Dimension and Relationship Between Customer Perspective and Market Perspective: A Case Study of Market Survey of Laptops

สินทรัพย์ของแบรนด์สินค้า และความสัมพันธ์ระหว่างมุมมองของลูกค้าและมุมมองของตลาด: กรณีศึกษาการสำรวจตลาดแล็ปท็อปคอมพิวเตอร์

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Abstract

Most present studies measure brand equity in a single perspective. However, after former literature research, this paper, firstly, establishes a brand equity model with intra evaluation indexes in both customer perspective and market perspective. Secondly, it takes laptop users in Thailand as the investigation subjects by questionnaire. The results of an empirical analysis showed that each index was in a high internal reliability and also tested that the customer perspective and the market perspective was in a strong correlation.

Keywords: *Brand Equity, Customer Perspective, Market Perspective*

บทคัดย่อ

จากทฤษฎีที่มีอยู่ในปัจจุบันพบว่า นักวิจัยจำนวนมากมักจะใช้มุมมองเพียงด้านเดียวมาใช้วิจัยสินทรัพย์ผลิตภัณฑ์ ในงานวิจัยฉบับนี้ เราเริ่มด้วยการกำหนดเกณฑ์ดัชนีภายในแต่ละมุมมองสินทรัพย์

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ผลิตภัณฑ์ของตลาดและลูกค้า โดยอ้างอิงจากทฤษฎีที่มีอยู่ในปัจจุบันสร้างรูปแบบวิจัยของสินทรัพย์ผลิตภัณฑ์บนฐานของมุมมองทั้งสอง งานวิจัยฉบับนี้กำหนดให้ผู้ใช้งานคอมพิวเตอร์เคลื่อนที่ (แล็ปท็อป) ของตลาดท้องถิ่นประเทศไทยเป็นกลุ่มเป้าหมาย ข้อมูลวิจัยได้จากการแจกแบบสอบถาม ผลการวิเคราะห์ตัวเลขในแบบสอบถาม แสดงให้เห็นว่าเกณฑ์ดัชนีจากมุมมองสินทรัพย์ผลิตภัณฑ์ของตลาดและลูกค้ามีความเหมือนกันภายใน และในขณะเดียวกัน ผลการวิจัยยังค้นพบว่าสินทรัพย์ผลิตภัณฑ์ในมุมมองทั้งสองมีความสัมพันธ์กันอย่างมาก

คำสำคัญ: *สินทรัพย์ผลิตภัณฑ์, มุมมองของลูกค้า, มุมมองของตลาด*

Introduction

In the field of marketing research, the study of brand equity began in the 1980s. Once put forward, the concept of brand equity became one of the most eye-catching concepts in the field of marketing in the 1990s. Although it only has a history of more than 30 years, there are tens of thousands of studies about brand equity. Researchers' understanding of brand equity has developed from no unified meaning to the definition and measurement of brand equity from the perspective of customer, market and finance. The brand value chain theory proposed by Kotler and Keller (2006) integrated brand equity theories from different perspectives, tried to reveal the source of brand equity and the connection between brand equity from different perspectives, explored the specific influence paths between them, and provided an integrated research framework for the development of brand equity theory. Through the summary of related literature of brand equity, it is found that the existing studies on brand equity focus on the concept and measurement of brand equity from a single perspective, the forming mechanism of brand equity, etc. There are few and insufficient studies on the relationship between brand equity from different perspectives, which should be further discussed about.

Purpose

The research objects of this study are audiences of the brand. Aimed at the relationship between brand equity from the perspective of customer and brand equity from the perspective of market, the conceptual model was put forward, and the empirical analysis was conducted. Through the verification of this study, we expect to achieve the following goals in theory: to

study evaluation indexes and methods of brand equity from the perspective of customer and the market, and study the structural relationship of brand equity from two perspectives.

Literature Review

The concept of brand equity is problematic in the field of brand management. Different researchers gave unique opinions from the perspectives they were good at, so the concept is very messy. All kinds of definitions of brand equity make researchers very confused in the study of brand equity. In view of this, some researchers summarized the concept of brand equity (Yu and Zhao, 2003; Wu, 2011; Yang, 2008), which played a very good role in the promotion of research on brand equity. However, because of the complexity of the concept of brand equity itself, the existing studies have disputes, so quite a lot of research conclusions are not comprehensive enough to a certain extent, and further analysis is required. In this study, on the basis of a large number of literature reviews, by comparing and finishing, from the perspective of customer and the market, the concept of brand equity was summarized and reviewed, so as to clearly distinguish various definitions of brand equity and know the differences and limitations.

At present, most existing studies define the brand equity from the perspective of customer. The brand equity does not have any independent entity. People can't directly feel it with senses. It must be shown through a certain carrier (Yu and Zhao, 2003). According to the research results of existing studies which proposed to define the brand equity from the perspective of customer early, marketing activities will have different brand effects and reflect the differences of brand knowledge of customers. The brand equity is the integration of the brand, the name and the symbol set. It may increase or decrease the value which a product or service provides to the company and the consumers (Wu, 2011).Under the influence of the concept, a number of researchers changed the study target to customers, and put forward the concept of brand equity from the perspective of customer.

In the study of brand equity from the perspective of market, brand equity is derived from the market position of the brand, and is the additional part exceeding the value of real assets. For enterprises, the brand equity can be improved by improving the brand marketing efficiency, strengthening the customer's brand loyalty, etc., so as to create the value that can be brought

by the brand to the company (Yang, 2008). Researchers analyzed from the perspective of product policies, and believed that brand value had the effect of long-term investment and establishment of lasting and differentiation advantage for competitors (Doyle, 1990).From the point of view of competition, brand equity is the price premium when compared with general competitors (Mullen and Mainz, 1989).

According to the research, the measurement model of brand equity from a single perspective of customer can help to diagnose problems of the brand and adjust the marketing strategy, but it has obvious defects in the macro control of the market; the measurement model of brand equity from a single perspective of market reflects results of the past marketing activities of the brand, but it can't reflect the future direction of the brand. Therefore, this study should more clearly under-stand the relationship between brand equity from different perspectives, consider different brand equity measurement models, and avoid the misleading results of a single measurement model.

Study Design

First, in this study, based on extensive literature research and analysis on the research achievements of predecessors, the conceptual model of the entire study was proposed.
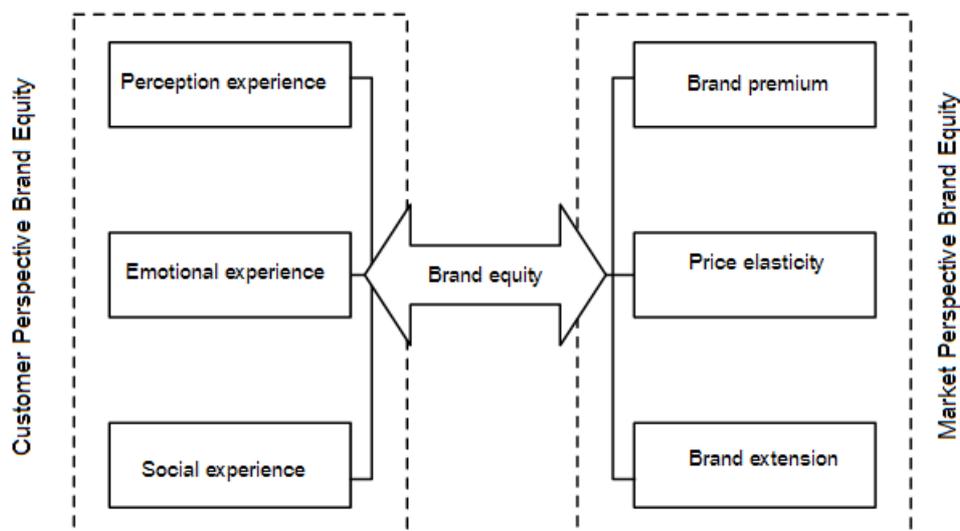

Figure 1 Research Framework

This study constructed the theoretical model shown in Figure 1.This model is a suggestive model proposed based on the standardized analysis on the existing literature.

In the model, three evaluation indexes of brand equity from the perspective of customer are derived from Schmitt's study (1999). Perception experience is the perception based on product, reputation, transmission, service and other elements produced when the customer purchases and uses products of a famous brand. With good perception experience, the customer will have positive evaluation on the brand, creating the brand equity (Wen, 2007). At the same time this process is also a kind of emotional experience. Berry (2000) put forward the service brand model and emphasized that the emotional experience is a main factor which decides the brand meaning (brand image) and the brand equity. Social experience is the highest stage of experience. Good social experience can not only improve the customer's perception of the brand and the product's brand image, but also form a certain brand relationship and strengthen the long term and stable contact between the customers and the brand (Wen, 2007). When the customer uses the products of a famous brand, perception experience, emotional experience and social experience of the products of a famous brand will directly affect the customer's evaluation of the brand equity (Wen, 2007).

Brand premium, price elasticity and brand extension with a mature scale in the existing study were selected for the brand equity from the perspective of market. Brand premium means that customers are willing to pay extra money or price for a particular brand relative to other brands (Li, 2013). Price elasticity refers to customer's response and acceptance in case of price rise or fall of products of a famous brand (Keller, 2010). Brand extension refers to the process in which an enterprise uses a relatively successful brand to extend the product or service different from the original product or service, and uses the brand effect of the original product or service to act on the promotion and development of new products (Wang, Yu, and Zhao, 2006). The realization of brand premium, price elasticity and brand extension will also improve the brand equity of an enterprise (Wang, Yu, and Zhao, 2006).

The above six indexes respectively belong to the perspective of customer and the market, but in the actual use the two perspectives have a certain relationship. The existence of this relationship has a positive effect on the improvement of market competitiveness of the brand and realization of marketing advantages difficult to achieve for other brands.

According to the analysis on the above evaluation indexes, this study made the following three assumptions according to the reality.

H1: Three criteria of brand equity from the perspective of customer have the internal consistency.

H2: Three criteria of brand equity from the perspective of market have the internal consistency.

H3: Brand equity from the perspective of customer and brand equity from the perspective of market are correlated.

In this study, the method of questionnaire survey will be used to collect survey data. The research theory, research model and research hypothesis of brand equity from the perspective of customer and the market proposed in this study will be analyzed, and the reliable empirical conclusions will be obtained.

(1) Scale development

The scale design is the basis of empirical research. The rationality of the scale design is directly related to whether effective data can be obtained in the study, and affects the final results. In this study, according to the theory of Schmitt (1999) and other researchers the scale of evaluation criteria of brand equity from two perspectives was designed.

Table 1 Scale of brand equity from the perspective of customer and brand equity from the perspective of market

Variable	Specific content	Source of the question
Perception experience	The purchasing and use process of the product allowed you to have a strong impression of the brand;	Schmitt,1999
	The purchasing and use process of the product gave you a strong interest;	
	The purchasing and use process of the product was very attractive.	
Emotional experience	In the purchasing and use process of the product, the enterprise's efforts made you happy;	Porter and Marsha,1997
	In the purchasing and use process of the product, the enterprise's efforts made you satisfied;	
	In the purchasing and use process of the product, the enterprise's efforts met your expectations.	
Social experience	In the purchasing and use process of the product, you felt that you belonged to a type of consumer group;	Schmitt,1999
	Does the purchasing and use process of the product make you believe that you have the same values with customers of products of the same brand?	
	Will the purchasing and use process of the product change your image in the eyes of others?	
Brand premium	Compared with other brands, I am willing to spend more for the brand;	Netemever et al., 2004
	Only when the price of products of this brand increases a lot, I will turn to services of other brands;	
	As long as the price of products of the brand does not increase too much, I will not turn to other brands.	
Price elasticity	The rise in price of products of this brand has reasonable reasons;	Wang, Yu, and Zhao, 2006
	The rise in price of products of this brand is mainly due to the improvement of the product quality;	
	The rise in price of products of this brand is due to technological improvement, rather than reduction of the service quality.	
Brand extension	The new product of this brand must be very popular;	Wang, Yu, and Zhao, 2006
	The new product of this brand will have better quality than other brands;	
	The new product of this brand will have better quality.	
	The brand has enough ability to launch new products in the related industry.	

(2) Pretest

In the pretest CTIC value was used for purification of items, and α value of the Cronbach coefficient was used to test the scale reliability; and the validity test was conducted with the exploratory factor analysis method. The correlation analysis studied the connection between brand equity from two perspectives. The correlation analysis measured the closeness between variables through the correlation coefficient. This study used the Pearson correlation coefficient for analysis.

The objects of preliminary investigation mainly included students and staffs of Panyapiwat Institute of Management and Siam University. The two schools issued 130 questionnaires each, and recovered a total of 251 questionnaires. The recovery rate was up to 96%. The pretest results showed that α value of Cronbach coefficient of perception experience, emotional experience and social experience, the three evaluation indexes of brand equity from the perspective of customer, was 0.852, 0.864, and 0.747, respectively. α value of Cronbach coefficient of brand premium, price elasticity and brand extension, the three research criteria of brand equity from the perspective of market, was 0.718, 0.832, and 0.860, respectively. All of the coefficients were greater than 0.7, and basically met the requirements of the study. After the further exploratory factor analysis, for the rotating component matrix of brand equity from the perspective of customer and brand equity from the perspective of market, the factor load of each item was all greater than 0.5, and there was no multidimensional conforming phenomenon, which met the needs of further research.

Through the analysis on the correlation coefficient of brand equity from the perspective of customer and brand equity from the perspective of market, the Pearson correlation coefficient of brand equity from two perspectives was 0.664, which confirmed the strong correlation between brand equity from the perspective of customer and brand equity from the perspective of market, and in theory supported the combination of the measurement methods of brand equity from two perspectives in the study.

Empirical analysis

According to results of the pretest study, after measuring items of the questionnaire were adjusted accordingly, from June 2016 to July 2016, in this study the survey questionnaires were formally issued. The questionnaires were issued in two universities in Thailand and Rayong China Industrial Park. The questionnaires were issued to college students because college students occupied a considerable market share in the laptop market and after completion of the purchasing they would continue to invest in the products. The questionnaires were issued in Rayong Industrial Park because most enterprises in the industrial park are international enterprises or ordinary enterprises with international business. Because countries of origin of the enterprises have different work habits with Thailand, when the business is processed in the abnormal working time, the portable computers also need to be used. We issued the questionnaire in the two universities and the industrial park in the working time. After the permission of the above three units, we sampled in the specified range. A total of 560 questionnaires were issued, and 529 effective questionnaires were recovered. The rate of recovery was 94.46%. 560 questionnaires were issued based on the opinions of Huang (2005). In the study of the structural equation model, the proportion of the number of measured items and the number of questionnaires will be at least 1:5. 1:10-15 is better.

In the empirical analysis, statistical software was used for the descriptive statistics analysis of data collected in the formal survey. And then the reliability of data was analyzed, and the reliability of data was tested along with the confirmatory factor analysis of data obtained by a wide range of research, checking whether results of large sample data conform to results of small sample in the preliminary research, and according to the analysis results checking whether the conclusion supports the assumption of this study.

In the formal analysis, as the basis of empirical analysis, in the descriptive statistics analysis, based on the normal inspection results of skewness and kurtosis, for all the items in the scale of brand equity from the perspective of customer and brand equity from the perspective of market, the skewness was less than 1 and kurtosis was less than 1. The inspection results belonged to the normal distribution. And then, through the inspection of mean and standard deviation it was found that the standard deviation of formal sample of in this study was all greater than 0.5. Because the data had normal distribution, and the mean and standard

deviation also met the requirements, the formal survey data this study was suitable for the analysis of the structural equation model.

In the reliability test, **α** value of total Cronbach coefficient of brand equity from two perspectives was 0.848 and 0.829, respectively. Among them, **α** value of Cronbach coefficient of each evaluation index was also more than the reference standard of 0.7. They were 0.820, 0.802, and 0.731 (from the perspective of customer), 0.726, 0.715, and 0.792 (from the perspective of market), respectively. So, data obtained in the formal survey had high reliability, and the next step of confirmatory factor analysis could be conducted.
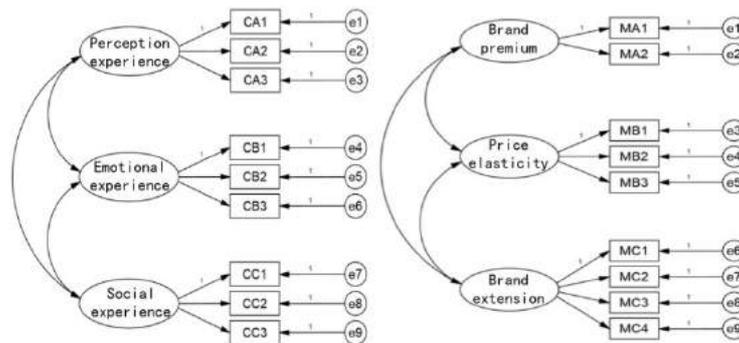

Figure 2 The confirmatory factor analysis model of brand equity from the perspective customer and market

Through the test of preliminary survey in this study, latent variables of brand equity from two perspectives all had conditions for the confirmatory factor analysis. Among them, three variables of brand equity from the perspective of customer are perception experience, emotional experience and social experience. In the three latent variables, each latent variable has three measurement variables. Three variables of brand equity from the perspective of market are brand premium, price elasticity and brand extension. However, in the questionnaire design of formal survey researchers modified the scale of brand equity from the perspective of market and deleted some items. Finally, the scale of brand premium contains two items, the scale of price elasticity is composed of three items, and the scale of brand extension is composed of four items. The confirmatory factor analysis model of brand equity from two

perspectives is shown in Figure 2. The data obtained in the formal survey was imported into statistical software for calculation. This study combined with the testing conclusion of α value of Cronbach coefficient in the reliability analysis of formal survey data, and obtained fitting analysis results of the model.

Table 2 Results of the model fitting analysis of brand equity from the perspective of customer and market

Variable and indicator	Non-standardized load factor	Standardized load factor	α value of Cronbach coefficient	Composite reliability	AVE
Perception experience:					
CA1	1.00	0.70	0.820	0.8248	0.6112
CA2	1.18	0.85			
CA3	1.10	0.79			
Emotional experience:					
CB1	1.00	0.79	0.802	0.8052	0.5809
CB2	1.00	0.81			
CB3	0.84	0.68			
Social experience:					
CC1	1.00	0.63	0.731	0.7368	0.4847
CC2	1.21	0.78			
CC3	1.09	0.67			
Brand premium:					
CA1	1.00	1.00	0.726	0.7261	0.5701
CA2	1.02	1.02			
Price elasticity:					
MB1	1.00	0.68	0.715	0.7254	0.4698
MB2	1.04	0.75			
MB3	0.91	0.62			
Brand extension:					
MC1	1.00	0.68	0.792	0.794	0.4914
MC2	1.15	0.74			
MC3	1.08	0.73			
MC4	0.95	0.65			

(1) Analysis on the overall fitting of the model

The rationality of the structural equation model is usually judged through multiple fitting indexes. Among them, x^2/df, RMSEA, RMR and GFI are absolute fitting indexes. AGFI, CFI, IFI, and NFI are value-added fitting indexes. RFI, TLI, PNFI, and PCFI are reference criteria common in the existing study used to judge whether the structural equation model is reasonable, so in this study these four types of evaluation indicators were added and considered as the index used to judge whether the structural equation model in this study was reasonable (Table 3).

Table 3 Fitting index results and judgment standard of brand equity from the perspective of customer and market

Type of fit index	Index name	Numerical range	Judgment criteria	Conclusion from customer	Conclusion from market
Absolute fit index	x^2/df	>0	<3 or <5	1.781	3.981
	RMSEA	>0	<0.08	0.038	0.075
	RMR	>0	<0.08	0.016	0.030
	GFI	0-1	>0.9	0.983	0.962
Value-added fit index	AGFI	0-1	>0.9	0.968	0.929
	CFI	0-1	>0.9	0.990	0.952
	IFI	0-1	>0.9	0.990	0.952
	NFI	0-1	>0.9	0.977	0.937
Other judgment criteria	RFI	0-1	>0.9	0.965	0.906
	TLI	0-1	>0.9	0.984	0.928
	PNFI	0-1	>0.5	0.651	0.625
	PCFI	0-1	>0.5	0.660	0.635

Generally, when the chi-square degree of freedom is less than 3.0, it indicates that the fit of the model is relatively good. When its value is less than 1.0, it indicates that the model is over fitted. If it is greater than 3, usually it indicates that the assumption model can't reflect the real observation data, and the model needs to be improved. However, there are special

circumstances. When the sample size is big, it is acceptable when the test result is more than 3 and less than 5. x^2/df of the model of brand equity from the perspective of customer is 1.781 ＜ 3, and x^2/df of the model of brand equity from the perspective of market is 3.981. Although it is more than 3, because the number of questionnaires in the formal study was more than 500, and the sample size was big, it could be accepted.

The smaller the value of RMSEA is, the better the fit of the model is. The value of RMSEA of brand equity from the perspective of customer and market is 0.038 and 0.075, respectively, which is less than the judgment criteria of 0.08, so from the conclusion of RMSEA, the fit of models of brand equity from two perspectives is very good. The sample variance and covariance brand equity from the perspective of customer and brand equity from the perspective of market minus the squares and RMR of the corresponding estimated variance and covariance equal to 0.016 and 0.030, respectively, which is far less than the judgment criteria of 0.08. Therefore, seen from the calculation conclusion of RMR, the fit of models of brand equity from two perspectives is very good.

According to the testing conclusion of Table 3, GFI, AGFI, CFI, IFI, NFI, RFI, and TLI value of brand equity from two perspectives are greater than the judgment criteria of 0.9. It indicates that models of brand equity from two perspectives in theory are completely acceptable. In addition, after the simple adjustment of brand equity from the perspective of customer and market, the value of PNFI was 0.651 and 0.625, respectively. After the simple adjustment, the value of PCFI was 0.660 and 0.635, respectively, which were both greater than the judgment criteria of 0.5. Therefore, seen from the calculation results of PNFI and PCFI, models of brand equity from two perspectives also have good fitting.

(2) Index evaluation

From the calculation results of Table 2, we can see that the standardized load coefficient of each factor of brand equity from the perspective of customer and market both has high significance level, and the standardized load coefficient is basically greater than 0.6, and each factor has the load meeting the requirements, which indicates that the measure criterion can reflect the variables good, and these indexes can be used as measurement indexes of the variables.

(3) Factor reliability analysis

According to by the results of reliability analysis of data obtained from the formal survey, α value of Cronbach coefficient of three dimensions of brand equity from the perspective of customer and market is both greater than the reference standard of 0.7. However, according to needs of the study, the researchers also further examined the composite reliability of data obtained from the formal survey. They input the standardized load coefficient of each item obtained into the tool of a computer program for calculation. The result was 0.8248, 0.8052, 0.7368, 0.7261, 0.7254, and 0.794, respectively. They were all greater than the reference standard of 0.7 in the reliability test. So, according to the test conclusion it was once again proved that the formal survey data of each dimension of brand equity from two perspectives had stability and reliability.

(4) Factor validity analysis

In terms of content validity, First: study variables and their measurement items involved in this study were borrowed from the contents in the existing study, so they have high maturity. Second: in the process of questionnaire design also a small range of interviews were conducted, interview objects included professors of this major, marketers and ordinary customers, all the content in the questionnaires were carefully checked; through preliminary survey, a small range of survey data were obtained, the items which did not conform to the actual conditions of the study were deleted, and finally the formal survey questionnaire of this study was formed. So, the questionnaire content met the requirements of content validity.

In terms of construct validity, from the fitting analysis results of models of brand equity from the perspective of customer and market in Table 2, it can be seen that the standardized load coefficient of every criterion of variables is all greater than 0.6 and the square root of AVE of each factor is greater than the correlation coefficient between this factor and other factors indicating that the explanatory power of measured variables is bigger than that of their error variance, so the measurement of each variable has sufficient convergent validity.

From the results in Table 4 and 5, we know that in the model of brand equity from two perspectives the square root of latent variable AVE is greater than the correlation coefficient between this variable and other variables indicating that the measured variables have good discriminative validity.

Table 4 Correlation coefficients of variables of brand equity from the perspective of customer

	Perception experience	Emotional experience	Social experience
Perception experience	1		
Emotional experience	0.65***	1	
Social experience	0.60***	0.52***	1
AVE square root	0.782	0.762	0.700

Note: *** P < .001

Table 5 Correlation coefficients of variables of brand equity from the perspective of market

	Brand premium	Price elasticity	Brand extension
Brand premium	1		
Price elasticity	0.40***	1	
Brand extension	0.65***	0.68***	1
AVE square root	0.755	0.685	0.701

Table 6 Factor analysis results of brand equity from the perspective of customer

Item	Composition		
	1	2	3
CA1	*0.802*	0.179	0.148
CA2	*0.810*	0.245	0.241
CA3	*0.798*	0.259	0.181
CB1	0.322	*0.746*	0.187
CB2	0.170	*0.860*	0.165
CB3	0.197	*0.785*	0.139
CC1	0.153	0.162	*0.741*
CC2	0.268	0.103	*0.791*
CC3	0.102	0.177	*0.789*
KMO value = 0.851, and the significance is 0.000			

Table 7 Factor analysis results of brand equity from the perspective of market

Item	Composition		
	1	2	3
MA1	0.225	0.061	*0.842*
MA2	0.186	0.149	*0.837*
MB1	0.175	*0.736*	0.263
MB2	0.163	*0.850*	0.091
MB3	0.314	*0.692*	0.036
MC1	*0.725*	0.145	0.250
MC2	*0.683*	0.170	0.376
MC3	*0.743*	0.223	0.187
MC4	*0.754*	0.284	0.010
KMO value = 0.837, and the significance is 0.000			

In the study the construct validity was tested with statistical software. The data obtained in the formal survey was analyzed with the factor analysis function of the software, in the options of the software the principal component analysis and maximum variance rotation method were selected, and then we obtained the rotating component matrix. The specific results are shown in Table 6 and Table 7.

It can be seen from Table 6 and Table 7 that in the factor analysis of brand equity from the perspective of customer and market three factors were extracted, respectively, and the load on the corresponding item of each factor was greater than 0.6. Combined with the previous data, it indicates that the convergent validity is good; the load on other factors of the corresponding item of each factor is relatively small, which indicates that the discrimination validity is relatively good.

Research conclusions

Through the test of skewness and kurtosis of data obtained from the formal survey in this study, it indicates that the data presents the approximate normal distribution; through the

judgment of model fitting indexes of brand equity from the perspective of customer and market, it indicates that the model building in this study is reasonable; through the test of reliability and validity, it indicates that the questionnaire scale has internal consistency and stability.

Table 8 Theoretical assumption and conclusion of this study

No.	Assumption	Conclusion
H1	Three indicators of brand equity from the perspective of customer have internal consistency;	Supported
H2	Three indicators of brand equity from the perspective of market have internal consistency;	Supported
H3	Brand equity from the perspective of customer and brand equity from the perspective of market have correlation;	Supported

Therefore, through the above analysis, in this study, three research hypotheses proposed in the third part were validated accordingly. Based on this conclusion, this study has the following analysis results.

1. The three evaluation indexes of brand equity from the perspective of customer are perception experience, emotional experience, and social experience. The three evaluation criteria of brand equity from the perspective of market are brand premium, price continuation, and brand extension. The corresponding items were designed for each evaluation index. Through the pretest analysis and test in this study, it was confirmed that each corresponding of evaluation criteria of brand equity from two perspectives had same content or quality which matched with the current theory. The consistency reliability of items of each evaluation index of brand equity from the perspective of customer and brand equity from the perspective of market was all greater than the reference value of 0.7, which proved that the content evaluated by each item of evaluation index had the practical significance and its evaluation results had high reliability.

In order to further understand the reliability of data of brand equity from the perspective of customer and brand equity from the perspective of market, this study used the standardized load factor to calculate the composite reliability of six research criteria. The calculation result was 0.8248, 0.8052, 0.7368, 0.7261, 0.7254, and 0.794, respectively, which was all greater than the reference of composite reliability 0.7. Therefore, it once again proved the stability and reliability of formal survey data in three dimensions of brand equity from the perspective of customer and brand equity from the perspective of market.

Therefore, according to the empirical test results, the study scale of brand equity from the perspective of customer and brand equity from the perspective of market meets the minimum requirements of the internal consistency reliability, and has good internal consistency.

2. The correlation between brand equity from the perspective of customer and brand equity from the perspective of market is a kind of uncertain relationship. The correlation coefficient is the quantity of linear correlation among study variables. In the pretest through the test of Pearson correlation coefficient between brand equity from the perspective of customer and brand equity from the perspective of market, the result obtained was 0.664. According to the reference standard, they have strong correlation.

The data of brand equity from the perspective of customer and brand equity from the perspective of market obtained by the formal survey in this study meets the characteristics of linear relation, continuous data and normal distribution. In the formal study, researchers used the convergent validity to test the degree of correlation among other indexes with the same construct in the scale of brand equity from the perspective of customer and brand equity from the perspective of market again, examined the standardized factor load coefficient of each index on its corresponding variable, and got the conclusion in Table 2. In the conclusion we can know that in this study the standardized factor load coefficient in each dimension is greater than the reference value of 0.6. At the same time, the composite reliability in each dimension is greater than 0.7. And then with the discriminative validity the degree of un-correlation between each measured value and other different constructs was detected. The study conclusion in Table 4 and Table 5 shows that the square root of AVE is greater than the correlation coefficient between the factor and other factors. The test result of this study is as follows. If a high performance instrument is used to verify a physical law, the correlation may be very low.

However, if it is used in the social sciences, because social science is affected by various complicated factors, the correlation coefficient is 0.664 in the pretest, the standardized load coefficient is greater than 0.6 in the formal survey, the composite reliability (CR) is greater than 0.7, the square root of AVE is greater than the correlation coefficient between the factor and other factors. These results are able to prove the strong correlation between the two in the social sciences. Therefore, the results also have verified that in the whole process of the evaluation of brand equity the evaluation methods of brand equity from two perspectives are not independent, but correlated, and may even affect each other.

Such calculation results reflect the statistical indicator of the degree of correlation between brand equity from the perspective of customer and brand equity from the perspective of market. In addition, in the calculation of mean and standard deviation of data obtained in the formal research, the standard deviation of each evaluation index of brand equity from the perspective of customer and brand equity from the perspective of market is positive and greater than zero, so the conclusion of correlation coefficient in this study is meaningful.

3. In the research process, perception experience, emotional experience, and social experience were considered as the evaluation criterion of brand equity from the perspective of customer. Premium brand, price elasticity, and brand extension were considered as the evaluation criterion of brand equity from the perspective of market. In the process of questionnaire design, corresponding to theoretical variables in the study, multiple questions were designed in the questionnaire. These corresponding theoretical variables are factors. Each item is a measurement item. The study examined evaluation indexes of brand equity reflected by perception experience, emotional experience, social experience, brand premium, price elasticity, and brand extension. According to the test results in Table 2, the standardized load coefficients of all the variables are greater than 0.6, the measurement indexes can reflect the variables well, and these indexes can serve as measurement indexes of the variables.

In the confirmatory factor analysis, through the test of general chi square degree of freedom of brand equity from two perspectives, x^2/df value of brand equity from the perspective of customer was 1.781, and x^2/df value of brand equity from the perspective of market was 3.981. Although x^2/df value of brand equity from the perspective of market is greater than the relatively strict reference standard of "3", because there were 529 samples in this study, the

sample size was big. However, it is consistent with the existing research theory. When the sample size is big, if x^2/df is 3-5, it is also acceptable.

At the same time, for brand equity from the perspective of customer and brand equity from the perspective of market, in the test of other indexes of absolute fitting index, the test results of the value-added fitting index and other fitting indexes such as RFI, TLI, PNFI, and PCFI are within the strict reference standard. According to the test conclusion, this study suggests that the model of brand equity from the perspective of customer and brand equity from the perspective of market is reasonable.

In conclusion, the empirical test shows that the model of each dimension and relationship study of brand equity from the perspective of customer and market built in this study is valid, and completely meets needs of the study. The six study indexes I the model also can be used to evaluate the brand equity.

Discussion and summary

In the study from the perspective of comprehensive research the internal consistency and relevance of the measurement pattern of brand equity from two perspectives were analyzed and the causal relationship between them was confirmed. The research conclusion provides some important enlightenment to the brand marketing strategy of enterprises.

First, enterprises need to consider the measurement pattern of brand equity from different perspectives and avoid the misleading results of a single measurement pattern. Enterprises need to use the measurement results from different perspectives properly. The measurement method from the perspective of customer can help to diagnosis the problems existing in the brand and ad-just the marketing strategy. The measurement method from the perspective of market reflects the results of past marketing activities of the brand but it can't reflect the future direction of the brand.

Second, the creation of brand equity is the enterprise's long term strategy. The empirical results of the study tell us that only from the perspective of brand or enterprise itself it is not enough to create brand equity and we also need to have a healthy industry environment, supportive marketing partners and a mature customer environment. Kotler and Keller (2006) believe that a new competition is the competition based on the market network. The winner will

be the enterprise with a superior network. Therefore, an enterprise should establish alliance with institutions with related interests on the market, in order to enhance the competitiveness. In addition, the establishment of a competition and cooperation relationship with the competitor (not only the competition relationship) will help to build the benign industry order. This is the important environmental of the strong brand growth.

The measurement of brand equity involves many indexes. At the same time, analysis and empirical research are required to study the correlation in various dimensions. The study data in this paper mainly come from the questionnaire survey of customers in the market. In the process of data processing, it is easy to ignore the subjectivity problem.

To study brand equity from comprehensive perspectives, the direction of further efforts is as follows. First, the path relationship between the measurement patterns of brand equity from two perspectives will be examined. The future study will test the path relationship between the measurement patterns of brand equity from two perspectives. Second, the impact of adjustment factors and adjustment effect on the brand equity will be tested. Third, the non-quantitative can be adopted to measure variables in the brand equity, and non-quantitative data will be used for exploratory and explanatory analysis of the content designed for each variable of the brand equity.

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