, green demarketing can educate consumers about the value of sustainability and the consequences of their purchases for the environment.

A green demarketing strategy offers socially responsible marketing managers the potential to contribute to the sustainability movement by attenuating some of the ecological harm caused by traditional demand-creation activities while maintaining profitability. These messages are meant to discourage category-level consumption as a way to protect the environment by purchasing the focal brand's product, which either lasts longer or performs better. Because this strategy has so many potential benefits for brands and society overall, it is critical to understand and predict consumers' reactions to such strategies. For marketing managers considering implementing a green demarketing strategy, evaluating the current

customer perceptions of the brand is very important. It seems that environmental reputation significantly impacts customer judgments about the green demarketing brand and the product. Green demarketing by poor-reputation brands making a genuine attempt at sustainability must be rewarded by consumers to ensure that companies continue striving to decrease ecological harm.

7. Conclusions

The current research strives to reintroduce the concept of green demarketing in order to help restaurant owners strengthen their brands and reduce consumers' perceptions of greenwashing, which in turn encourages them to build a strong relationship with the organization. The study examines the mediating roles of brand credibility and green authenticity between green demarketing and customers' perceived greenwashing. Using a survey research approach, 414 restaurant patrons were targeted, and the collected data was tested by PLS-SEM. The results confirmed the success of brand credibility and green authenticity in mediating the impact of green demarketing on customers' perceived greenwashing. The study's results contribute theoretically to the hospitality industry literature, specifically to green transformations in the hospitality industry, by examining a set of direct and mediated relationships that, to the authors' knowledge, have rarely been examined, especially in developing countries. On the practical side, the study suggested recommendations to restaurants on how to use green demarketing strategies to gain customer loyalty and increase the credibility and transparency of their brand, removing customer suspicions about the credibility of the green efforts made.

8. Limitations and Further Research

This study is limited to the restaurant business, which might eliminate the generalizability of the results in other different sectors. Future studies might investigate the impact of green demarketing on brand credibility, green authenticity, and greenwashing in other businesses, such as the hotel, retail, or electronics sectors. Comparing the study findings between different industries can offer a wider understanding of how these practices interact in different contexts. Additionally, the study utilized a cross-sectional approach, collecting data at a single point in time. This approach reduces the ability to understand changes in customers' perceptions and attitude over longer time. Implementing longitudinal research methods might deliver more insights into how customers perceptions of green demarketing develop over long time. It is believed that changing the field environment of the study may impact its results, especially since the current study was applied in Egypt (a developing country with a low average income). Therefore, it may be useful to apply this study in some Gulf countries that are characterized by high incomes with great demand and development in the hospitality and restaurant sectors.

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: The data presented in this study are available on request from the corresponding author.

Conflicts of Interest: The authors declare no conflict of interest.

Appendix A

Measurements of the study variables

– *Green demarketing*

- – This restaurant has an advertisement that encourages customers to order less food.
- – This restaurant has an advertisement that does not recommend ordering excessive food.
- – This restaurant has an advertisement that suggests ordering less food.

– *Brand credibility*

- – This restaurant has a name you can trust.
- – This restaurant's product claims are believable.
- – This restaurant delivers what it promises.
- – This restaurant can deliver what it promises.
- – Over time, my experiences with this restaurant led me to expect it to keep its promises, no more and no less.
- – This restaurant reminds me of someone who is competent and knows what they are doing.

– *Green Authenticity*

- – The restaurant always tells the truth.
- – I believe that the restaurant's environmental actions are genuine.
- – I feel that the restaurant accepts and learns from environmental mistakes.
- – I believe that the restaurant's environmental behavior matches its core values.
- – The restaurant's environmental beliefs and actions are consistent.
- – I think the restaurant matches the environmental rhetoric with its action.

– *Greenwashing*

- – The restaurant misleads with words about the environmental features of their products.
- – The restaurant misleads with visuals or graphics about the environmental features of their products.
- – The restaurant provides vague or seemingly unprovable environmental claims for its products.
- – The restaurant overstates or exaggerates the environmental features of its products.
- – The restaurant leaves out or hides important information about the real environmental features of its products.

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