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A model for brand equity determination using structural equations modeling

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Abstract

A variety of methods for different purposes have been used to express the concept of brand equity. It is a noticeable value of brand, which makes the customer pay higher for the product with a brand comparing with identical product without that brand. Financially speaking, brand equity is an asset for the organization as it generates cash flow and profit in the future. The factors in brand equity must, therefore, identified within financial and non-financial framework. By indicating the variables and the indices and consulting with the academic experts in marketing, brand, and accounting the results of structural equations modeling (SEM) revealed that significance level between brand equity and financial variables was 4.82 (>1.96). That is, the relationship between brand equity and financial variable were significant at %99. Regarding the relationship between brand equity and marketing variables, the significant level was 4.25 (>1.96) and thus the relationship was significant at %99. The results can be used as practical guideline for the stakeholders and owners of brands and also helpful for successful management of brand value.

Keywords: Brand, Brand equity, Financial and non-financial Variables of Brand, Structural equations Modeling

Introduction

In the age of globalization, competition is a critical issue for the policy makers at different levels (national, industries, and firms) all around the world. Surviving the competitive national and international markets demands codifying business strategies toward improving capabilities and competitive position of companies, as well as winning better position in the market. Producing and service firms follow different lines of activities and processes. The multinationals, on the other hand, develop different features to improve their competitive capabilities.

The strategies and role of brand equity is gaining competitive advantages. Strategic management policies, in this regard, also carry the weight as they influence the customers. When brand equity is measured accurately, it can be used a proper measure for assessing performance of the brand. (Tolba, 2011)

In fact, main portion of assets of firms are not tangible assets such as equipment, piece of land, buildings, and so on; but it is the intangible assets such as management, marketing, financial/operation knowledge, and most importantly the brand equityand reputation that create the most of the asset of a firm. Reliable measurement of the brand equityand the factors in reputation gives a proper measure for assessing the long-term effects of marketing decisions. Reputation of a firm depending on the case may result in higher income, lower cost, and wider profit margin. It also has a direct effect on the organization's capability on making proper decision for setting the prices, efficiency of marketing policies, and success of the business (Moghberl ba Arz *et al.*, 2008). One of the responsibilities of the top management is to create strong brand while improving capability of the organization to meet its commitments. Empowerment of conceptual difference among the products and through branding, gaining reputation, and more loyal customers create what is more than financial profit and we call it specific value or mental image of the brand in the public. (Greyser, 2009)

Keller (1993) argued that brand performance is a prerequisite in the market as well as for development of assessment of and association of the brand by the consumer. The image of brand was defined by the Kevin Keller the notable theoretician in man-

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agement as the perception of the consumer, which is reflected by the associations of the brand in the brain. Brand image is a set of perceptions in the mind of the consumer. In other words, the consumer's perception of the key features of the product is all that remains in the mind of the consumer.

In spite of intensive studies, there is still no commonly accepted framework for measuring and evaluating brand equity. (Washburn and Plank, 2002)

On the other hand, results of the studies have shown that financial variables can act as one of the aspects of brand equity. Some brand names have a long history so that many generations of managers have taken control of the brand. There have been several studies on the value created by brand for the stockholder. A study by Interbrand and J. P. Morgan institute showed that brand names are of great value for the customer. Economic contribution of brand is too noticeable for the companies. The brand Mc Donald is the root of more than 70% of the created value for the stockholders of the firm. The brand Coca Cola is 51% of the stock value of the company; add to this that the company also owns many drinks brands such Spirit and Fanta. Given the importance of the issue and necessity to put more emphasis on brand equity by Iranian companies, the main purpose of the present study is to determine brand equity while taking into account financial and marketing variables. The main approach followed by the study was to combine different viewpoints of financial and marketing experts in assessing specific value of the brand. Furthermore, a model was proposed, which was a combination of international standards of accounting and the conservative rule of precaution in particular with the variables and viewpoints required by the marketing officers (e.g. advertisement and customers' satisfaction).

Literature review

Although branding has a history of several decades, brand equity as a pivotal and fundamental value for organization has been under consideration for the last 2 decades. The emergence of the concept of brand equity added to strategic value of marketing and created a focus point for the researchers and the managers. Majority of the recent studies in the fields of brand equity have been on products and services by state and non-commercial sectors. At any rate, brand equity has had a blurred effect on industrial markets, so that organizational buyers tend to sped higher for brands with specific values (Volckner & Sattler, 2007). Brand equity has been elaborated on differently for different purposes. However, there has been no sign of a general agreement on this regard. The concept can be discussed from different viewpoints as that of producer, retailer, or customer. While the producers and retailers tend to emphasize on financial concept, proponents of financial attitudes tend to define brand equity as total value of brand, which can be measured when it is mirrored in the financial statements (Divandari *et al.*, 2009). Other definitions in agreements with this viewpoint define brand equity as the cash flow that for brand products is ascending in volume comparing with products without brand. Definitions of specific value brand based on customer's viewpoint tend to be customer biased whether the customer is an individual or an organization. They argue that a brand must be valuable for the customer if it is valuable. Thus, power of brand lies with what the customer hears, sees, or learns about the brand in time (Keller, 2008). Should be brand be meaningless for the customer, none of other definitions is worth paying attention. One of the most comprehensive and general definitions of brand equity is "a set of capabilities and assets assigned to a brand or a name (sign) that add or cut the value of a product introduced by the company. (Janonis *et al.*, 2007)

Company may determine their specific brand value using marketing measures. Keller wrote "brand equity must be managed throughout the time through adopting management marketing plan." The perception of the customer regarding the brand is comprised of a set of marketing elements such as price, advertisement, image of value, and distribution power. Although not all the variables of marketing count, the effect of usual marketing measures and their effect of brand equity are clear.

By realizing the internal and external features of quality, the customer learns about quality of product. Among the effective external factors in brand, marketing measures based on advertisement, price, and promotions are main factors. Price is a sign of quality. Therefore, brands with higher prices are assumed to be of higher quality comparing with brand with lower prices. (Salinas *et al.*, 2007, 190)

It appears that taking into account the common aspects between brand and the consumer in comparison with the common aspect between the retailer and consumer gives us better chance in predicting future behaviors. In the case of a car, there is a relationship between loyalty to store and loyalty to brand as well as between loyalty to store and loyalty to brand. In addition, there is difference between the customer's satisfaction with the selling (retailer) and with the producer (brand). The future decision for repeating the purchase is affected by these two aspects. However, satisfaction with the producer (brand) is the determinant factor in repeating the purchase and satisfaction with the seller is the determinant factor in repeating the purchase form the specific store. The concerns about selling are intensifying with increase of competition with unauthorized sellers. The authorized sellers must show their differences with the unauthorized sellers by showing better services. When the customer is satisfied with all the services by the seller, they create better image of the store or agency and this increase the probability of repeating the purchase from the specific seller. (Owing, 2000, 121)

The future behavior of the customer is more predictable using the common aspect of brand and consumer in comparison with the retailer and the consumer. Variable environmental factors influence retailing behavior. For instance, changes in income, position, family structure, unpredicted accidents, stability of decisions, and new information all are effective on the future behavior. (Owing, 2000, 124)

Souri (2011) conducted a research titled "branding based on the consumer's viewpoint in China-made sport shoes market: measuring, challenges, and opportunities." The research was conducted quantitatively and study population was comprised of 84 Chinese between 21 to 36 years old and 5 brands were under study. The results showed that brand awareness, loyalty to brand, perception of the quality of the brand, and mental image of the brand had considerable effect on specific value of the brand, while brand image had positive effect on creating brand equity. At the same time, the results showed that reputation had no effect on the different aspects of brand equity.

Ranjbaran *et al.* (2011) carried out a study titled "the effect of specific value of brad on efficiency of advertisement" with study population of all the citizens of Isfahan city. SEMs were used for analyzing the relationship between the aspects of brand equity (perceived quality, loyalty to brand, brand awareness, mental image of the brand), and effectiveness of the advertisement. The results showed that specific value of the brand had positive effect on efficiency of advertisement.

Rota and Joza (2010) performed another study to propose a model for assessing brand equity using customer-oriented approach. As their results showed, the effective variables on assessment of brand equity in the industry under study were brand awareness, mental image of the brand, quality of the provided services, price of services, and loyalty to the services.

Solayapan *et al.* (2010) attempted to determine the key factors in specific value of brad in hospitals. They used step-by-step correlation and regression coefficient methods and found that among the different factors, mental image, loyalty to brand, and the customer's satisfaction were more effective on specific value of the brand.

In another study by Marino *et al.* (2008) titled "customer relations and brand equity in banking services", the authors tried to find, by their explorative study, a preliminary perception regarding the conceptual frame of customer relation, aspects of brand equity, and the relationship between the two factors. The study was conducted as a survey study through interviewing. The attitudes of the customers regarding the role of customer-based marketing with brand equity were obtained using focus point method. Finally, the conceptual model was developed based on the managers and the members of the guild. The managers and the members of the guild expressed that branding is most important factors in their decision-making. However, they also pointed out that brand differentiation has been missed out. The customers put the highest priority on personal relation affairs so that they expressed that they have good relation with the provider of the financial services. The both groups of customers and the suppliers of financial services stated that human relations were effective on brand equity. On the other hand, the group of customers found the relations proper for implementing branding activities, while the managers were not sure of the role and relationship between brand equity and customer relations as well as the effects of brand strategy.

Brand equity is indeed a multi-aspect concept with discrete non-financial aspects with unique relations with financial performance assessment of commercial unit. The findings put emphasis on choosing proper methods for measuring.

Bart *et al.* (1998) evaluated the relationship between assessments of brand equity among different brands with the help of Financial World Magazine. They found that adding financial variables makes the estimates of brand equity biased toward stock price, return, and outcome of share. Madan, Fehel, and Fornies (2006) extended their study using intrabrand estimates to survey the evidences and documents of assets of 111 world top brands. Their results showed that more powerful brands bring in more incomes with lower risks. They also expressed that their finding were still reliable even when controlled based on market share and size of the company and that evaluation of brand equitydepends on the investors.

In another study by Jacobson (2000) the key elements of brand equity were examined and the content of the information used by Techtal Co. was introduced. They found that policies toward brand divide financial performance in one or two sections while keeps its relation with stock price.

Acora Jacobson (2001) argued that the findings are based on realization of participation in stock exchange market and that brand equity is effective on net specific value. Mirik and Jacobson (2008) found a relationship between return from stock and changes in the measures of brand equity and unexpected changes in financial performance. They also found that the criteria of brand equity are directly/indirectly effective on stock return. Increase in evaluated brand equity was positively related with stocks' return and changes in measures of brand equity resulted in changes in current and future financial performances.

In the past, the firms tend to, almost exclusively, use financial performance measures such as profit or calculated incomes for measuring calculated performance. Calculated performance measures represent several goals within the frame of the company, including evaluating performance of business units (BU), forecasted income, cash flow programming, resource assignment, and minimizing the tax. Calculated performance measures are featured with several features that may have considerable effect on performance; these factors are subject to internal control and independent auditing. Thus, reliability and explicitness are essential for external reporting. The measures are comparable between the companies and BU and achievable for a reasonable cost. They also bring in the general results of the activities of the organization through a integrated and unified financial assessment. In addition, as shown by the previous studies, financial measures are enough for obtaining value of the company. However, some researchers have found that calculated measures are primal, outdated, conservative, biased, and based on false approaches. For instance, the management may manipulate short-term performance for creating specific brad value by cutting reserves costs (e.g. R&D and advertisement costs are cut, while they are vital for long-term performance and BU wards).

Thus, as argued by some researchers, primary (real) calculation measures have so limited perspective of financial performance of company or future of BU wards. Majority of companies tend to adopt several methods to deal with such short-term perspective of calculation measures. One solution is to minimize investment in R&D ward or advertisement at company and BU levels. However, this solution is a limitation on decision-making authorities while it fails to take into account the costs of advertisement and R&D operation or other managerial measures to create special value of brand. Companies also may use non-financial measures (special value of brand) to deal with the short-time perspective and at the same time monitor development of intangible assets. By adopting proper measures of special value of brand, such measures can take the attention of the management to a wider framework. In addition, such measures help the management to measure the cause and effect relations between marketing activities and future financial performance, while there are limited evidences regarding the relationship among the measures of special value of brand and financial performance of BUs.

Misik and Jacobson (2008) argued that the powerful aspects, which are obtained using calculation performance measures (sale and capital return) are obtained at company level. The potential aspects of growth introduce performance aspects, which are barely obtainable using financial and primary measures.

Methodology

The variables of the study were measured through adopting a representative sample of the study population. The participants were asked to fill out a questionnaire, which means the study is a descriptive – survey work. Given that the elements must be identified and classified based on field study (focus point method), structural equations were used to identify and confirm the relationship between the indices. Structural equations are of the new statistical methods and one of the most powerful methods for multi-variable analysis. The main utilization of the method is in multi-variables issues, which cannot be solved using two-variable methods. Multi-variable analysis is a set of analyzing methods, which share the feature, most importantly, of analyzing several independent/dependent variables simultaneously (Houman, 2005). Structural equations modeling, as a statistical model, studies the relationship between evident (observed) and hidden variables. The method is also called covariance structural analysis, causal, or Liserel modeling. SEM puts emphasis on general assumed structures or causal modeling using non-experimental data. So that, an integrated framework is developed for estimating the power of relation between all the variables of a theoretical model. Theories, under the model, are the bedrock and without them a reliable description of the internal relationships is not possible. SEM is a multi-variable analyzing method from multi-variable regression family that enable the researcher to test a set of regression equations at the same time. In fact, structural equation modeling is a comprehensive statistical approach to test assumption of relationships between the variables. Study population of the study was comprised of university professors nationwide. The participants were asked to answer a questionnaire. The preliminary questionnaire was designed based two key measures of financial variables and marketing variables, which were pertinent to brand equity. The variables were assumed based on literature review and experts' opinion.

Findings

Here, fitness of the model is discussed; by fitness, we refer to compatibility of the model with the data. Thus, by ascertaining fitness of the model, we make sure that the model is compatible with the data of the research. Fitness of the conceptual model of the research was examined in two stages. First, fitness of measuring section of the model was checked, and then fitness of the structural equations was ascertained.

Fitness of measurement section of the conceptual model

The relationship between the hidden variables (internal and external) and evident variables (measured) was examined to ensure fitness of measurement section of the model. By doing so, we attempted to ensure reliability and validity of the indices. Thus, t-value of the paths between each hidden variable along with pertinent indices was obtained. It is noticeable that since the main variable of the study (brand equity) is two-dimensional; reliability of the structure of the variables was obtained in two stages. First, using first order confirmatory factor analysis, internal correlation of the aspect, correlation between the questions and the aspects were examined to ensure significance of the correlations. Afterward, using second order confirmatory factor analysis, significance of relationship between the main variable and pertinent aspects was examined.

The measure of significance of the relationship between the indices and the pertinent variable was the definite value of the sig of the path between the index and the variable; so that the relationship was significant when the sig >1.96 and insignificant otherwise. In addition, standard estimated coefficient Figure indicates the weight of each one of the given variables on determining the hidden variable.

Furthermore, fitness of the structures was ascertained using the data collected in the study and using fitness indices. So that fitness was acceptable when the indices of fitness are at acceptable level.

First order confirmatory factor analysis

Figure 1 illustrates the sig level of first order confirmatory analysis of the variable brand equity. As the Figure shows the paths are at significant level (all the parameters are above 1.96), thus, internal correlation between the aspects is significant and the correlation between the questions and the aspect is significant.

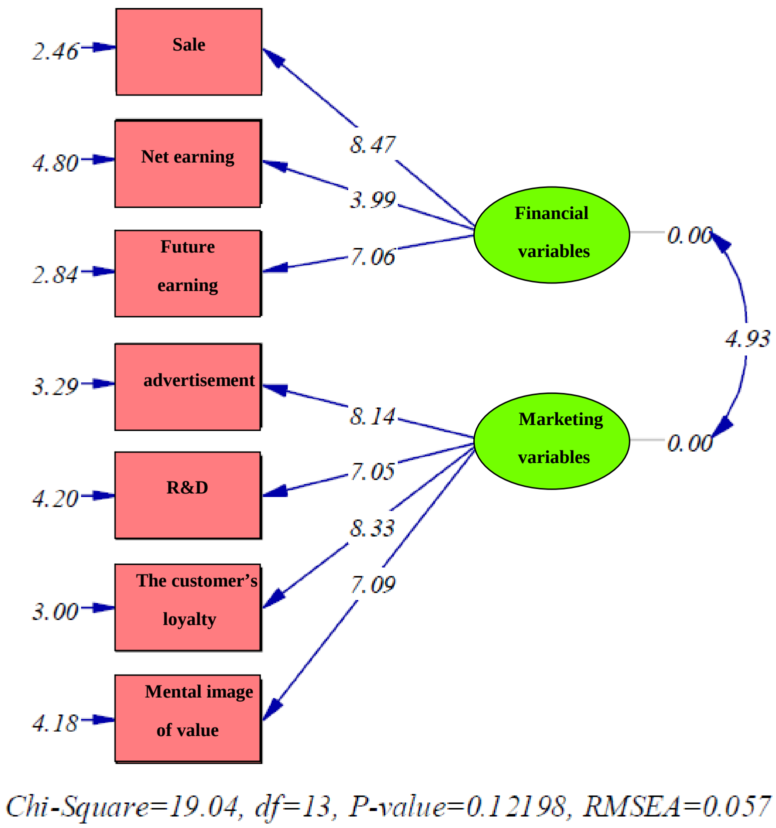

Figure 1. Sig level of first order factor analysis of brand equity

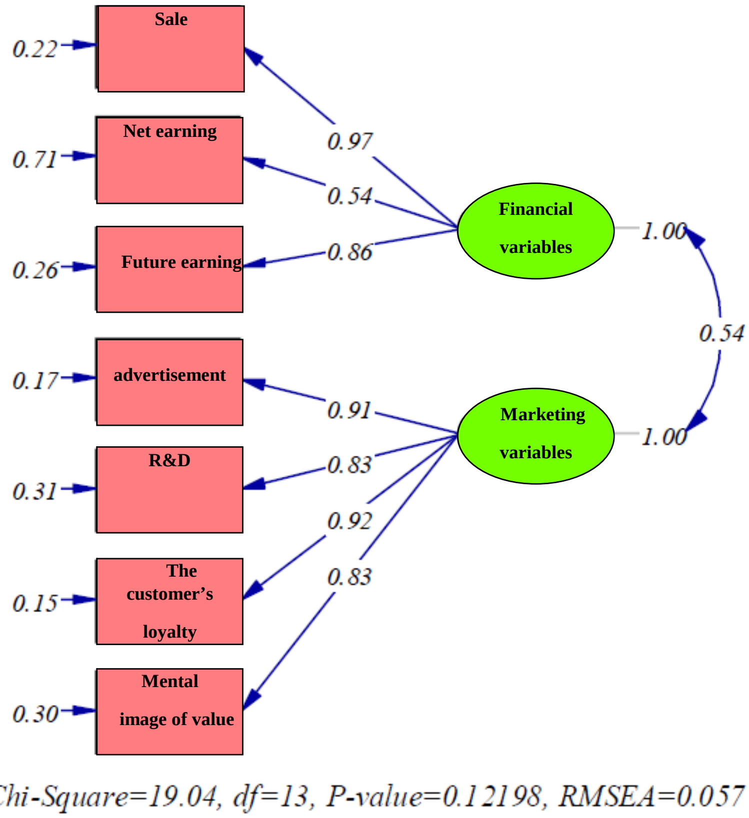

Figure 2. Standard estimate of coefficients of first order factor analysis of brand equity

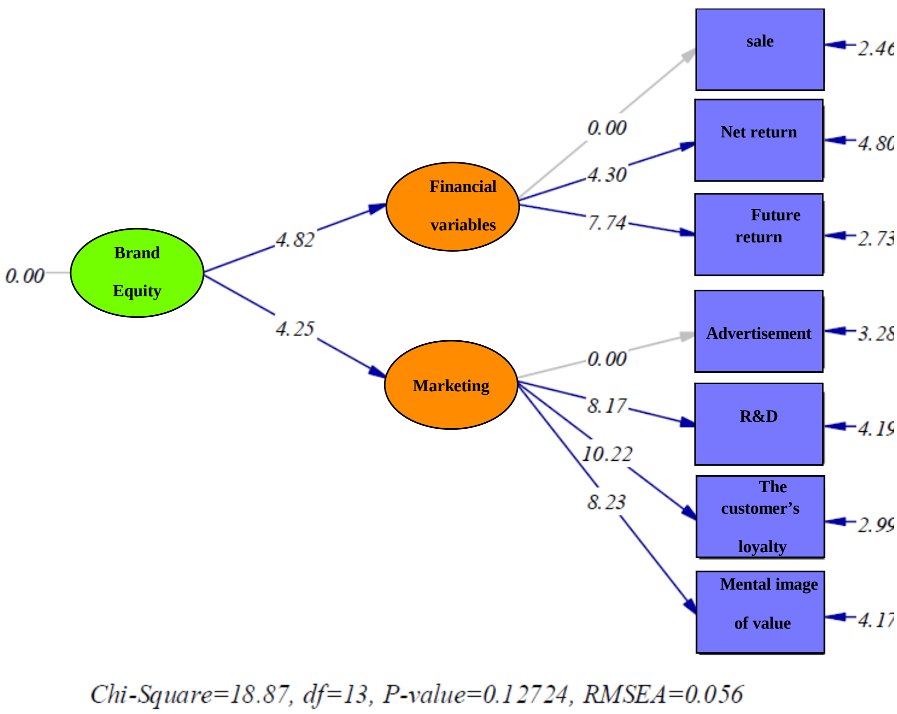

Figure 3. Sig level of 2nd order factor analysis of Brand equity

Figure 2 shows the estimated standard 2nd order factor analysis of specific brand value.

Second order factor analysis of brand equity

Given that the first order factor analysis of brand equity emphasizes on internal correlation between the aspects and the questions, the significance of relationship of between the brand equity and its aspects is ensured using 2nd order factor analysis. Figure 3 pictures the significance of 2nd order factor analysis. As the Figure shows, the estimated parameters for all the paths are at significant level, which shows high reliability of the structure brand equity.

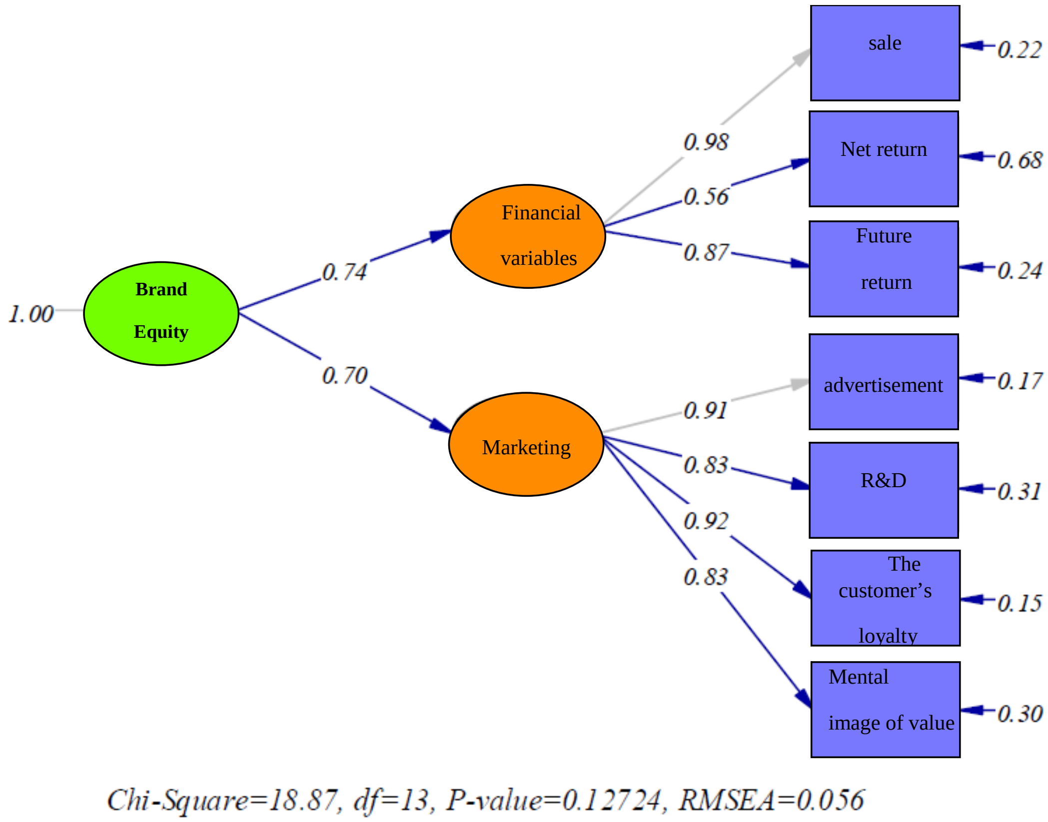

Figure 4. Standard estimate of coefficients of 2nd order factor analysis of Brand equity

Furthermore, Figure 4 represents the coefficient of standard estimate of 2nd order factor analysis of the variable brand equity or prioritizing the effect of each one of aspects on the variable. Fitness indices of 2nd order factor analysis of the variable are listed in Table 1. As listed in the table, all the indices are at acceptable level and the structure is reliable and has fitness with the collected data.

Table 1. Indices of fitness of 2nd order confirmatory factor analysis of the variables Brand equity

Fitness index	Preferred value	Result
χ^2/df	>3.00	1.452
GFI(goodness of fit index)	<0.090	0.92
RMSEA(Root Mean Square Error of Approximation)	>0.08	0.056
RMR(root mean square residual)	>0.05	0.038
NFI (Normed Fit Index)	<0.090	0.94
NNFI (Non-Normed Fit Index)	<0.090	0.96
CFI (Comparative Fit Index)	<0.090	0.98

Discussion and conclusion

The role of brand and branding have experienced fundamental changes in the last two decades. The 1980s was featured with expansion of innovations to create brand equity, while the 1990 was the decade that the concept collapsed (Blo and Helbrok, 1995, 125). Since the introduction of the concept of brand equity and financial evaluation of brand in 1987, the firms have tried to create and preserve the preliminary form of specific value. Although more businesses have come to realize the gravity of wining and keeping loyalty to brand as a way to preserve the long-term performance, keeping and wining customers have become ever challenging with intensification of competition (Ashoubnachler *et al.*, 2004; 488). In the past, the brand equity was mainly based on financial aspects, price, gross profit, specific return, and so on. The definition of brand equity changed in the 1990s following changes in international accounting standard when accounting standard required the financial reports to mirror the value of intangible assets (Chen, 2007, 248). Since then, a wave of researches on non-financial brand equity was started. SEM of the constituting elements of brand equity was proposed based on financial and marketing variables. After indicating the variables, indices, and consulting with the experts of marketing and branding in academic communities (Figures 1 and 2), now the results of the first order factor analysis of brand equity are discussed below.

1. Significant level of financial variables and sale was 8.47 (>1.96). That is, the relationship between

the financial variables and sale was significant at 99%. In addition, coefficient of the path between the two variables was 0.97, which represents the effect of sale on the financial variables. Comparing with the path coefficient of other aspects, evidently, sale was the most effective aspect on the financial variables.

2. Significant level of financial variables and net return was 3.99 (>1.96). That is, the relationship between the financial variables and net return was significant at 99%. In addition, coefficient of the path between the two variables was 0.54, which represents the effect of net return on the financial variables. Comparing with the path coefficient of other aspects, evidently, net return was the 3rd most effective aspect on the financial variables.

3. Significant level of financial variables and future return was 7.06 (>1.96). That is, the relationship between the financial variables and future return was significant at 99%. In addition, coefficient of the path between the two variables was 0.86, which represents the effect of future return on the financial variables. Comparing with the path coefficient of other aspects, evidently, future return was the 2nd most effective aspect on the financial variables.

4. Significant level of marketing variables and advertisement was 8.14 (>1.96). That is, the relationship between the marketing variables and advertisement was significant at 99%. In addition, coefficient of the path between the two variables was 0.91, which represents the effect of advertisement on the marketing variables. Comparing with the path coefficient of other aspects, evidently, advertisement was the 2nd most effective aspect on the marketing variables.

5. Significant level of marketing variables and R&D was 7.05 (>1.96). That is, the relationship between the marketing variables and R&D was significant at 99%. In addition, coefficient of the path between the two variables was 0.83, which represents the effect of R&D on the marketing variables. Comparing with the path coefficient of other aspects, evidently, R&D was the 4th most effective aspect on the marketing variables.

6. Significant level of marketing variables and the customer's loyalty was 8.33 (>1.96). That is, the relationship between the marketing variables and the customer's loyalty was significant at 99%. In addition, coefficient of the path between the two variables was 0.92, which represents the effect of the customer's loyalty on the marketing variables. Comparing with the path coefficient of other aspects, evidently, the customer's loyalty was the most effective aspect on the marketing variables.

7. Significant level of marketing variables and the mental image of value was 7.09 (>1.96). That is, the relationship between the marketing variables and the mental image of value was significant at 99%. In addition, coefficient of the path between the two variables was 0.83, which represents the effect of the mental image of value on the marketing variables. Comparing with the path coefficient of other aspects, evidently, the mental image of value was the 3rd most effective aspect on the marketing variables.

As pictured in Figures 3 and 4, the results of 2nd order factor analysis of specific brand value are interpreted as follows:

8. Significant level of brand equity and financial variables was 4.82 (>1.96). That is, the relationship between brand equity and financial variables was significant at 99%. In addition, coefficient of the path between the two variables was 0.74, which represents the effect of financial variables on brand equity. Comparing with the path coefficient of other aspects, evidently, financial variables were the most effective aspect on brand equity.

9. Significant level of brand equity and marketing variables was 4.24 (>1.96). That is, the relationship between brand equity and marketing variables was significant at 99%. In addition, coefficient of the path between the two variables was 0.70, which represents the effect of marketing variables on brand equity. Comparing with the path coefficient of other aspects, evidently, marketing variables were the 2nd most effective aspect on brand equity.

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