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## An empirical evaluation of a customer-based brand equity model and its managerial implications

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**Abstract** In recent years, customer-based brand equity (CBBE) has been extensively studied in the marketing community. Central to the study of CBBE are its structure and the measurement. This paper focuses on the dimensions of CBBE, the interrelationships among them, and the analytical methodology of the measurement model. The authors empirically analyze 15 brands with data from 3928 consumers of four industries including toothpaste, roll film, cell phone, and gym shoes. A CBBE measurement model is constructed and the application of the model is discussed. Suggestions are also provided for brand management and directions for future research.

**Keywords** customer-based brand equity, measurement, structural equation model

**摘要** 基于顾客的品牌资产是从品牌管理决策角度提出的重要概念，一直是国际市场营销领域重要的研究议题，品牌资产的结构和测量是其核心。根据国内外品牌资产相关理论，结合中国市场背景，构建了基于顾客的品牌资产模型。选择牙膏、胶卷、手机、运动鞋四个行业共15个品牌全国范围内3 928个顾客数据，采用结构方

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程模型方法检验了模型的合理性，并应用模型对测试品牌的品牌资产进行了测量和比较。最后讨论了模型对企业品牌管理实践的借鉴意义，并指出进一步研究方向。

**关键词** 基于顾客的品牌资产，品牌资产测量，结构方程模型

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## 1 Introduction

Brand equity refers to the incremental utility or value added to a product by its brand name (Farquhar, 1989). It is regarded as an important concept in business practice as well as in academic research because marketers can gain competitive advantages through strong brands (Aaker, 1998; Keller, 1993, 2001). In the era of global marketing, branding strategy, as a key element in the marketing mix, has been increasingly viewed as a powerful tool to obtain sustainable competitive advantages (Lin and Kao, 2004), to fully utilize available resources, and to avoid bleeding price competitions (Aaker and Keller, 1990). However, despite a considerable amount of interest, there has been little research focusing on how brand equity should be measured. As a result, managers may fall into a dilemma while using this concept into branding practice.

Little systematic research has been done to develop a scale to measure customer-based brand equity (CBBE). Although numerous studies have examined brand equity, their main purpose was not for developing a brand equity measure (Yoo, Donthu, 2001; Fan, 2000; Yu and Zhao, 2003). Brand managers need measurement tools developed from rigorous psychometric tests, which can help them determine if a marketing activity works to build or exploit brand equity successfully. That is to say, with increasing brand competition, there is a growing demand for the development of the brand equity model to assess a brand's status relative to that of its competitors.

The purpose of this paper is to develop a multidimensional measure of CBBE and assess its psychometric properties. Based on Keller (1993, 2003)'s theoretical structure, this article develops a conceptual framework of brand equity applied to Chinese consumers. A conceptual model is created including dimensions such as brand awareness, attribute related brand association, non-attribute related brand association, brand affect, brand trust, brand resonance, and overall brand equity. A total of 3928 participants evaluated 15 brands from four product categories (athletic shoes, film for cameras, mobile phones, and toothpastes). Multi-step psychometric tests demonstrate that the measurement model of CBBE is valid and reliable, and generalizable across product categories. While earlier studies were conducted using samples from developed markets such as the US, Australia and Japan, this study uses a sample of Chinese consumers. Thus, the results may provide useful implications for international branding in developing

countries.

The rest of this paper is structured as follows. We first review the progress in brand equity research in the past decades. Second, we propose a comprehensive model from the perspective of the individual consumer, indicating the process by which brand equity is created. Third, we describe the methodology employed to test the model. Fourth, we present analysis and results of a study designed to assess the internal consistency, validity, and metric equivalence of cross-product categories. Finally, general discussions and implications for marketing researchers and brand managers alike are offered.

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## **2 Literature review and hypothesized model**

### **2.1 Brand equity construct**

Brand equity has generally been defined as the incremental utility with which a brand endows a product, compared to its non-branded counterpart (Aaker, 1991; Farquhar, 1989; Keller, 2003). The specific effects may be either consumer-level constructs, such as attitudes, awareness, image, and knowledge, or firm-level outcomes, such as price, market share, revenue, and cash flow. From the consumer's perspective, brand equity is a utility, loyalty, or differentiated clear image not explained by product attributes, while from the firm's perspective it is the incremental cash flow resulting from the product with the brand name compared with that which would result without the brand name.

Aaker (1991) conceptualized brand equity as an aggregate variable of the five dimensions of brand assets: brand loyalty, brand awareness, perceived quality, brand association, and other proprietary assets. Keller (1993) introduced the first conceptual model of CBBE which was defined as the "differential effect of brand knowledge on consumer response to the marketing of the brand". According to Keller, a brand can have positive (negative) CBBE when consumers react more (less) favorably to an element of the marketing mix for the brand than they do to the same marketing mix element for other brands. CBBE occurs when consumers are familiar with the brand and hold some "favorable, strong, and unique" brand associations in memory. CBBE could evaluate several sources of brand equity, have good diagnostic ability, and can be used as an input to predict a brand's potential. Thus, the concept of CBBE has been widely discussed in the marketing literature. But these studies did not explicitly show the relationships among those constructs in the model and did not operationalize them either.

## 2.2 Measures of CBBE

Keller and Lehmann (2001) divide existing measures of brand equity into three categories. The first category, which they call “customer mind-set,” focuses on assessing the consumer-based sources of brand equity. The second and third categories, which they call “product market” and “financial market,” focus on the outcomes or net benefit that a firm derives from the equity of its brands. Our study focuses on the measure of CBBE. In the following part, we examine literature of CBBE.

Measures of CBBE assess the awareness, attitudes, associations, attachments, and loyalties that customers have toward a brand and have been the focus of much academic research (e.g., Aaker, 1991, 1996; Keller, 1993, 2003) and industry offerings (e.g., Millward Brown’s Brand Z, Research International’s Equity Engine, Young and Rubicam’s Brand Asset Valuator) (Ailawadi 2003). However, these measures were developed without rigorous psychometric tests. Most of them were conceptual framework and were not practical enough to manage.

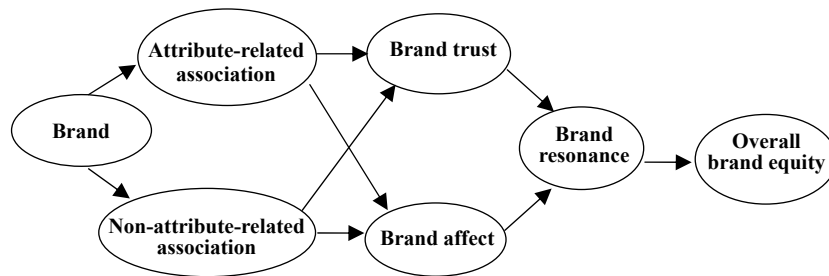
Based on Aaker’s conceptualizations of brand equity, Yoo and Donthu (2001) proposed a multidimensional consumer-based brand equity model (MBE) and tested the model using the cross-cultural data. They found that brand equity was composed of brand loyalty, perceived quality, and brand awareness/associations. Their study points out a good direction to develop a measure model of CBBE through systematic researches. The flaw of Yoo and Donthu’s study is that the theoretical foundation was limited to Aaker’s conceptualizations of brand equity, which was not rich in assessing sources of brand equity and indicating the mechanism by which brand equity occur. Keller (2001) proposed a new consumer-based brand equity model called pyramid model, which enhances our understanding of CBBE. The pyramid model, described as a “brand ladder”, consists of brand identity, brand meaning, brand response, and brand relationship. Therefore, there is a need to combine current researches to develop a new measure model of CBBE. In addition, Yoo and Donthu’s study was conducted using samples from developed markets such as US, Korea, studies using sample from other cultures help to develop a more broad scale of brand equity.

In summary, previous research has indicated that it is important to develop a multidimensional measure model of CBBE and assess its psychometric properties. Here, “consumer-based” means measurement of cognitive and behavioral brand equity at the individual consumer level through a consumer survey.

## 2.3 Hypothesis model based on Chinese customers

Based on the literature, especially Keller’s pyramid model, we propose a

conceptual measurement model of CBBE (Fig. 1). The major constructs are discussed in detail along with the rationale.



**Fig. 1** Hypothesized model

### 2.3.1 Brand awareness

The extant literature shows that effect of awareness occurs in building brand equity and serving as guidelines for a strategy formulation for enhancing customer mind-set brand equity. It is a necessary condition for inclusion in the set of brands being considered for purchase. For example, Erdem and Swait (1998) found that when consumers are uncertain about product attributes, brands can be used to inform them of product positions and to ensure them that product claims are credible. The reduced uncertainty can lower information costs and perceived risk by consumers but increase consumers' expected utility. Also, brand awareness can improve consumer perceptions about brand attribute and increase confidence in brands' claims, which is the cornerstone of brand resonance. Brand awareness can be characterized by depth and breadth: the depth relates to the likelihood that the brand can be recognized or recalled; the breadth relates to the variety of purchase and consumption situation in which the brand comes to mind. Awareness can be heightened by increasing consumer exposure to the brand and by linking the brand to product category, consumption and usage situations.

### 2.3.2 Brand association: Attribute-related and non-attribute-related

The literature on brand equity (e.g., Aaker, 1991; Keller, 1993) has argued that brand associations are the important part of brand equity. Park and Srinivasan (1994) pointed out that brand associations contribute to brand equity in two different ways. First, brand associations related to product attributes create an attribute-based component of brand equity that is based on the differences

between subjectively perceived attribute levels and objectively measured attribute levels. Second, brand associations create a non-product attribute-based component of brand equity, which is a part of a brand's overall preference unrelated to product attributes. The non-attribute-based component can be created by image-oriented advertising through its likable and executions. User imagery, usage consumptions imagery and usage situation imagery can endow a brand with a personality, thus creating a non-attribute-based component. We use constructs attribute-related association and non-attribute-related association to denote these two types of brand associations, respectively.

The distinction between the two types of brand associations has conceptual importance. For some product categories, such as perfumes, fashion apparel, product quality perceived by consumer account for only a small portion of consumer preferences. This phenomenon indicates that strong equity provides meaning to the product beyond actual product features.

### 2.3.3 Brand response: Brand trust and brand affect

The appropriate brand associations will elicit the right brand responses. Chaudhuri and Holbrook (2000) found that brand loyalty as linking variables in the chain of effects from brand trust and brand affect to brand performance. Their study enhances our understanding about the role that brand trust and brand affect play in the creation of brand loyalty as a determinant of brand equity outcomes. It indicates that brand equity is built by two ways, consumers' rational and emotional sides. For example, consider a diner who is loyal to only one restaurant. One explanation could be a lack of information of other restaurants and thus habituation to a single place. Another possible explanation is that the consumer visited other restaurants and found that restaurants differ in quality, convenience, service, and so forth. Later the consumer discovered a particular restaurant that can be trusted and relied on it in terms of these criteria; and now chooses to frequent this restaurant. Another scenario is that the customer might have developed strong emotional ties with the restaurant or with its staff. This brand affect leads to greater commitment in the form of attitudinal loyalty and a willingness not only to revisit the restaurant but also to pay a premium price for the pleasure involved.

Chaudhuri and Holbrook (2000) defined brand trust as the willingness of the average consumer to rely on the ability of the brand to perform its stated function. Meanwhile, brand affect is defined as a brand's potential to elicit a positive emotional response in the average consumer as a result of its use. Brand trust reduces the uncertainty in an environment in which consumers feel especially vulnerable because they know they can rely on the trusted brand (Yu, Zheng, Sun, 2004). They view brand trust as involving a process that is well thought out and

carefully considered, whereas the development of brand affect is more spontaneous, more immediate, and less deliberately reasoned in nature.

#### 2.3.4 Brand resonance: Brand relationship and overall brand equity

Based on “brand ladder model”, positive brand response will forge intense, active brand resonance. It refers to the relationship between a brand and its users including consumers’ attitudinal attachment and behavioral loyalty, for example, consumers’ willingness to purchase and recommend it to others. With true brand resonance, customers have a high degree of loyalty marked by a close relationship with the brand such that customers actively seek means to interact with the brand and share their experiences with others. The power of a brand lies in the minds of consumers, and in the effect of what they have experienced and learned about the brand on their responses to the brand over time (Keller, 2000). Thus, brands add value to consumer goods by supplying meaning; consumers like brands because they package meanings. In this modern world where consumers are flooded with choices, brands make it easier for them to understand and store product evaluations, especially where a product is complex or made by a foreign company unknown to local consumers. Put differently, brand recognition and loyalty ultimately depends upon consumer brand resonance. Brand resonance could help predict repurchase intentions, future earnings and firm value in various markets (Aaker and Jacobson, 2001). Brands win customers mainly because they “forge” a deep connection with the culture (Holt, 2003).

For a convergent validity check of the CBBE model, we use Yoo and Donthu (2001)’s four-item unidimensional measure of brand equity, which is a measure of overall brand equity on the basis of definition of the brand equity. They worded each item to compare a focal brand with its counterpart, which was a brand without a name but with identical product characteristics such as physical attributes, quality, and price. They point out that other factors being equal, the difference in consumer response between the focal brand and the counterpart can be interpreted as the brand equity of the focal brand.

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### 3 Research methods

Using both qualitative and quantitative survey data collected from China, the proposed model is tested. A pool of items was obtained through a series of qualitative research methods including focus group, expert panel screening, word association, brand story, and card sorting. Based on these steps, a 30-item-7-scales Likert questionnaire was developed. The detailed information will be available upon request. We conducted a pilot study for item purification.

### 3.1 Pilot study

We used four brands of mobile phones as brand stimuli, two international brands, Nokia and Samsung, two local brands, TCL and Bird. The pilot sample was composed of 260 undergraduate students from a university in Beijing. The participants were asked to indicate any unclear wording in the questions.

To select the items that would enter the main study, we computed the reliability of the items of each construct. We dropped any items of a construct with low correlation to the composite variable, retaining only those that had a 0.60 or higher Cronbach's  $\alpha$  coefficient. These selected items showed acceptable reliability: except attribute-related association, other six constructs' Cronbach's  $\alpha$  coefficients are between 0.70 and 0.85. Also, we reworded several items to enhance clarity, based on the participants' comments. With this process, we selected 25 items for the final questionnaire: four for brand awareness, two for attribute-related association, three for non-attribute related association, four for brand trust, three for brand affect, six for brand relationship, and four for overall brand equity. The final items for each of those constructs can be seen in Table 1. We reevaluated these items in the main study.

**Table 1** Items of seven constructs

Constructs	Measurable variables	Sources
Brand awareness (BI)	This brand is very easy to recognize.	Aaker (1996); Keller (2001)
	I can remember attributes of this brand.	
	This brand is famous.	
	I know where can buy this brand.	
Attribute-related association (TA)	This brand has good quality.	Aaker (1991); Park & Srinivasn (1994)
	This brand can satisfy my needs in terms of the functions and features.	
Non-attribute-related association (IA)	I know who use this brand.	Chaudhuri & Holbrook (2001); Lee (1999)
	I like advertising or celebrity of this brand.	
	Comparing to others, this brand has a strong personality.	
	This brand elicit me emotional associations.	
Brand trust (BT)	I trust this brand.	Chaudhuri & Holbrook (2001); Lee (1999)
	This brand is very safe.	
	This brand always keeps its promises.	
	This company concerns my needs and benefits.	
Brand affect (BA)	I feel good when I use this brand.	Chaudhuri & Holbrook (2001); Lee (1999)
	This brand makes me happy.	
	This brand gives me pleasure.	
	This brand and I has the same personality.	

*(To be continued)*



*(Continued)*

Constructs	Measurable variables	Sources
Brand relationship (BR)	My life will change without this brand. This brand can represent my taste very well. This brand becomes one important part in my life. I will buy this brand even though my income decreases. I feel depressed if I could not buy this brand. There is no any brand can replace this brand in my life. I like to communication my experience with this brand. I would like to spend more time and energy to buy this brand.	Fournier (1998)
Overall brand equity (OBE)	It makes sense to buy this brand instead of any other brand, even if they are the same. Even if another brand has the same features as this brand, I would prefer to buy this brand. If there is another brand as good as this brand, I prefer to buy this brand. If another brand is not different from this brand in any way, it seems smarter to purchase this brand.	Yoo, Donthu & Lee (2000)

### 3.2 Stimuli brands and products

Fifteen actual brand names were chosen for this study. Colgate and Crest (American brands), Zhonghua and Liangmianzhen (Chinese brands) were chosen to represent toothpastes (nondurables); Kodak (American), Fuji (Japanese) and Lucky (Chinese brand) were selected to represent roll films (nondurables); and Nokia (Finnish brand), Samsung (Korean brand), TCL (Chinese) and Bird (Chinese) were selected to represent the Hi-tech products; Nike (American), Adidas (German), Lining (Chinese), and Anta (Chinese) were chosen to represent athletic shoes. The brands were chosen by the criteria that they were 1) reputable, 2) established, 3) have differences on consumption and purchase frequencies, involvement in brand, and 4) two native brands and two foreign brands in each product category (for roll film, one native brand and two foreign brands).

### 3.3 Data

In total 3 928 consumers from 49 large or medium sized cities answered a questionnaire via a CATI (computer-assisted, telephone-based interview) system. The telephone interviews were conducted by a research center, located in Beijing, China. Except for Adidas, we got above 250 valid questionnaires for other

fourteen brands. Demographic analysis (including sex, age, income, education) on all participants indicates that generalization of the sample and the quality of the data is good enough. All the samples claimed to be users of the studied brands.

## 4 Analysis of CBBE

The procedures by Yoo and Donthu (2001) were followed to analyze our hypothesized model. First, we performed an individual analysis to determine whether common items and dimensions were found in every brand's samples. Second, we conducted a multi-group analysis for every product categories to examine factorial invariance of the items selected in the individual analysis for every brand. Third, we conducted a pooled analysis to identify category-free universal dimensions of brand equity in the pooled sample. Discovering the same dimensions in the individual brand, multi-group for product categories, and pooled analyses supports the universality of the dimensions across brands, product categories. LISREL 8 was used to perform path analysis.

### 4.1 Individual analysis of each brand

Based on the hypothesized model, we estimated the models through the LISREL 8 maximum likelihood method on the basis of every 15 brands' samples. Path from brand trust to brand relationship was not proven in each sample. It seems that this path does not exist. By analyzing modification index, we created a new measurement model, which is called CBBE measurement model (CBBE model) (Fig. 2). To examine further whether other model is better than this model, we compared the fit of this new model with the fit of all possible measurement models. The result shows that the  $\chi^2$  fit index of the other models was worse than that of CBBE measurement model. Therefore, we used this model in subsequent analyses.

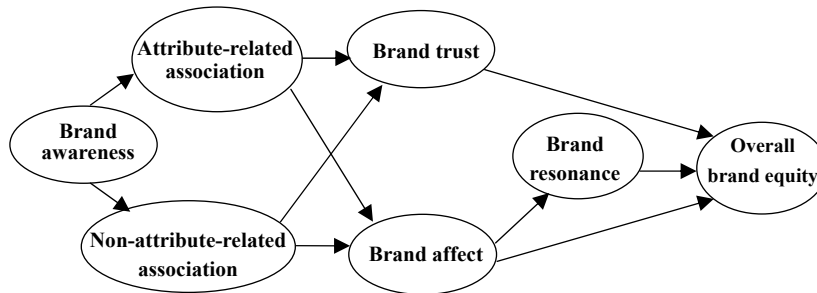


Fig. 2 CBBE measurement model

To check the cross-brands validity of the measurement model further for every

product categories, we conducted an invariance test for CBBE model, which is useful in examining the equivalence of a factorial measurement or structure model across multiple samples (Yoo and Donthu, 2001). In particular, we tested whether the factor structure (i.e., item loadings to factors) was statistically invariant among the four samples (three samples for film) by comparing an unconstrained and a constrained model (Byrne, 1998). In the unconstrained model, the factor structure is specified to vary across brands for every product categories, whereas the factor structure is constrained to be the same across brands in the constrained model. When the  $\chi^2$  fit difference between these models is insignificant, the factor structure is invariant across samples. As Table 2 shows, for the four categories, the fit difference was not insignificant ( $\Delta\chi^2_{degree\ of\ freedom[d.f.] = 9}$  (toothpastes)=9.80,  $\Delta\chi^2_{d.f. = 9}$  (films)=4.14,  $\Delta\chi^2_{d.f. = 9}$  (mobile phones)=2.51,  $\Delta\chi^2_{d.f. = 9}$  (athletic shoes)=8.95,  $p < 0.10$ ). This result suggests that the factor structure is not invariant across brands for every category. Therefore, brand equity evaluations cannot be compared meaningfully across samples due to the lack of cross-brands metric equivalence.

**Table 2 Invariance test results of the CBBE model**

	Unconstrained model $\chi^2$	<i>d.f.</i>	Constrained model $\chi^2$	<i>d.f.</i>	$\Delta\chi^2$	$\Delta d.f.$
Toothpaste	4 812.35	1 064	4 822.15	1 073	9.80	9
Film	1 861.04	798	1 856.90	807	4.14	9
Mobile phone	2 153.34	1 064	2 155.85	1 073	2.51	9
Athletic shoes	2 029.45	1 064	2 038.40	1 073	8.95	9

#### 4.2 Multi-group analysis of each category

Since the factor structure is not invariant across brands for every category, we pooled the four (three) brands samples into one sample as the category's sample. In order to validate the soundness of our CBBE model, we estimated the hypothesized model on the basis of every category's sample. Path from brand trust to brand relationship was not proven in each sample. Therefore, we do the same analysis such as we do for every brand's sample. The result shows that the CBBE model has the best fitness. It indicates that our CBBE model is solid.

To check the cross-categories validity of the CBBE model, we conducted an invariance test for CBBE model. We tested whether the factor structure was statistically invariant among the four category's samples by comparing an unconstrained and a constrained model. In the unconstrained model, the factor structure is specified to vary across product categories, whereas the factor structure is constrained to be the same across categories in the constrained model. For unconstrained model,  $\chi^2_{d.f. = 1060} = 4 761.85$ ,  $p < 0.0001$ , RMSEA=0.060,

GFI=0.92, NFI=0.91, CFI=0.93. It indicates that there is a good fit between the CBBE model and data from four product categories. For constrained model,  $\chi^2_{d.f.=1070} = 4772.86$ ,  $p < 0.0001$ . Therefore,  $\Delta\chi^2_{d.f.=10} = 11.01$ , which is insignificant at  $p < 0.10$  level. This result suggests that the factor structure is not invariant across four product categories. Therefore, brand equity evaluations cannot be compared meaningfully across samples due to the lack of cross-categories metric equivalence.

#### 4.3 Pooled analysis of the total sample

Since the factor structure is not invariant across product categories, we pooled four categories' samples into one sample as the total sample. Yoo and Donthu (2001) suggested a good technique to pool cross-categories' data and discover etic dimensions at the individual level while eliminating response sets often found in cross-cultural data. We conducted same process before pooled the samples. First, a within-subject procedure standardizes scores across the variables for each subject. The mean of the variables becomes zero, and the standard deviation becomes one for each individual in any category. This removes the categories positioning effect, the relative location of the responses made by the average individual for a particular category. Under the category's positioning effect, even though certain variables show no relationships in individual categories, when a set of the variables' mean scores is used as a data point per category, the relationships between the variables may appear. Second, a within-category standardization, in which any variable has a zero mean and unity standard deviation within each category's sample, eliminates the patterning effect of category, under which a different category shows a different relationship between variables. After these standardizations, the data are pooled across categories and analyzed.

We examined the CBBE model using the pooled sample, as we did in the individual analysis. The result shows that the pooled sample confirmed the identical factor structure for the model as was found in the individual and multi-group analysis, which is strong evidence of the universality of the CBBE model.

The CBBE model indicates how a strong brand is built in customers' minds. First, company should ensure identification of the brand with customers and an association of the brand in customers' minds with a specific product class or customer need. Then, a totality of brand meaning was established by linking a host of attribute-related and non-attribute related associations with certain properties. The proper customer responses (brand trust and brand affect) to this brand awareness and association were elicited. Finally, brand responses were converted to create an intense, active loyalty relationship between customers and

the brands.

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## 5 Implication of CBBE

The purpose of this study is to develop a brand equity measurement model to measure brand equity from the consumer perspective, provide insight into the consumer-based sources of brand equity or quantify a brand's future extendibility and potential. Customer mindset measures are crucial for diagnosing the underlying reasons for changes in equity that may be signaled by brand awareness, brand association, brand trust, brand affect and brand relationship. All these measures provide a rich picture of current and future brand health. We compare the construct means between brands and product categories to validate CBBE model, using One-Way ANOVA.

### 5.1 Comparison of brands

Table 3 shows the results of comparison between brands. For toothpastes, means of different constructs are significantly different. Zhonghua (a Chinese famous brand) takes the first position on most of constructs, except brand awareness and brand affect. Particularly, Zhonghua has the highest mean on brand trust. These results show that Zhonghua, as a Chinese national brand with a long history, has already built trust in the mind of customers, and formed a strong relationship with customers. However, it should improve brand communication efficiency to promote its brand awareness. In contrast, global brand Crest has the highest mean on brand affect. It seems that its brand image "mother who cares about their family's health" works.

For roll film, three brands have difference on the means of all constructs. Kodak takes the first position. And Lucky, a national brand with a short history suppresses Fuji on non-attribute association, brand trust, brand affect and brand relationship. So, we suggest that Lucky should enhance product quality, pay more attention to brand communication and print outlets.

Except for non-attribute associations, four mobile brands have different means on most constructs. Nokia has the highest means on every construct. For attribute association, brand trust and brand relationship, Nokia does the as the same as Samsung. These two global brands are better than two national brands, Bird and TCL. One of the reasons is the global brands are the first mover into the industry and took more advantages than national brands. Samsung enjoys the high growth due to its efforts on image improving in recent days.

For athletic shoes, four brands have different means on brand awareness, brand trust and brand affect. Adidas and Nike have the higher brand awareness

than Lining and Anta, two national brands. On brand trust and brand affect, Anta, as a local brand with a short history, takes the last position. It accords with the reality.

**Table 3** Comparison among brands

	Brand awareness	Attribute association	Nonattribute association	Brand trust	Brand affect	Brand relationship	Overall brand equity
ToothP. ( <i>F</i> )	13.91**	6.40**	9.39**	148.06**	10.43**	2.92*	
Colgate	5.60	5.43	4.43	5.39	5.13	4.09	5.01
Zhonghua	5.75	5.73	4.82	6.70	5.40	4.41	5.47
Crest	5.85	5.53	4.49	5.52	5.43	4.15	5.16
LMZ	5.43	5.40	4.26	5.35	4.91	4.15	4.92
Film ( <i>F</i> )	18.58**	5.04*	10.81**	22.48**	5.81*	10.03**	
Kodak	5.88	5.84	4.88	5.99	5.63	4.58	5.42
Fuji	5.59	5.79	4.42	5.52	5.32	4.09	5.23
Lucky	5.40	5.62	4.58	5.58	5.43	4.40	5.17
Mobile ( <i>F</i> )	40.67**	79.68**	3.50	34.86**	19.55**	21.40**	
Nokia	6.02	5.97	4.55	5.65	5.29	4.36	5.31
TCL	5.27	4.61	4.34	4.72	4.55	3.43	4.49
Samsung	5.76	5.64	4.32	5.33	5.28	4.15	5.08
Bird	5.26	4.94	4.22	4.93	4.74	3.97	4.68
Shoes ( <i>F</i> )	28.89**	1.16	1.13	27.13**	9.73**	3.59	
Nike	5.85	5.82	4.42	5.62	5.36	4.15	5.20
Lining	5.59	5.67	4.65	5.61	5.30	4.22	5.17
Adidas	5.96	5.75	4.74	5.66	5.46	4.32	5.32
Anta	4.20	5.70	4.80	5.04	4.97	3.94	4.78

Note: ① \* indicates different at level 0.05, \*\* indicates different at level 0.001. ② 1—worst, 7—best.

## 5.2 Comparison among categories

We did the same analysis for product categories, as we did for brands. Table 4 shows the results of comparison between product categories. Four categories have no significant difference on brand awareness. It illustrates that companies from four categories knew the importance of basic brand elements, such as logo, identity, and advertising. For attribute association, non-attribute association and brand relationship, film and athletic shoes have higher means than toothpaste and mobile. Meanwhile, mobile has the lowest mean on brand affect and brand relationship than other three categories. The difference between categories reflects the evolution process of industry development and buying behavior. Film is more mature. The leader brand, Kodak takes a strong position. By contrast, mobile is a new industry, which develops with high growth. We predict that with the development of the industry, brand equity of mobile phone will increase.

**Table 4** Comparison among product categories

	Brand awareness	Attribute association	Nonattribute association	Brand trust	Brand affect	Brand relationship	Overall brand equity
( <i>F</i> )	1.19	28.16**	10.56**	27.12**	19.85**	11.24**	
Toothpaste	5.68	5.52	4.45	5.43	5.15	4.20	5.07
Film	5.61	5.75	4.63	5.58	5.44	4.35	5.23
Mobile	5.61	5.35	4.38	5.20	5.03	3.98	4.93
Shoes	5.63	5.66	4.63	5.54	5.30	4.13	5.15

Note: \* indicates significantly different at level 0.05; \*\* indicates significantly different at level 0.001.

## 6 Implications and discussions

The CBBE model provides a road map and guideline of brand building for companies. We recommend that managers regularly use CBBE model for tracking brand health over time compared with that of their competitors and periodically examine customer mind-set measures to guide marketing decisions and fully diagnose problems. It illustrates that the power of the brand and its ultimate value to the companies resides with customers. The success of brand marketing programs ultimately depends on how customers respond to them. This study has important practical implications in three ways.

### 6.1 Road for brand equity building

There exists a series of logically linked steps with customers to build a strong brand. The CBBE model is a hierarchy of effects model, which suggests that brand awareness and associations (attribute-related and non-attribute-related) precede brand responses (brand trust and brand affect) and that brand responses precede brand relationship. As a strong ordering exists among the dimensions, to manage resources more efficiently, managers should consider strategies that focus on the timing of the dimensions. It is obvious that there are no shortcuts in building a strong brand. The length of time to build a strong brand will be directly proportional to the amount of time it takes to create sufficient awareness and associations. It is difficult for customers to identify the advantages and uniqueness of a brand without good understanding about the brand and its competitors.

### 6.2 Two paths to build brand equity: Rational and emotional

The CBBE model indicates that there are two paths to build a strong brand,

which we call rational and emotional road. Firstly, according to the upper side of the CBBE model, brand manager can elicit customers' product attribute-related associations by introducing product quality, company ability, technology, etc. This kind of associations will make customers trust the brand and precede brand trust. Second, according to the down side of the CBBE model, brand manager can elicit customers' non-attribute related associations, such as typical user image, what situation should use this brand by combining the brand with its celebrity or consumption situation. The imagery associations will make customers like this brand, and precede brand affect.

The distinction between the two paths to build brand equity holds both theoretical and managerial importance. First, it can enhance our understanding why product attributes perceived by customers account for only a small portion of consumer preferences for some product categories, such as perfumes, fashion apparel. For these product categories, emotional path plays important role in the formation of brand equity. Second, since the two paths relate differently to diverse elements of the marketing mix (Park and Srinivasan 1994), brand managers should judge the suitability of the marketing mix elements to the brand according to the product categories. A strong brand appeals to both the head and the heart of customers. That is to say, strong brands blend product performance and imagery to create a rich, varied, but complementary set of brand associations.

### 6.3 The base of the CBBE model: Brand awareness and future research

The CBBE model indicates that the first step to build brand equity is to build brand awareness. Misunderstandings about brand awareness of some Chinese brand managers block the process of brand building. Some of them even see improving of brand awareness as the most important step in brand building. They spend lots of budget on advertisings and promotion activities. However, they do not consider what associations the brand should be created. When brand awareness is created, brand managers found sadly that there is no positive, consistent and cohesive brand association. Worse more, it is difficult to create an appreciate brand association for a brand with high brand awareness, comparing to a brand with low brand awareness. In the information overload age, customers have no time to know a familiar brand, while they save time to spend on the new brand. Therefore, it is desirable to develop brand awareness that creatively pairs the brand and the appropriate category or purchase or consumption cues, ideally, the brand positioning as well, in terms of building a positive brand image (Keller 2001).

We suggest three major directions for further research. First, we should explore the influence of customers' life style and value on brand equity. People



with different values have different attitude towards the brand marketing activities. In their views, CBBE may have different constructs. These differences will give companies guidance to build brand equity, for example, to carry out differentiation marketing in terms of the customer segments. Second, we should understand the relationships between brand equity and other variables, such as market share, profitability, and customers' satisfaction. Third, a worthwhile research project would be to estimate the structural relationships between marketing mix and brand equity, and understand the process by which firms develop high-equity brands. Finally, the CBBE model should have higher external generalizability. Additional research should validate the model using different types of products, such as services and industrial goods.

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