THE IMPACT OF BRAND VALUE ON STOCK PRICE

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Abstract

The purpose of this paper is to examine the influence of brand valueon stock prices. The study is conducted on firms ranked in Interbrand's best global brands list. We employ panel regression analysis and test lagged effects of brand value for 11 firms for the period 2001-2013. The results indicated that brand value is a statistically significant predictor of stock prices along with market capitalization and forward earning per share.

Keywords: *Brand value, stock price, fixed and random effects model,*

INTRODUCTION

Traditionally, the purpose of marketing is to create value for the customers (Mortanges & Riel, 2003). Accordingly, marketing activities has focused on success in the product marketplace and performance measures like sales growth and market share have been applied(Sirivastava, Shervani, & Fahey, 1998). However, some researchers and managers (e.g. Mortanges & Riel, 2003; Srivastava et al., 1998; Ward & Ryals, 2001)suggested that the purpose of marketing is not only to create value for the customers but also it is aimed at creating value for the firm owners as well. From this perspective, customers are not only the objects of marketing's actions but also they are assets. These assets are referred as market-based assets. Then, the purpose of marketing is to create and manage market-based assets to create shareholder value(Sirivastava et al., 1998). However, understanding the links between brand assets and future value is a challenge (Aaker, 1991). This leads to considerable emphasize on the interface between marketing and finance(Ward & Ryals, 2001). In other words, it is essential to make marketing more financially accountable (Eng & Keh, 2007). Consequently, the impact of market-based assets on financial performance measures

like earnings per share, debt-to-equity ratios, systematic risk, operating income, and stock prices has become important (Sirivastava et al., 1998).

Market-based assets are intangible, generally off the balance sheet and mainly external to the firm. There are two types of market-based assets; intellectual and relational. “Intellectual market-based assets are the types of knowledge a firm possesses about the environment” whereas “relational market-based assets are outcomes of the relationship between a firm and key external stakeholders”(Sirivastava et al., 1998:5).

For many businesses, the brand name and what it represents are one of the most important and valuable relational market based assets (Aaker, 1991; Keller & Lehmann, 2003). Brands represent an asset, as well as a source of current and future earnings and cash flows for a firm(Mortanges & Riel, 2003). Regarding to this, value of the brand is particularly important for both managers and academics(Chu & Keh, 2006). The impact of brand value on the product marketplace measures like repeat purchase, consumer brand awareness, propensity to purchase, levels of regular usage has been approved(Ward & Ryals, 2001). On the other hand, with regard to the emphasis on marketing-finance interface we need to understand the financial consequences of brand value as well(Eng & Keh, 2007)

The argument that brand value creates value for firms owners or shareholders has been theoretically verified(Mortanges & Riel, 2003). Although the literature provides empirical support for a relationship between brand value and some financial metrics (e.g.Barth,Clement, Foster, &Kasznik, 1998; Eng&Keh, 2007; Kerin, &Sethuraman, 1998) the number of studies are relatively scarce and different financial metrics have been used in those studies.

From these points, focusing on the value of a brand for investors, the purpose of this paper is to examine the lagged effect of brand value with book value of asset, forward earning per share and market capitalization on stock prices. The rest of the paper is organized as follows. In the first section, the theoretical and empirical foundations of brand value’s influence on stock price are explained. Afterwards, the

methodology of the study including data and the model is provided. The findings are presented and discussed in the last section.

Relationship between stock price, brand value, and some financial indicators

Brand value has been defined from a marketing perspective and from a financial perspective. From a marketing perspective, brand value is "the set of associations, built in the image of the consumer which allow the brand to generate a greater turnover than it would if the product did not have that brand" (Calderón, Cervera, & Mollá, 1997:294). From a financial perspective, it is "tangible wealth emanated from the incremental capitalized earnings and cash flows achieved by linking a successful, established brand name to a product or service"(Kerin & Sethuraman, 1998). In other words, it is the value of the additional cash-flows generated by a product because it is identified with its brand (Calderón et al., 1997).

Regarding the two perspectives, brand value is important at two levels; consumer and firm level. At the consumer level, it positively affects attitudinal and behavioral outcomes (Chu & Keh, 2006) which lead to higher market share, greater price premium, less price elasticity and lower marketing costs. Thus, brand value is related with profitable sales volumes. (Keller&Lehmann, 2003). It may also attract new customers while maintaining the currents ones. Besides, it may enhance growth of brand extensions, provide leverage in distribution channels and create competitive advantage(Calderón, Cervera, & Mollá, 1997).

From a financial perspective, brand value is important at firm level because brand value as a market based asset may reveal differentiated financial results(Calderón et al., 1997). Due to aforementioned benefits at the consumer level, brand value creates more future earnings and cash flow(Kerin & Sethuraman, 1998). Hence, it affects the perception of investors and it is a key factor in determining the stock prices (Simon and Sullivan, 1993).Then, it may be assumed that brand value may influence financial market value of a firm(Isberg & Pitta, 2013).

This assumption arises from the efficient capital markets hypothesis. The hypothesis proposed that the market price of a firm's stock fully reflects all available

information on expected cash flows to shareholders (Fama 1991). Financial markets consider marketing factors, and thus stock prices reflect marketing decisions (Simon and Sullivan (1993). Accordingly, investors' brand value perceptions may affect a firm's stock price due to perceptions of its impact on future earnings (Keller&Lehmann, 2003; Kirk, Ray, & Wilson, 2013).

Recent research has shown the linkage between brand value and financial market outcomes. For instance, Kerin and Sethuraman (1998) investigated the relationship between brand value and shareholder value for United States (US) consumer goods companies for the period 1995-1996. Brand value was measured via Interbrand value estimation and shareholder value was measured as market-to-book ratio. They found that the relationship between brand value and shareholder value positive and concave with decreasing returns to scale. Barth et al. (1998) examine the association between brand value and share prices and returns for 183 publicly traded US firms from 1991-1996. Their results revealed that brand value estimates are significantly associated with equity market value. Mortanges & Riel(2003) examined the influence of brand value for 43 Dutch companies on shareholder value between 1993-1997. They measured shareholder value as total shareholder return, earnings per share, and the market-to-book ratio. Brand value was gathered Brand Asset Valuator Power Grid. The findings of the study shows that brand value have significant impact on the value of a firm.It should be noted here that it is important to test the lagged effect of brand value (Eng & Keh, 2007). Eng&Keh (2007) examined the lagged effect of advertising expense and brand value on return on assets and excess stock returns. They conducted the study on all companies listed in Interbrand's valuation for 1992-1996. The results revealed that brand value has a positive impact on return on asset. The positive effect lasts up to three years, but declines over time. However, brand value has no significant effect on stock returns. Kirk et al. (2013) investigated the lagged effects of brand value on stock prices for 11 consumer and 8 industrial firms for the period 2001-2008. They used Interbrand's brand value estimates. Their study revealed that brand valuation estimates from the previous year are positively associated with stock prices.

Based on the above mentioned studies and discussions we proposed the following hypothesis.

H1: Stock price is associated with time lagged of brand value.

Akin to previous studies we controlled the association using financial indicators. Various control variables such as book value of equity per share (Bart et al., 1998; Kirk et al., 2013), earnings per share (Bart et al., 1998; Kirk et al., 2013); total assets (Eng&Keh, 2007) have been studied. In this study book value of assets, forward earning per share and market capitalization are used as control variables.

METHODOLOGY

Data Sources

In order to test the hypothesis of the study we used panel data because panel data has some benefits according to time series and cross-sectional regression such as controlling for individual heterogeneity, more informative data, and more variability, less colliniearity among the variables, more degrees of freedom and more efficiency. Also panel data is better to study the dynamics of adjustment, to identify and measure effects that are simply not detectable in pure cross-section or pure time-series,and construct and test more complicated behavioral models Baltagi (2005).

The required data for brand value is gathered from Interbrand's brand value estimates (www.interbrand.com).InterBrand Group employs one of the most widely used approaches for brand-valuation which is the Price-Earnings Multiple(Sirivastava, Shervani, & Fahey, 1998). The Group uses a subjective multiplier of brand profits based on the brand's performance along seven dimensions; leadership, stabililty, market stability, internationality, trend, support, protection (Keller, 1993). Based on these, Interbrand provides the ranking of the most valuable global brands every year. Interbrand's brand valuation estimates have been used in many studies (e.g. Barth et al., 1998;Kerin & Sethuraman, 1998; Kirk et al., 2013).

Stock prices (P), forward earning per share (FEPS), book value of assets (BVA), and Market Capitalization (MC) datawere gathered from Quandl database

(www.quandl.com). These variables were collected on a yearly basis regarding to the annual brand value estimates.

In this study, we examined the first 15 most valuable global brands listed in the ranking of Interbrand for 2001-2013 periods. However, the required data for 11 of them were fully available. Then, the whole dataset covers 11 firms[1] and a period of 2001-2013. Brand value estimates of the firms for the covered period are presented in Figure 1.

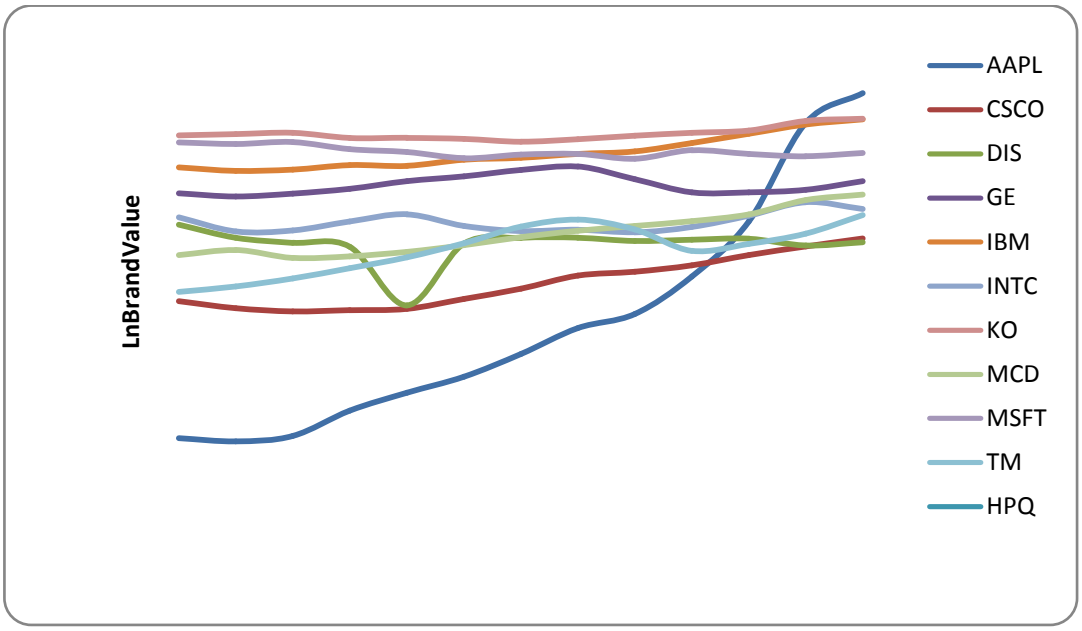

Figure.1: Brand value (natural logarithm) which estimates by Interbrand

Analysis and Findings

For panel data analysis as the first step, it should be tested that whether the data is stationary or not. In panel data analysis the unit root test requires the determination of dependence among cross sections, since the method of testing stationary of the data depends on the existence of dependence. According to Baltagi (2005) cross-sectional dependence is a problem in macro panels with the long time series (more than 20-30 years) but it is not a problem in micro panels. There are different tests used for the case of in dependent cross-sectional units and for the case of dependent cross-section very. If the existence of dependency is rejected than first

[1]Firms: Apple, Coca-Cola, IBM, Microsoft, General Electric, McDonald's, Intel, Toyota, Cisco, Disneyland, Hewlett-Packard

generation tests should be used such as Levin, Lin, and Chu (LLC, 2002); Harris and Tzavalis (H-T, 1999); Breitung (2001); Im, Pesaran, and Shin (IPS, 2003); Fisher type (Choi, 2001) tests, and Hadri LM (2000) test. If cross-sectional units are dependent, second generation tests should be used (Hurlin& Mignon, 2006).We do not test the cross-sectional independence because of the micro panels. At first, we must decide the models between a balanced panel and an unbalanced panel model. A balanced panel has the same number of time-series observations for each cross-sectional unit (or the same number of cross-sectional units at each point in time), whereas an unbalanced panel would have some cross-sectional elements with fewer observations or observations at different times to others (Brooks, 2008). Some of the above unit root tests (LLC, Hadri LM, Breitung, H-T) require strongly balanced data, but the others (IPS and Fisher ADF type) do not require strongly balanced data. We used the IPS and Fisher ADF type unit root test to test the stationary of the variables because of the unbalanced data. IPS and Fisher ADF tests are used because of the unbalanced observation in this study. IPS test is not as strict as LLC test. Thus, for small samples IPS provides better fit. However, if T is so small, the test becomes weaker. If T is too larger then N, data will have the characteristics of time series. The results (Table.1) show that all variables are stationary at the first differences - I(1).

Table 1:
Level and first difference unit root test results

Variables		***IPS (z-t-tilde-bar, p)*** ***Level unit root test results – I(0)***	***IPS (z-t-tilde-bar, p)*** ***Level unit root test results – I(1)***
LnPrice	*With trend*	-2.7769* (0.0027)	-5.4712* (0.0000)
	Without trend	1.0683 (0.8573)	-5.2334* (0.0000)
LnBrand	*With trend*	-0.5222 (0.3008)	-4.0243* (0.0000)
	Without trend	5.1688 (1.0000)	-3.4785* (0.0003)
LnBVA	*With trend*	-1.6464** (0.0498)	-5.1591* (0.0000)
	Without trend	3.9626 (1.0000)	-4.7927* (0.0000)

FEPS	*With trend*	*0.1736 (0.5689)*	*-3.1470* (0.0008)*
	Without trend	2.1425 (0.9839)	-2.3674* (0.0090)
LnMC	*With trend*	-3.3699* (0.0004)	-5.5187* (0.0000)
	Without trend	-0.8929 (0.1860)	-5.2650* (0.0000)

Variables		***Fisher (ADF – Mod. X^2, p) Level unit root test results – I(0)***	***Fisher (ADF – Mod. X^2, p) Level unit root test results – I(1)***
LnPrice	*With trend*	65.0514* (0.0000)	174.2446* (0.0000)
	Without trend	69.5518* (0.0000)	203.8664* (0.0000)
LnBrand	*With trend*	27.8609 (0.1803)	73.6446* (0.0000)
	Without trend	14.3107 (0.8901)	83.6087* (0.0000)
LnBVA	*With trend*	47.336* (0.0013)	110.0779* (0.0000)
	Without trend	16.3102 (0.8002)	143.4575* (0.0000)
FEPS	*With trend*	14.6281 (0.8777)	68.4303* (0.0000)
	Without trend	14.5576 (0.8805)	99.9738* (0.0000)
LnMC	*With trend*	74.9060* (0.0000)	151.0872* (0.0000)
	Without trend	36.8838* (0.0244)	186.3360* (0.0000)

All unit root tests are implemented with constant and trend in the test regression and take a unit root as different null hypothesis and alternative hypothesis. Null hypothesis (H_0) of ***Fisher type-ADF unit root*** *test is "all panels contain unit roots" and alternative (H_a) is "at least one panel is stationary", and (H_0) for IPS test is "all panels contain unit roots" and alternative (H_a) is "some panels are stationary"* * *indicates that null hypothesis rejected at the significance level of 1%.* ** *indicates that the null hypothesis rejected at the significance level of 5 % (LM test) and* *** *indicates that null hypothesis is rejected at significance level of 10 %.*

According to Brooks (2008) there are two classes of panel estimator approaches (fixed and random effects model) that can be employed in financial researches. The simplest types of Fixed Effect (FE) models allow the intercept in the regression model to differ cross-sectional but not over time, while all of the slope estimates are fixed both cross-sectional and over time. The panel data regression model can be written as Equ.1 in basic model;

$$Y_{it} = \alpha + \beta X_{it} + u_{it}$$

Equ.1

where Y_{it} is the dependent variable belong to i'th cross-section for time t, α is the intercept term, β is kx1 vector of parameters to be estimated on the explanatory variables, and X_{it} is 1xk vector of observations on the explanatory variables for the i'th cross-section for time t; i = 1, 2, … , N; and t = 1, 2, … , T.

The disturbance term (u_{it}) of the equ.1 contains two parts. One is the individual specific effect (μ_i) and the other part is related with the capturing everything that is left unexplained part of the Equ.1 (Y_{it}). That is, the Equ.1 can be written as Equ.2;

$$Y_{it} = \alpha + \beta X_{it} + \mu_i + v_{it}$$

Equ.2

The term μ_i encapsulates all of the variables that effect Y_{it} cross-sectionally, but do not vary over time.

An alternative to the fixed effects model is the random effects model. It is also known as the error components model. As with fixed effects (FE), the random effects (RE) approach proposes different intercept terms for each entity and again these intercepts are constant over time, with the relationships between the explanatory and explained variables assumed to be the same both cross-sectional and temporally. The random effect model can be written as fixed effect model as in Equ.3:

$$Y_{it} = \alpha + \beta X_{it} + w_{it}; w_{it} = \epsilon_i + v_{it} \qquad \text{Equ.3}$$

The difference between FE and RE is that under the random effects model, the intercepts for each cross-sectional unit are assumed to arise from a common intercept α, plus a random variable ϵ_i that varies cross-sectionally but it is constant over time. Term ϵ_i measures the random deviation of each entity's intercept term from the 'global' intercept term α. where X_{it} is still a *1×k* vector of explanatory variables, but

unlike the fixed effects model, there are no dummy variables to capture the heterogeneity (variation) in the cross-sectional dimension. Instead, this occurs via the ϵ_i terms(Brooks, 2008). In a panel setting, the specific effects can be treated as random effects and a Feasible Generalized Least Square estimation method is expected to be more efficient compared to LSDV technique (Durbarry, 2000). To decide between fixed effects or random effect, we used Hausman test that the null hypothesis is "preferred model is random effect versus the fixed effect". Also, after Hausman test, Chow test can be used to understand that the time fixed effects are needed or not.

In order to examine the association between stock prices and brand value the model that used in this study presented in Equ.4. The model is a classical panel model and we have four explanatory variables to explain the stock prices.

$$Price_{i,t} = \propto + \beta_1 LnBrand_{i,t} + \beta_2 FEPS_{i,t} + \beta_3 LnBVA_{i,t} + \beta_{i,t} LnMC_{i,t} + \varepsilon_{i,t}$$

Equ.4

where $\mathrm{Price}_{i,t}$ is the stock price of i'th firm at time t, is the natural logarithm of brand value of i'th firm at t time, $\mathrm{FEPS}_{i,t}$ is the earning per share of i'th firm at time t, $Ln\mathrm{BVA}_{i,t}$ is the natural logarithm of book value of asset of the i'th firm at time t, and the $LnMC_{i,t}$ is the natural logarithm of the market capitalization ofi'th firm at time t.

The panel regression results estimated with different panel estimator approaches are presented in Table 2. We conducted Hausman test to test whether difference in coefficients is systematic or not. According to the results of the Hausman test, (prob(X^2) < 0.05) we concluded that fixed effect model can be used to estimate the regression. To see the time fixed effect is needed or not when running a fixed effect model, Chow Test is used. And we rejected the null hypothesis that all years' coefficients are jointly equal to zero, that's time fixed effects are needed. Thus, prefer and interpret the fixed effects over the pooled model.

Table.2:
Comparison of Estimators

	OLS	FE	RE	BE
	(t-value)	(t-value)	(t-value)	(t-value)
LnBrand	-27.609644***	79.511143***	-18.415116	-22.313408
	(-4.00)	(4.69)	(-1.82)	(-2.19)
LnBVA	-7.5939987*	-.69842191	-3.4004413	-8.7509485
	(-2.12)	(-0.13)	(-0.73)	(-1.49)
FEPS	13.184873***	4.6927577***	11.041656***	18.421095***
	(24.53)	(5.94)	(17.67)	(13.20)
LnMC	20.539345***	25.609701***	26.3712***	22.245881
	(3.78)	5.07	(4.60)	(1.98)
constant	152.24436**	-1073.4805***	-51.807709	73.822503
	(2.74)	(-8.33)	(-0.63)	(0.82)
N	141	141	141	141
F-value	162.28823***	241.75354***		51.902324***
Wald Chi²			579.66***	
R^2	.82678534	.88472244	0.8211	.97191133
R^2 *(adjusted)*	.82169079	.87191383		.95318556
Hausman test (Chi²)		164.87***		
Chow test (F)		3.03***		

** p<0.05; ** p<0.01; *** p<0.001. OLS (ordinary least square), FE (Fixed Effects), RE (Random Effects), BE (Between Effects).*

The results of panel regression analysis shown in Table 2 indicate that brand value of the previous year significantly and positively influence stock prices of the current year. Thus, the hypothesis of the study proposing that stock price is associated with time lagged of brand value is supported. The results also showed that the strength of the influence of brand value is greater than that of book value of assets doesn't significantly influence stock price, future earnings per share, and market capitalization.

CONCLUSION

The purpose of this study is to examine the influence of brand value on stock prices. The theoretical support for this influence arises from the efficient capital

market hypothesis that investors considers all available information to evaluate market value of a firm including marketing activities (e.g. Fama, 1991; Simon & Sullivan, 1993). With this regard, we focused on brand value as one of the most valuable and important market based asset and tested the lagged effect of brand value on stock prices for 11 firms valued by Interbrand for 2001-2013 period. Our findings provided empirical support for the theoretical assumptions. In other words, the findings can be regarded as a proof for the fact that investors consider brand name and its value. Besides that, brand value has the strongest effect on stock price among other financial indicators (book value of assets, future earnings per share, and market capitalization). Thus it can be concluded that brand value estimates play a key role in determination of stock prices.

Concerning this, creating and enhancing brand value becomes a vital issue for firms. Then firms should allocate their spending on sources of brand value such as promotion, R&D, profitability, and loyalty(Chu & Keh, 2006; Jones, 2005). Therefore, more studies on determination of factors improving brand value may be beneficial.

This study may subsidize the emphasis on marketing finance interface with some further research opportunities. At first, this study can be extended via increasing the number of companies. This study is conducted on the firms that have the highest brand values. It may be beneficial to examine the association between brand value and stock prices through comparing higher and lower valued brands. Also, further studies can focus on specific service industries. Because of the differences between goods and services, brand value's influence may be different for services. Moreover, previous studies either examined consumer products or searched for the differences between industrial and consumer products. However, a product can be both an industrial and consumer concurrently. Further studies on industrial-consumer products may create an understanding of industry specific importance of brand value.

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