Is It Effective for Companies to Pretend to Care for the Environment? Research on the Impact of Corporate Environmental Claims on Word-of-mouth Recommendation

Yi Ku1, Shan Li1, and Yichen Zhao1,*

Business School, Sichuan University, Chengdu 610065, People’s Republic of China

Abstract. In the era of Internet business, online word-of-mouth recommendation has become a key factor affecting consumers’ decision-making. Enterprises increase consumers’ willingness to recommend their brands by word of mouth in various ways. This paper mainly studies the influence of corporate environmental claims on consumers’ intention of word-of-mouth recommendation, and explores the roles of different advertising appeals in such process. Independent sample T-test, regression analysis, and cross-test analysis were assumed to study the differences of consumers’ word-of-mouth recommendation intention in response to different environmental claims and the mediating effect of green trust in influencing the consumers. The results showed that: consumers are more willing to recommend a brand by word-of-mouth when facing substantive environmental claims than associative environmental claims, and in this process, green trust serves as a mediator between corporate environmental claims and consumers’ word-of-mouth recommendation intention; environmental advertising by green value appeal can encourage more word-of-mouth recommendation intention than environmental advertising by fear appeal. Keywords: Corporate environmental, Advertising, Appeal, Green trust, Moderating effect.

1 Introduction

President Xi Jinping has noted that “promoting green and low-carbon development is the will of the international community and the trend of the times; the green economy has become the commanding heights of global industrial competition”. Therefore, enterprises are increasing their brand value by enhancing their environmental protection capabilities [1]. With the growing environmental awareness all over the world, the sales of green products are gradually increasing, and more consumers choose to purchase products with higher green value. However, the number of consumers purchasing green products is relatively small in China. All enterprises face the issues of improving the sustainable performance of products and reducing carbon emissions. Researchers have proved that the strategies of corporate social responsibility (CSR) can increase the favorability of consumers towards enterprises, while environmental protection is part of CSR [2]. Consumers play an important role in environmental protection. Nevertheless, few know that green consumption in China is still in its infancy. To comprehensively promote green consumption, we should start from transforming consumers’ conception of green consumption.

*e-mail: zhaoyichen@stu.scu.edu.cn

© The Authors, published by EDP Sciences. This is an open access article distributed under the terms of the Creative Commons Attribution License 4.0 (https://creativecommons.org/licenses/by/4.0/).
The previous researches on green products mainly focused on brand image, satisfaction, brand value, purchase decision and other aspects, while little research has been done on word-of-mouth recommendation and communication elements. In this connection, the paper aims to provide a further study on word-of-mouth recommendation and related questions. The work presented in this paper focuses on corporate environmental claims, green trust, green advertising appeals and consumers’ word-of-mouth recommendation intention. The paper summarizes the findings in accordance with the reality of enterprises to create a new green marketing strategy. The paper adopts empirical analysis to explore the relationship between corporate environmental claims, green trust, green advertising appeals, word-of-mouth recommendation intention. With the results of the empirical test, the paper’s major contribution is answering which types of advertising appeals can match corporate environmental claims. In addition, the paper argues that different types of environmental claims (substantive environmental claims and associative environmental claims) affect consumers’ green trust in enterprises, while different levels of green trust result in differences in word-of-mouth recommendation intention. In a word, Promote word-of-mouth recommendations and green product sales through effective means. Thus changing consumers’ green consumption concept. [3]

This paper is divided into five sections. Sect. 1 of the paper opens with introduction to the present study. Section 2, “Literature Review”, provides an overview of the previous studies on consumers’ word-of-mouth recommendation intention. Section 3, “Research Hypothesis”, mainly introduces the empirical methods, sample, data collection and scale of measurement. Section 4, “Study and Analysis”, employs methods such as descriptive statistics, measurement reliability, factor analysis and interaction analysis, and shows results of the empirical test. Finally, in the section “Conclusion and Future Work”, this paper presents the results and significance of the study, and puts forward relevant suggestions on enterprises’ green marketing.

2 Literature Review

In recent years, the issue of green economy has attracted more and more attention form Chinese academia as it conforms to the overall national strategy. At present, most of studies on green economy focus on the mechanism of consumers’ purchase motivation [4], psychological activities, proactive personality [5], the influence of the presence of others on the purchase intention of green products [6], and the design of green products. The available research on environmental protection have shown that when a product possesses significant environmentally beneficial qualities, it is conducive to promoting consumers’ social values and personal psychological activities, which serves as a mediator with positive impact on consumers’ purchase intention.

There have been mature, effective and stable technologies that support the green transformation of industries and the development of green economy, no matter from the recycling of sustainable raw materials or the production of sustainable products. On the contrary, it requires a longer time to change people’s environmental awareness [7]. For example, according to the statistics of the Ministry of Ecology and Environment of China, it is widely recognized by Chinese citizens that their behaviors are important for the protection of the ecological environment.

However, there are remarkable differences in the implementation of environmental protection claims between sectors of the society. The well-implemented claims include taking public transportation and saving energy. In face of these claims, people will take concrete actions. On the contrary, claims in want of concrete actions include green consumption, pollution reduction, concern for the ecological environment, and garbage sorting. People may be highly aware of these claims, yet few put them into practice. The same goes for consumers...
when they purchase a product with environmental claims. Why does this happen? One of the reasons is that for consumers, the risk of purchasing a product they have never used is huge.

So how to reassure consumers or dispel their doubt? When a new technology or product comes into public view, most people will choose to wait and see, and those with strong proactive personality will choose to try new things. There are many reasons for refusing to buy a product, but in the Internet era, the negative word of mouth of a product is one of the primary factors causing consumers’ refusal. In China, a country with extremely developed Internet, it is common to refer to other consumers’ word-of-mouth evaluation online or seek advice from reliable friends before purchasing a product. “Word-of-mouth recommendation” promotes the transaction of goods or services through word of mouth, interpersonal communication and non-commercial communication. It was defined as a marketing method as early as the 1960s [7].

According to the research of Banerjee (1992), word-of-mouth recommendation through interpersonal relationships has two characteristics [8]: (1) the transmission is mainly through the specific network of social relations of each individual consumer; (2) it has been experienced by predecessors, and the recommendation has high credibility. As previously stated in this paper, Brister (1991) divided word-of-mouth recommendation into two categories: “positive recommendation” and “negative recommendation”. Mahon (2002) found that positive recommendation of products by consumers can not only attract new customers but also increase the revenue of enterprises. Moreover, active recommendation by consumers can reduce part of the marketing costs of enterprises. In addition, positive word-of-mouth recommendation helps enterprises establish a good social image, which not only improves consumer satisfaction but also builds their brands. Li Dongjin et al. (2005) found that word-of-mouth recommendation is valued by consumers for the following reasons: (1) people generally have more trust in their acquaintances; (2) unlike traditional advertisement, word-of-mouth recommendation is in essence a two-way conversation where consumers’ questions are timely answered; (3) word-of-mouth recommendation is generally made by people with real experience of the product, which has a stronger effect on the receiver; (4) the less objective knowledge consumers have about the product, the more likely they are to accept the advice of the recommender [9].

In view of the previous studies, this paper focuses on word-of-mouth recommendation, with the hope of encourage more people to involve in environmental protection and understand the benefits of green products on the environment. Based on the research on word-of-mouth recommendation, this paper explores which environmental claim of enterprises can gain more green trust and induce consumers’ word-of-mouth recommendation, and adds different advertising appeals (green value, fear appeal) as adjustment. Finally, the paper puts forward proper suggestions on word-of-mouth marketing strategies adopted by enterprises. The research model are shown bellow (figure 1).

Figure 1. Conceptual model
3 Research Hypothesis

3.1 Corporate Environmental Claims and Consumers’ Word-of-mouth Recommendation Intention

Green economy has increasingly been a major social concern. For example, President Xi Jinping has noted that “promoting green and low-carbon development is the will of the international community and the trend of the times; the green economy has become the commanding heights of global industrial competition”. Many consumers have been aware that their consumption behavior will influence the eco-environment, but they are mostly passive in taking actions. For instances, it is enterprises that take the lead in using biodegradable straws, and consumers follow the enterprises’ practices passively. As the consumers’ behaviors are a consequence of the enterprises’ actions, enterprises are the promoters of environmental protection.

More and more enterprises are incorporating environmental elements into their marketing and minimizing pollution sources in their production processes in order to respond to various needs (such as the government’s environmental policies, consumers’ green trust, green brand image, etc.). These actions are defined by Chan and Lau (2004) and Mo (2018) as environmental claims [10], which refer to various information provided by enterprises in advertising products, including the selection of raw materials, the reduction of pollution in the production process, the presentation of new green products to consumers, and the introduction of environmental protection behaviors in the production process, as well as their own efforts and deeds for environmental protection. German motorcycle manufacturer BMW, for example, has started to use renewable energy in its plants around the world. The four wind turbines at the plant in Leipzig provide all the electricity needed to produce the BMWi3. Xiaomi, Chinese electronics manufacturer, streamlined and optimized the production process of the foot base of its ES/RX TV series, reducing the metal consumption by about 25% and the average production cost by about 20%.

It can be found that enterprises in different fields have their own environmental claims. In this case, there are several questions that are worth discussing: will different environmental claims affect consumers’ word-of-mouth recommendation intention? If environmental claims influence word-of-mouth recommendation, what are the mediator mechanism?

Through content analysis, Carlson et al. (1993) divided several green advertisements commonly used by enterprises into four categories [11]: (1) environmental facts, meaning the actions of enterprises on the overall environment or a certain environmental problem; (2) image orientation, connecting enterprises with environmental protection activities with public approval in green advertisements; (3) process orientation, emphasizing the improvement of the enterprise’s internal technology or process to make the production technology or raw materials more environmentally friendly; (4) product orientation, environmental protection performance of the product itself. These four environmental claims can be divided into two main types: substantive claims and associative claims [12].

Product orientation and process orientation are substantive environmental claims, focusing on whether the production process and product itself has clear and specific environmental benefits, indicating the enterprise’s practical actions on environmental protection; image orientation or the provision of environmental facts are associative environmental claims, which means that the enterprise makes the public believe that it is environmentally responsible through associating the enterprise with environmental activities other than substantive ones (He Hao et al., 2017). Associative claims are more intangible than substantive claims. Usually, they do not include actual environmental actions, but usually connect enterprises with environmental protection through green advertising. Substantive claims describe what
the company is doing at the physical level to be environmentally friendly. According to the study of Davis (1991), clear, specific and enforceable environmental claims can make consumers have a positive cognition of enterprises and their advertisements, while non-specific environmental protection claims will make consumers feel that they are empty words and thus generate negative views [13]. Based on the above analysis, this paper proposes the following hypothesis:

Hypothesis 1. Consumers are more willing to recommend by word of mouth when facing the substantive claims than associative claims.

3.2 The Mediating Effect of Green Trust

In the process of word-of-mouth recommendation, the recommender is the main agent transmitting the environmental advertisement. Therefore, enterprises attach great importance to how to make more recommenders willing to recommend their product. According to Georg Simmel (2009), the development of a society starts from interpersonal communication, the most important factor in forming a society. Without trust, transactions cannot be carried out and thus the society cannot function. Simmel regards trust as an “important overall power of society”. He believes that “without universal trust, the society will become fragmented [14].” “The role of trust is to provide a sufficient assumption on which individuals can base their actions (implicitly at the risk of being deceived).” Ryu and Feick (2007) proved through an empirical study that adding stimulus (money) did not change consumers’ recommendation intention in a strong interpersonal connection, because in such connection, consumers value their relationship with others while they are reluctant to take the risk of a bad recommendation. In other words, they worry that recommendation will affect other people’s trust in them, thus they refuse to recommend a brand by word of mouth for financial gain.

In recent years, with the growing social attention to environmental issues, the interaction between environmental actions of enterprises and green consumption is increasing. However, “greenwashing” is also emerging in China’s green economic development. It is defined by Parguel et al. as the publicity, communication behaviors and environmental practices related to products and services that mislead consumers [15]. “Greenwashing” [16] has a negative impact on consumers’ knowledge of a brand. Lyon and Montgomery stated in their article that exaggerated or misleading environmental claims can make consumers suspicious of green claims in general. As a result, “greenwashing” will indirectly reduce consumers’ green trust in green goods or services. Lyon and Montgomery also pointed out that “greenwashing” will discourage consumers’ form purchasing green products [17]. A Sailer et al. (2022) studied the predictive factors of consumer evaluation of sustainable brands on Black Friday advertisements based on the Instagram social platform. In order to gain competitive advantages and maintain their sustainable corporate image, some brands use greenwashing strategies [18]. However, consumers have little understanding of the enterprises’ motivation of “greenwashing” related environmental demands. Consumers will positively or actively respond to enterprises’ environmental demands as they attribute these demands to different motivation. Future studies on environmental claims and green consumption should be conducted with consumers’ existing cognition of brands and attribution of environmental protection claims taken into consideration.

Trust exerts important influence on a social and an individual. Trust is based on the interaction between the trusting party and the trusted party. In the interaction, the trusting party will have a positive belief in the trusted one, thus bringing into play a positive moderating effect. Chen defines consumers’ trust in environmental protection as “green trust” [19], which is based on predictions about the trustworthiness of green products (services). However, in “green marketing”, the green information provided by enterprises should not only
inform consumers of the enterprises’ needs, but also adapt to consumers’ value orientation. Therefore, in the initial contact with consumers, an enterprise can gain the trust of customers more easily if its environmental capabilities or related value orientation matches consumers’ expectation. In this regard, this paper hypothesizes that green trust serves as a mediator.

Hypothesis 2. Green trust serves as a mediator between corporate environmental claims and word-of-mouth recommendation intention.

Hypothesis 2a. Consumers have a higher level of trust in green products when facing substantive claims.

Hypothesis 2b. Green trust positively affects the word-of-mouth recommendation intention.

3.3 Moderating Effect of Advertising Appeals

(1) Advertising by Fear Appeal

Fear appeal is one of the common advertising strategies. Fear refers to the emotional response of an individual in the face of some kind of danger, which will have a significant impact on the individual’s subsequent behavior or thinking. It is a biological instinct that people try to avoid the danger or difficulty they are about to face.

What effect does fear have on consumer behavior? There are some classic models that seem to answer this question: advocates of the “fear-driven model” believe that fear generally begins with an emotional response elicited by some perceived dangerous. The emotional response then triggers internal stress in the individual, prompting the individual to find a solution to the problem until the fear is eliminated. If the behavior suggested in the advertisement is effective in alleviating fear and anxiety, then people will consider it useful and may adopt it [20]. In other words, human response to fear depends on our perception of the danger and the degree of the harm. When people realize that the potential risks can cause them greater physical and mental damage, they are more likely to accept the advice in the advertisement. However, if there are many options available, then they will try to find the best solution through comparison. Therefore, a lot of advertising will suggest the target customers that their product or service is the most effective choice.

The second Model - Arousal Model - was developed by Robert Thayer. The model focuses on the relationship between the arousal of an emotion and logical thinking [21]. Thayer believes that arousal is a complex phenomenon that involves at least two levels of interaction. The first level is “energy”, which refers to the continuous process from “high energy” to “fatigue”, a process often associated with positive perceptions. The second level is “tension”, which represents a continuous process from internal stress to internal peace, a process often associated with negative perceptions. The combination of the two levels determines the impact (positive or negative) of an advertisement on an individual. The model also suggests that the effect of fear appeals is not only related to the content of the advertisement, but also to inter-individual variability. In the case that vitality is the main emotional state of an individual, the fear appeal can stimulate a positive emotional experience; when tension dominates one’s internal world, the fear appeal will lead to a negative reaction. This reminds AD designers that the level of horror and content in ads should be tailored to different target consumers.

The third model is cognitive model that hinges upon modern cognitive psychology. Some scholars take cognitive factors on persuasive behavior into consideration when exploring the mechanism of fear appeal. The most representative cognitive models are Protection Motivation Model (PM) and Ordered Protection Motivation Model (OPM). Under the PM model, the response of consumers depends on four aspects in the threat appraisal process: the severity of the threat, the possibility of exposure to the threat, efficacy of the coping style, and
self-efficacy. The efficacy of the coping style refers to the perceived reaction effect of an individual when removing a threat and whether he or she is capable of responding accordingly. All these factors can activate the corresponding cognitive evaluation mechanism and adjust the change of mentality by arousing and maintaining the so-called “protection motivation”, so as to protect oneself and avoid damages. The OPM model of Tanner et al. [22] (1991) is developed on the basis of PM model. It highlights the importance of emotional process in cognitive appraisals, which can directly affect the formation of behavioral intention. OMP holds that at least two aspects should be taken into account when raising the need for fear: threat appraisal (including the severity of the threat and probability of its occurrence) and coping appraisal (including response efficiency and self-efficacy). In general, the need for fear involves not only physical and social risks, but also cognitive and emotional risks [23], which together influence the arousal of an individual’s protection motivation.

(2) Advertising by Green Value Appeal

From the late 1980s to the early 1990s, there were many researches on “green advertising”. Therefore, the academia has different criteria for its definition according to connotation and characteristics of the term. For example, Banerjee et al. (1995) proposed three general criteria for defining green advertising. According to the criteria, green advertising (1) explicitly indicates or implies in an advertisement a connection between certain products/services and the environment, (2) promotes a green lifestyle, (3) embodies the image of an environmentally-friendly enterprise [24]. Carlson et al. (1993) divided green advertisements commonly used by enterprises into four categories through content analysis; (1) environmental facts, meaning the actions of enterprises on the overall environmental protection or a certain environmental problem; (2) image orientation, which associates enterprises with environmental protection activities for which there is public approval in green advertisements; (3) process orientation, which emphasizes the enterprise’s internal technology or production process that yields environmental benefits; (4) product orientation, which focuses on the environmentally-friendly attributes that a product possesses.

These four environmental claims can be divided into two types: substantive claims and associative claims [25]. Product orientation and process orientation are substantive environmental claims, focusing on whether the production process and the product itself produce obvious and specific environmental benefits, indicating that enterprises have made practical actions in improving its environmental performance. Customer Perceived Value (CPV) is one of the primary focuses of attention in the 21st century, which can be extensively applicated in improving the competitiveness of enterprises and predicting the purchasing behavior of consumers. Martin and Schouten (2012) noted in their paper that people are more materially and psychologically rich than ever before. As our basic physiological needs have been met, we begin to pursue a higher quality of “material” life, pay more attention to the earth we live in, and focus more on the sustainable and coordinated development of human and nature [26]. Yang Xiaoyan and Zhou Yijin (2006) pointed out that social value based on CPV has a double significance. When making purchase decisions, consumers should consider its functional value, its impact on the ecology, and whether it can bring benefits to the ecological environment. This is not only for obtaining the recognition and appreciation of others, but also because people actively seek public benefit from the ecological environment. This motivation for seeking ecological value differentiates from the external factors of “social identification” and “impression management”, and is more reflected in the green value of consumers. Its functions include reducing environmental pollution and raising consumers’ awareness of environmental protection.

This paper adopts the definition of “green value” by Yang Xiaoyan and Zhou Yijin (2006), and proposes the following hypothesis:
Hypothesis 3. Advertising appeals functions as a regulator between environmental claims and green trust;

Hypothesis 3a. In the case of associative environmental claims, consumers are more willing to recommend a brand when facing an advertisement with green value appeal than one with fear appeal;

Hypothesis 3b. In the case of substantive environmental claims, consumers are more willing to recommend a brand when facing an advertisement with fear appeal than one with green value appeal.

4 Study and Analysis

4.1 Questionnaire Scale

To ensure the credibility of the test, the scales used in this study are all from well-established scales in previous studies, and the scales and references are shown in table 1. A 7-point Likert scale was used to approach all variables in this study, where “strongly disagree” scored 1 point and “strongly agree” scored 7 points, with higher scores indicating more agreement.

Table 1. Questionnaire Scale

<table>
<thead>
<tr>
<th>Variable</th>
<th>Variable of measurement</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corporate Environmental Claims</td>
<td>The brand may have been “Greenwashing”</td>
<td>[27]</td>
</tr>
<tr>
<td></td>
<td>The brand’s environmental claims and actions are very specific</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The brand’s environmental claims and actions are very clear and feasible</td>
<td></td>
</tr>
<tr>
<td>Fear Appeal</td>
<td>After seeing the pictures, I felt afraid</td>
<td>[28]</td>
</tr>
<tr>
<td></td>
<td>After seeing the pictures, I felt anxious</td>
<td></td>
</tr>
<tr>
<td></td>
<td>After seeing the pictures, I felt fear</td>
<td></td>
</tr>
<tr>
<td>Green Value Appeal</td>
<td>Choosing this brand helps to improve the ecological environment</td>
<td>[29]</td>
</tr>
<tr>
<td></td>
<td>Choosing this brand will reduce the pollution to the environment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The brand is good for social development</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The brand’s action helps to raise awareness of environmental protection</td>
<td></td>
</tr>
<tr>
<td>Green Trust</td>
<td>I think the environmental image of this product is reliable</td>
<td>[30]</td>
</tr>
<tr>
<td></td>
<td>I think the resource recycling information of this product is reliable</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The environmental performance of this product meets my expectations</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Overall, the environmental claims of this product are reliable</td>
<td></td>
</tr>
<tr>
<td>Word-of-mouth Recommendation Intention</td>
<td>I will tell others about the positive things I saw today</td>
<td>[31]</td>
</tr>
<tr>
<td></td>
<td>I will positively recommend this company’s new product to others</td>
<td></td>
</tr>
<tr>
<td></td>
<td>I will positively recommend the company’s new product to anyone who asks for my opinion</td>
<td></td>
</tr>
</tbody>
</table>

4.2 Procedure of Experiment

In this paper, a 2 x 2 between-subject factorial design was used to test the hypotheses. To prevent participants form linking real brands to brands presented in the test, which may interfere with the experimental results, PAnDa, a virtual shoe brand, was used as the experimental material in the test. Results of the test were analyzed through intergroup comparison of four sub-groups. The four sub-groups were divided into two groups for comparison: substantive environmental claims vs. associative environmental claims, and advertising by fear appeal vs. advertising by green value appeal. In this experiment, questionnaires were collected through an online platform and distributed randomly into 4 groups with same number of questionnaires in each group. A total of 280 questionnaires were collected, among which 272 questionnaires were valid, 37.5% were from male participants, and 62.5% were from female participants (in the 8 invalid questionnaires, 4 failed to pass the screening questions, 2 questionnaires had answers all being the option “7”, and 2 had answer time less than 30...
seconds, all of which did not meet the test standards). The contents of the questionnaire were designed with realistic advertising images as experimental materials, as we tried to restore the common styles of environmental advertising in the market, so as to make the experiment as close to a real scenario as possible. After reading the experimental materials, the participants began to answer questions about the company’s environmental claims, green trust, word-of-mouth recommendation intention, and advertising appeals. Quantitative data of the questionnaire were measured with a 7-point Likert scale (table 1).

4.3 Analysis

(1) Reliability test, validity test and manipulation test. Through the scale reliability test, the Cronbach alpha-reliability coefficient of word-of-mouth recommendation scale was 0.726, the coefficient of green trust scale was 0.762, and the coefficient of enterprise environmental protection claim scale was 0.791, all of which were higher than 0.7, indicating that the scale had high level of reliability. The KMO value of factor analysis in the validity test was 0.859 (>0.6), and the Bartlett test result P value was lower than 0.05, indicating that the questionnaire was valid. T-test was used to compare the manipulative effects of corporate environmental claims (substantive claims or associative claims) and advertising appeals (fear appeal or green value appeal) respectively. The results of manipulation test showed that there was a significant difference between the substantive environmental claims and the associative environmental claims (t = 49.386, p < 0.01), indicating that the manipulation of corporate environmental claims was successful. There was also a significant difference between the advertising by fear appeal and that by green value appeal (t = 49.673, p < 0.01), revealing that the manipulation of the advertising appeal was also effective.

(2) Tests of simple main effects of corporate environmental claims on word-of-mouth recommendation. Independent sample T-test was used to verify the main effect of corporate environmental claims. The results showed that corporate environmental claims had a significant impact on word-of-mouth recommendation, and the effect of substantive environmental claims on word-of-mouth recommendation was significantly higher than that of associative environmental claims (Msubstantive = 5.90, Massociative = 5.25, t = −0.593, p < 0.01). Therefore, the H1 is validated.

(3) The mediating effect of green trust. The mediator verification was carried out in SPSS, following the mediator verification program developed by Zhao (2010) [32] et al. and adopting the process plug-in by Hayes (2013) [33]. With 5000 samples selected, Bootstrapping was used to select non-parametric percentile with deviation correction, and the mediating effect of green trust was tested with 95% confidence. The results showed that the mediating effect of green trust was significant (LLCI = 0.1541, ULCI = 0.3282, excluding 0). In addition, after controlling the intermediary variable of green trust, the independent variable of corporate environmental claim still has a significant impact on the dependent variable of word-of-mouth recommendation (LLCI = 0.0251, ULCI = 0.1842, excluding 0), indicating that green trust partially served as a mediator between corporate environmental claims and word-of-mouth recommendation (see figure 2). H2, H2a, H2b are thus verified.

(4) The moderating effect of advertising appeals. First, Process was used to complete the moderating significance test. The results showed that the moderating variable of advertising appeals played a moderating role between the independent variable of enterprise environmental claims and the intermediary variable of green trust (R² = 0.4218, p < 0.01; LLCI = −0.2617, ULCI = −0.0848, excluding 0), which proved the H3 to be valid. After the moderating significance test, a two-way ANOVA was conducted to analyze the difference between corporate environmental claims (substantive claims or associative claims) and ad-
The mediating effect of green trust (Note: *, ** and *** represent 0.05, 0.01 and 0.001 significance levels, respectively.)

Table 2. The moderating effect of advertising appeal

<table>
<thead>
<tr>
<th>The source</th>
<th>Class III sum of squares</th>
<th>Degree of freedom</th>
<th>The mean square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modified model</td>
<td>23.180*</td>
<td>3</td>
<td>7.727</td>
<td>17.525</td>
<td>.000</td>
</tr>
<tr>
<td>Intercept</td>
<td>9133.121</td>
<td>1</td>
<td>9133.121</td>
<td>20714.944</td>
<td>.000</td>
</tr>
<tr>
<td>Advertising appeals (1 fear; 2 green value)</td>
<td>3.323</td>
<td>1</td>
<td>3.323</td>
<td>7.538</td>
<td>.006</td>
</tr>
<tr>
<td>Corporate environmental claims (1 associative claims; 2 substantive claims)</td>
<td>17.323</td>
<td>1</td>
<td>17.323</td>
<td>39.291</td>
<td>.000</td>
</tr>
<tr>
<td>Advertising appeal (1 fear; 2 green value) * Corporate environmental claims (1 associative claims; 2 substantive claims)</td>
<td>2.731</td>
<td>1</td>
<td>2.731</td>
<td>6.195</td>
<td>.013</td>
</tr>
<tr>
<td>Errors</td>
<td>118.160</td>
<td>268</td>
<td>.441</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>9281.563</td>
<td>272</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total after correction</td>
<td>141.340</td>
<td>271</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\[ R^2 = .164 \text{ (After adjustment } R^2 = 1.55) \]

Advertising appeals (fear appeal or green value). The results showed that there are significant differences between the two groups (table 2).

The analysis results of the interaction between the two groups showed that, in the face of associative environmental claims, the influence of advertising by green value on green trust was more significant than that of advertising by fear appeal (\( F = 13.70, p < 0.01 \); \( M_{\text{green value}} = 5.754 \), \( M_{\text{fear appeal}} = 5.322 \)), by which H3a was verified. In the case of substantive environmental claims, there was no significant difference between the effect of green value appeal and fear appeal on green trust (\( p > 0.05 \)), thus H3b was not verified.

5 Conclusion and Future Work

The paper studied the influence of associative and substantive environmental claims on consumers’ word-of-mouth recommendation intention, the moderating effect of different advertising appeals (fear appeal and green value appeal), and the mediating role of green trust. The main conclusions are as follows:

1. Different environmental claims have different effects on consumers’ word-of-mouth recommendation intention. When enterprises use substantive environmental claims, consumers have stronger word-of-mouth recommendation intention. Compared with associative environmental claims without tangible environmental actions, concrete and enforceable environmental claims are more welcomed and trusted by consumers, thus they are more willing to recommend the brand by word of mouth.
(2) Green trust serves as a mediator between corporate environmental claims and consumers’ word-of-mouth recommendation intention. Promoting green and low-carbon development is the will of the international community and trend of the times. Against this background, more and more enterprises propose their own environmental claims. When consumers believe that the environmental claim of an enterprise is substantive, they will have a higher level of green trust in its green advertisements. Accordingly, their word-of-mouth recommendation intention will also increase. Based on the above test and analysis, H2, H2a and H2b are verified.

(3) When consumers are unable to properly identify a company’s environmental claims, there is no significant change in consumers’ willingness to make word-of-mouth recommendation, regardless of the types of environmental claims and advertising appeals.

(4) It has been proved in this study that enterprises adopting substantive environmental claims can gain the green trust of consumers. In this case, no matter which kind of advertising appeal enterprises choose, consumers would have higher word-of-mouth recommendation intention.

(5) There is no significant difference between the effects of the fear appeal and green value appeal on green trust if the environmental claim is substantive. When companies select an substantive environmental claim, there is no significant difference in consumers’ intention to recommend the brand by word of mouth, no matter the advertisement is with fear appeal or with green value appeal. On the contrary, if consumers deem a corporate environmental claim to be vague and associative, an environmental claim with green value appeal has better effect than that with fear appeal. However, when an enterprise adopts associative environmental claims, no matter which type of advertising appeal (fear appeal and green value appeal) it chooses, word-of-mouth recommendation intention is lower than the case in which substantive environmental claims are adopted.

In terms of practical application, the study empirically analyzes the phenomenon of “greenwashing” and provides corresponding measures. In regard to our daily life, it is hoped that this study can help improve people’s ability to identify greenwashing and help consumers effectively distinguish substantive environmental claims from associative environmental claims. For promoting green economy and creating a better life, the study provides suggestions for enterprises to carry out substantial environmental actions at the level of consumption and advance their green transformation.
This study is sponsored by the National Natural Science Foundation of China (NSFC; Grant No.: 72172099)

References

[23] L. Qi, X. Yan, G. Zhonghua, Psychological Science 45, 8 (2022)