

## DEVELOPMENT OF A SCALE FOR MEASURING CUSTOMER-BASED BRAND EQUITY

*Svrha je istraživanja bilo razvijanje ljestvice za mjerenje tržišne vrijednosti marke sa stanovišta potrošača. Kao osnova upotrijebljen je Kellerov model tržišne vrijednosti marke, pa su stoga za mjerenje tržišne vrijednosti marke upotrijebljene četiri dimenzije: poznatost marke i snaga, preferiranost i jedinstvenost asocijacija na marku. Provedena su tri istraživanja sa svrhom pročišćivanja početnoga skupa tvrdnji i procjenjivanja pouzdanosti, dimenzionalnosti i kovergentne, diskriminantne i kriterijske valjanosti razvijene mjerne ljestvice. Istraživanjem je dokazana pouzdanost, konceptualizirana dimenzionalnost i konvergentna, diskriminatna i kriterijska valjanost razvijene ljestvice.*

In literature, brand equity is defined in many different ways, which can cause conceptual misunderstanding. Krishnan (1996) identifies three different perspectives of the examination of brand equity: (1) practical (e.g., Owen, 1993), (2) strategic (e.g., Aaker, 1991, 1996; Kapferer, 1998), and theoretical perspectives (e.g., Keller, 1993, 1998). Apart from that, Feldwick (1996) identifies three different approaches to brand equity: (1) the brand description approach (e.g., Leuthesser, 1988; Winters, 1991), (2) brand strength (e.g., Keller, 1993, 1998; Srivastava and Shocker, 1991; Yoo, Donthu, and Lee, 2000) and (3) brand value (e.g. Farquhar, Han, and Ijiri, 1991; Kapferer, 1998; Seetharaman, Nadzir, and Gunalan, 2001; Simon and Sullivan, 1993).

There are also many different methods to measure brand equity. For example, Sattler (1994) analysed 49 studies related to brand equity and identified 26 differ-

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ent methods of brand equity measurement. Keller (1993, 1998) identifies two different approaches to measuring brand equity – the indirect and direct approach. The indirect approach attempts to measure sources of brand equity by measuring brand knowledge. Indirect methods can be further differentiated by using qualitative (e.g. Aaker, 1997; Boivin, 1986; Durgee and Stuart, 1987; Krishnan, 1996; Zaltman and Higie, 1995) and quantitative research methods (e.g. Keller, 1998; Lassar, Mittal, and Sharma, 1995; Low and Lamb, 2000; Martin and Brown, 1990; Rio, Vazquez, and Iglesias, 2001). The direct approach attempts to measure brand equity by assessing the impact of brand knowledge on consumer response. Keller (1993, 1998) further differentiates these methods into comparative and holistic methods. Comparative methods can be brand based, marketing based, or both when conjoint analysis is applied (e.g. Blackstone, 1990; Lee, Lee, and Kamakura, 1996; Rangaswamy, Burke, and Oliva, 1993). Holistic methods can be further differentiated into residual approach methods (e.g. Kamakura and Russell, 1993; Park and Srinivasan, 1994; Swait et al., 1993) and valuation approach methods (e.g. Kapferer, 1998; Seetharaman, Nadzir, and Gunalan, 2001; Simon and Sullivan, 1993).

In spite of the many different methods of brand equity measurement, there is a lack of a simple, paper and pencil measurement instrument based on a theoretical framework of brand equity, which would be suitable both for diagnostic use and for directing of marketing activities. However, it should be pointed out that the managerial usefulness of a specific brand equity measurement method is connected with the method's ability to provide understanding of the sources of brand equity and to provide a direction for enhancing it (Park and Srinivasan, 1994). Therefore, the focus of this paper will be on association measures, because they can provide diagnostics to marketing managers that sales related measures do not provide (Krishnan, 1996).

Instruments developed by Lassar, Mittal, and Sharma (1995) and Martin and Brown (1990) possess the majority of the mentioned characteristics (they are simple, they are paper and pencil instruments, they are suitable for diagnostic use and are appropriate for direction of marketing activities). The purpose of this paper is to develop an instrument that will have all the advantages of the mentioned instruments, but that will also be based on some theoretical framework of brand equity. This further criterion was chosen because a theoretical framework can provide direction for marketing activities based on the given results.

### **A framework for measuring customer-based brand equity**

Keller's framework of customer-based brand equity will be used as a basis for developing a measurement instrument. Customer-based brand equity is defined

as the differential effect of brand knowledge on consumer response to the marketing of the brand (Kamakura and Russell, 1991; Keller, 1993, 1998). This view of brand equity proposes that (1) the brand creates value for both consumers and the firm, (2) the brand provides value to the firm by generating value for the consumers, and (3) consumers' brand associations are the key elements in the formation and management of brand equity (Rio, Vazquez, and Iglesias, 2001).

A brand will have higher customer-based brand equity as brand awareness increases to a higher level, and as consumers hold stronger, and more favourable and unique brand associations. Silverman, Sprott, and Pascal (1999) provide evidence that strength, favourability, and uniqueness of brand associations are consistent with the brand position on the market, and thus they conclude that these measures have potential value as assessments of brand performance. Therefore, brand awareness, and strength, favourability, and uniqueness of brand associations are used as indicators of customer-based brand equity. By using these dimensions for the measurement of brand equity, a theoretical framework of customer-based brand equity for the direction of marketing activities can be applied. The company can directly influence the dimensions of brand knowledge (or brand description) through its marketing activities, which can additionally increase the applicability of the developed scale to direct marketing activities. In addition, as mentioned before, association measures provide diagnostics to marketing managers that traditional sales measures do not provide (Krishnan, 1996).

In order to specify the domain of the specific dimensions to be measured, the definitions presented by Keller (1993) were used. Brand awareness is defined as the strength of the brand node or trace in memory, as reflected by consumers' ability to identify the brand under different conditions. This is related to the likelihood that a brand name will come to mind and to the ease with which it does so. There are three major reasons why brand awareness has an important role in consumer decision making. First, raising brand awareness increases the likelihood that the brand will be included in the consideration set. Second, brand awareness can affect consumers' decisions about brands even if there are no other brand associations, especially in low involvement decision settings when a minimum level of brand awareness may be sufficient for brand choice. Finally, the formation and strength of brand associations is influenced by brand awareness.

The strength of brand associations is related to the strength of their connection to the brand node. The strength of a particular brand association increases the likelihood that this association will be accessible and the ease with which this association can be recalled. The favourability of brand associations is related to the consumers' beliefs that brand attributes and benefits will satisfy their needs and wants. Indeed, the success of marketing programmes is reflected in the creation of favourable brand associations. The uniqueness of brand associations is related to the extent to which brand associations of one brand are not shared by other competing brands.

## **Methodology**

### ***Items generation***

An initial set of 19 items was generated by the author, according to the accepted and previously-mentioned definitions of brand awareness, and the strength, favourability, and uniqueness of brand associations. In the initial set of items there were four items for brand awareness, five items for strength of brand associations, four items for favourability of brand associations, and six items for uniqueness of brand associations.

### ***Scale purification***

The initial set of items was administered to 143 undergraduate students from the University of Zagreb for three different brands. The brands were Adidas, Bajadera (Croatian brand of confectionary), and Cedevita (Croatian brand of powdered drink). A five point Likert scale (1 – strongly disagree; 5 - strongly agree) was used to capture the respondents' answers. A coefficient alpha, item-to-total correlations and an exploratory factor analysis were used for the purification of the initial set of items (Churchill, 1979).

### ***Dimensionality assessment***

After the purification of the scale, a confirmatory factor analysis (Gerbing and Anderson, 1988) was performed on the same data set for all three brands (Adidas, Bajadera, Cedevita). A measurement model was set to have four latent variables (factors). Each item (as a manifest variable) was to be loaded on one respective latent variable. Thus, brand awareness items were related only to the brand awareness factor, and the same was done for the other items and factors.

### ***Reliability assessment***

The coefficient alpha and test-retest reliability were used in order to assess the reliability of the developed scale (Churchill, 1979; Peter, 1979). The items

remaining after purification were administered to 171 undergraduate students from the University of Zagreb for three different brands. The brands were Fanta, Simpa (Croatian brand of pre-paid mobile telephone services), and Benetton. For the assessment of test-retest reliability, a two-week interval was given before the retest. A five point Likert scale (1 – strongly disagree; 5 - strongly agree) was used to capture the respondents' answers.

### *Validity assessment*

Convergent, discriminant, and criterion validity was assessed for the developed scale. For the assessment of convergent and discriminant validity, a multitrait-multimethod matrix was used (Churchill, 1979; Peter, 1981). The correlation between the scores resulting from the scale developed here and those resulting from the scale developed by Lassar, Mittal, and Sharma (1995) was used for the additional assessment of convergent validity. The correlation between the measure of brand equity resulting from the scale developed in this paper and the respondents' buying intention and the price that consumers were willing to pay was used for the assessment of criterion validity (Churchill, 1979).

At this stage, data were collected twice with a period of two weeks in between. The first time, a five point Likert scale (1 – strongly disagree; 5 - strongly agree) was used to capture the respondents' answers, while the second time a percentage scale was used (0%; 10%; 20%; ... 100%). Different methods were used in order to generate a multitrait-multimethod matrix. In addition, because of the multitrait-multimethod matrix, the application of two other traits was also included – brand functionality and brand prestige (Bhat and Reddy, 1998). Questions related to criterion validity were included only in the first administration. A questionnaire was administered to 157 undergraduate students from the University of Zagreb for two different brands – Levi's and Sony. For the multitrait-multimethod matrix generation, the average values of brand equity, brand functionality, and brand prestige were calculated for each respondent, and the resulting values were then correlated.

## **Results**

### *Scale purification*

The initial set of items was narrowed to 14. Five items were deleted with low item-to-total correlations and/or if their deletion would result in a higher coeffi-

cient alpha and/or if the items which loaded low on their appropriate factor loaded high on another factor. Among the deleted items two were from the brand awareness dimension, and one item from each of the following dimensions - strength, favourability, and uniqueness of brand associations. One item was deleted in all three analysed brands, two items were deleted in two brands, and two items were deleted in one brand. After purification of the scale, all alpha coefficients were above 0.7, and the highest one was 0.898 (favourability of brand associations for the brand Bajadera).

The following items remained in the scale:

- brand awareness: (1) "this brand is very familiar to me"; (2) "I know this brand very well"
- strength of brand associations: "I know what the characteristics of this brand are"; "I am unaware of this brand's characteristics" (r); "the characteristics of this brand are unfamiliar to me" (r); "I can recall the characteristics of this brand without effort";
- favourability of brand associations: "this brand completely satisfies my needs"; "this brand has characteristics that satisfy my needs"; "this brand best satisfies my needs";
- uniqueness of brand associations: "this brand is unique"; "the characteristics of this brand are unique"; "this brand isn't unique" (r); "this brand is different from other brands"; "this brand is the same as all other brands" (r).

Symbol (r) denotes reverse coding for the respective item.

### ***Dimensionality assessment***

For all three researched brands, the overall fit statistics of the measurement model indicate a reasonable level of fit of the model (Hu and Bentler (1999) provide a review of cutoff criteria for fit indexes). The best fit was for the brand Cedevita -  $\chi^2 = 97.670$ ;  $p > 0.05$ ; Goodness-of-Fit Index (GFI) = 0.816; Adjusted Goodness-of-Fit Index (AGFI) = 0.782; Normed Fit Index (NFI) = 0.809; Non-Normed Fit Index (NNFI) = 0.915; Comparative Fit Index (CFI) = 0.936; Root Mean Square Error of Approximation (RMSEA) = 0.055; Standardised Root Mean Square Residual (SRMR) = 0.07.

### ***Reliability assessment***

Alpha coefficients were computed for both administrations. Only two alpha coefficients were below 0.8 - strength of brand associations for Fanta (second admin-

istration, ( $\alpha=0.776$ ), and uniqueness of brand associations for Simpa (second administration, ( $\alpha=0.779$ )). The highest alpha coefficient was for favourability of brand associations for Fanta (second administration, ( $\alpha=0.917$ )).

Retest correlations were between 0.52 and 0.83, and all were statistically significant at  $p<0.05$ . The majority of retest correlations were above 0.6, with only two below 0.6 – brand awareness for the brand Fanta ( $r=0.55$ ), and the strength of brand associations for the brand Simpa ( $r=0.52$ ).

The results indicate good reliability of the developed scale (Peter, 1979; Nunnally and Bernstein, 1994).

### *Validity assessment*

For the brand Levi's, the correlations in the validity diagonal were as follows: 0.84 for the brand equity scale, 0.69 for the brand functionality scale, and 0.62 for the brand prestige scale. For the Sony brand, the correlations in the validity diagonal were as follows: 0.88 for the brand equity scale, 0.63 for the brand functionality scale, and 0.67 for the brand prestige scale. All coefficients were significant at a level of 0.05. All coefficients in the validity diagonal for both brands were significantly different from zero and sufficiently large (Churchill, 1979), and thus they give evidence of the convergent validity of the developed scale.

The correlation between the scores of the scale that was developed here and the scores obtained with the scale that was developed by Lassar, Mittal, and Sharma (1995) was used for additional convergent validity assessment. The resulting coefficients of the correlation were 0.85 for the brand Levi's, and 0.70 for the brand Sony (the coefficients were significant at a level of 0.05). These results provide additional evidence of the convergent validity of the developed scale.

All three requirements for discriminant validity were met for the developed scale (Churchill, 1979). Namely, (1) entries in the validity diagonal were higher than the correlations that occupied the same row and column in the heteromethod block; (2) the validity coefficients were higher than the correlations in the heterotraitmonomethod triangles; and (3) the pattern of correlations were the same in all heterotrait triangles. Thus, it could be concluded that developed scale has discriminant validity.

The brand equity score and the buying intentions of respondents correlate positively for both brands (0.63 – Levi's; 0.59 – Sony; both correlations are significant at a level of 0.05), and the same applies for the brand equity score and the price that consumers are willing to pay (0.59 – Levi's; 0.60 – Sony; both correlations are significant at a level of 0.05). These results provide evidence of the criterion validity of the developed scale.

## **Conclusions**

The measurement scale developed in this paper represents a simple, paper and pencil instrument for measuring customer-based brand equity. Because this instrument is based on a theoretical framework (specifically Keller's framework of customer-based brand equity) the managerial usefulness of the method is assured in terms of its diagnostic ability and ability to provide directions for marketing activities.

Brand awareness, and strength, favourability and uniqueness of brand associations were used as dimensions in the scale. The scale was developed after three studies, during which the initial set of items was purified, and the dimensionality, reliability and validity of the scale were assessed. The results indicate the expected dimensionality of the developed scale, and also good reliability, and good discriminant, convergent and criterion validity of the developed scale.

Managers can benefit from the developed instrument in several ways. First, it consists of a small number of items, and in general it is simple, it is a pen and pencil instrument, and is easy to use. Second, this small number of items enables the sources of brand equity to be measured according to a well-accepted and documented theoretical framework. The measurement of the sources of brand equity assures the good diagnostic potential of the developed instrument. Third, the connection with the well-accepted and documented theoretical framework of brand equity provides numerous possibilities for the directing of marketing activities in order to improve potential problematic dimensions, and to further enhance the dimensions that perform well. In other words, this instrument offers the ability to identify a brand's strengths and weaknesses in terms of the sources of brand equity. Once again it should be pointed out that the managerial usefulness of a specific brand equity measurement method is connected with the method's ability to provide understanding of the sources of brand equity and to provide a suggested direction for enhancing it (Park and Srinivasan, 1994). The instrument developed here has such abilities.

## **Limitations and further research**

When considering the results and conclusions of this research, it is necessary to take into account certain limitations. In general, the limitations of this research are connected with two factors – the sample and stimuli used in the studies.

The samples that were used in these studies consist of undergraduate students, and the use of student subjects inhibits the generalisation of findings to

other populations. However, students were used because of their availability for the periodical surveys needed for the purposes of scale development. The second source of limitations connected with the sample is the sample size, although for the preliminary stages of the development of the scale this sample size could be satisfactory. For further validation of the developed scale it is necessary to include larger and non-student samples.

The second factor of limitations is the stimulus used in the studies. In total, eight brands were used, more specifically three brands for item purification and dimensionality assessment, three brands for reliability assessment, and two brands for validity assessment. As each brand was from a different category, eight categories were included in the research. For further validation of the scale, more brands and more categories need to be tested. It would also be useful to include more brands from the same category, especially brands where the researcher can *a priori* decide which one has higher brand equity. In this way, the manner in which the scale captures the differences among the brands can be explored.

Finally, it could be very useful to compare the scale developed in this paper with other measures of brand equity. It might therefore be possible to find out how the scale developed in this paper relates to other existing brand equity measures, and to further explore the convergent validity of the developed measure. Furthermore, it would be possible to explore how well the scale developed here estimates brand choice (at an individual level) and market share (at an aggregate level) in comparison with other brand equity measures. In this way the criterion validity of the developed measure could be further explored.

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### Summary

The purpose of the research reported here was to develop a scale for measuring customer-based brand equity. Keller's framework of customer-based brand equity was used as a basis for developing a measurement scale, and thus four dimensions for measuring brand equity were used: brand awareness, and strength, favourability, and uniqueness of brand associations. Three studies were conducted in order to purify the initial set of items and to assess reliability, dimensionality, and the convergent, discriminant, and criterion validity of the developed scale. The results of the research provide evidence of the reliability, conceptualised dimensionality, and the convergent, discriminant, and criterion validity of the developed scale.