

## Specifying the Determinants of Brand Value by Using AHP Method

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**Abstract** Recently, the most successful companies in the world display the importance of knowledge based economy. The transformation from industrial economy to knowledge based economy highlights value added of intangible assets to the companies. Brand as a worthwhile intangible asset constitutes a substantial part of firm value. However lots of studies conducted to measure brand's value solely. There hasn't been generally accepted brand valuation model yet. In this paper it is aimed to present the most important factors in measuring brand value based on the Analytic Hierarchy Process. According to the expert team's responses to our questionnaire the financial and behavioral factors which can affect brand value were found and prioritized. As a result it is determined that the most important factor in brand valuation in the frame of main criteria is Investment in Brand with 0,47 while in general; it is RandD Costs with 0,1893 and Takeover Costs with 0,1852 as the second. On the other hand, Rise in Ratio of Price/Sale and Rise in Net Sales are not considerably important with weights less than 1% on brand valuation.

**Key words** Brand value, brand valuation, Analytic Hierarchy Process (AHP), Consumer Based Brand Valuation, Financial Based Brand Valuation

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### 1. Introduction

In the current century, intangible assets have become even more important for the companies to maintain competitiveness, profitability and long-term value for shareholders (Andonova and Ruiz-Pava 2016, Heiens *et al.*, 2007). Intellectual capital, brand, trademark, patent are four of most discussed items of intangibles. Lots of studies conducted to find out how intangibles affect firms' performance.

Brand as a factor identifying goods and services generated by a firm and differentiating them from competitors' and affecting customer loyalty has been existing in marketing literature for many years. In 1980's, it has been realized that there is a significant difference between book value and market value of firms that experienced mergers and acquisitions. And brand has been admitted as one of the factors explaining this significant difference. However, it becomes an investigation topic in literature of not only marketing but also of finance. In the light of these developments, brand has been considered as an intangible asset which has an economic value for the firms and creates wealth for the shareholders of firms. Thus a new interest in how a brand's value can be measured has emerged.

In 1988, Goodman Fielder Wattie (GFW) wanted to acquire Rank Hovis McDougall (RHM). GFW offered 600 Million Sterling, while RHM had tangibles worth 300 Million Sterling. But RHM rejected this offer by justifying that they had various market leaders and valuable brands providing profitability and growth. So RHM carried out valuation of RHM brands. With its value information RHM was able to convince investors that GFW's offer was low. So the investors revaluated the business; RHM's market value increased and GFW withdrew its offer (Salinas, 2011). Following this attempt, lots of firms started to evaluate their firms' brands both internally generated and externally acquired.

There are three different approaches in brand valuation. They are financial based; consumer based and mixed valuation models. Financial based brand valuation models aim to measure brand value by using financial and income statement items, predicting cash flows originating from brand. They reveal a

monetary value by using quantitative measurements. They ignore consumers' role in the creation of value. Consumer based models measure brand value only from the consumers' point of view. Qualitative structure is introduced and subjectivity is too high within these models. And the mixed models developed by independent valuation institutions consider both financial items and consumer behaviors together to measure brand's value. Many of valuation models that claim to capture Brand Value accurately are subject to criticisms. And recently there is no generally accepted brand valuation model.

In this paper, it is aimed to propose an approach based on Analytic Hierarchy Process (AHP), organizing brand value drivers to constitute a valuation model. In addition to Battisoni *et al.*, (2013)'s paper that investigates the determinants of consumer based brand equity, this paper takes into consideration of both consumer based brand equity determiners and financial based brand value determinants. As far as we know, it is the first study that investigates brand value determinants by AHP in the context of both consumers based and financial based valuation model indicators.

## 2. Methodology of research and literature review

This research is aimed to determine the factors of brand valuation and order those factors hierarchically. In this purpose, factors determining brand valuation have been obtained through literature review as in Figure 1 and Analytic Hierarchy Process (AHP) technique is used to order those factors. Questionnaire form is prepared to compare the factors pairwise in the frame of AHP, and 4 forms have been returned from 4 experts. Two of the experts' team is academicians of marketing and finance who have been studied brand valuation, one is expert of branding in Ministry of Economy in Turkey and the last is Turkey coordinator of an international independent brand valuation institution.

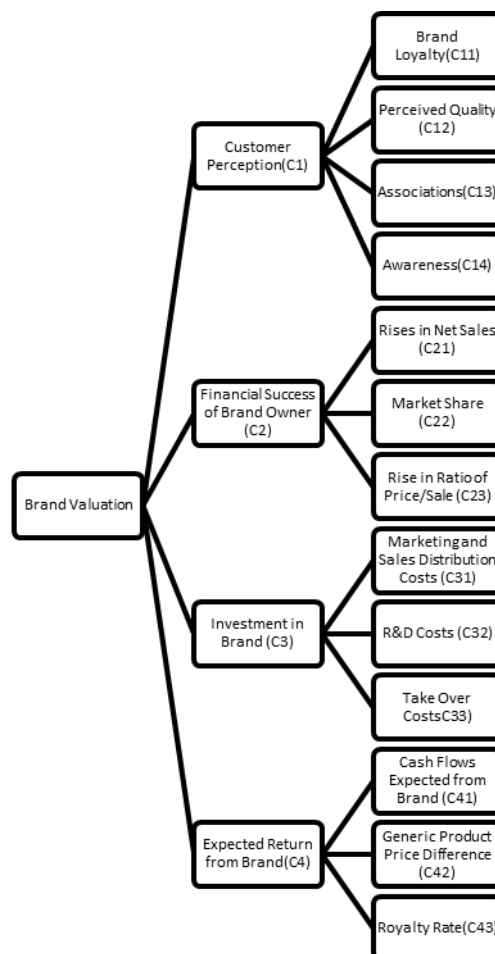


Figure 1. Factors Determining Brand Valuation

### **2.1. Factors determining brand valuation**

In this section, factors which have considerable roles in valuation of brand are explained analytically as mentioned in Figure 1.

#### **Customer Perception**

*Brand Loyalty:* Brand loyalty is defined as positive attitude towards a brand (Pappu *et al.*, 2005) and intention to buy only that specific brand (Odin *et al.*, 2001) in the future regularly and consciously (Knox and Walker, 2001). The brands those have customers, who have high degree of brand loyalty, are qualified as valuable brands.

*Perceived Quality:* Perceived quality is not the exact quality of product. It's the assessments of product performance and excellence made by consumers after a subjective consideration. When the perceived quality is high, consumer is sure that the product will be able to meet his expectations.

*Associations:* Brand associations refer to all things those remind the brand to customers (Aaker, 1991). It is about whether the consumer can identify the brand in different conditions (Keller, 1993). Brand associations, which result in high brand awareness, are positively related to brand equity because they could be an indicator of quality and commitment and help a buyer to consider the brand at the point of purchase, which leads to a favorable behavior towards the brand (Loureiro, 2013).

*Awareness:* Brand awareness refers to whether a consumer has any information about brand or not (Keller, 2008). The brand awareness may be used by consumers as a purchase decision heuristic (MacDonald and Sharp, 2000). Lot of studies find a positive association between brand awareness and brand equity (Huang and Sarigollu, 2012, Kazemi *et al.*, 2013).

#### **Financial Success of Brand Owner**

*Rises in Net Sales:* Brands enable companies to be more recognizable and make consumers choices go towards the branded commodity. The difference of net sales between branded and unbranded company infers the brand value. However, if company has more brands it is difficult to determine the value of particular one.

*Market Share:* Smith and Park (1992), assert that brand extensions capture greater market share and also parent brand is related positively to the market share of brand extensions.

*Rise in Ratio of Price/Sale:* Damodaran (1996) suggests that strong brands charge higher prices for the same products. This higher price generates higher profit margins. In this context, the difference between price to sales ratio for the company with brand and that for the company without brand weighted by sales is equal to brand value.

#### **Investment in Brand**

*Marketing, Sales and Distribution Costs:* Sales promotions are one of the important marketing tools that affect brand equity (Valette *et al.*, 2010), and empirical studies suggest that monetary promotions have negative impact on brand equity (Yoo *et al.*, 2000, Buil *et al.*, 2013). Advertising has a sustaining and accumulative effect on brand, so it builds a consumer based brand equity (Wang *et al.*, 2009).

*Research and Development Costs:* According to cost approach, total RandD costs during brand creation represent brand value (Salinas, 2011). But it is hard to separate which cost belongs to brand for especially brands established many years ago (Abratt and Bick, 2003).

*Takeover Costs:* Takeover cost expresses total expenditure for purchasing the majority stake of a company. As is stated above, the first attempt to value brands emerged from the need to clarify the value of companies subjected to mergers and acquisitions. It's assumed that the brand value of the company is attributed to the difference between takeover cost and book value of the company.

#### **Expected Return from Brand**

*Cash Flows Expected from Brand:* There are two main approaches explaining how a brand's value can be calculated by using cash flows. Smith and Parr (2005) assert that the differences between net cash flows of the company owning valuable brand and that of the comparable company having any brand can be

associated with the brand. So the result shows the monetary value of the brand. On the other hand, a company can calculate its corporate value through discounted cash flows approach with and without brand. So the difference indicates brand value (Smith, 1997).

**Generic Product Price Difference:** In marketing literature it is assumed that brand generates an additional benefit for customers. Because of this, manufacturers charge a price premium for its brand and customers agree to pay extra (Zimmermann *et al.*, 2001).

**Royalty Rate:** If a company does not possess the ownership rights to a brand, it would need to license it. In other words, ownership rights to a brand relieve the company from paying royalty rate for the use of brand. Thus, it is possible to calculate a brand's value by estimating future sales and appropriate royalty rate.

## 2.2. Analytic Hierarchy Process

Analytic Hierarchy Process was found by Thomas L. Saaty in 1977 and is such a popular technique of using in multi-criteria decision making (Dong and Cooper, 2016). The advantageous side of AHP and the reason why it is used that much is not only applicable in quantitative data, but also in qualitative data and also depending on subjective judgments' (Ömürbek *et al.*, 2013). ). Another preference reason would be its enabling linkages among simple paired comparison judgments whether it is small or large scale (Ghasempour and Salami, 2016). AHP has basically four axioms (Özden, 2008):

1. **Axiom (Opposition):** If  $i^{\text{th}}$  criterion's importance is  $x$  regarding to  $j^{\text{th}}$  criterion; then  $j^{\text{th}}$  criterion's importance is  $1/x$  regarding to  $i^{\text{th}}$  criterion. ( $a_{ij} = x$  then  $a_{ji} = 1/x$ )

2. **Axiom (Homogeneity):** Criteria or alternatives wished to be compared in AHP technique need to have similar characteristics in the frame of 1-9 scales developed by Saaty as in Table Y.

3. **Axiom (Independence):** It is assumed that there is no dependency or relationship among the criteria in AHP technique.

4. **Axiom (Expectation):** In AHP technique, all criteria and alternatives are ordered hierarchically.

The steps of AHP are as follows: (Ömürbek and Şimşek, 2014):

1. **Step (Preparing the Hierarchical Structure):** As the first step of AHP; decision making problem is defined clearly, basic components of AHP which are goal, main criteria, sub criteria (if exist) and alternatives (if exist) are defined and a structure as below is prepared:

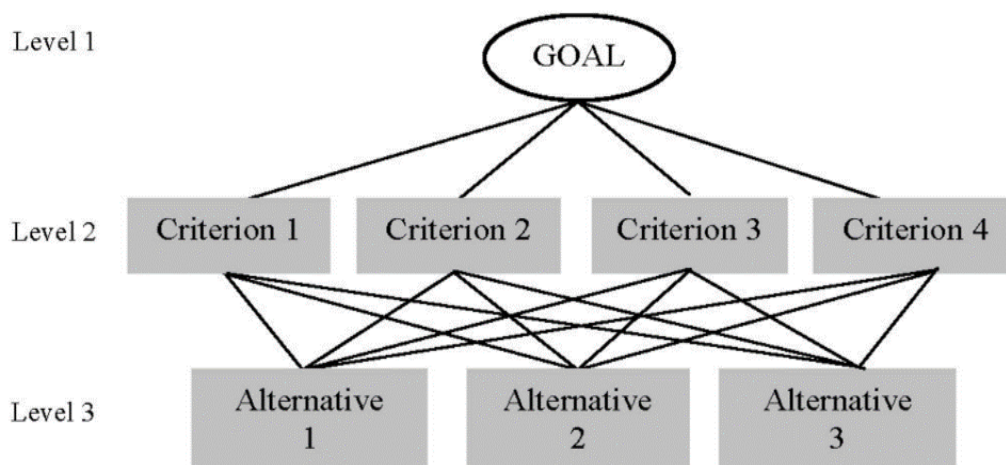


Figure 2. Hierarchical Structure

2. **Step (Pairwise Comparisons):**

After prepared the structure above, for criteria and alternatives pairwise comparisons are made in the limits of scales as below and first axioms of AHP.

Table 1. AHP Scales of Importance

Importance Level	Definition	Explanation
1	Equally Important	If criterion i and criterion j has same importance
3	Rarely Important	If criterion i is rarely important than criterion j
5	Important	If criterion i is more important than criterion j
7	Very Important	If the importance of criterion i is “very” than criterion j
9	Absolutely Important	If the importance of criterion i is “absolute” than criterion j
2, 4, 6, 8	Mid-Values	In requirement of negotiation

Source: (Saaty and Vargas, 2012)

3. Step (Calculating Priority Vectors) (Crawford and Williams, 1985):  
 In this step, priority vectors (PVs) of main and sub criteria are calculated.

$$w_i = \frac{\prod_{j=1}^n a_{ij}^{1/n}}{\sum_{j=1}^n (\prod_{j=1}^n a_{ij}^{1/n})} \quad (1)$$

4. Step (Calculating Consistency Analysis)

In this step, by the ordered formulas below, consistency analysis of pairwise matrices are calculated:

$$l_{max} = \frac{\sum_{i=1}^n \frac{d}{w_i}}{n} \quad (2)$$

$$\text{Consistency Index (CI}_A) = \frac{l_{max} - n}{n - 1} \quad (3)$$

$$\text{Consistency Ratio (CR}_A) = \frac{CI_A}{RI_n^*} \quad (\text{This ratio should be less than } 0,1) \quad (4)$$

Random Index\*

Table 2. Random Index Numbers (Şenkayas et al., 2010)

N	1	2	3	4	5	6	7	8	9
RI	0	0	0.58	0.9	1.12	1.24	1.32	1.41	1.45

5. Step (Final Ordering)

In the last step, global weights of each criterion and if exist, sub criterion are calculated by multiplying sub-criteria’s weights with main criterion’s weight that each belongs to.

### 3. Results

Geometric means of pairwise results of four experts about brand valuation are calculated and per main and each sub-criterion, pairwise matrices are obtained as follows:

Table 3. Pairwise Matrix for Sub Criteria of Customer Perception

Brand Valuation Factors	Brand Loyalty (C11)	Perceived Quality (C12)	Associations (C13)	Awareness (C14)	Geometric Mean	Priority Vectors
C11	1	1,16	4,21	3,41	2,02	0,43
C12	0,86	1	2,76	2,76	1,60	0,34
C13	0,24	0,36	1	1	0,54	0,11
C14	0,29	0,36	1	1	0,57	0,12
CI= 0,0026		RI=0,9		CO=0,003		<0,1

In the table above, priority vectors of sub criteria those are Brand Loyalty (C11), Perceived Quality (C12), Associations (C13) and Awareness (C14) belonging to Customer Perception (C1) are calculated by equality (1). According to this table, the highest priority belongs to Brand Loyalty with 0.43. Consistency Index is calculated by equality (2 and 3). Consistency Ratio is calculated by equality (4) and found as 0,003.

Table 4. Pairwise Matrix for Sub Criteria of Financial Success of Brand Owner

Brand Valuation Factors	Rise in Net Sales (C21)	Market Share (C22)	Rise in Ratio of Price/Sale (C23)	Geometric Mean	Priority Vectors
C21	1	0,25	1,5	0,72	0,20
C22	3,96	1	2,43	2,13	0,61
C23	0,67	0,41	1	0,65	0,19
CI= 0,044		RI= 0,58		<b>CO= 0,088</b>	<b>&lt;0,1</b>

In the table above, priority vectors of sub criteria those are Rise in Net Sales (C21), Market Share (C22) and Rise in Ratio of Price/Sale (C23) belonging to Financial Success of Brand Owner (C2) are calculated by equality (1). According to this table, the highest priority belongs to Market Share with 0.61. Consistency Index is calculated by equality (2 and 3). Consistency Ratio is calculated by equality (4) and found as 0,088.

Table 5. Pairwise Matrix for Sub Criteria of Investment in Brand

Brand Valuation Factors	Marketing and Sales Distribution Costs (C31)	RandD Costs (C32)	Takeover Costs (C33)	Geometric Mean	Priority Vectors
C31	1	0,38	0,7	0,64	0,205
C32	2,65	1	0,76	1,26	0,405
C33	1,43	1,32	1	1,24	0,39
CI= 0,044		RI= 0,58		<b>CO= 0,08</b>	<b>&lt;0,1</b>

In the table above, priority vectors of sub criteria those are Marketing and Sales Distribution Costs (C31), RandD Costs (C32) and Takeover Costs (C33) belonging to Investment in Brand (C3) are calculated by equality(1). According to this table, the highest priority belongs to RandD Costs with 0.405. Consistency Index is calculated by equality (2 and 3). Consistency Ratio is calculated by equality (4) and found as 0.08.

Table 6. Pairwise Matrix for Sub Criteria of Expected Return from Brand

Brand Valuation Factors	Cash Flows Expected from Brand (C41)	Generic Product Price Difference (C42)	Copyright Ratio (C43)	Geometric Mean	Priority Vectors
C41	1	4,21	2,94	2,31	0,64
C42	0,24	1	1	0,62	0,17
C43	0,34	1	1	0,70	0,19
TI= 0,007		RI= 0,58		<b>TO= 0,01</b>	<b>&lt;0,1</b>

In the table above, priority vectors of sub criteria those are Cash Flows Expected from Brand (C41), Generic Product Price Difference (C42) and Copyright Ratio (C43) belonging to Expected Return from Brand (C4) are calculated by equality (1). According to this table, the highest priority belongs to Cash Flows Expected from Brand with 0.64. Consistency Index is calculated by equality (2 and 3). Consistency Ratio is calculated by equality (4) and found as 0.01.

In the table above, priority vectors of main criteria those are Customer Perception (C1), Financial Success of Brand Owner (C2), Investment in Brand (C3) and Expected Return from Brand (C4) are calculated by equality (1). According to this table, the highest priority belongs to Investment in Brand with 0.47. Consistency Index is calculated by equality (2 and 3). Consistency Ratio is calculated by equality (4) and found as 0.,03.

Table 7. Pairwise Comparison of Main Criteria

Brand Valuation Factors	Customer Perception (C1)	Financial Success of Brand Owner (C2)	Investment in Brand (C3)	Expected Return from Brand (C4)	Geometric Mean	Priority Vectors
C1	1	3,96	0,3	0,92	1,02	0,20
C2	0,25	1	1,16	0,16	0,28	0,05
C3	3,34	6,44	1	1,63	2,43	0,47
C4	1,09	6,3	0,61	1	1,43	0,28
TI= 0,026		RI=0,9		TO=0,03		<0,1

Table 8. Final Table

Main Factors	Weights of Main Factors	Sub-Factors	Weights of Sub-Factors	Global Weights	Place in Hierarchy
C1	0,1977	C11	0,4266	0,0843	5
		C12	0,3385	0,0669	6
		C13	0,1144	0,0226	11
		C14	0,1205	0,0238	10
C2	0,0544	C21	0,2066	0,0112	12
		C22	0,6077	0,0330	9
		C23	0,1858	0,0101	13
C3	0,4707	C31	0,2044	0,0962	4
		<b>C32</b>	0,4021	<b>0,1893</b>	<b>1</b>
		<b>C33</b>	0,3935	<b>0,1852</b>	<b>2</b>
C4	0,2772	C41	0,6373	0,1767	3
		C42	0,1705	0,0473	8
		C43	0,1922	0,0533	7
<b>TOTAL 1</b>					

Searching the results table above, the most important criterion in brand valuation in the frame of main criteria is *Investment in Brand* with 0,47 while in general; it is *RandD Costs* with 0,1893 and *Takeover Costs* with 0,1852 as the second. On the other hand, *Rise in Ratio of Price/Sale* and *Rise in Net Sales* are not considerably important with weights less than 1% on brand valuation.

#### 4. Conclusions

The importance of intangible assets for the companies has been realized day by day. However, developing, managing and valuing of these intangibles come with a lot of difficulties. Consequently, intangibles become an interdisciplinary concept. For instance, brand has been an investigation topic for lots of marketing, management and finance disciplinarians. One of the main problematic is how to calculate these intangibles' value since then. There have been widespread criticisms directed at existing brand valuation models. It also would not be so rational to give equal importance to whole determinants on brand valuation because of both scarce of resources such as money and time or core competences of the firm or even the scope of the company. This study aims to provide the determinants of brand value from the perspective of both financial based and consumer based approaches and order those hierarchically. The results from this research emphasize that the most important criteria are RandD costs and Takeovers costs on brand valuation.

Thus according to results, while these two criteria should be considered first on brand valuation, rise in ratio of price/sale and rise in net sales shall be left at last step. Despite other studies existing in the literature did, the results of this study can be generalized due to views of experts from different fields in brand valuation. Though, in this study, whole sub and main criteria are considered as independent from each other as using AHP method. For further researches, the possible dependencies among criteria may be analyzed by either judgmentally due to experts' views or by using DEMATEL technique and based on results Analytic Network Process (ANP) may be used. Furthermore to check the validity of the model, a real life application may be integrated in the study. This could be done by the last step of multi criteria decision

models (MCDMs) as selecting an alternative. K number of alternatives may be included in the study and according to results one of those alternative brands is chosen. The result alternative of the model can be compared in real life if it is the most valued brand actually to see the correction percentage of the model.

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