

# **Determination of Brand Value of Foreign Trade Capital Companies in ISE and Sustainability Index and the Effect of Sustainability Index on Brand Value**

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## **Abstract**

Brand value has become an important measure of corporate performance as far as the weekly activity report and the top 100 brand values of the year listed by brand consultancy company Interbrand that are closely monitored. The free market economy offering a wide range of products to consumers, preferences changing very quickly and brand value giving confidence to the consumer reveal the significance of the subject. Brand value is important not only in terms of the consumer but also in terms of investors and management. It is foreseen that the companies will have sustainable growth by providing continuity and make a difference in line with the importance given to this subject.

The aim of this study is to determine the brand value of Foreign Trade Capital Companies in the BIST and Sustainability Index by Hirose method and to compare the effect of sustainability index on brand value. Data required to determine the brand values of companies were taken from the Public Disclosure Platform, which includes financial statements of companies.

**Keywords:** brand value; HIROSE; foreign trade; sustainable index.

## **1. Introduction**

The importance of brand value increasing day by day increased research on this subject and prepared the basis of many research. Brand value has taken its place as one of the key issues in the marketing research of the modern time.

Brand value is important at two levels. At the macro or firm level, it affects the perception of investors and financial analysts and plays a role in determining the stock prices of the companies (Simon and Sullivan, 1993). At the micro or consumer level, it positively affects behavioral outcomes, including the intention to buy (Cobb-Walgren et al., 1995). In this way, brand creation has attracted considerable attention from many companies and enabled them to have corporate resources (Keller, 2003). A brand management program includes R&D investments besides investment in promoting a firm's assets and advertising activities (Keller and Lehmann, 2003). It is of great importance to understand the determinants that contribute to the creation of brand value.

The individual contribution of advertising, other promotions and R&D expenditures to the brand value are unclear. If companies spend too little on these factors, their revenues increase. On the contrary, if they spend too much, their revenues decrease. Therefore, the relationship between these expenditures and brand value is not linear. On the contrary, any deviation from the optimal expenditure (positive or negative) affects performance (Aaker and

Carman, 1982). According to this, the contribution of advertising, publicity and R & D expenditures to creating brand value are analyzed.

Increasing competition in line with economic developments in the world has also brought forward the effective resource utilization for many businesses. Some of the reasons that increase competition; increase in consumption, the rapid growth of markets, international trade becoming an easier and more frequently preferred choice, and the rapid renewal of technology. As a result of these reasons, the consumer's choices increased, there has been a serious inclination to the intangible assets in order for companies to create demand in return for tough competition conditions.

Figures that are significantly higher than the book value of the companies in the 1980s as a result of the company acquisitions and mergers have brought to mind intangible assets to be in the foreground again. Looking at the first examples when the financial values of the brand began to be measured, whether there is the value of the brands in the merger or acquisition processes of the firms, if so, how to measure this value keep the agenda busy. While Aaker (1991) and Keller (2006) suggesting a consumer behavior based calculation, Simon and Sullivan (1993) and Ambler (2008) propose to calculate and measure financially in the book *The Marketing Book*. One of the intangible assets that are important for business is undoubtedly brand. This process is guiding in the calculation of brand value and the reason is that the majority of the company's cost, which is thought to be calculated or wanted to be learned, is made of the brand value of the firm.

Intangible assets and brand assets are also problematic from an accounting perspective. Measurement of the brand with intangible assets increased significantly over 20 years and the same increase has been present in terms of accounting. If we are to point out the prominent fixed intangible assets related to income for firms in terms of brand, there are polemics in terms of financial analysis results and differences and differences in terms of accounting (Sevindik, 2007:4).

## **2. Brand Value Definition and Its Importance**

While a firm's tangible assets can be easily valued (either as historical cost or market value), the valuation of intangible assets, which can be called abstract assets, is a very important problem. Trademark is one of the most important elements of intangible assets and these days it emerges an important factor that constitutes the value subject to the purchase and sale of the company (Ercan et al., 2006:12).

Briefly, a brand is defined as a name, symbol, design, or a combination thereof which has the advantage providing sustainability and helps to recognize the product of a particular business (Doyle, 1997: 470- 483).

The brand is a promise given to the customer. It is giving a promise to offer the customer the additional benefit that competitors cannot offer (Doyle, 2003: 394).

Brand value is expressed as a power enabling businesses to make a difference in the market while offering the possibility of higher pricing than their competitors (Aaker, 1992). Powerful brand value provides benefits to a business such as this customer loyalty, greater flexibility, and profitability in crisis, more positive customer response to price differences, licensing or brand expansion. Brand value is the perception that occurs in the minds of consumers and this perception affects the purchasing attitude of the consumer (Ural and Perk, 2012).

Brand value is based on the value attributed to the brand and is a numeric value showing the financial strength of the brand against other brands. Based on this, it can be said that brand value is a value attached to the brand in the mind of society and a consumer-oriented concept (Firat and Badem, 2008:211).

Brand value is an extra gain that is achieved above normal profitability depending on the features the customer looks for before purchasing the product (Nelson 1970, Ford et al.1990).

1990). According to Keller, consumer-based brand value consists of two dimensions as brand information and brand image. Aaker has defined the most comprehensive brand value available in the literature. According to Aaker, brand value is a set of all assets associated with the brand, brand name and brand symbol which increases or decreases the value that is provided by a product or service to a business or an enterprise's customers. In fact, Aaker explained the brand value as a set of assets. Brand awareness, brand association, perceived quality, brand loyalty and assets belonging to the other owner(proprietary assets) are the assets that constitute the brand value. These mentioned assets are also referred to as dimensions. From the consumer perspective; brand awareness, brand association, perceived quality, and brand loyalty are considered as four important dimensions of brand value. Researchers who defend the consumer perspective have a discourse saying that "if there is value for the consumer, then there is value for the investor, manufacturer, and retailer" (Keller, 1993, p.1-2; Keller, 2003, p.3-5; Aaker, 1996, p. 103-104; Pappu et al., 2005, p.144).

Definitions according to the finance-based perspective emphasize the worth of the brand in the market. Brand value can be expressed as the monetary value of the brand (Aypek & Ban, 2002: 331). The financial point of view is related to the additional value that a branded product will provide from future cash flows compared to an unbranded product. The asset representing the brand is shown on the balance sheet on the assets side. From a financial perspective, it uses a technique based on financial market value to estimate a firm's brand worth. One of the most widely used financial methods is the method used by "Financial World". According to the formula of Financial World, the net profits associated with the brand are calculated and a coefficient is assigned according to the brand power. Naturally, the stronger the brand, the stronger the coefficient. Brand power can be defined as a combination of leadership, stability, commercial environment, internationalization, communication support, and legal protection. Based on the financial market value of the firm, with the relevant estimation technique, the value of the company is reached through the value of the other assets of the company. The technique divides the value of a firm's securities into physical and non-physical assets. Then, it derives the brand worth from other non-physical assets. However, the fact that the exact value of the brand owner companies is not clearly shown in the accounts and is not always reflected in the value in the stock market makes it important to recalculate of the values of non-physical assets in general and recalculate of values of brands in particular. Finally, broad perspectives combine consumer-based brand value and financial brand value (Kim and Kim, 2005, pp.550-551).

The reasons for determining the brand value can be listed as follows:

- i- The brand value should be determined for the budgeting and investment decisions and the investment amount to be made in the brand should be calculated.
- ii- Change of brand value gives an idea about the quality of this management.
- iii- Determining the level of brand management also enables the determination of investment and profitability in the long term.
- iv- Determination of brand value enables strategic planning and control.
- v- Maintenance positive brand value strengthens the support provided to the brand and enables the brand to be further developed.
- vi- The most important reason for determining the value of the brand is that it affects the investment decisions of the investors regarding the investment they are planning to make in the firm.

A significant part of the market value of the firms comes from the earning power of the brand. Although the brand is a very large asset, it is not included in the business balance

sheets in many countries (Doyle, 2003: 126). Besides this, accounting rules in the UK and Australia require that they be displayed on the balance sheet in goodwill gained by acquisition or acquiring assets. However, British firms are opposing this by claiming that the newly acquired brands are an identifiable entity rather than a goodwill. This shows that the brand is not perceived as a simple asset under any account, on the contrary, it is perceived as one of the most important assets for firms today (Farquhar, 1992: 16-17).

### **3. Brand Valuation Methods**

The fact that brand value of businesses with a specific brand is not clearly shown in the financial statements and the brand value is not always reflected in stock prices led to a reevaluation of brands and the creation, measurement, and management of brand value has gained importance. However, for marketing managers the difficulty of calculating the brand value and digitizing this value financially continue (Kim and Kim, 2005:551; Keller and Lehmann, 2006:744; Oliveira et al., 2015:2560). Besides, many different methods have been developed to measure brand value. These methods are generally classified as financial, consumer-based (behavioral) and mixed methods.

#### **3.1. Behavioral Methods**

In the behavioral, in other words, consumer-based methods, the value of the brand is formed depending on the expression and actions of consumers. These methods take into account consumer tastes and preferences and calculate a brand value based on consumer behavior. In these methods, primary data based on survey and interviews are used at the firm level. Aaker model, Keller model, Young & Rubicam's BAV models are some of the consumer-based methods. While the details of different models for determining brand value are different, they all focus on brand-information structure in the minds of consumers as the focal point of brand value. Besides, most of these methods offer theoretical models without empirical testing (Oliveira et al., 2015:2562; Keller and Lehmann, 2006:745; Yeung and Ramasamy, 2007:325).

#### **3.2. Mixed Methods**

Mixed methods include both consumer-based and financial-based methods and also use two types of data. Mixed methods are to eliminate the inadequacies that may arise when only one of the behavioral or financial methods is adopted and combine the strengths of both methods when used together (Kim and Kim, 2005:551; Çelik, 2006:200).

#### **3.3. Financial Methods**

Financial methods are to calculate the brand value by using financial data and not to take into account consumer behaviors. These methods usually calculate the brand value using data such as investment in the brand, additional earnings from the brand investment, the market value of the brand (Bursalı and Karaman, 2009:285). They are classified in three ways as financial methods, cost approach, market approach, and income approach.

##### **3.3.1. Cost-Based Approach**

It calculates the brand value by taking into consideration the actual costs related to the acquisition, creation, and sustainability of the brand. In other words, it takes into account all costs made for the development of the brand. This approach is based on the assumption that a prudent investor will not pay more for a brand than the cost to arise in the event of resetting, replacing or reproducing of an asset that provides similar benefits. In addition, it is not commonly used as it is considered that the brand value will rarely be equal to the costs for the

creation of the brand. (Seetharaman et al., 2001: 248; Brand Finance, 2010: 35). In this approach, costs are calculated in two ways as historical cost and renewal cost.

### 3.3.2. Market-Based Approach

It is based on value measurement by taking the value that other buyers in the market pay to similar assets as a reference and the brand value is calculated on the basis of the value of the brands in the market. In determining the value of the brand, future benefits associated with having a brand are added to the market value and it is reduced to the present value (Brand Finance, 2010: 34; Seetharaman et al., 2001: 248). This method is similar to the determination of the sales price equal to the average market price, above or below the market price in the real estate and used car market. The difference between them is that in the real estate market, the price is fixed according to the market and the buyer is the party that accepts the price. For brands, the buyer is the party that determines the price of the brand. Each buyer ground the price assessment on his or her own perspective and future strategies (Kapferer, 2008: 516). Besides that, since brands are not purchased for sale, there is no real market for most brands and there is difficulty in determining market value. Therefore, the market approach is not a commonly used method (Brand Finance, 2010: 34; Seetharaman et al., 2001: 249; Kapferer, 2008: 516).

### 3.3.3. Income Based Approach

It is based on the idea that as an asset the brand will provide profit to the business in the future and focuses on the brand's future revenue. This approach includes forecasting future post-tax cash flows provided by the brand and reduced to the present value over an appropriate discount rate. As a discount rate, usually weighted average capital cost is used and the risks reflected in future cash flows are taken into account in the discount rate. Expected cash flows are calculated from a perspective of 5-10 years. Since brand value arises from the ability of the brand to achieve higher earnings for both current and potential owners of the brand, income approach is the most widely used method (Brand Finance, 2010: 34; Seetharaman et al., 2001:249; Kapferer, 2008:517). Saving from Copyright, Price Bonus, Additional Cash Flows are methods based on income-based approach.

## 4. Hirose Method

Hirose Method (METI Model) proposed by the Ministry of Economy, Trade, and Industry of Japan is an income-based approach which can be called economic value method. The Japanese Ministry of Economy, Trade, and Industry also argues that this is the method that gives the most appropriate result. This method calculates the brand value based on the data in the publicly disclosed activity reports (Tsuda, 2012:158). Revenue approach evaluates the brand based on the additional income or the net present value of future cash flows. In order to measure additional income, price premium method has been adopted. This method measures additional income in the form comparison of current and future price premium of branded products with unbranded products. The reason for the adoption of the model is to express the internal benefits of the price premium to the brand. The Hirose method defines the brand value as a function of the following three elements. (Tsuda, 2012:158; The Report of the Committee on BrandValuation, 2002: 13)

Brand valuation formulation formed by using Revenue Model is expressed as

$BV=f(PD, LD, ED, r)$ . The variables in the expression are respectively;

**BV**; Brand Value,

**PD**; Prestige variable,

**LD**; Loyalty variable and

**ED**; Expansion variable,

**r**; Discount rate

While finding the brand value, 5 years of historical data is used for prestige and loyalty variables, 3 years of historical data is used for the expansion variable. In the situation in which all the variables contained herein are not measurable, brand value can be calculated according to the restricted model (one or two variables) (Bursalı, 2007:63).

#### 4.1. Prestige Variable

It focuses on brand-based price advantage. This price advantage or additional income allows the business to sell its products at a higher price than the competitors' products. Additional income is defined as the additional value of the branded products compared to the unbranded products and it forms the basis of the increases in current and future cash flows through the brand. Since the focus of the variable is the price advantage, the existence of this advantage is examined by comparing it with the business that is operating in the same sector with the lowest profitability. Prestige variable is calculated with the help of the following formula.

$$PD = \frac{1}{5} \sum_{i=1}^5 \left\{ \left( \frac{S_i}{C_i} - \frac{S_i^*}{C_i^*} \right) \times \frac{A_i}{OE_i} \right\} \times C_0 \quad (1)$$

$S_i$  : The company's  $i$  period sales

$S_i^*$  :  $i$  period sales of the compared enterprise

$C_i$  :  $i$  period the cost of goods in the business

$C_i^*$  :  $i$  period the cost of goods sold of the compared enterprise

$A$  : Advertising and promotional expenses

$OE$  : Activity expenses

#### 4.2. Loyalty Variable

It refers to the power of the brand value. It focuses on the variable of the brand's ability to sell to its loyal customers steadily for a long time. Like the prestige variable, the loyalty variable also reflects the effect of the price and amount of cash flows generated from the relationship between the brand and the customers. Therefore, the most stable part of the current and future cash flows obtained with the brand can be determined by multiplying two variables. Although it was desired to conduct consumer research in calculating the loyalty variable while creating a model, it was decided that this research was not possible. Therefore, calculating the variable was done by using the "sales cost stability" of the business. Loyalty variable is calculated in the following way.

$$LD = \frac{\mu_c - \sigma_c}{\mu_c} \quad (2)$$

$\mu_c$  : 5-year average of the cost of goods sold

$\sigma_c$  : The standard deviation of the cost of goods sold

### 4.3. Expansion Variable

It refers to the ability of the brand to expand on its own. The variable focuses on the expansion of a well-known strong brand to similar sectors to its sector or different sectors as well as overseas markets. In calculating the expansion variable of the brand board, due to problems in the provision of data such as the number of products using the same brand, degree of expansion to different sectors, "overseas sales" of the company and the revenues outside main activity were used as data. Scale-variable is calculated using the following formula:

$$ED = \frac{1}{2} \left\{ \frac{1}{2} \sum_{i=1}^0 \left( \frac{SO_i - SO_{i-1}}{SO_{i-1}} + 1 \right) + \frac{1}{2} \sum_{i=1}^0 \left( \frac{SX_i - SX_{i-1}}{SX_{i-1}} + 1 \right) \right\} \quad (3)$$

SO: Overseas Sales

SX: Revenues Other Than the Main Activity Subject

$$BV = \frac{PD}{r} \times LD \times ED \quad (4)$$

#### NOTE

\*Since 2012, due to the inability to access to the data of "Income and Profits from Other Activities" in income statements, in the calculation of expansion variable, "Revenues Other Than the Main Activity Subject" were not included in the calculation, the brand value was calculated according to the restricted model.

\*When calculating the prestige variable, each year a business with minimum Sales/MMS is selected within the sector as benchmarks for comparison.

\*As advertising and promotion expenses, marketing, sales and distribution expenses were taken as a basis.

### 5. Literature Review

In their study, Pappu and Quester (2006) used a customer-based brand value measurement approach in value measurement for retailers. In the study, they developed a four-dimensional structure for value measurement as retailer awareness, retail associates, perceived retailer quality and retailer loyalty. As a result of the study, it was determined that four dimensions were effective on the retailer value.

In their study, Chang and Brodowsky (2007) examined the relationship between attitude, brand value, and repurchase behavior by reviewing skin care products in Taiwan. In the study, Aaker's brand value model was taken as a basis. At the end of the study, it has been determined that the brand value is related to the attitude and repurchase behavior.

Chowdhury (2012) addressed four telephone brands in his study in relation to improving the measurement of consumer-based brand value in the mobile phone industry. In the study, it was emphasized that consumer-based brand value is important in the service sector and it was indicated that managers were able to improve their brand value through the product.

In the study that Baldinger and Rubinson (1996) conducted in which they made loyalty analysis for 27 brands, it was also observed that consumers with high brand loyalty exhibited more frequent behavioral attitudes. In addition, researchers stated that consumers with brand loyalty have high repurchase behaviors.

Kim et al. (2003) have aimed to determine how brand value affects the financial performance of hotel businesses in their study. In the study, data from 12 luxury hotels were

used and it was stated that as important components of consumer-based brand value, brand loyalty, perceived quality, and brand image affect the financial performance of hotels.

In their study, Simon and Sullivan (1993) examined the determination and measurement of brand value financially. They expressed the brand value as the increasing value of branded products compared to unbranded products.

Özkan and Terzi (2012) discussed the measurement and evaluation of brand value in terms of financial reporting in their study. In this study, it is stated that it is important to report brand valuation in the financial statements in terms of the realistic, reliable, accurate and comparable financial statements.

Dımbıloğlu (2014) tried to determine the brand values of companies operating in ISE chemical, petroleum, rubber and plastic products sector using Hirose method.

Zengin and Güngördü (2015) discussed the finance and marketing dimensions in calculating the brand value and identified the financial brand value of the food retailing business in Turkey through Hirose method. Along with the calculation of the financial brand value, consumer-based brand values of the same enterprises were determined by conducting a survey on 400 consumers.

Bayrakdaroğlu and Mirgen (2016) tried to determine whether the brand values of firms had any effect on stock returns in their study. As a result, it was determined that there was a significant and positive relationship between brand value and stock prices.

Değer and Aydoğan (2017) analyze the effect of financial-based brand value on firm performance in Turkey which is among the developing countries. For this purpose, the relationship between the financial performance and brand values of 17 companies listed in ISE Metal Goods Machinery and Equipment Manufacturing Sector between the years 2009-2016 was analyzed using the System GMM panel data method. The brand value of the companies was calculated using the Hirose Method (METI Model) which is one of the financial methods. As company performance indicator, accounting-based ROA and ROE ratios were used. As a result of the analysis, it was concluded that there is a statistically significant and positive relationship between ROA and ROE ratios. The increase in brand value has also an increasing effect on the company's performance. In addition, the average brand value of the enterprises was the lowest in the year 2009 and 2016 was the year when average brand values were the highest. They stated that this situation caused the enterprises to reduce their investment in the brand during the crisis period.

## 6. Method

In this study, the brand value of Foreign Trade Capital Companies included in ISE and Sustainability Index were calculated by "Hirose Method". Data needed to calculate brand values of companies for Financial Statements were taken from ISE and PDP. According to Hirose method, 5-year financial data is needed for the calculation of the brand value of 2017. Annual financial data of companies between 2013-2017 were taken as a basis on calculations. The Hirose method defines the brand value as a function of the following three elements. ( Tsuda, 2012:158; The Report of the Committee on BrandValuation, 2002: 13)

Brand valuation formulation formed by using Revenue Model is expressed as  $BV=f(PD, LD, ED, r)$ . The variables in the expression are respectively;  
BV; Brand Value,  
PD; Prestige variable,  
LD; Loyalty variable and  
ED; Expansion variable,  
r; Discount rate



### Data Set Used

By 2017, in ISE and Sustainability Index there were 16 companies named Foreign Trade Capital Companies operating.

Table 1. SALES

COMPANIES/YEARS	2017	2016	2015	2014	2013
ARÇELİK	20.840.613.000	16.096.172.000	14.166.100.000	12.514.033.000	11.097.711.000
FORD OTOSAN	25.341.290.000	18.289.107.267	16.746.396.740	11.924.836.507	11.404.912.894
ŞİŞE CAM	11.318.495.000	8.421.668.181	7.415.128.590	6.875.894.376	5.954.193.854
TOFAŞ	17.467.806.000	14.235.951.000	9.920.723.000	7.440.009.000	7.037.954.000
TÜPRAŞ	53.948.110.000	34.854.851.000	36.893.328.000	39.722.712.000	41.078.427.000
TÜRK TRAKTÖR	4.215.056.106	3.443.477.897	3.102.561.637	2.723.317.809	2.175.319.881
VESTEL	3.857.756.000	3.037.017.000	2.524.068.000	2.337.141.000	2.028.695.000
BORUSAN	2.841.607.138	1.966.331.044	1.948.925.206	1.638.608.965	1.198.199.713
BOSCH	161.084.307	112.484.499	88.872.256	82.440.871	68.540.927
EREĞLİ DEMİR ÇELİK	18.643.914.000	11.636.504.000	11.914.581.000	11.484.137.000	9.780.751.000
İZMİR DEMİR ÇELİK	2.977.313.462	2.260.207.628	2.076.349.851	2.134.903.288	1.719.972.421
MENDERES TEKSTİL	818.816.025	645.115.929	568.581.917	603.362.938	482.293.700
PERGAMON STATUS	4.918.629	3.778.386	4.061.745	4.216.025	4.677.473
SANKO	787.281.211	869.893.806	828.488.156	756.669.040	622.075.848
SASA DIŞ TİC.	1.655.205.000	1.182.909.000	1.111.408.000	1.209.788.000	1.090.265.000
TGS AŞ	9.681.403	9.324.841	12.875.557	6.640.009	5.056.404

Table 2. COST OF SALES

COMPANIES/YEARS	2017	2016	2015	2014	2013
ARÇELİK	14.334.414.000	10.756.612.000	9.630.207.000	8.535.201.000	7.709.326.000
FORD OTOSAN	22.704.095.000	16.203.045.254	14.886.511.502	10.794.249.532	10.277.155.728
ŞİŞE CAM	7.688.153.000	5.891.553.333	5.236.172.104	5.003.480.957	4.460.494.581
TOFAŞ	15.551.677.000	12.888.429.000	8.780.540.000	6.516.211.000	6.216.058.000
TÜPRAŞ	47.734.212.000	31.205.624.000	32.766.949.000	38.459.914.000	39.605.121.000
TÜRK TRAKTÖR	3.484.348.070	2.701.389.955	2.497.656.039	2.234.163.502	1.703.022.950
VESTEL	3.363.747.000	2.546.704.000	2.151.671.000	2.036.804.000	1.850.236.000
BORUSAN	2.382.738.854	1.635.628.456	1.726.289.670	1.467.719.304	1.074.719.700
BOSCH	132.503.659	94.264.584	73.695.561	68.693.542	54.363.952
EREĞLİ DEMİR ÇELİK	13.480.960.000	9.166.325.000	9.854.290.000	9.045.652.000	7.921.852.000
İZMİR DEMİR ÇELİK	2.770.702.815	2.013.220.234	1.964.203.216	2.067.782.419	1.706.002.545
MENDERES TEKSTİL	656.339.276	565.866.425	525.686.646	532.959.350	422.666.276
PERGAMON STATUS	0	0	0	0	0
SANKO	765.717.161	849.153.315	809.065.284	740.846.429	608.055.212
SASA DIŞ TİC.	1.335.919.000	986.337.000	964.672.000	1.071.447.000	1.018.477.000
TGS AŞ	0	0	1.174.494	0	541.911

Table 3. OVERSEAS SALES

COMPANIES/YEARS	2017	2016	2015(\$)	2014(\$)	2013(\$)
ARÇELİK	1.816.174.292,17 \$	1.776.311.550,85 \$	1.783.545.474,49	2.024.080.571,39	1.899.013.432,73
FORD OTOSAN	4.796.903.645,88 \$	3.958.488.127,07 \$	3.847.112.066,44	3.464.635.083,89	3.696.202.282,83
ŞİŞE CAM	709.449.803,35 \$	666.537.876,40 \$	680.555.373,02	793.042.495,30	792.821.705,06
TOFAŞ	3.208.583.752,47 \$	3.189.938.360,32 \$	2.057.743.801,33	1.916.863.317,06	2.099.878.664,66
TÜPRAŞ	2.767.133.619,26 \$	2.100.413.091,47 \$	2.911.830.132,46	3.741.975.611,65	4.134.682.949,70
TÜRK TRAKTÖR	315.289.619,37 \$	333.882.678,26 \$	368.346.130,38	428.538.602,22	364.387.224,80
VESTEL	2.104.781.666,26 \$	2.004.029.094,38 \$	2.155.184.402,00	2.419.798.291,61	2.251.304.411,11
BORUSAN	197.450.968,37 \$	232.161.128,20 \$	277.593.407,66	294.606.976,92	255.955.375,88
BOSCH	1.052.938.517,15 \$	1.066.709.448,27 \$	1.059.074.611,46	1.136.788.970,71	970.584.771,43
EREĞLİ DEMİR ÇELİK	190.461.458,27 \$	137.353.966,89 \$	82.236.925,15	246.148.077,79	127.695.722,43
İZMİR DEMİR ÇELİK	147.191.484,63 \$	178.674.567,81 \$	377.982.828,14	171.002.569,52	467.978.326,95
MENDERES TEKSTİL	173.957.685,57 \$	168.379.352,70 \$	208.582.954,11	160.887.269,07	199.170.274,79
PERGAMON STATUS	650.804.784,61 \$	573.253.541,11 \$	806.981.894,49	654.131.057,02	809.939.081,46
SANKO	264.104.546,30 \$	250.436.897,93 \$	336.998.154,15	299.875.503,05	317.391.832,68
SASA DIŞ TİC.	170.099.657,44 \$	151.987.534,54 \$	220.093.336,38	170.160.853,64	215.375.778,68
TGS AŞ	957.951.952,91 \$	1.013.730.948,98 \$	908.063.766,10	1.004.507.377,34	1.141.011.379,60

Table 4. MARKETING EXPENSES

COMPANIES/YEARS	2017	2016	2015	2014	2013
ARÇELİK	4.027.699.000	3.227.324.000	2.722.014.000	2.356.247.000	2.013.033.000
FORD OTOSAN	544.303.000	448.266.001	407.729.278	277.062.900	269.943.658
ŞİŞE CAM	1.370.327.000	912.295.919	757.874.683	631.317.836	531.640.986
TOFAŞ	392.816.000	329.132.000	279.543.000	240.405.000	216.522.000
TÜPRAŞ	268.889.000	221.602.000	192.855.000	169.639.000	186.542.000
TÜRK TRAKTÖR	204.322.740	181.608.258	158.793.903	124.101.198	97.248.052
VESTEL	53.931.000	46.926.000	40.606.000	42.748.000	36.617.000
BORUSAN	43.717.858	37.360.266	27.563.943	29.842.363	26.388.690
BOSCH	9.511.436	4.932.746	3.481.365	2.184.595	2.755.370
EREĞLİ DEMİR ÇELİK	164.522.000	141.215.000	131.002.000	119.786.000	107.997.000
İZMİR DEMİR ÇELİK	32.319.076	26.913.687	13.287.110	13.281.675	13.789.131
MENDERES TEKSTİL	27.877.607	12.432.190	12.014.987	12.106.735	8.944.537
PERGAMON STATUS	0	0	0	0	0
SANKO	14.017.146	12.595.824	12.122.009	10.197.967	11.661.732
SASA DIŞ TİC.	57.078.000	54.928.000	50.972.000	49.393.000	39.556.000
TGS AŞ	0	0	0	0	0

Table 5. ACTIVITY EXPENSES

COMPANIES/YEARS	2017	2016	2015	2014	2013
ARÇELİK	5.134.455.000	4.141.783.000	3.449.255.000	2.991.091.000	2.527.238.000
FORD OTOSAN	1.110.975.000	1.057.148.706	879.242.587	603.984.991	570.078.423
ŞİŞE CAM	2.152.055.000	1.742.635.649	1.512.167.003	1.317.831.179	1.141.732.909
TOFAŞ	721.429.000	603.845.000	507.514.000	449.633.000	387.182.000
TÜPRAŞ	1.150.240.000	995.447.000	877.077.000	731.802.000	699.724.000
TÜRK TRAKTÖR	307.279.429	287.270.814	241.037.971	192.411.944	147.238.441
VESTEL	139.808.000	125.672.000	112.197.000	106.266.000	94.308.000
BORUSAN	187.727.921	153.117.984	143.323.548	108.801.788	90.697.203
BOSCH	10.315.015	6.128.649	4.466.920	4.380.868	722.010
EREĞLİ DEMİR ÇELİK	499.798.000	440.570.000	424.980.000	350.294.000	313.803.000
İZMİR DEMİR ÇELİK	56.675.181	49.113.164	34.103.700	34.011.346	28.476.125
MENDERES TEKSTİL	46.313.562	25.428.480	26.427.672	22.440.906	16.769.857
PERGAMON STATUS	4.286.992	3.961.561	3.477.580	3.301.632	3.057.226
SANKO	20.870.574	18.700.399	17.458.389	14.727.144	15.466.161
SASA DIŞ TİC.	78.144.000	73.465.000	70.401.000	68.899.000	57.739.000
TGS AŞ	5.266.618	4.589.218	4.488.526	3.338.712	2.918.342

## 7. Findings

### Prestige Variable

Prestige Variable is used to determine the high price advantage of the company arising from the brand. PV refers to considering the price advantage arising from the brand as cash flow. The data used in the PD parameter are as follows.

$$PD = \frac{1}{5} \sum_{i=1}^5 \left\{ \left( \frac{S_i}{C_i} - \frac{S_i^*}{C_i^*} \right) \times \frac{A_i}{OE_i} \right\} \times C_0$$

$S_i$  : The company's  $i$  period sales

$S_i^*$  :  $i$  period sales of the compared enterprise

$C_i$  :  $i$  period the cost of goods in the business

$C_i^*$  :  $i$  period the cost of goods sold of the compared enterprise

$A$  : Advertising and promotional expenses

$OE$  : Activity expenses

Table 6. Prestige variable calculation stages for ARÇELİK Company

YEARS	SALES	CS	S/CS
2013	11.097.711.000	7.709.326.000	1,43951767
2014	12.514.033.000	8.535.201.000	1,466167346
2015	14.166.100.000	9.630.207.000	1,471006802
2016	16.096.172.000	10.756.612.000	1,496397936
2017	20.840.613.000	14.334.414.000	1,45388664
YEARS	MARKETING EXP.	ACT. EXPENCES	M.EXP./ACT. EXP.
2013	2.013.033.000	2.527.238.000	0,796534794
2014	2.356.247.000	2.991.091.000	0,787755037
2015	2.722.014.000	3.449.255.000	0,789159978
2016	3.227.324.000	4.141.783.000	0,779211272
2017	4.027.699.000	5.134.455.000	0,784445282
YEARS	SALES*	CS*	S/CS*
2013	1.719.972.421	1.706.002.545	1,008188661
2014	756.669.040	740.846.429	1,021357478
2015	828.488.156	809.065.284	1,024006557
2016	869.893.806	849.153.315	1,024424907
2017	787.281.211	765.717.161	1,0281619

YEARS	VAR.(S/CS-S*/CS*)	AI/RPG(M.EXP./ACT.	VAR. *AI/RPG	CS-2017	PD
2013	0,431329009	0,796534794	0,343568564	14.334.414.000	4924854027
2014	0,444809869	0,787755037	0,350401214	14.334.414.000	5022796073
2015	0,447000245	0,789159978	0,352754703	14.334.414.000	5056531957
2016	0,471973029	0,779211272	0,367766704	14.334.414.000	5271720197
2017	0,42572474	0,784445282	0,333957763	14.334.414.000	4787088840
		AVERAGE	0,34968979	PD	5.012.598.219
		OR	SALES-2017	CS-2017	S/CS-2017
			20.840.613.000	14.334.414.000	1,45388664
				PD	0,508409313

\*Data of the Benchmarking Company

Table 7. Prestige Variables of Foreign Trade Capital Companies

COMPANIES/YEARS	2017 PD (TL.)	%
ARÇELİK	5.012.598.219	0,508409
FORD OTOSAN	1.001.177.541	0,049219
ŞİŞE CAM	1.556.801.709	0,298111
TOFAŞ	894.135.233	0,064578
TÜPRAŞ	350.776.517	0,017461
TÜRK TRAKTÖR	507.237.687	0,176105
VESTEL	166.508.459	0,056771
BORUSAN	75.758.145	0,037918
BOSCH	17.263.552	0,15839
EREĞLİ DEMİR ÇELİK	1.119.498.568	0,114847
İZMİR DEMİR ÇELİK	262.976.201	0,020962
MENDERES TEKSTİL	45.338.857	0,086179
PERGAMON STATUS	0	0
SANKO	0	0
SASA DIŞ TİC.	132.904.369	0,123262
TGS AŞ	0	0

### Loyalty Variable

According to the method, it expresses the sustainability of the Sold Goods' Cost amount of the company by years. The loyalty variable is calculated as follows.

$$LD = \frac{\mu_c - \sigma_c}{\mu_c}$$

$\mu_c$ : 5-year average of the cost of goods sold

$\sigma_c$ : The standard deviation of the cost of goods sold

Table 8. Loyalty variable calculation stages for ARÇELİK Company

YEARS	CS
2013	7.709.326.000
2014	8.535.201.000
2015	9.630.207.000
2016	10.756.612.000
2017	14.334.414.000
AVERAGE. CS	10.193.152.000
Std. Dev.CS	2.583.729.780,00
Loyalty Var.	0,75

Table 9. Loyalty Variables of Foreign Trade Capital Companies

COMPANIES/YEARS	Average CS	Std. Deviation	LD
ARÇELİK	10.193.152.000	2.583.729.780,00	0,75
FORD OTOSAN	14.973.011.403	5.020.040.597,10	0,66
ŞİŞE CAM	5.655.970.795	1.246.635.567,68	0,78
TOFAŞ	9.990.583.000	4.095.905.936,07	0,59
TÜPRAŞ	37.954.364.000	6.539.892.436,97	0,83
TÜRK TRAKTÖR	2.524.116.103	654.300.783,43	0,74
VESTEL	2.389.832.400	601.172.297,58	0,75
BORUSAN	1.657.419.197	476.138.461,08	0,71
BOSCH	84.704.260	30.307.800,87	0,64
EREĞLİ DEMİR ÇELİK	9.893.815.800	2.121.699.302,72	0,785
İZMİR DEMİR ÇELİK	2.104.382.246	397.488.901,44	0,81
MENDERES TEKSTİL	540.703.595	83.998.615,31	0,84
PERGAMON STATUS			
SANKO			
SASA DIŞ TİC.	1.075.370.400	151.095.091,81	0,86
TGS AŞ			

### Expansion Variable

According to the method, by taking the average growth of the revenues of the companies abroad and outside the main activity area into consideration, the company's expansion capability is being tried to be determined. Due to the fact that companies do not

include Income and Profits from Other Activities in their income statements since 2012, the revenues other than the main activity are not included in the calculations.

$$ED = \frac{1}{2} \left\{ \frac{1}{2} \sum_{i=1}^0 \left( \frac{SO_i - SO_{i-1}}{SO_{i-1}} + 1 \right) + \frac{1}{2} \sum_{i=1}^0 \left( \frac{SX_i - SX_{i-1}}{SX_{i-1}} + 1 \right) \right\}$$

SO: Overseas Sales

SX: Revenues Other Than the Main Activity Subject

$$BV = \frac{PD}{r} \times LD \times ED$$

Table 10. Expansion Variables of Foreign Trade Capital Companies

<b>COMPANIES</b>	<b>ED</b>
ARÇELİK	1,156206895
FORD OTOSAN	1,278276468
ŞİŞE CAM	1,168743142
TOFAŞ	1,48420817
TÜPRAŞ	1,148173729
TÜRK TRAKTÖR	1,059709025
VESTEL	1,131030227
BORUSAN	0,966553881
BOSCH	1,144011971
EREĞLİ DEMİR ÇELİK	1,76229364
İZMİR DEMİR ÇELİK	0,731122209
MENDERES TEKSTİL	1,047258825
PERGAMON STATUS	1,043389056
SANKO	1,019836403
SASA DIŞ TİC.	1,022667429
TGS AŞ	1,187682732

### **Brand Value**

A price is reached by multiplying the results of all the variables provided in accordance with the method. Assuming that this amount will create the same cash flow forever, Brand Value of the companies in the sector is reached discounting by riskless interest rate (rir). In the method, while Prestige Variable is calculated as the amount, Loyalty Variable and Expansion Variable are calculated as ratios.

Table 11. Brand Values of Foreign Trade Capital Companies

COMPANIES/YEARS	2017 PD (TL.)	LD(%)	ED(%)	BV(TL.)
ARÇELİK	5.012.598.219	0,75	1,156206895	40.150.567.770,84
FORD OTOSAN	1.001.177.541	0,66	1,278276468	7.802.105.265,39
ŞİŞE CAM	1.556.801.709	0,78	1,168743142	13.109.283.484,63
TOFAŞ	894.135.233	0,59	1,48420817	7.232.392.968,99
TÜPRAŞ	350.776.517	0,83	1,148173729	3.087.793.060,11
TÜRK TRAKTÖR	507.237.687	0,74	1,059709025	3.674.191.967,17
VESTEL	166.508.459	0,75	1,131030227	1.304.679.245,12
BORUSAN	75.758.145	0,71	0,966553881	480.226.063,30
BOSCH	17.263.552	0,64	1,144011971	116.754.244,40
EREĞLİ DEMİR ÇELİK	1.119.498.568	0,79	1,76229364	14.305.513.458,52
İZMİR DEMİR ÇELİK	262.976.201	0,81	0,731122209	1.438.544.893,80
MENDERES TEKSTİL	45338857	0,84	1,047258825	368.413.774,38
PERGAMON STATUS	0		1,043389056	0
SANKO	0		1,019836403	0
SASA DIŞ TİC.	132904369	0,86	1,022667429	1.079.702.508,91
TGS AŞ	0		1,187682732	0

## 6. Results and Evaluations

Table 12. 2017 Brand Values of Foreign Trade Capital Companies

COMPANIES/YEARS	2017 PD (TL.)	LD(%)	ED(%)	BV(TL.)	BV(\$)
ARÇELİK	5.012.598.219	0,75	1,156206895	40.150.567.770,84	10.533.506.774,10
FORD OTOSAN	1.001.177.541	0,66	1,278276468	7.802.105.265,39	2.046.883.350,05
ŞİŞE CAM	1.556.801.709	0,78	1,168743142	13.109.283.484,63	3.439.222.259,00
TOFAŞ	894.135.233	0,59	1,48420817	7.232.392.968,99	1.897.419.253,61
TÜPRAŞ	350.776.517	0,83	1,148173729	3.087.793.060,11	810.082.918,41
TÜRK TRAKTÖR	507.237.687	0,74	1,059709025	3.674.191.967,17	963.924.749,37
VESTEL	166.508.459	0,75	1,131030227	1.304.679.245,12	342.282.772,81
BORUSAN	75.758.145	0,71	0,966553881	480.226.063,30	125.987.371,33
BOSCH	17.263.552	0,64	1,144011971	116.754.244,40	30.630.491,49
EREĞLİ DEMİR ÇELİK	1.119.498.568	0,79	1,76229364	14.305.513.458,52	3.753.053.351,13
İZMİR DEMİR ÇELİK	262.976.201	0,81	0,731122209	1.438.544.893,80	377.402.443,48
MENDERES TEKSTİL	45338857	0,84	1,047258825	368.413.774,38	96.653.402,52
PERGAMON STATUS	0		1,043389056	0	0
SANKO	0		1,019836403	0	0
SASA DIŞ TİC.	132904369	0,86	1,022667429	1.079.702.508,91	283.260.096,26
TGS AŞ	0		1,187682732	0	0

In the table above, where the results are calculated, the brand values of the companies in the Foreign Trade Capital Companies at the ISE and Sustainability Index operating between 2013 and 2017 were calculated using the Hirose method. **At the first place** there is **ARÇELİK** company with the brand value of **40.150.567.771 TL.**, **at the second place** there is **EREĞLİ DEMİR-ÇELİK** company with the brand value of **14.305.513.459 TL.**, **and at the third place**, there is **ŞİŞE CAM** company with the brand value of **13.109.283.485 TL.** In general, the companies in the sustainability index have higher brand values than those not included in this index.

The values of the brands, which were calculated in Turkish Lira, are presented in dollars in the table below. For calculating the brand value in dollars, 2017 dollar exchange rate 1\$ = 3,8117 TL was used.

Since the Sales Cost of TGS and PergamonStatus companies is zero, the brand value could not be calculated. Since SANKO is the benchmark company, its brand value could not be calculated.

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