The Drivers of Green Brand Equity: Green Brand Image, Green Satisfaction, and Green Trust

Yu-Shan Chen

ABSTRACT. This article proposed four novel constructs – green brand image, green satisfaction, green trust, and green brand equity, and explored the positive relationships between green brand equity and its three drivers – green brand image, green satisfaction, and green trust. The object of this research study was information and electronics products in Taiwan. This research employed an empirical study by use of the questionnaire survey method. The questionnaires were randomly mailed to consumers who had the experience of purchasing information and electronics products. The results showed that green brand image, green satisfaction, and green trust are positively related to green brand equity. Furthermore, the positive relationship between green brand image and green brand equity is partially mediated by green satisfaction and green trust. Hence, investing on resources to increase green brand image, green satisfaction, and green trust is helpful to enhance green brand equity.

KEY WORDS: green brand image, green satisfaction, green trust, green brand equity, green marketing

Introduction

In recent years, owing to the enormous amount of environmental pollution which directly connects with industrial manufacturing in the world, the society has noticed environmental issues increasing steadily (Chen, 2008a). Because of the attention of the society, more and more companies are willing to accept the environmental responsibility (Chen et al., 2006). Nowadays, environmental concern rapidly emerges as a mainstream issue for consumers because of global warming, and many companies are seeking to catch the opportunity. In turn, green marketing becomes more important for some kinds of products, such as information and electronics products (Chen et al., 2006).

However, not all the companies have enough capabilities to market their green products to their consumers. If companies want to adopt green marketing successfully, then their environmental concepts and ideas should be integrated into all aspects of marketing (Ottman, 1992). If companies can provide products or services that satisfy their customers' environmental needs, then their customers would be more favorable to their products or services. In the advent of environmental era, companies must find an opportunity to enhance their products' environmental performance to strengthen their brand equities.

Because of more popular environmentalism in the world, the sales of green products have dramatically increased nowadays, and, therefore, more consumers are willing to pay higher price for green products (Chen, 2008b). There are five reasons for companies to develop green marketing: compliance with environmental pressures; obtaining competitive advantage; improving corporate images; seeking new markets or opportunities; and enhancing product value. Therefore, this study argued that undertaking green marketing for companies could raise their intangible brand equities. Although the value of brand equity cannot be accounted for by current financial accounting methods for most own branding companies (Neal and Strauss, 2008), creating a strong brand in the market is one of their main goals because it can provide benefits for them, including less vulnerability to competitive marketing actions, larger margins, and greater brand extension opportunities (Delgado-Ballester and Munuera-Alemán, 2005; van Riel et al., 2005).

Although previous studies have paid great attention to explore the relevant issues of brand image, satisfaction, trust, and brand equity, none explored them about green or environmental issues. Therefore, this

study wanted to fill the research gap. This study proposed four novel constructs – green brand image, green satisfaction, green trust, and green brand equity – and discussed their implications in the field of green marketing. In addition, this study developed a research framework which can enhance green brand equity from green brand image, green satisfaction, and green trust. Furthermore, this study summarized the literature on green marketing and corporate environmental management into a new managerial framework. Therefore, the main contribution of this article is to propose the four novel constructs – green brand image, green satisfaction, green trust, and green brand equity – and to extend brand equity research into the environmental context. Another contribution of this study is to provide a research framework to explore the relationships among green brand image, green satisfaction, green trust, and green brand equity and to further undertake an empirical test. This study focused on finding the correct standpoint and evaluation for new concepts of green marketing in compliance with the environmental trends to increase green brand equity from three drivers: green brand image, green satisfaction, and green trust.

The structure of this article is as follows: A literature review is discussed in ''Literature review and hypothesis development'' section, and five hypotheses are also proposed in this section. In ''Methodology and measurement'' section, this study described the methodology, the sample, data collection, and the measurements of the constructs. Next, the descriptive statistics, reliability of the measurement, factor analysis, correlation coefficients between constructs, discriminate validity, convergent validity, and the results of Structural Equation Modeling (SEM) are shown in ''Empirical results'' section. In the end, this study mentioned the discussions about the findings and implications, and pointed out possible directions for future research in ''Conclusion and implications'' section.

Literature review and hypothesis development

Green marketing

Consumer environmentalism has been more prevalent in the last two decades while consumers are aware of the environmental problems in the world because of the impact of infamous environmental disasters and the rise of environmental protection activities (Mclntosh, 1991). Eventually, consumers become more willing to purchase products which are more environmental friendly (Krause, 1993). Because there are more consumers with responsible and environmental attitudes since the early 1990s, who prefer purchasing products which generate a minimum detrimental impact on the environment, the society becomes more concerned with the environment and, in turn, companies are forced to change their behaviors with regard to compliance with the society's environmental concern (Ottman, 1992; Peattie, 1992, 1995; Vandermerwe and Oliff, 1990). The environmental pressure is impossible to ignore, so the companies should develop new business models that can secure compliance with the popular green trends nowadays. In recent years, green marketing is one of the emerging notions in the field of marketing, and its concept has been widely accepted and applied in practice. Companies can utilize the idea of green marketing to generate and to facilitate any exchange intended to satisfy customers' environmental needs or wants (Polonsky, 1994). In addition, green marketing is a much broader concept which encompasses all marketing activities that are developed to stimulate and to sustain consumers' environmental friendly attitudes and behaviors (Jain and Kaur, 2004). Previous studies suggested companies can undertake green marketing activities to investigate consumers' green attitudes and behaviors, to identify the market of green products, to stratify the green market into different segments based on the consumers' needs, to develop green positioning strategies, and to formulate a green marketing mix program (Jain and Kaur, 2004). Because of the more importance of green marketing in the future, this study discussed the concept of green brand equity and proposed a research framework to explore its positive relationships with its three drivers: green brand image, green satisfaction, and green trust.

The positive effect of green brand image on green satisfaction, green trust, and green brand equity

Brand image plays an important role in the markets where it is difficult to differentiate products or services based on tangible quality features (Mudambi et al., 1997). Brand image includes symbolic meanings

that associate with the specific attributes of the brand, and it can be defined as a consumer's mental picture of a brand in the consumer's mind that is linked to an offering (Cretu and Brodie, 2007; Padgett and Allen, 1997). In addition, brand image is a set of perceptions about a brand reflected by brand associations for consumers (Cretu and Brodie, 2007; Keller, 1993). Therefore, Park et al. (1986) argued that brand image covers functional benefits, symbolic benefits, and experiential benefits. Based on the above definition, this study proposed a novel construct, ''green brand image,'' and defined it as ''a set of perceptions of a brand in a consumer's mind that is linked to environmental commitments and environmental concerns.''

Satisfaction is a delightful degree of post-consumption evaluation or a pleasurable degree of consumption-related fulfillment (Oliver, 1996; Paulssen and Birk, 2007; Ruyter and Bloemer, 1999). 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 (Mai and Ness, 1999). Based on the above definitions, this study proposed a novel construct, ''green satisfaction,'' and defined it as ''a pleasurable level of consumption-related fulfillment to satisfy a customer's environmental desires, sustainable expectations, and green needs.''

Corrigan (1996) demonstrated that Ireland had significant growth since the promoting of Ireland's green image. Furthermore, Hu and Wall (2005) asserted that the increase of environmental image can enhance the competitiveness of tourism. Similarly, green brand image is more important for companies especially under the rise of prevalent environmental consciousness of consumers and strict international regulations of environmental protection. Companies can embody the concept of green marketing in their products to obtain the differentiation advantages of their products (Chen et al., 2006; Peattie, 1992; Porter and van der Linde, 1995). In addition, firms investing many efforts in improving their brand images can, not only avoid the trouble of environmental protests or punishment but also enable them to enhance their customer satisfaction about environmental desires, sustainable expectations, and green needs. Because brand image is an important determinant of customer satisfaction, previous studies posited that there is a positive relationship between brand image and customer satisfaction (Chang and Tu, 2005; Martenson, 2007). According to the argument above, the more the green brand image is, the higher the pleasurable level of consumption-related fulfillment is to satisfy the customers' environmental desires, sustainable expectations, and green needs. Thus, this study proposed the following hypothesis:

Hypothesis 1 (H₁): Green brand image is positively associated with green satisfaction.

Trust is a level of the confidence that another party would behave as expected (Hart and Saunders, 1997). Rousseau et al. (1998) asserted that trust is the intention to accept vulnerability based on positive expectations of the behaviors or intentions of another. Previous studies argued that trust includes three beliefs: integrity, benevolence, and ability (Blau, 1964; Schurr and Ozanne, 1985). In addition, Ganesan (1994) argued that trust is a willingness to depend on another party based on the expectation resulting from the party's ability, reliability, and benevolence. Therefore, customer trust can influence their purchasing decisions (Gefen and Straub, 2004). Because some companies promote their new products which embody misleading and confusing green claims, and exaggerate the environmental value of their products, customers are not willing to trust their products any more (Kalafatis and Pollard, 1999). Referring to Blau (1964), Schurr and Ozanne (1985), and Ganesan (1994), this study proposed a novel construct, ''green trust,'' and defined it as ''a willingness to depend on a product, service, or brand based on the belief or expectation resulting from its credibility, benevolence, and ability about its environmental performance.'' Previous studies showed that the image perceived by a consumer can significantly affect his or her behavior (Dowling, 1986; Ratnasingham, 1998). In addition, image has a positive influence upon consumer trust because it can diminish the risk perceived by consumers and simultaneously increase the probability of purchase at the moment of execution of transaction (Flavián et al., 2005). Therefore, prior studies have demonstrated that brand image might influence decision-making of agents involving in the exchanges, and therefore argued that there is a positive relationship between brand image and customer trust (Flavián et al., 2005; Mukherjee and Nath, 2003). According to the argument above, the more the green

brand image, the higher the willingness to depend on the brand based on the belief or expectation resulting from its credibility, benevolence, and ability about environmental performance. Therefore, this study implied the following hypothesis:

Hypothesis 2 (H₂):   Green brand image is positively associated with green trust.

Brand equity, the intangible brand property, is the hidden value inherent in a well-known brand name (Yasin et al., 2007). Higher brand equity can enable consumers to be willing to pay more for the same level of quality due to the attractiveness of the name attached to the product (Bello and Holbrook, 1995). Previous studies defined brand equity from two perspectives: The first definition from the financial perspective stresses the value of a brand to the firm (Simon and Sullivan, 1993); the second definition from the consumer perspective highlights the value of a brand to the consumers (Aaker, 1991; Keller, 1993; Rangaswamy et al., 1993). Although the classic definition of brand equity is proposed from the added value of the brand endowed by its name, recent branding literature has expanded its definition to include a broad set of attributes that drive customer choice (Yoo et al., 2000). Aaker (1991) and Keller (1993) explored brand equity from the consumer perspective based on consumers' memory-based brand associations. Aaker (1991) defined brand equity as ''a set of brand assets and liabilities linked to a brand, its name and symbol that add to or subtract from the value provided by a product or service to a firm and to the firm's customers.'' In addition, Keller (1993) posited that brand equity can create the differential effect of brand knowledge on consumer response to the marketing of a brand. Based on the above definitions, this study proposed a novel construct, ''green brand equity,'' and defined it as ''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.'' Previous studies suggested that enhancing brand image is beneficial for the increasing of brand equity (Faircloth et al., 2001). In addition, Biel (1992) postulated that brand equity is driven by brand image. According to the argument above, this study proposed the following hypothesis:

Hypothesis 3 (H₃):   Green brand image is positively associated with green brand equity.

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 (Oliver, 1994; Olsen, 2002). Customer satisfaction is one of the most widely discussed topics in the marketing field (Oliver, 1996). For example, previous studies have demonstrated customer satisfaction can lead to consumer's purchase intentions (Mai and Ness, 1999; Martenson, 2007), and repeat purchase behavior (Chang and Tu, 2005). Consumers who are highly satisfied with a brand may recall its name directly, compared to consumers who are less satisfied with it. Brand equity can precisely represent the preference, attitude, and purchase behavior of customers for a brand (Yasin et al., 2007). In addition, brand equity is a set of the associations developed between the attributes of a brand and the benefits perceived from its customers (Keller, 1993; Krishnan, 1996). Satisfaction for a brand would impact positively on the strength and favorability of associations toward it in its consumers' minds (Pappu and Quester, 2006). Hence, there exists a positive relationship between customer satisfaction with a brand and its brand equity (Pappu and Quester, 2006). Moreover, Kim et al. (2008) demonstrated that consumers' satisfaction positively affects brand equity and indicated that brand equity varies with customer satisfaction. This study proposed two novel constructs, ''green satisfaction'' and ''green brand equity'' in the prior hypotheses. In turn, the more the green satisfaction the more the level of green grand equity. Hence, this study implied the following hypothesis:

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

The positive effect of green trust on green brand equity

The literature of relationship marketing suggested that trust is the main factor on which a relationship is based (Delgado-Ballester and Munuera-Alemán, 2005). Trust is one of the topics that have attracted

major interest in the academic community. This is due to the fact that trust is thought as a strategic action in the marketing field and an essential ingredient in the success of relationships (Flavián et al., 2005; Moorman et al., 1992). Furthermore, to trust a brand implicitly implies that there is a high probability or expectancy for its consumers such that the brand would obtain positive evaluation. Considering brand trust as expectancy, it is based on the consumer's belief that the brand is consistent, competent, honest, and responsible (Doney and Cannon, 1997). Social exchange theory indicated that customer trust would enhance the social embeddedness of the consumer–provider relationship to further increase the customer's commitment to the relationship (Grayson and Ambler, 1999; Moorman et al., 1992; Singh and Sirdeshmukh, 2000). Brand equity is considered as a relational market-based asset, and it is attached to a brand and embeds in the relationships with its customers (Srivastava et al., 1998). Prior research asserted that brand trust is important for the increasing of brand equity and indicated that brand trust is positively associated with brand equity (Delgado-Ballester and Munuera-Alemán, 2005; Ganesan, 1994; Morgan and Hunt, 1994). Therefore, customer trust is a significant determinant of brand equity (Ambler, 1997). In turn, customer trust affects brand equity positively (Jevons and Gabbott, 2000; Kim et al., 2008). Some companies launch their new products which embody unreliable environmental promises, and fabricate the environmental functions of their products, and so customers are not willing to trust their products with the result that their brand reputation would be impaired (Kalafatis and Pollard, 1999). This study proposed two novel constructs, ''green trust'' and ''green brand equity'' in the prior hypotheses. Connecting the concept of the relationship marketing with a trust-based approach to brand equity in the environmental context, this study proposed the following hypothesis:

Hypothesis 5 (H₅): Green trust is positively associated with green brand equity.

This study postulated that green brand image, green satisfaction, and green trust are positively related to green brand equity. In addition, this study argued that the positive relationship between green brand image and green brand equity is partially mediated by green

satisfaction and green trust. The antecedent of the research framework in this study is green brand image and the consequent is green brand equity, while green satisfaction and green trust are partial mediators. The research framework is shown in Figure 1.

Methodology and measurement

Data collection and the sample

The unit of analysis in this study is the consumer level. This study applied the questionnaire survey to verify the hypotheses and research framework. The object of this research study was information and electronics products in Taiwan. The questionnaires were randomly mailed to consumers who had the experience of purchasing information and electronics products. The study referred to previous studies to design questionnaire items. Prior to mailing to the respondents, six experts and scholars were asked to modify the questionnaire in the first pretest. Subsequently, the questionnaires were randomly mailed to 10 consumers who had the experience of purchasing information and electronics products and they were asked to fill in the questionnaire and to identify the ambiguities in terms, meanings and issues in the second pretest. Therefore, the questionnaire of this study had a high level of content validity. After the second pretest, the sample was randomly selected from *2008 Yellow Book of Taiwan* In order to heighten the valid survey response rate, this research team called to each randomly selected consumer who had the experience of purchasing information and electronics products, explained the objectives of the study and the questionnaire contents, and confirmed the names and addresses of the respondents prior to questionnaire mailing. The respondents were asked to return the completed questionnaires within 2 weeks through mailing. High content validity is a necessary requisition for the questionnaire survey in this study. Information and electronics products face the highly strict international environmental laws or regulations, such as Montreal Convention, Kyoto Protocol, Restriction of the Use of Certain Hazardous Substances in EEE (RoHS), and Waste Electronics and Electrical Equipment (WEEE), so that consumers need to purchase information and electronics
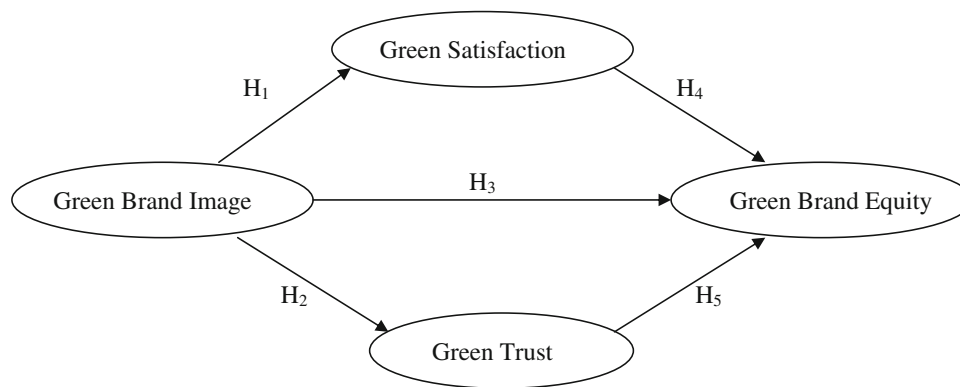
Figure 1. Research framework.

products which are environmental friendly to satisfy their environmental needs (Chen et al., 2006). This study sent 650 questionnaires to the consumers who were sampled. There were 254 valid questionnaires and 30 invalid questionnaires, and the effective response rate was 39.1%.

Definitions and measurements of the constructs

The measurement of the questionnaire items was by use of "five-point Likert scale from 1 to 5" rating from "strongly disagree" to "strongly agree." This article proposes four novel constructs – green brand image, green satisfaction, green trust, and green brand equity – and refers to previous studies about brand image, satisfaction, trust, and brand equity to develop the definitions and measurements of the four constructs. This study asked every respondent to point out a Taiwanese brand of information and electronics products which is the most impressive for her or him. Then, every consumer 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 as follows:

Green brand image. This study referred to Padgett and Allen (1997), and Cretu and Brodie (2007), and defined "green brand image" as "a set of perceptions of a brand in a consumer's mind that is linked to environmental commitments and environmental concerns." 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; and (5) the brand is trustworthy about environmental promises.

Green satisfaction. This study referred to Oliver (1996) and defined "green satisfaction" as "a pleasurable level of consumption-related fulfillment to satisfy a customer's environmental desires, sustainable expectations, and green needs." The measurement of green satisfaction 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; and (4) Overall, you are satisfied with this brand because of its environmental concern.

Green trust. Referring to Blau (1964), Schurr and Ozanne (1985), and Ganesan (1994), this study defined "green trust" as "a willingness to depend on a product, service, or brand based on the belief or expectation resulting from its credibility, benevolence, and ability about its environmental performance." The measurement of green trust includes five items: (1) You feel that this brand's environmental commitments are generally reliable; (2) you feel that this brand's environmental performance is generally dependable; (3) you feel that this brand's environmental argument is generally trustworthy; (4) This brand's environmental concern meets your expectations; and (5) This brand keeps promises and commitments for environmental protection.

Green brand equity. Referring to Aaker (1991) and Keller (1993), this study defined "green brand equity" as "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." Based on the measurement of overall brand equity from Yoo et al. (2000), Yoo and Donthu (2001), and Delgado-Ballester and Munuera-Alemán (2005), the measurement of green brand equity in this study 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.

Empirical results

This study utilized SEM to verify the research framework and hypotheses, and applied AMOS 7.0 to obtain the empirical results. SEM of this study examined the two levels of analysis, the measurement model and the structure model, and their results are shown here below.

The results of the measurement model

The means, standard deviations, and correlation matrix are shown in Table I. In Table I, there are positive correlations among green brand image, green satisfaction, green trust, and green brand equity. The factor analysis of the four constructs is shown in Table II. Every construct in this study can be classified into only one factor. The study referred to the previous studies to design questionnaire items. Before mailing to the respondents, this study employed two pretests for the questionnaire revisions. Therefore, the measurement of this study is acceptable in content validity. Besides, there are two measurements to confirm the reliability of the constructs. First, one measure of the reliability is to examine the loadings of each constructs' individual items. With respect to the quality of the measurement model for the sample, the loadings (λ) of all items of the four constructs listed in Table III are significant. Second, Cronbach's α is the other measure of the reliability. Table III lists Cronbach's α for the constructs. In general, the minimum requirement of Cronbach's α coefficient is 0.7 (Hair et al., 1998). It can be observed that the Cronbach's α coefficient of "green brand image" is 0.744; that of "green satisfaction" is 0.724; that of "green trust" is 0.768; and that of "green brand equity" is 0.837. Because the Cronbach's α coefficients of all four

TABLE II

Factor analysis of this study

Constructs	Number of items	Number of factors	Accumulation percentage of explained variance
Green brand image	5	1	51.1
Green satisfaction	4	1	56.4
Green trust	5	1	52.5
Green brand equity	4	1	67.4

TABLE I

Means, standard deviations and correlations of the constructs

Constructs	Mean	Standard deviation	A	B	C	D
A. Green brand image	3.935	0.601				
B. Green satisfaction	4.359	0.471	0.369★★			
C. Green trust	3.836	0.584	0.394★★	0.423★★		
D. Green brand equity	4.054	0.640	0.418★★	0.366★★	0.260★★	

★★$p < 0.01$.

TABLE III

The items' loadings (λ) and the constructs' Cronbach's α coefficients and AVEs

Constructs	Items	λ	Cronbach's α	AVE	The square root of AVE
A. Green brand image	GBI1	0.771	0.744	0.641	0.801
	GBI2	0.790★★			
	GBI3	0.786★★			
	GBI4	0.804★★			
	GBI5	0.819★★			
B. Green satisfaction	GS1	0.835	0.724	0.734	0.857
	GS2	0.902★★			
	GS3	0.911★★			
	GS4	0.907★★			
C. Green trust	GT1	0.817	0.768	0.725	0.851
	GT2	0.824★★			
	GT3	0.835★★			
	GT4	0.840★★			
	GT5	0.823★★			
D. Green brand equity	GBE1	0.803	0.837	0.692	0.832
	GBE2	0.834★★			
	GBE3	0.822★★			
	GBE4	0.839★★			

★★$p < 0.01$.

constructs are more than 0.7, the measurement of this study is acceptable in reliability.

In addition, it is also important to verify whether the validity of the measurement in this study is acceptable. There are two measurements to confirm the validity of the constructs. First, this study applied Fornell and Larcker's measure of average variance extracted (AVE) to access the discriminative validity of the measurement (Fornell and Larcker, 1981). The AVE measures the amount of variance captured by the construct through its items relative to the amount of variance due to the measurement error. In order to satisfy the requirement of the discriminative validity, the square root of a construct's AVE must be greater than the correlations between the construct and other constructs in the model. For example, the square roots of the AVEs for the two constructs, green brand image and green trust, are 0.801 and 0.851 in Table III which are more than the correlation between them, 0.394, in Table I. This demonstrates that there was adequate discriminative validity between the two constructs. The square roots of all constructs' AVEs in Table III of this study are all greater than the correlations among all constructs in Table I. Therefore, the

discriminative validity of the measurement in this study is acceptable. Second, if the AVE of a construct is greater than 0.5, then it means that there is convergent validity for the construct. As shown in Table III, the AVEs of the four constructs are 0.641, 0.734, 0.725, and 0.692, respectively, which are all greater than 0.5. It indicates that there is convergent validity in this study. Thus, the measurement of this study is acceptable in discriminative validity and convergent validity. According to the several tests of reliability and validity, it demonstrates that there are adequate reliability and validity in this study.

The results of the structural model

Table IV shows the results of the structural model in this study. The overall fit measures of the SEM in this study indicate that the fit of the model is very good (GFI = 0.880, RMSEA = 0.058, NFI = 0.902, CFI = 0.906). All of the paths estimated are significant, and all hypotheses are supported in this study. Adding more paths in the research framework would not significantly improve the fit. The residuals of the

TABLE IV

The results of the structural model

Hypothesis	Proposed effect	Path coefficient	Results
H_1	+	0.266★	H_1 is supported
H_2	+	0.297★★	H_2 is supported
H_3	+	0.294★	H_3 is supported
H_4	+	0.238★	H_4 is supported
H_5	+	0.203★	H_5 is supported

★$p < 0.05$, ★★$p < 0.01$.

Figure 2. The results of the full model.

covariance are also small and centered near 0. Moreover, subsequent discussion would focus on every path.

The results of the full model in this study are shown in Figure 2. All five paths estimated are significant. This study found out that brands with high levels of green brand image, green satisfaction, and green trust can not only meet the strict international environmental regulations and the popular environmentalism of consumers, but also enhance their green brand equities. Besides, this study also verified green satisfaction and green trust had partial mediation effects on the positive relationship between green brand image and green brand equity. Therefore, H_1, H_2, H_3, H_4, and H_5 are all supported in this study.

Conclusion and implications

Because environment issues have become a mainstream in the world, the environmentalism of consumers had increased in the early 1990s such that consumers are willing to purchase products which are more environmental friendly. Therefore, green marketing is one of the inevitable trends for companies, and its concept has been widely accepted and applied in recent years. Consequently, green marketing often allows the companies to access to new markets, to increase their profitability, and to enjoy more competitive advantages. For companies, brand equity can provide a competitive advantage because it gives the brand the power to capture a larger market share and to sell at higher prices with higher profit margins (Jung and Sung, 2008). Thus, it is necessary to incorporate the idea of green marketing into the framework of brand equity.

Although prior researches widely discussed about branding issues, there has been no study exploring the concept of green marketing in the branding literature. In order to fill this research gap, this article proposed four novel constructs – green brand image, green satisfaction, green trust, and green brand equity – and developed a research framework to further discuss their relationships. This article summarizes the literature on green marketing and branding management into a new managerial framework. The empirical results show that green brand image, green satisfaction, and green trust are positively related to green brand equity. In addition, the positive relationship between green brand image and green brand equity is partially mediated by green satisfaction and green trust. All the hypotheses proposed in this article are supported in this study. Therefore, this study suggests that companies should invest more resources in the increasing of green brand image, green satisfaction, and green trust, because green brand image, green satisfaction, and green trust are positively associated with green brand equity.

Nowadays, companies should exploit popular concerns about environmental issues to position their brands to obtain new differentiation advantages in new markets. Hence, the ideas of green marketing can become a new way of brand positioning. Although some companies try to formulate long-term strategies to carry out their green marketing, the huge challenge for them is incorporating their environmental vision into their corporate strategies rather than seeking to promote their green brands alone. The main purpose of this article is to verify the positive relationships between green brand equity and its three drivers – green brand image, green satisfaction, and green trust. In addition, this study has also identified that the positive relationship between green brand image and green brand equity is partially mediated by green satisfaction and green trust. This article extended brand equity research into the environmental context, and demonstrated that green brand image, green satisfaction, and green trust are positively related to green brand equity. If companies try to enhance their green brand equity, they should incorporate the ideas of green brand image, green satisfaction, and green trust into their long-term environmental strategies in the stage of strategy planning.

This study was undertaken in the case of information and electronics products in Taiwan, so that further studies can focus on the purchase experience of other products in other countries and compare with this study. This study verified the hypotheses with a questionnaire survey, only providing cross-sectional data, so that it could not observe the dynamic change of green brand image, green satisfaction, green trust, and green brand equity in the different stages of the environmental regulations in the world through longitudinal data. Therefore, future studies can set forth toward the longitudinal study to find out the differences of green brand image, green satisfaction, green trust, and green brand equity in the different stages of the environmental regulations in the world. Finally, this author hopes that the research results are helpful to managers, researchers, practitioners, and governments, and provide useful contribution to relevant studies and future researches as reference.

References

Aaker, D. A.: 1991, *Managing Brand Equity: Capitalizing on the Value of a Brand Name* (The Free Press, New York).
Ambler, T.: 1997, 'How much of Brand Equity is Explained by Trust?', *Management Decision* **35**(4), 283–292.

Bello, D. C. and M. B. Holbrook: 1995, 'Does an Absence of Brand Equity Generalize Across Product Classes', *Journal of Business Research* **34**(2), 125–131.

Biel, A. L.: 1992, 'How Brand Image Drives Brand Equity', *Journal of Advertising Research* **32**(6), 6–12.

Blau, P. M.: 1964, *Exchange and Power in Social Life* (Wiley, Inc., New York).

Chang, C.-H. and C.-Y. Tu: 2005, 'Exploring Store Image, Customer Satisfaction and Customer Loyalty Relationship: Evidence from Taiwanese Hypermarket Industry', *Journal of American Academy of Business* **7**(2), 197–202.

Chen, Y.-S.: 2008a, 'The Positive Effect of Green Intellectual Capital on Competitive Advantages of Firms', *Journal of Business Ethics* **77**(3), 271–286.

Chen, Y.-S.: 2008b, 'The Driver of Green Innovation and Green Image – Green Core Competence', *Journal of Business Ethics* **81**(3), 531–543.

Chen, Y.-S., S.-B. Lai and C.-T. Wen: 2006, 'The Influence of Green Innovation Performance on Corporate Advantage in Taiwan', *Journal of Business Ethics* **67**(4), 331–339.

Corrigan, J.: 1996, 'How a Green Image can Drive Irish Export Growth', *Greener Management International* **16**, 87–95.

Cretu, A. E. and R. J. Brodie: 2007, 'The Influence of Brand Image and Company Reputation Where Manufacturers Market to Small Firms: A Customer Value Perspective', *Industrial Marketing Management* **36**(2), 230–240.

Delgado-Ballester, E. and J. L. Munuera-Alemán: 2005, 'Does Brand Trust Matter to Brand Equity?', *Journal of Product and Brand Management* **14**(2/3), 187–196.

Doney, P. and J. P. Cannon: 1997, 'An Examination of the Nature of Trust in Buyer-Seller Relationships', *Journal of Marketing* **61**(2), 35–51.

Dowling, G. R.: 1986, 'Managing your Corporate Images', *Industrial Marketing Management* **15**(2), 109–115.

Faircloth, J. B., L. M. Capella and B. L. Alford: 2001, 'The Effect of Brand Attitude and Brand Image on Brand Equity', *Journal of Marketing Theory and Practice* **9**(3), 61–75.

Flavián, C., M. Guinalíu and E. Torres: 2005, 'The Influence of Corporate Image on Consumer Trust: A Comparative Analysis in Traditional Versus Internet Banking', *Internet Research* **15**(4), 447–470.

Fornell, C. and D. F. Larcker: 1981, 'Evaluating Structural Equation Models with Unobservable Variables and Measurement Error', *Journal of Marketing Research* **18**(1), 39–50.

Ganesan, S.: 1994, 'Determinants of Long-Term Orientation in Buyer-Seller Relationships', *Journal of Marketing* **58**(2), 1–19.

Gefen, D. and D. W. Straub: 2004, 'Consumer Trust in B2C e-Commerce and the Importance of Social Presence: Experiments in e-Products and e-Services', *Omega* **32**(6), 407–424.

Grayson, K. and T. Ambler: 1999, 'The Dark Side of Long-Term Relationships in Marketing Services', *Journal of Marketing Research* **36**(1), 132–141.

Hair, J. F., R. E. Anderson, R. L. Tatham and W. C. Black: 1998, *Multivariate Data Analysis* (Prentice-Hall, Inc., Upper Saddle River, NJ).

Hart, P. and C. Saunders: 1997, 'Power and Trust: Critical Factors in the Adoption and use of Electronic Data Interchange', *Organizational Science* **8**(1), 23–42.

Hu, W. and G. Wall: 2005, 'Environmental Management, Environmental Image and the Competitive Tourist Attraction', *Journal of Sustainable Tourism* **13**(6), 617–635.

Jain, S. K. and G. Kaur: 2004, 'Green Marketing: An Indian Perspective', *Decision* **31**(2), 168–209.

Jevons, C. and M. Gabbott: 2000, 'Trust, Brand Equity and Brand Reality in Internet Business Relationships: An Interdisciplinary Approach', *Journal of Marketing Management* **16**(6), 619–634.

Jung, J. and E.-Y. Sung: 2008, 'Consumer-Based Brand Equity; Comparisons Among Americans and South Koreans in the USA and South Koreans in Korea', *Journal of Fashion Marketing and Management* **12**(1), 24–35.

Kalafatis, S. P. and M. Pollard: 1999, 'Green Marketing and Ajzen's Theory of Planned Behaviour: A Cross-Market Examination', *Journal of Consumer Marketing* **16**(4/5), 441–460.

Keller, K. L.: 1993, 'Conceptualizing, Measuring, and Managing Customer-Based Brand Equity', *Journal of Marketing* **57**(1), 1–22.

Kim, K. H., K. S. Kim, D. Y. Kim, J. H. Kim and S. H. Kang: 2008, 'Brand Equity in Hospital Marketing', *Journal of Business Research* **61**(1), 75–82.

Krause, D.: 1993, 'Environmental Consciousness: An Empirical Study', *Journal of Environment and Behavior* **25**(1), 126–142.

Krishnan, H. S.: 1996, 'Characteristics of Memory Associations: A Consumer-Based Brand Equity Perspective', *International Journal of Research in Marketing* **13**(4), 389–405.

Mai, L. W. and M. R. Ness: 1999, 'Canonical Correlation Analysis of Customer Satisfaction and Future Purchase of Mail-Order Speciality Food', *British Food Journal* **101**(11), 857–870.

Martenson, R.: 2007, 'Corporate Brand Image, Satisfaction and Store Loyalty; A Study of the Store as a Brand, Store Brands and Manufacturer Brands', *International Journal of Retail & Distribution Management* **35**(7), 544–555.

Mclntosh, A.: 1991, 'The Impact of Environmental Issues on Marketing and Politics in the 1990s', *Journal of the Market Research Society* **33**(3), 205–217.

Moorman, C., G. Zaitman and R. Deshpande: 1992, 'Relationships Between Providers and Users of Market Research: The Dynamics of Trust Within and Between Organizations', *Journal of Marketing Research* **29**(3), 314–328.

Morgan, R. M. and S. D. Hunt: 1994, 'The Commitment-Trust Theory of Relationship Marketing', *Journal of Marketing* **58**(3), 20–38.

Mudambi, S. M., P. Doyle and V. Wong: 1997, 'An Exploration of Branding in Industrial Markets', *Industrial Marketing Management* **26**(5), 433–446.

Mukherjee, A. and P. Nath: 2003, 'A Model of Trust in Online Relationship Banking', *International Journal of Bank Marketing* **21**(1), 5–15.

Neal, W. and R. Strauss: 2008, 'A Framework for Measuring and Managing Brand Equity', *Marketing Research* **20**(2), 6–12.

Oliver, R. L.: 1994, 'Conceptual Issues in the Structural Analysis of Consumption Emotion, Satisfaction, and Quality: Evidence in a Service Setting', *Advances in Consumer Research* **21**(1), 16–22.

Oliver, R. L.: 1996, *Satisfaction: A Behavioral Perspective on the Consumer* (McGraw-Hill, NY, USA).

Olsen, S. O.: 2002, 'Comparative Evaluation and the Relationship Between Quality, Satisfaction, and Repurchase Loyalty', *Journal of the Academy of Marketing Science* **30**(3), 240–249.

Ottman, J. A.: 1992, *Green Marketing* (NTC Business Books, Chicago, USA).

Padgett, D. and D. Allen: 1997, 'Communicating Experiences: A Narrative Approach to Creating Service Brand Image', *Journal of Advertising* **26**(4), 49–62.

Pappu, R. and P. Quester: 2006, 'Does Customer Satisfaction Lead to Improved Brand Equity? An Empirical Examination of two Categories of Retail Brands', *Journal of Product and Brand Management* **15**(1), 4–14.

Park, C. W., B. J. Jaworski and D. J. Maclnnis: 1986, 'Strategic Brand Concept-Image Management', *Journal of Marketing* **50**(4), 135–145.

Paulssen, M. and M. M. Birk: 2007, 'Satisfaction and Repurchase Behavior in a Business-to-Business Setting: Investigating the Moderating Effect of Manufacturer, Company and Demographic Characteristics', *Industrial Marketing Management* **36**(7), 983–997.

Peattie, K.: 1992, *Green Marketing* (Pitman Publishing Corp., London, UK).

Peattie, K.: 1995, *Environmental Marketing Management* (Pitman Publishing Corp., London, UK).

Polonsky, M. J.: 1994, 'Green Marketing Regulation in the US and Australia: The Australian Checklist', *Greener Management International* **5**, 44–53.

Porter, M. E. and C. Van der Linde: 1995, 'Toward a new Conception of the Environment–Competitiveness Relationship', *Journal of Economic Perspectives* **9**(4), 97–118.

Rangaswamy, A., R. Burke and T. A. Oliva: 1993, 'Brand Equity and the Extendibility of Brand Names', *International Journal of Research in Marketing* **10**(1), 61–75.

Ratnasingham, P.: 1998, 'The Importance of Trust in Electronic Commerce', *Internet Research* **8**(4), 313–321.

Rousseau, D. M., S. B. Sitkin, R. S. Burt and C. Camerer: 1998, 'Not so Different After All: A Cross-Discipline View of Trust', *Academy of Management Review* **23**(3), 393–404.

Ruyter, K. and J. Bloemer: 1999, 'Customer Loyalty in Extended Service Settings', *International Journal of Service Industry Management* **10**(3), 320–336.

Schurr, P. H. and J. L. Ozanne: 1985, 'Influences on Exchange Processes: Buyers' Preconceptions of a Seller's Trustworthiness and Bargaining Toughness', *Journal of Consumer Research* **11**(4), 939–953.

Simon, C. J. and M. W. Sullivan: 1993, 'The Measurement and Determinants of Brand Equity: A Financial Approach', *Marketing Science* **12**(1), 28–52.

Singh, J. and D. Sirdeshmukh: 2000, 'Agency and Trust Mechanisms in Consumer Satisfaction and Loyalty Judgements', *Journal of the Academy of Marketing Science* **28**(1), 150–167.

Srivastava, R. K., T. A. Shervani and L. Fahey: 1998, 'Market-Based Assets and Shareholder Value: A Framework for Analysis', *Journal of Marketing* **62**(1), 2–18.

van Riel, A. C. R., C. P. de Mortanges and S. Streukens: 2005, 'Marketing Antecedents of Industrial Brand Equity: An Empirical Investigation in Specialty Chemicals', *Industrial Marketing Management* **34**(8), 841–847.

Vandermerwe, S. and M. D. Oliff: 1990, 'Customers Drive Corporations Green', *Long Range Planning* **23**(6), 10–16.

Yasin, N. M., M. N. Noor and O. Mohamad: 2007, 'Does Image of Country-of-Origin Matter to Brand Equity?', *Journal of Product and Brand Management* **16**(1), 38–48.

Yoo, B. and N. Donthu: 2001, 'Developing and Validating a Multidimensional Consumer-Based Brand Equity Scale', *Journal of Business Research* **52**(1), 1–14.

Yoo, B., N. Donthu and S. Lee: 2000, 'An examination of Selected Marketing mix Elements and Brand Equity', *Journal of the Academy of Marketing Science* **28**(2), 195–211.

National Yunlin University of Science & Technology,
Douliou, Yunlin, Taiwan, ROC
E-mail: dr.chen.ys@gmail.com