Greenwash and Green Brand Equity

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Abstract--The study investigates the impact of greenwash on green brand equity and discusses the mediation roles of green brand image and green satisfaction. The research object of this study focuses on Taiwanese consumers that have the experience to purchase information and electronics products in Taiwan. The results demonstrate that greenwash negatively influences green brand equity. In addition, this research verifies that greenwash is negatively related to both of green brand image and green satisfaction that would positively influence green brand equity. This paper also proves that green brand image and green satisfaction mediate the negative relationship between greenwash and green brand equity. Hence, this study suggests that companies should reduce their greenwash behaviors and raise their green brand image and green satisfaction to enhance their green brand equity.

I. INTRODUCTION

Firms are keen to find new approaches to apply green marketing to sell their products in the environmental era, so they are paying attention to environmental sustainability. More firms would like to build up green brand image to differentiate their green products, because green marketing has become an important way to appeal consumers who care about environmental consideration [3, 4, 6, 58]. Besides, environmental movement is more popular over the world. This popularity has prompted many firms to build up green image through green marketing. Greenwash is a misleading behavior in which green marketing or green public relations (green PR) is deceptively applied to promote the perception that a firm's products, brands, and/or services are environmentally friendly [46]. The rise of greenwash would contribute to consumer skepticism of all green claims and weaken the power of consumers in driving firms toward green solutions for business operations and manufacturing activities. Greenwash would lessen consumer brand equity in the advertising, because consumers often rely on companies' marketing activities to make decision [27]. Without belief in the companies' green claims, consumers are incapable of determining their green purchases. Accordingly, greenwash would endanger undermine green marketing in the market and green purchases of consumers.

Owing to the rising attention to global warming in the world, consumers are more concerned about environmental consideration [13]. They are more willing to select green products that are environmentally friendly [10]. Thus, more firms adopt greenwash to make consumers believe they are environmentally friendly in order to enhance their brand images and improve customer satisfaction [35, 46].

Greenwash is more common for companies to acquire green opportunities due to the growing need for green purchases [11, 29]. TerraChoice argues that many green claims commit at least one of the "seven sins of greenwashing" which include sin of hidden trade-off, sin of no proof, sin of vagueness, sin of worshiping false labels, sin of irrelevance, sin of lesser of two evils, and sin of fibbing [55]. Firms often apply greenwash to selectively disclose the positive messages about the environmental features of their products without revealing negative messages in order to generate green image [37]. As a result, consumers have an increasing disbelief about firms' fraudulent greenwash [50].

To enhance brand image, consumer satisfaction and brand equity, firms have to reduce their greenwash behaviors and enable consumers to obtain enough messages to decrease their skepticism towards the green claims of the firms [28]. Hence, firms should reveal more signals about the truth of their green products not just assert their 'greenness'. Without providing trustworthy information to customers, it is not easy for firms to convince their consumers of their green claims [14]. Although prior literature has widely discussed the issues about brand equity, no study explores brand equity about environmental issues from the perspectives of greenwash, brand image, and satisfaction. Thus, this research would like to fill the research gap. This paper incorporates greenwash and the concepts of green brand image, green satisfaction, and green brand equity into an integral framework to further explore the impact of greenwash on green brand equity in the field of green marketing. Green brand equity is important for firms in the environmental era. This study develops a framework to help firms improve their customers' green brand equity from the three factors: greenwash, green brand image, and green satisfaction.

This study investigates the negative relationship between greenwash and green brand equity. Furthermore, this study also discusses the mediation effects of green brand image and green satisfaction on the negative relationship between greenwash and green brand equity. This research proposes a new framework of greenwash in compliance with the environmentalism to help firms improve their green brand equity and to further extend the literature on green marketing. The structure of this study is described as follows. A literature review is explored in section 2, and five hypotheses are proposed in this section. Then, this paper describes the methodology, the sample, and data collection, and the measurement of the constructs in section 3. The descriptive statistics, factor analysis, reliability, and the results of

regression models are reported in section 4. Furthermore, this study mentions the conclusions, implications, and future research in section 5.

II. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Greenwash refers to green marketing or advertising that cheats consumers about the environmental features of products [49]. Greenwashing is still far too common in the market. Since firms frequently overstate the environmental functionality of their products, greenwash is more prevalent in the market [46]. Greenwash would undermine the whole movement of green marketing [27]. Consequently consumers are more prone to disbelieve green marketing activities of firms [5, 49]. The main purpose of this study is to explore the negative relationship between greenwash and green brand equity and to discuss the mediation effects of green brand image and green satisfaction on the negative relationship between greenwash and green brand equity.

A. The negative effect of greenwash on green brand image

Greenwash refers to 'the act of misleading consumers regarding the environmental practices of a company or the environmental benefits of a product or service' in the market [50]. Accordingly consumers would suspicion green claims though firms assert their products or services are environmentally friendly [37]. Perceptions of greenwash would reduce consumers' attitudes towards a firm's environmental commitments [44]. Hence, greenwash may hurt green image of firms because it would cause consumers to doubt their green marketing [49].

Brand image plays a crucial role in the more complex marketing context where it is difficult to differentiate products or services for consumers [40]. Brand image refers to a consumer's mental picture of a brand in consumers' mind that is associated with an offering, and it contains symbolic meanings that relate to the particular features of the brand [20, 43]. Besides, brand image is a set of perceptions about a brand reflected by its brand associations of customers [20, 33]. Hence, brand image includes symbolic benefits, functional benefits, and experiential benefits [47]. Green brand image refers to "a set of perceptions of a brand in a consumer's mind that is linked to environmental commitments and environmental concerns" [15]. Greenwash could confuse consumers since the untrustworthy advertising could make them more difficult to evaluate firms' products [52]. Consequently greenwash would damage green brand image of firms [35]. Thus, this study argues that greenwash would negatively affect green brand image and proposes the following hypothesis:

Hypothesis 1 (H₁). Greenwash is negatively associated with green brand image.

B. The negative effect of greenwash on green satisfaction

Satisfaction is a delightful degree of post-consumption evaluation or a pleasurable degree of consumption-related fulfillment [42]. Thus, satisfaction is a level of overall pleasure or contentment perceived by a consumer, resulting from the quality of the product or service to fulfill the consumer's expectations, desires, and needs [38]. This study refers to Chen [15] to define green satisfaction as "a pleasurable level of consumption-related fulfillment to satisfy a customer's environmental desires, sustainable expectations, and green needs". Companies can enhance the functionality of their green products to raise their customers' green satisfaction to increase the sales of their green products [16].

There is a negative relationship between greenwash perceptions and consumer perceived risk [7]. Greenwash would positively affect consumer perceived risk which decrease consumer satisfaction with respect to environmental concern [54]. In the environmental era, environmental concern becomes an important determinant that would influence green satisfaction of consumers [16]. Since greenwash is more prevalent in the market nowadays, greenwash could negatively influence consumer satisfaction about environmental consideration, if consumers can't distinguish the trustworthiness of green claims [25]. In the context of environmental management, this study argues greenwash negatively relates to green satisfaction and implies the following hypothesis:

Hypothesis 2 (H₂). Greenwash is negatively associated with green satisfaction.

C. The negative effect of greenwash on green brand equity

Greenwash would hinder green marketing, since it would make more people skeptical about green claims. Greenwash would impede the development of green marketing, so it is difficult for consumers to distinguish the reality of green initiatives [29]. Consumers have realized that many firms usually mislead them and the firms would not fulfill their environmental claims [52]. Greenwash which delivers false green claims in the market would obstruct the prevalence of real green products and thereby lower the effectiveness of green marketing [49]. Because greenwash would cause consumer skepticism towards green claims [53], consumers wouldn't trust all green claims of product providers such that the real green movement of firms would lack the support in the market [25].

If firms actively engage in green initiatives and successfully communicate their environmental efforts with consumers, the consumers may believe their green advertisements [6, 9, 29]. Since more firms would exaggerate green functionality of their products, their customers don't believe them anymore [32]. Greenwash of companies would harm consumer attitudes towards their activities of green marketing [46]. If companies use greenwash activities to deceive their customers, their customers are unwilling to purchase their products in the market [7]. Besides, greenwash would lead to a negative word-of-mouth behavior about environmental messages of a specific product, brand, or service [19]. Green brand equity refers to "a set of brand assets and liabilities about green commitments and environmental concerns linked to a brand, its name and

symbol that add to or subtract from the value provided by a product or service" [15]. Brand equity is affected by greenwash [7]. Past literature posits that greenwash is a determinant of brand equity [19]. In the environmental era, this study argues that greenwash negatively relates to green brand equity and proposes the following hypothesis:

Hypothesis 3 (H₃). Greenwash is negatively associated with green brand equity.

D. The positive effect of green brand image on green brand equity

Hu and Wall assert that the increase of environmental image can improve the competitiveness of tourism [30]. As a result, green brand image is more crucial for firms in the rise of prevalent consumer environmentalism and strict environmental regulations [15]. Firms can apply the concept of green marketing in their green products to acquire the differentiation advantages [12, 44, 51]. Besides, firms investing many resources in the increase of their green brand images can not only eliminate the trouble of environmental punishment, but also allow them to raise their green brand equity [15]. Previous research indicates that the image perceived by consumers can significantly influence their behaviors [13, 21]. Furthermore, brand image has a positive effect on brand equity since it can weaken consumer perceived risk and concurrently enhance brand equity at the moment of transaction [23]. Hence, prior literature demonstrates that brand image might influence decision-making of customers involving in the exchanges, and thus argues that brand image would positively affect brand equity [22].

Brand image is one of the important factors influencing brand equity [2]. Poor brand image would reduce brand equity [22]. If consumers perceive that brand image of a brand is better, they are more willing to purchase this brand [57]. Therefore, prior research indicates that brand image is positively related to brand equity [15]. Since brand image is a critical determinant of brand equity, previous literature asserts that a firm has to invest resources to improve its brand image to increase its brand equity [1]. Some firms ignore

their poor green brand image in the market such that their customers are unlikely to purchase their products any more [32]. Green brand image plays a more important role in the environmental era. Hence, Green brand image is positively associated with green brand equity. According to the above argument, this study implies the following hypothesis:

Hypothesis 4 (H₄). Green brand image is positively associated with green brand equity.

E. The positive effect of green satisfaction on green brand equity

Satisfaction is the level of pleasurable consumption which fulfills customers' needs, desires, goals, or so on [41]. Customer satisfaction is one of the most widely discussed topics in the marketing field [42]. Consumer satisfaction is an antecedent of brand equity [45]. Hence, customer satisfaction is positively associated with brand equity [34]. If consumers have had a higher level of satisfaction for a product, brand or service, they would demonstrate a higher level of brand equity [33]. Past research indicates that customer satisfaction would positively affect brand equity [34, 45].

Customer satisfaction is one of primary factors influencing brand equity [34]. Since customer satisfaction is a determinant of brand equity, prior literature assert that firms need to raise their customer satisfaction in order to enhance their brand equity [1]. Lately some firms advertise the environmental performance of their products dishonestly, and thus customers are less likely to purchase their products again [32]. Since more firms would like to seize green opportunities in the environmental era nowadays, consumer satisfaction towards environmental sustainability is more crucial [50]. As a result, consumer satisfaction towards environmental sustainability would positively influence brand equity with respect to environmental consideration [15]. Therefore, this paper asserts that green satisfaction positively affects green brand equity and proposes the following hypothesis:

Hypothesis 5 (H₅). Green satisfaction is positively associated with green brand equity.
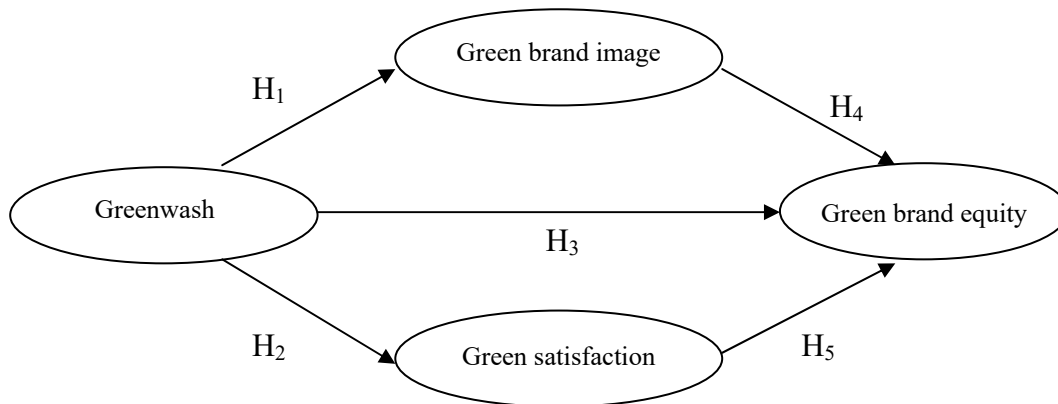
The research framework is shown in Fig. 1.

Fig. 1 Research framework

III. METHODOLOGY

A. Data collection and the sample

This paper applies questionnaire survey method to verify the research framework and hypotheses. The unit of analysis in this paper is consumer-level. The research object of this research concentrates on Taiwanese consumers that have the experience to purchase information and electronics products in Taiwan. The questionnaires were randomly sent to consumers who had the experience to buy information and electronics products. Information and electronics products need to obey the international environmental laws, such as Montreal Convention, Kyoto Protocol, Energy Using Product (EuP) Directive, Restriction of the Use of Certain Hazardous Substances in EEE (RoHS) Directive, Waste Electronics and Electrical Equipment (WEEE) Directive, and Integrated Product Policy (IPP) Directive, so consumers anticipate to purchase information and electronics products that can achieve their green desires [12]. This paper refers to past research to design questionnaire items.

We invited seven experts to correct the questionnaire items in the first pretest before mailing to the respondents. Then, the questionnaires were randomly mailed to twelve consumers who had the experience to purchase information and electronics products and they were asked to fill in the questionnaire and to identify the ambiguities in meanings, terms, and issues in the second pretest. Therefore, the questionnaire in this paper has high extent of content validity [39,48]. After the two pretests, the sample was randomly chosen from telephone directory in Taiwan. In order to make sure of high survey response rate, the research assistants called to every randomly chosen consumer that had the experience to buy information and electronics products and explained the aim of this paper and the questionnaire content prior to questionnaire mailing. We asked the respondents to return the completed questionnaires within two weeks via mailing. We sent 750 questionnaires to the randomly chosen consumers. There are 268 valid questionnaires and the effective response rate is 35.7%.

B. The measurement of the constructs

This paper evaluates the questionnaire items by means of "five-point Likert scale from 1 to 5" rating from strongly disagreement to strongly agreement. We asked every respondent to figure out a Taiwanese brand of information and electronics products that is the most impressive for her or him. Then, every respondent was requested to regard this brand as the focal brand to fill in the questionnaire. The definitions and measurements of the constructs in this study are described in the following:

Greenwash. This study refers to Chen and Chang [18] to measure greenwash and its measurement includes five items: (1) The brand misleads with words in its environmental features; (2) The brand misleads with visuals or graphics in its environmental features; (3) The brand possesses a green claim that is vague or seemingly un-provable; (4) The brand overstates or exaggerates how its green functionality actually is; (5) The brand leaves out or masks important information, making the green claim sound better than it is.

Green brand image. This study referred to Chen [15] to measure 'green brand image'. The measurement of the green brand image includes five items: (1) The brand is regarded as the best benchmark of environmental commitments; (2) The brand is professional about environmental reputation; (3) The brand is successful about environmental performance; (4) The brand is well established about environmental concern; (5) The brand is trustworthy about environmental promises.

Green satisfaction. This paper refers to Chen [15] to measure green satisfaction and its measurement includes four items: (1) You are happy about the decision to choose this brand because of its environmental commitments; (2) You believe that it is a right thing to purchase this brand because of its environmental performance; (3) Overall, you are glad to buy this brand because it is environmental friendly; (4) Overall, you are satisfied with this brand because of its environmental concern.

Green brand equity. This paper refers to Chen [15] to measure green brand equity and its measurement includes four items: (1) It makes sense to buy this brand instead of other brands because of its environmental commitments, even if they are the same; (2) Even if another brand has the same environmental features as this brand, you would prefer to buy this brand; (3) If there is another brand's environmental performance as good as this brand's, you prefer to buy this brand; (4) If the environmental concern of another brand is not different from that of this brand in any way, it seems smarter to purchase this brand.

IV. RESULTS

The means, standard deviations, and correlation matrix are reported in Table 1. According to the results in Table 1, there are positive correlations among green brand image, green satisfaction, and green brand equity, when there are negative correlations between greenwash and the other constructs. The exploratory factor analysis of the four constructs is demonstrated in Table 2. Each construct in this paper can be classified into only one factor. We refer to the past literature to design questionnaire items. Prior to mailing to the respondents, we employed two pretests for the questionnaire correction. Thus, the measurement of this research is acceptable in content validity [24].

This paper applies Cronbach's α coefficients to examine the reliability in the measurement. Cronbach's α coefficients of the four constructs are reported in Table 3. The minimum requirement of Cronbach's α coefficients is 0.7 [26, 36]. Based on the results in Table 3, the Cronbach's α coefficient of "greenwash" is 0.910; that of "green brand image" is 0.898; that of "green satisfaction" is 0.909; and that of "green brand equity" is 0.921. The Cronbach's α coefficients of all constructs are more than 0.7, so the measurement of this study is acceptable in reliability.

TABLE 1. MEANS, STANDARD DEVIATIONS AND CORRELATIONS OF THE CONSTRUCTS

Constructs	Mean	Standard Deviation	A.	B.	C.
A. Greenwash	1.766	0.377			
B. Green brand image	3.609	0.388	-0.281*		
C. Green satisfaction	3.633	0.405	-0.279*	0.287*	
D. Green brand equity	3.674	0.391	-0.307**	0.294*	0.310*

Note: * $p<0.05$, ** $p<0.01$.

TABLE 2. FACTOR ANALYSIS OF THIS STUDY

Constructs	Number of Items	Number of factors	Accumulation percentage of explained variance
Greenwash	5	1	64.3%
Green brand image	5	1	62.8%
Green satisfaction	4	1	61.5%
Green brand equity	4	1	59.4%

TABLE 3. THE CONSTRUCTS' CRONBACH'S A COEFFICIENTS

Constructs	Cronbach's α
A. Greenwash	0.910
B. Green brand image	0.898
C. Green satisfaction	0.909
D. Green brand equity	0.921

We report the results of the regression models of this study in Table 4. The five hypotheses are supported in this study. Thus, H_1, H_2, H_3, H_4, and H_5 are all supported in this research. The results demonstrate that the reduction of greenwash can not only comply with the growing consumer environmentalism, but also raise green brand equity. Besides, the results point out that greenwash would negatively affect both of green brand image and green satisfaction that are positively associated with green brand equity. Hence, this study proves that green brand image and green satisfaction partially mediate the negative relationship between greenwash and green brand equity. Therefore, companies should diminish their greenwash activities and improve their green brand image and green satisfaction to boost their consumers' green brand equity in order to meet their consumers' environmental needs. This study figures out that greenwash has a direct path to negatively affect green brand equity. In addition, we verify that greenwash has two indirect paths to negatively affect green brand equity via green brand image and green satisfaction.

V. CONCLUSIONS AND IMPLICATIONS

Although prior literature argues that environmental claims of green products must be true and transparent, greenwash is still popular in the market [11]. This is why greenwashing is such a significant impediment to the progress of green marketing. This paper proposes a research model to explore the influence of greenwash on green brand equity and to investigate the mediation effects of green brand image and green satisfaction. We suggest that the reduction of greenwash is an effective way to enhance green brand equity via the two mediators, green brand image and green satisfaction. The results point out that greenwash is negatively related to green brand equity. Besides, this paper indicates that green brand image and green satisfaction are two partial mediators on the negative relationship between greenwash and green brand equity. Furthermore, the results show that greenwash negatively relates to green brand image and green satisfaction that positively affects green brand equity. All hypotheses proposed in this research are supported. This study finds out that companies need to decrease their greenwash behaviors to increase their consumers' green brand equity. In addition, if firms plan to improve their customers' green brand equity, they have to increase their green brand image and green satisfaction.

TABLE 4   EMPIRICAL RESULTS OF REGRESSION ANALYSIS

	Model I	Model II	Model III
Dependent variable:	Green brand image	Green satisfaction	Green brand equity
Explanatory variables			
Greenwash	-0.220* (-2.108)	-0.218* (-2.091)	-0.249* (-2.205)
Green brand image			0.199* (1.991)
Green satisfaction			0.210* (2.063)
Control variables			
Age	-0.101 (1.049)	-0.092 (0.995)	-0.076 (0.665)
Annual incomes	0.064 (0.530)	0.049 (0.466)	0.034 (0.510)
P-value	0.03	0.03	0.02
Adjusted R^2	0.351	0.374	0.436

Note: * $p < 0.05$. The data in (   ) is t-value.

There are four academic contributions in this study. Firstly, this paper combines the concepts of brand image and satisfaction to extend the research on green marketing and to develop green brand equity from the reduction of greenwash and the increase of green brand image and green satisfaction. Secondly, there is no prior research discussing the relationship between greenwash and green brand equity. This study verifies that greenwash negatively affects green brand equity to fill the research gap. Thirdly, this study demonstrates that the relationship between greenwash and green brand equity is partially mediated by green brand image and green satisfaction. Fourthly, the reduction of greenwash and the increases of green brand image and green satisfaction can help firms to raise green brand equity. This study extends the research of brand image, satisfaction, and brand equity into the field of green marketing.

There are four practical contributions in this research. Firstly, this study proves that the decrease of greenwash can not only enhance green brand image and green satisfaction, but also increase green brand equity. If firms are eager to improve green brand equity, they have to lower their consumers' skepticism for their greenwash and enhance green brand image and green satisfaction. Secondly, firms should raise their green brand image. Since there is a significant mediation effect of green brand image in the research framework, firms can enhance their green brand image to improve their green brand equity. Thirdly, firms should enhance their green satisfaction. Because there is a significant mediation effect of green satisfaction in the research framework, firms can increase their green satisfaction to raise their green brand equity. Fourthly, this paper points out that greenwash is negatively associated with green brand image and green satisfaction that is positively associated with green brand equity. Greenwash does not only negatively influence green brand equity directly, but also negatively affect it via green brand image and green satisfaction indirectly.

The major aim of this paper is to convince firms of the drawbacks of greenwash. As greenwash is lessening in the market, consumers are keen to believe green claims such that green marketing would become more useful [55]. In order to diminish greenwash, companies need to make their green claims more reliable and transparent. In addition, firms have to identify the sources of greenwash and eliminate them. Removing the sources of greenwash can raise green brand image and green satisfaction and further increase green brand equity. With respects to the future research, this study provides the following three directions. Firstly, this paper focuses on information and electronics products, so future research can concentrate on the experience to purchase other products and compare with this study. Secondly, since this research is employed in Taiwan, future research can focus on other countries and compare to this study. Thirdly, we adopt an empirical research by means of a questionnaire survey which can only provide cross-sectional data, so future research can collect longitudinal data to investigate the differences of greenwash, green brand image, green satisfaction, and green brand equity in the different stages of the environmental regulations in the world. Finally, we hope that the research results are beneficial to managers, researchers, practitioners, and policy makers, and contribute to future research as reference.

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