

# MPRA

Munich Personal RePEc Archive

## **The brand equity: evidence on marketing investment**

Nebojsa Davcik

University of Padova

29. November 2008

Online at <http://mpra.ub.uni-muenchen.de/26733/>

MPRA Paper No. 26733, posted 16. November 2010 19:06 UTC

# THE BRAND EQUITY: EVIDENCE ON MARKETING INVESTMENTS

**Nebojsa St. Davcik**  
University of Padova, Italy  
nebojsa.davcik@unipd.it  
davcik@live.com

This version: *November 2009 (v. 7)*

**Abstract:** The author presents a model of the brand equity dimensions and how the model behaves if there are different marketing investments in the value of the brand. The goal of this research is to establish which dimensions and how they influence the brand equity performance in the researched industry in order to help development of more effective business strategies. He found out that marketing investment, price, packaging and perceived quality were highly associated with the brand equity when it was analyzed from different approaches: as brand functional characteristics, brand name and producer name. The author discusses the managerial implication of the presented models as well as possible future research enhancements.

This research is funded by the PRIN 2006 of MIUR (Italian University & Research Ministry)  
Grant #: 2006072800\_003

Key words: Brand equity, brand value, brand management, marketing investment in brand, juice industry

JEL classification: M31, M37, C51

## 1. INTRODUCTION

The brand equity paradigm has been discussed to a great extent in the marketing literature and many researchers offered definition for the brand equity concept as well as different viewpoints on the factors that influence it. A widely used definition in the marketing literature defines the brand equity as the value added by the brand name to a product without that brand name (Farquhar, 1989; Sriram *et al.*, 2007). More comprehensive definition of brand equity characterizes it as the value of the brand which is based on the high brand loyalty, perceived quality, name awareness, strong brand associations as well as the assets such as trademarks, patents and distribution channels (Kotler, 1999; Kotler & Armstrong, 1999; Aaker, 1991). Similar definition offers Temporal (2002) in which brand equity refers to the descriptive aspects of a brand where symbols, imagery, consumer associations and perceptions have an important role. In the brand equity concept the brand has been considered as an asset which can be sold or bought for a certain price (Aaker *et al.*, 2004). This term is partially misleading because the word “equity” has financial origin (Temporal 2002), but in its core has a subjective view and held intangible values for the consumer. In a general sense, brand equity is considered as a positive marketing outcome because of the presence of a certain brand name, i.e. that marketing outcome would not occur if the same product does not have that name (Farquhar, 1989; Keller, 1993), i.e. if it is unbranded.

This article has two purposes. First, to propose and validate dimensions that influences the brand equity performance in the juice industry. Second, to investigate how different marketing based investments, such as business strategy, interact with the brand equity concept. We describe variables and compute it for various juice brands in the Italian market.

The following section provides a literature review on existing theoretical models in the marketing literature from which we extract the dimensions for our brand equity model. Subsequently, we present conceptual framework which relates proposed dimensions and BEq concept. Then we present research hypotheses and a two-stage model in which we want to establish (i) brand equity estimations and (ii) differences in business strategy based on marketing investments. The next section describes the collected data and provides a description of our data. We then describe and interpret the results of the study and we conclude with implications for practitioners as well as with some directions for further research in the field.

## 2. LITERATURE REVIEW

In this section, the major models that are employing the brand equity dimensions approach in the academic literature will be presented.

Temporal (2002) has suggested key aspects of brand performance that includes: price, satisfaction, perceived quality, brand personality, brand awareness, market share and distribution coverage. This mix of different attitudinal, behavioural and market measures of brand equity should be the focus of the brand management. According to Temporal this mixture represent drivers of brand value and brand equity. Unfortunately, Temporal's approach is not methodologically precise, it is very widely defined and the influences of the BEq drivers are not depicted.

Ailawadi, Lehmann and Neslin (2003) have suggested in their study on the revenue premium brand equity model, in the theoretical basis, that equity is influenced by sales, created by the marketing mix company and competitors brand. They state some strategic implications (2003: 3) “equity is created (...) by the firm’s previously existing strength from its corporate image, product line, R&D, and other capabilities”. Unfortunately, authors have not paid more attention on dimensions that constitutes brand equity, and therefore we have limited knowledge on their view on different marketing and strategical issues, rather they focused only in discussing the measurements of the BEq. The measurements that are based on price/revenue premia are intuitively appealing but they can result in biased estimates of the BEq, because premia approach captures only one dimension of brand equity and neglects the brand equities ability to reduce the marketing costs of existing and/or future brands (Simon and Sullivan, 1993). Raggio and Leone (2007) disagreed with revenue premium concept and suggested that there might be a potential outcome for pioneering brands that establish a new brand category. Revenue premium approach cannot be widely accepted as theoretical framework, because of vague identification of the benchmark brand, i.e. identification of the brand without equity. The limitation of this approach lays in fact that expresses only financial sides of the brand equity paradigm without any depiction of marketing strategy.

Keller (1993) has a different goal and approach in analyzing the BEq. He defined and proposed ways how to develop and measure customer-based BEq which is based on the individual consumer preferences. He suggested a conceptual model of brand equity, defined as (Keller, 1993: 2) “the differential effect of brand knowledge on consumer response to the marketing of the brand”. Brand knowledge is consisted of brand awareness (brand recall and recognition performance) and brand image (associations that consumer has towards brand). He argued that customer-based BEq approach can be enhanced if a company creates (Keller, 1993: 9) “favourable response to pricing,

distribution, advertising, and promotion activity for the brand” as well as with licensing, because it can influence positive brand image. Customer-based equity occurs when a consumer is already familiar with the brand and already has some favourability and/or strong and unique brand associations (Keller, 1993).

Aaker (1991) has defined five categories of assets that are basis of brand equity: brand loyalty, name awareness, perceived quality, brand associations and other proprietary brand assets such as patents, distributional channels and trademarks. The Aaker’s BEq model implies that brand equity creates values both for the company and the consumer (Aaker, 1991; Aaker *et al.*, 2004). The brand loyalty of the consumers reduces the vulnerability to competition action, raise greater trade leverage, keep existing and attract new consumers, etc. Brand awareness sustains familiarity with the brand; it is a signal of company business commitment, etc. In many cases customers have no prior knowledge on product quality, and perceived quality may directly influence purchase decision, especially when a buyer has no possibility to conduct detailed analysis (Aaker, 1991). The brand name is often based upon specific and distinct associations linked to it or its values. The fifth category represents proprietary brands assets such as trademarks, patents, distribution channels, etc. (Aaker, 1991).

In their study Yoo, Donthu and Lee (2000) have investigated the relationships between selected marketing mix elements and the creation of brand equity. They proposed the model, which is an extension of the Aaker's (1991) model, extended in two ways. First, they placed brand equity construct between the dimensions of brand equity and the value for the customer and the company. Second, they added antecedents of brand equity – marketing activities – with assumption of significant effects on the dimensions of the brand equity (Yoo *et al.*, 2000). In their study they focus on a few key elements, particularly on price, storage image, distribution, advertising expenditures and price promotions or deals from the elements of marketing mix.

Heterogeneity of approaches makes this field rather confusing and vague. In order to enlighten the problem of the brand value paradigm we have grouped great number of variables into two dominant streams – financial and strategical dimensions. These two conceptual frontiers should be understood as relative, and not as absolute categories, i.e. the borders of these dimensions are porous for different entrants and incumbents. This section should help us to determine major, but not all, elements that create and/or influence a brand value, based on previous academic findings.

### 3. RESEARCH HYPOTHESES

The main objective of this study is to investigate the relationships between brand value dimensions – financial and strategical – and the brand value, measured by brand equity. It is possible to generate brand value, by strengthening the dimensions of brand equity (Yoo *et al.*, 2000). Numerous researchers (Ailawadi *et al.*, 2003; Aaker, 1991; Temporal, 2002; Keller, 1993; Yoo *et al.*, 2000) created different brand equity constructs. Despite decades of academic debate there is no consensus over the boundaries and measures of the brand equity (Park *et al.*, 2008). Based on extant literature review<sup>1</sup>, our prior discussion on the brand equity dimensions leads us to the following proposition:

P<sub>1</sub>: Brand value is driven by prominent financial and strategical dimensions.

#### **Financial dimension and the brand equity**

Keller (1993) suggested, as further research in the field, an aggregate analysis which will consider the implication for sales, profits and the competitive nature of markets in order to be developed a financially based conceptualization of the brand equity. Brand volume represents number of units sold in certain period of time, place and conditions. Brand volume, as financial expression, bear in self important marketing and strategical attributes.

With every purchase, the buyer has the moment of truth with its own expectations and observations within the brand. Marketing investments in the brand, measured by service expenditures related to the advertising, promotional activities, patents, licenses, etc., may have a long-term affect on sales and value of the product. As suggested by Simon and Sullivan (1993) lagged advertising expenditures will generate returns in subsequent periods as well as it may enhance brand value. Surri *et al.* (2002) had shown that boundary condition for consumer assessment of higher brand value is case when the brand promotion is based on a high price.

Price represents the amount of money that consumers have to pay to obtain the product. More broad definitions depict price as “the sum of all the values that consumers exchange for the benefits of having or using the product or service” (Kotler & Armstrong, 1999: 302). Surri *et al.* (2002) had shown that a higher brand value is associated with higher prices if those prices are associated with higher quality.

---

<sup>1</sup> see for details: table 1 in the section 2

Revenues represent the unit volume sold at certain price. In our model we use the gross revenue variable, instead of the adjusted revenue variable (Ailawadi *et al.*, 2003), because we do not have reliable data for the variable costs at the firm's level due to the proprietary characteristics of the data. Ailawadi *et al.* (2003) suggested that gross revenue might be a more appropriate measure because it depicts in a more comprehensive way, general consumer demand rather than the company's production costs.

Therefore, we propose:

P<sub>2</sub>: Financial brand value dimension is driven by a variety of variables of which purchase in volume, service expenses in the brand, prices and revenues are most prominent.

### **Strategic dimension and brand equity**

Strategical implication of the brand equity is under estimated in the academic literature. There are a very few researches that directly or indirectly tackles this issue. For instance, Keller (1993: 18) suggested that “effective strategies for integrating marketing communications in terms of advertising, promotion, publicity, direct marketing, and package design are especially needed.”

The juice industry is a lucrative and highly developed industry in which a number of brands that a company manages as well as on how many products is one brand extended, may have important business consequences. Leveraging the brand equity through brand extensions strategies carries opportunities and risk for a company (Farquhar, 1989). Farquhar advocates that opportunities lies in possible growth potential in the new brand failure, and risk is based on possible new brand failure as well as uncertain success in a category extension.

Farquhar (1989) has argued that original purpose of branding strategy is to distinguish the brand in an easy way as well as to create an unique brand personality over the product. Packaging represents the set of activities which will design and produce the container for a product (Kotler & Armstrong, 1999) as well as set of associations and signals of brand value. In the developing of the product concept, the company has to make decisions on specific elements such as size, shape, materials, color, text, etc. (Kotler & Armstrong, 1999; Kotler, 1999).

The size of the branded product is a very important variable in the juice industry because a company targets different and specific consumer groups, such as small package for kids, medium, family package (2 liters and more), etc. In our research we lack on a qualitative side of competition among brands, but we can observe the packaging of the product as a source of important information on company marketing strategy (Kotler & Armstrong, 1999; Kotler, 1999) as well as a

proxy for the brand personality (Temporal, 2002) and brand associations (Aaker, 1991) which directly may influence the brand equity.

Modern food industry is based on sophisticated technological applications that allow consumers to consume high quality products in long periods of time and under different consuming conditions. Technological aspect of the consumption in the juice industry is especially important because producers can create different brand groups as well as to apply a wide variety of technological applications, such as: juice drinks, nectars, 100% juices; or production technologies, such as: conventional, organic and functional juices.

Perceived quality can be understood as a consumer's subjective judgment about a product's excellence (Zeithaml, 1988). Subjective judgment of quality is based on personal product experience, unique needs and consumption situations (Yoo *et al.*, 2000). Farquhar (1989: 27) advocates that "quality is the cornerstone of a strong brand" which leads to higher brand equity. In order to achieve a positive evaluation by consumer, a company must create a brand that delivers "superior performance to the consumer" (Farquhar, 1989: 27).

This thought leads us to the following proposition:

P<sub>3</sub>: The strategic brand equity dimension is driven by a variety of variables of which a number of brands, packaging, perceived quality and brand ownership are most prominent.

### **Marketing investment and brand value**

In this point, one could ask: how company efforts in their brands enhance the brand value? Business practices in (food) industry show that companies have different strategies in their applied brand strategies. Some companies put strong effort on brand name associations (Aaker, 1991) and market recognition, some others put more emphasize on the functional characteristics of the brand such as quality or technological advancements, some others try to achieve their business goals with development of the strong umbrella brand and later expansion in different categories (Kotler, 1999). As consumers or business practitioners, we can observe different brand strategies in the market; strategies that focus organizational effort as marketing investment on functional characteristics of the brand, on a producer or a brand name.

P<sub>4</sub>: There is significant difference between different marketing investments in brand value.



#### 4. MODEL

As it is clearly noted from previous discussions, BEq paradigm is defined in different ways, usually depending on the researchers approach to the problem and research goals. The aim of this article is to establish which dimensions and how they influence BEq performance in the researched industry in order to help the development of more effective business strategies.

The primary advantage of this approach is to allow decision makers in the organizations to improve the value and competitive advantage of their brands. Though the major goal of any branding programme is to enhance the value of the brand, the second advantage might be a possible better understanding of the role of marketing investments which depend on different brand strategies created by organizations.

In Table 2, we have presented dependent, independent and quality independent variables. Our dependent variable is brand equity that represents an asset that is constituted by research costs, patents, advertising efforts, licenses, etc. We derive this variable from accounting position B. I., intangible assets, in the companies' balance sheets (AIDA, 2008). Independent variable marketing investments in functional characteristics of the brand represent service expenses that are intended to increase the quality and the reputation of the product. Due to the fact that we observe this variable from the position of the brand paradigm we can understand that the firm makes this investment to improve the functional characteristics of the specific brand. We observe the value of this variable from accounting position b7- services, in the companies' income statement (AIDA, 2008). Producer name marketing investments represent service expenses intended to increase the quality and the reputation of the producer name, such as Coca Cola, for instance. Brand name marketing investments represent service expenses intended to increase the quality and the reputation of the specific brand name, such as Coca Cola Light, Diet Coke, etc. Price represents relation between purchase in value and volume in liters ( $price = av/ac$ )<sup>2</sup>. Revenue represents multiplication of all brand purchases with average price ( $rev = ac (sum) \times price (average)$ ). Independent variable brand volume we observe from ACNielsen dataset as consumer purchase in volume (liters) or as consumer purchase in value (euro). Number of brands we have calculated using three different sources: (i) internet presentations of the companies, counting brand names and brand extension lines; (ii) from companies' annual reports and promotional ads; (iii) from the AC Nielsen dataset. Brand ownership is a quality independent variable that represents brand owners according to

---

<sup>2</sup> For details on variables and their constructs see table 2 in the Appendix.

qualitative values: private labeled (retail brands), Italian juice producers, branch of international juice producers. For retail brands we assigned value 1, for Italian juice producers value 2 and for international branches value 3. Quality independent variable packaging can have three qualitative values according to the size of packaging: up to 1 liter (value 1), between 1 and 2 liters (value 2) and above 2 liters (value 3). Perceived quality represents type of a brand according to the mode of production, e.g. applied technology in the production of the brand. Values 1, 2 and 3 represent the percentage of juice in the brand – up to 30%, nectars (up to 50%) and 100% juices, respectively; value 4 represents functional juices and value 5 represents organic juices. Using the AC Nielsen data (AC Nielsen, 2008), we can assume that consumers are well informed about existing brands in the market and have certain attachment to the brands.

The research instrument has been divided into two stages: 1) estimation of the brand equity dimensions, using the above presented theoretical framework; 2) estimation of the brand based marketing investment differentiation according to functional characteristics of the brand, brand name and producer name as well as their joint effects. This approach is presented in the formal econometric fashion with models 1, 2, 3 and 4.

These estimations have been obtained by the Stata™ 10 SE statistical software.

### **1<sup>st</sup> stage – Brand Equity estimations**

We estimate the relationship of the brand dimensions with the brand value, as measured by the brand equity. Our first regression, namely, M1, is estimated through standard ordinary least squares (OLS). We report *R*-Squared and adjusted *R*-Squared values to provide goodness-of-fit indicators of the regression. In order to face for some eventual heteroskedasticity problems we compute robust standard errors.

Our basic model at the aggregate level (M1) is

$$(1) \quad Y_b = c + \delta_1 \text{brand ownership}_b + \delta_2 \text{type}_b + \delta_3 \text{packaging}_b + \beta_1 \text{marketing investment}_b + \beta_2 \text{number of brands}_b + \beta_3 \text{brand volume}_b + \beta_4 \text{price}_b + \beta_5 \text{revenues}_b + u_b$$

where  $b=1, \dots, B$  (brands). In the M1, the  $\beta$  and  $\delta$  are the parameters which will be estimated and we assume that the variance of the error term  $u$ , conditional on regressors, is constant.

### **2<sup>nd</sup> stage – Brand based marketing investment differentiation**

In the second stage we introduce models M2 and M3, in which we change our focus on marketing investment estimating models with use of producer name marketing investment and brand name marketing investment, respectively. In line with M1, it is applied ceteris paribus effects from other variables in the models M2 & M3 on brand value.

The model that estimates the effect of the producer name marketing investment (M2) is

$$(2) \quad Y_b = c + \delta_1 \text{brand ownership}_b + \delta_2 \text{type}_b + \delta_3 \text{packaging}_b + \beta_1 \text{producer name marketing investment}_b + \beta_2 \text{number of brands}_b + \beta_3 \text{brand volume}_b + \beta_4 \text{price}_b + \beta_5 \text{revenues}_b + u_b$$

The model that estimates the effect of the brand name marketing investment (M3) is

$$(3) \quad Y_b = c + \delta_1 \text{brand ownership}_b + \delta_2 \text{type}_b + \delta_3 \text{packaging}_b + \beta_1 \text{brand name marketing investment}_b + \beta_2 \text{number of brands}_b + \beta_3 \text{brand volume}_b + \beta_4 \text{price}_b + \beta_5 \text{revenues}_b + u_b$$

where  $b=1, \dots, B$  (brands). As we have presented in the M1, the  $\beta$  and  $\delta$  are the parameters which will be estimated with assumption that the variance of the error term  $u$ , conditional on regressors, is constant. The  $\beta$  and  $\delta$  coefficients measure the marginal effects of the presented variables on the brand equity. Previously explained OLS procedure in M1, applies equally to M2 and M3.

With introduction of the general model M4 we want to investigate which of the above presented marketing investments are more important and managerially influential. In this model we will include all three marketing investments as well as controls already used in M1, M2 and M3.

The general model that estimates the effects of the joint marketing investment (M4) is

$$(4) \quad Y_b = c + \delta_1 \text{brand ownership}_b + \delta_2 \text{type}_b + \delta_3 \text{packaging}_b + \beta_1 \text{brand marketing investment}_b + \beta_2 \text{producer name marketing investment}_b + \beta_3 \text{brand name marketing investment}_b + \beta_4 \text{number of brands}_b + \beta_5 \text{brand volume}_b + \beta_6 \text{price}_b + \beta_7 \text{revenues}_b + u_b$$

where  $b=1, \dots, B$  (brands). Assumptions and procedures from the models M1, M2 and M3 are equally applied in M4.

The importance of the M4 lies in fact that with estimations in M1, M2 and M3 we do not know which of these strategies are winning one. From statistical point of view, the M4 model estimates the joint effect of the marketing investments on brand value and only one of these three investments should be significant. Otherwise, we have biased model faced with multicollinearity problem among variables.

We thus aim at quantifying how important are financial and strategical dimensions. In order to verify the following hypotheses  $H_1$ , described in details in section 4, we compute the F statistic applying the Wald test. More precisely, the hypothesis can be synthesized as:

(i) Financial dimension:

$$H_0: \beta_1 = \beta_3 = \beta_4 = \beta_5 = 0$$

(5)

$H_1$ : at least one of these parameters is different from 0;

We are testing  $H_0$ , presented in the equation 5, that coefficients of the financial dimension (marketing investment, brand volume, price and revenues) are equal to zero. If  $H_0$  is true, then financial dimension is not significant construct. Our alternative hypothesis is that at least one of these coefficients is different from zero.

(ii) Strategical dimension:

$$H_0: \delta_1 = \delta_2 = \delta_3 = \beta_2 = 0$$

(6)

$H_1$ : at least one of these parameters is different from 0;

We are testing  $H_0$ , presented in the equation 6, that coefficients of the strategical dimension (brand ownership, type, packaging and number of brands) are equal to zero. If  $H_0$  is true, then strategical dimension is not significant construct. Our alternative hypothesis is that at least one of these coefficients is different from zero.

## 5. DATA COLLECTION

In this study, we have used several data sources. As our primary source, we use market-based data from AC Nielsen research on the food buying patterns of 20.000 Italian households which were collected in the period June 2005 – June 2007. The data is obtained from ACNielsen Italy using the Consumer Panel Solutions (CPS) as well as Homescan® panel tool (ACNielsen, 2008).

We supplement this data with information and variable constructs (see for details Table 2) using the data from the Bureau Van Dijk Electronic Publishing AIDA financial statements database (AIDA, 2008) on the 940.000 Italian companies. Our single unit of analysis bears three different types of information: functional characteristics of the brand, brand name and producer name of the brand; that allow us to generate single characteristics over which is created our analysis.

This paper refers to the “enriched juice” brands. Under this reference we understand brands that have added value or characteristics different than conventional juices. In our sample we have, from mode of production point of view, conventional juices with added value, such as vitamins for instance, functional as well as organic juices. This approach might be embedded into a broader category of healthy products, such as dietary, organic, functional, integrative, etc., in which each of these specific sub-groups have been characterized by a specific functional ingredient or trait (Boesso *et al.*, 2009). The data provided from AC Nielsen database were created as a panel data set. In our research we use variables *ac* and *av*<sup>3</sup>. Aggregating in this way, we have obtained a sample of 85 brands in the enriched juice industry.

Descriptive statistics of the dependent and independent variables used with juice brands sample is presented in Table 3. All variables are presented with their names, description, mean value, standard deviation, variance as well as with minimum / maximum values.

## **7. RESULTS AND INTERPRETATION**

In order to assess information on the brand value, we regress brand equity on marketing investments (service expenses) in brand, number of brands, price, revenues, brand volume, packaging, perceived quality and brand ownership. Our benchmark model M1, in formal econometric model is described in equation (1) in the section 5. The results of these estimations are reported in Table 4.

The main question of our analysis is which, if any, of the brand equity dimensions explain the brand value. The M1 results in Table 4 reports that variables – marketing investments in brand, price and packaging – have significant statistical effect on the brand value. The four other variables – number of brands, brand volume, perceived quality, revenues and brand ownership – have

---

<sup>3</sup> These names were created by the AC Nielsen dataset. For more info on variable constructs and values refer to Table 2 in Appendix.

negligible statistical effects. The goodness – of – fit test shows that adjusted *R*-Squared value is 0.6729, and *R*-Squared value is 0.7040.

In order to investigate how this behaviour differentiated marketing investments in the brand we introduced two additional models, M2 and M3, described in equation (2) and (3) in the section 5, that investigate these differences from the point of producer and brand name, respectively. The M2 reports, in Table 4, that variable marketing investments in producer name has high statistical effect (at 1% level) on the brand value from the producer name point of view; and variables – number of brands, price, perceived quality, packaging and brand ownership – have low statistical significance, at 5% and 10% level. The goodness – of – fit test shows that adjusted *R*-Squared value is 0.7891, and *R*-Squared value is 0.8092. The M3 shows that variables, such as marketing investments in brand name, price and packaging are highly statistically significant; but perceived quality is statistically significant at 5%. The goodness – of – fit test for the adjusted *R*-Squared value is 0.7991, and *R*-Squared value is 0.8182.

In the general model M4 we have tested joint effect of the marketing investments on the brand. The M4 results indicate that variable packaging has high significant statistical effect, while the marketing investments in brand name, price and perceived quality have low significant statistical effect. The goodness – of – fit test for the adjusted *R*-Squared value is 0.7946, and *R*-Squared value is 0.8191. The importance of the joint effect we have tested through the Wald test. The F statistics of the joint marketing investments on the brand, with 3 numerators and 74 denominator degrees of freedom, is 44.82. The significance level in model is (prob>F) 0.0000.

The importance of the financial and strategic dimensions has been tested through the Wald test in equations 5 and 6. The F statistics of financial dimension, with 4 numerators and 76 denominator degrees of freedom is 134.34 in the M1. The F statistics, in the M2 and M3, is 144.68 and 58.24, respectively. The significance level of the test in all three models is lower than 0.01% and we can reject  $H_0$  at (least) 0.1% level. The F distribution of strategical dimensions, with 4 numerators and 76 denominator degrees of freedom (in M1, M2 and M3) is 3.88, 5.30 and 7.36, respectively. The significance level in models are (prob>F) 0.0064, 0.0008 and 0.000, respectively. This indicates that we can reject  $H_0$  at 1% level in M1 and M2, and at (least) 0.1 % in the model 3.

These tests have shown that both dimensions are statistically significant with small differences among tested models.

Table 5: Hypotheses and their relations with models

Variable	Hypothesis	Significance effect (p < .01)			
		model 1	model 2	model 3	model 4
Brand volume	H <sub>2a</sub>	not supported	not supported	not supported	not supported
Marketing investment	H <sub>2b</sub>	supported	supported	supported	supported at p<.1
price	H <sub>2c</sub>	supported at p<.05	supported at p<.05	supported	supported at p<.1
Revenues	H <sub>2d</sub>	not supported	not supported	not supported	not supported
Number of brands	H <sub>3a</sub>	not supported	supported at p<.1	not supported	not supported
Packaging	H <sub>3b</sub>	supported	supported at p<.05	supported	supported
Perceived quality	H <sub>3c</sub>	not supported	supported at p<.05	supported at p<.05	supported at p<.1
Brand ownership	H <sub>3d</sub>	not supported	not supported	not supported	supported at p<.1
<b>Dimension</b>					
Financial	H <sub>2</sub>	supported	supported	supported	supported
Strategical	H <sub>3</sub>	supported	supported	supported	supported

All analyzed estimations have been presented in the synthesized fashion with relation to the research hypotheses in Table 5. All hypotheses have been tested at the high statistical significance of 1%, those of which that have not satisfied this limitation, have been reported as supported at a significance level of 5% and 10%, or as hypotheses that are not supported by models.

## CONCLUSION

This article presents the results of empirical analysis to determine the dimensions of the brand equity. We have controlled for eight predictors (i.e., marketing investments, brand volume, price, revenues, number of brands, packaging, perceived quality and brand ownership) while estimating the impact of the brand equity dimensions on the brand value as well as the impact of the different marketing investment strategies, assuming *ceteris paribus* effect on other variables. In order to enlighten this approach we have formulated four models and have estimated each of them using standard and robust OLS procedure. From the standard OLS procedure we have reported adjusted *R-Squared* value, while from robust OLS procedure we have reported *R-Squared* value. The models (M1, M2 and M3) have been constructed to determine the dimensions of the brand value, from the different marketing investments approaches, in the brand strategy. The joint effect of the marketing investment (M4) should show us which of these approaches, if any, is relevant and / or dominant. In general, our estimated results on the variables that have impact on the brand value are in line with what has been reported in the literature.

It is conventional wisdom that the firm has to invest in the brand. We have presented different layers of the brand paradigm and have shown possible outputs for the managers and how their actions in managing the brand might influence business strategy.

The extensive literature review, presented in Table 1, has strongly suggested that marketing investment in brand (or, service expenses for advertising, licenses, etc.) have been a key success factor in developing brand value. Our models strongly support this viewpoint. As we have presented with models M1, M2 and M3, different marketing investments (in functional brand, producer and brand name) have high statistical significance. The estimation of the M4 confirms our proposition number 4 that marketing investment in brand name is winning brand strategy. This finding is in line with the Aaker's (1991) conceptualization of the name awareness as an asset of the brand equity as well as with findings of Farquhar (1989) and Keller (1993). The general model M4 also suggests that managers should take into consideration packaging as important variable in the strategy creation as well as perceived quality, brand ownership and price.

Presented literature review suggests that brand volume might be the variable included in studies on brand equity. Only Ailawadi *et al.* (2003) included this variable, in their revenue premium model, in relationship with the brand equity. Our models have not shown evidence that this variable is significant in relation with the brand value. These findings are intuitive for us because special products, such as enriched juices undoubtedly are, must not depend on a higher



sales rate in order to raise the value of the brand. Otherwise, the brand would be trivial for the consumer.

Revenue, as the potential variable that creates brand value, was identified by Ailawadi *et al.* (2003) and by Keller (1993), who suggested it indirectly in the favourable consumption response context. Our data does not support this approach, because in all four models there is no evidence of statistical significance of this variable. This finding is clear if we have in mind that revenue, as financial construct, is based on brand volume, which we have already found as not relevant for these models.

Theory is unison in suggesting that price is an important variable in creation of the brand value. Our models strongly support this view, because this variable is statistically significant in all four models. Importance and qualitative variability of the price for the management studies is doubtless, but it is beyond our research approach to go into construct details in this study, because we observe and analyze this issue as an aggregate variable across the brand paradigm.

The number of the brands is the variable which has not been suggested by the theory, but we have included it in our model because our standing is that expansion or narrowing the brand portfolio can influence the value of the brand. This viewpoint is in line with Kotler's view that firms have five choices in order to create brand strategy – line extensions, multibrands, brand extensions, cobrands and new brands (Kotler, 1999; Kotler and Armstrong, 1999). Our data suggests that this variable has limited impact on the brand equity. We have found evidence that this variable has limited statistical significance only in M2.

The variable packaging is highly statistically significant in our models M1, M3 and M4, and with lower significance in the M2, at the 5 percent level. The theory has a vague approach to this variable, because researchers usually use it as a proxy for brand personality (Temporal, 2002) or for the brand associations (Aaker, 1991); Keller (1993) suggested introduction of this variable as further research in the field. Our data suggests that consumers are more attached to the brand name than to the packaging. However, if a firm bases their brand strategy on the functionality of the brand or the brand name, the size and the relevance of the packaging is highly important.

We have found out that perceived quality is statistically significant variable across the models, except in the M1. In the literature, this standing point was suggested by Aaker (1991), Temporal (2002) and Yoo *et al.* (2000). Zeithaml (1988) has identified perceived quality as a component of brand value and concluded that high perceived quality would lead consumers to buy the brand. If the degree of the brand quality perceived by consumer is higher, it will increase the brand equity (Yoo *et al.*, 2000).

Researchers have not paid a lot of attention on the relevance of the brand ownership and its implications for the brand value. In the literature this variable was used as a proxy for the brand awareness (Aaker, 1991; Yoo *et al.*, 2000), as a certain signal of the brand quality “guaranteed” with the fact that the brand is manufactured by a (well) known producer. We have found that brand ownership is not relevant variable at all in constructed models, except in the M4.

It is unlikely, if not impossible, for the single model of the brand equity to satisfy all expectations of the general, or widely applicable, business model for the managers or researchers. We believe that our model contributes to the theory and practice suggesting which business dimensions create brand value and what type of brand strategy a firm can apply in order to create brand value. In practice, there are many different business focuses and applications in the brand management. With our four models we have presented what managers can expect in the juice industry if their marketing focus is on the brand name or producer name or functional characteristics of the brand. We believe that managers can use this approach as a guide but not as a general receipt for the creation of the brand strategy, due to the objective limitations of the study.

A clear limitation is the fact that we have only studied one industry (juices), one industry segment (enriched juices) and one country (Italy). Limitation from the point of the strategical decision making is something that we cannot distinguish among a wide variety of technological issues, such as value-added characteristics, mode of production, possible target market, etc. Our approach and data has allowed us to observe only indirectly the consumer attitudes and choices, excluding cognitive or behavioural aspects of the market.

Calculation of some variables might have some limitations because we cannot have exact figures due to the proprietary data. The number of brands we observe externally, using three different sources: (i) Internet presentations of the companies, counting brand names and brand extension lines; (ii) from companies’ annual reports and promotional ads; (iii) from the AC Nielsen dataset. Exact calculation of the brand equity is not possible because we cannot observe exact brand value due to the proprietary data. We observe them externally from the financial statements and we have only limited knowledge on the equity that constitutes our brand figures.

It would be valuable to expand this model on a wider sector (e.g. juice, food industry) in order to obtain more comprehensive data. Otherwise, there might be limited knowledge on brand equity phenomenon and its constructs. The second approach might be related to the application of this model with more comprehensive data, which (in case of juice or food industry) would include a wide range of the brands in the market (not only “special” ones, but also conventional, “ordinary”

ones which we can reach, as consumers, more often) as well as a detailed study of the distribution channels. Valuable extension of this approach would be the study of the distribution channels importance and how the BEq paradigm would fit into the different distribution channels. Due to the fact that we study “special” products, it would be important to study creation and change of the BEq through the distribution channels.

## REFERENCES

Aaker, D. A. (1991), *Managing Brand Equity*, The Free Press, New York, NY

-----, Kumar, V. and Day, G. (2004), *Marketing Research*, 8<sup>th</sup> edition, John Wiley & Sons, New York, NY

AC Nielsen (2008), last update: N/A, “Consumer Panel Solutions (CPS)”, online. Available: <http://www2.acnielsen.com/products/cps.shtml> (accessed 2008, November 11)

AIDA (2008), last update: N/A, “Bureau Van Dijk Electronic Publishing AIDA financial statements database”, online. Available: <https://aida.bvdep.com/> (accessed 2008, December 20)

Ailawadi, K., Lehmann, D. and Neslin, S. (2003), “Revenue Premium as an Outcome Measure of Brand Equity”, *Journal of Marketing*, vol. 67 (October), pp. 1-17

Atilgan, E., Safak A. and Serkan A. (2005), “Determinants of the brand equity: A verification approach in the beverage industry in Turkey”, *Marketing Intelligence & Planning*, vol. 23 No. 3, pp. 237-248

Boesso, G., Davcik, N. St. & Favotto, F. (2009), “Health-enhancing products in the Italian food industry: multinationals and SMEs competing on yogurt”, *Journal of Agrobiotechnology Management and Economics*, vol. 12, No. 2, pp. 155-166

Cobb-Walgren, C. J., Ruble, C. A. and Donthu, N. (1995), “Brand Equity, Brand Preference, and Purchase Intent”, *Journal of Advertising*, vol. XXIV, No. 3, Fall, pp. 25-40

Farquhar, P. H. (1989), “Managing Brand Equity”, *Marketing Research*, 1 (September), pp. 24-33

Ferris, P., Olver, J. and de Kluyver, C. (1989), “The Relationship Between Distribution and Market Share”, *Marketing Science*, 8(2), pp. 107-127

Keller, K. L. (1993), “Conceptualizing, Measuring, and Managing Customer-Based Brand Equity”, *Journal of Marketing*, 57 (January), pp. 1-22

Kotler, P. (1999) *Marketing Management*; The Millennium Edition, Prentice Hall International, New Jersey

----- and Armstrong, G. (1999), *Principles of Marketing*; 8<sup>th</sup> edition, Prentice Hall International, New Jersey

- Park, C. S. and Srinivasan, V. (1994), "A Survey-Based Method for Measuring and Understanding Brand Equity and Its Extendibility", *Journal of Marketing Research*, vol. XXXI (May), pp. 271-288
- Park, C. Whan, Deborah J. MacInnis and Joseph Priester (2008), "Brand attachment and a strategic brand exemplar", in *Handbook on Brand and Experience Management*, Schmitt, Bernd H. and David L. Rogers ed., Edward Elgar Pub., Cheltenham, UK
- Raggio, R. D. and Leone, R. P. (2007), "The theoretical separation of brand equity and brand value: Managerial implications for strategic planning", *Brand Management*, vol. 14, May, No. 5, pp. 380-395
- Simon, C. J. and Sullivan, M. W. (1993), "The Measurement and Determinants of Brand Equity: A Financial Approach", *Marketing Science*, vol. 12, No.1, Winter, pp. 28-52
- Shocker, A. D., Srivastava, R. K. and Ruekert, R. W. (1994), "Challenges and Opportunities Facing Brand Management: An Introduction to the Special Issue", *Journal of Marketing Research*, Vol. XXXI (May), pp. 149-158
- Sriram, S., Subramanian B. and Manohar U. K. (2007), "Monitoring the Dynamics of Brand Equity Using Store-Level Data", *Journal of Marketing*, 71 (April), pp. 61-78
- Temporal, P. (2002), *Advanced Brand Management: From Vision to Valuation*, John Wiley & Sons (Asia), Singapore
- Zeithaml, V. A. (1998), "Consumer Perceptions of Price, Quality, and Value: A Means-End Model and Synthesis of Evidence", *Journal of Marketing*, 52 (July), pp. 2-22
- Yoo, B., Donthu, N. and Lee, S. (2000), "An Examination of Selected Marketing Mix Elements and Brand Equity", *Journal of the Academy of Marketing Science*, vol. 28, No. 2, Spring, pp. 195-211

## APPENDIX

Table 2: Variables of the Brand Equity Dimensions Model

Variable	Name	Value	Description	Resource
Brand equity	<b>be</b>	NL	BEq value represents asset that is constituted by research costs, patents, advertising efforts, licenses, etc. (position B. I – intangible assets in the company Balance sheets )	CFS
Marketing investments in brand	<b>ser</b>	NL	service expenses are intended to increase the quality and the reputation of the functional characteristics of the brand (position b7- services, in the company income statement)	CFS
Producer name marketing investments	<b>pnser</b>	NL	service expenses intended to increase the quality and the reputation of the producer name, such as Coca Cola, for instance.	AR
Brand name marketing investments	<b>bnser</b>	NL	service expenses intended to increase the quality and the reputation of the specific brand name, such as Coca Cola Light, Diet Coke, etc.	AR
Brand volume	<b>ac</b>	NL	consumer purchase in volume (liters)	Nielsen
Purchase in value	<b>av</b>	NL	purchase in value (euro)	Nielsen
Number of brands	<b>nob</b>	1 - 140	number of brands that company has in the brand portfolio	AR
Packaging	<b>pack</b>	1, 2, 3	packaging can have three qualitative values according to the size of packaging: up to 1 liter, between 1 and 2 liters, above 2 liters.	QIV
Price	<b>price</b>	NL	price represents relation between purchase in value and volume in liters (price = av/ac)	AR
Revenue	<b>rev</b>	NL	revenue represents multiplication of brand volume with price (rev=ac x price)	AR
Perceived quality	<b>type</b>	1, 2, 3, 4, 5	perceived quality represent type of a brand according to the mode of production, e.g. applied technology in the production of the brand	QIV
Brand ownership	<b>bo</b>	1, 2, 3	brand ownership represent difference among private labeled brands (=1), brands owned by Italian juice producers (=2) and brands owned by international juice producers that have branches in Italy (=3)	QIV

**Legend:** **AR** – Author’s research, **CFS** – Company financial statements (balance sheet data and/or income statement), **Nielsen** – data from the AC Nielsen research, **QIV** – Quality independent variable; **NL** – not limited

Table 3: Descriptive statistics

Variables	Variable definition	Descriptive statistics			
		mean	standard deviation	min values	max values
brand equity	BEq value represents asset that is constituted by research costs, patents, advertising efforts, licenses, etc. (in 1000 euro)	2.750.000	3.620.000	488.833	8.750.000
brand volume	purchase in volume (liters)	2.430	1.024	0,450	6.710
marketing investment	marketing investments (service expenses) intended to increase the quality and the reputation of the product (in 1000 euro)	1.750.000	1.780.000	1.150	7.500.000
producer name marketing investment	marketing investments intended to increase the quality and the reputation of the producer name (in 1000 euro)	74.100.000	106.000.000	112.000	283.000.000
brand name marketing investment	marketing investments intended to increase the quality and the reputation of the brand name (in 1000 euro)	8.340.000	11.800.000	2.303	31.400.000
price	price represents relation between purchase in value and volume in litters	0.766	0.621	0,134	4.960
revenues	revenue represents multiplication of brand volume with price	189,08	418,4	0,027	2.230
number of brands	number of brands	14,17	24,251	1	140
packaging	packaging represents three qualitative values depending on the size of packaging	1,64	0,74	1	3
perceived quality	perceived quality represent type of a brand according to the mode of production	2,424	1,25	1	5
brand ownership	qualitative variable among private labeled brands, brands owned by Italian juice producers and brands owned by international juice producers	2,08	0,56	1	3

Table 4: Estimations of variables in the models 1, 2, 3 and 4

<b>Variables</b>	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>	<b>Model 4</b>
marketing investment	1.202*** (7.41)	----	----	0.1104 (0.54)
producer name marketing investment	----	0.0265*** (11.27)	----	-0.0027 (0.17)
brand name marketing investment	----	----	0.2372*** (18.13)	0.2474* (1.73)
number of brands	-4985 (0.43)	-15006* (1.72)	-8915.9 (1.16)	-6965 (0.73)
brand volume	-232840 (0.89)	-128750 (0.63)	-178762.3 (0.93)	-158105 (0.74)
price	-819540.7** (2.06)	-638391.8** (2.00)	-564911.7*** (2.92)	-578879* (1.81)
revenues	753.7 (1.27)	-21 (0.04)	241.3 (1.09)	270 (0.53)
brand ownership	-0.3629 (0.69)	-0.3429 (0.85)	-0.4573 (1.23)	-0.9213* (2.08)
perceived quality	0.1188 (0.60)	-0.4015** (2.30)	-0.3188** (2.18)	-0.2976* (1.67)
packaging	-1.9648*** (5.23)	-0.7862** (2.31)	-0.8891*** (3.74)	-0.9346*** (2.71)
<b>Constant</b>	5447567*** (2.99)	4771644*** (3.43)	4894956*** (3.25)	4663642*** (3.17)
<b>R<sup>2</sup></b>	0.7000	0.8092	0.8182	0.8191
<b>adjusted R<sup>2</sup></b>	0.6729	0.7891	0.7991	0.7946
<b>Prob &gt; F</b>	0.0000	0.0000	0.0000	0.0000

\* significant at 10% ( $p < .1$ ); \*\* significant at 5% ( $p < .05$ ); \*\*\* significant at 1% ( $p < .01$ )

Notes: t-statistics appear in parenthesis