An Empirical Analysis of the Relation between Present Value of Growth Opportunities and Brand Value among Global Brand Companies

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1 Introduction

Several researchers stress the importance of intangible assets, such as the brand, as competitive advantages and strategic tools to elevate the financial and market performance of a firm (c.f. Tahat, et al., 2017) (c.f. Binh, et al., 2020). To this day, brand-marketing effectiveness and brand value are mainly measured by their ability to increase sales attributed to marketing activites (Dias & Ryals, 2002). However, these methods use simple Discounted Cash Flow (DCF) calculation. They often underestimate the value of flexibility that arises through brand value, e.g. in form of brand extensions. Real option theory gives answers as to how to measure these growth opportunities for single investments and for the company as a whole. The brand related growth options form part of all growth options of the company and several studies find a positive relationsip between intangible assets and the firm´s present value of growth options (Makrominas, 2017). This study aims to answer the **research question whether brand value impacts the present value of growth opportunities of a firm.**

2 Brand Valuation Theory

While the brand of a company has wide range of definitions depending on the perspective it is looked at from, this paper refers to the brand as an intangible asset ("identifiable non-financial asset with no physical substance" (ISO 10668, 2010)) of the company, which can generate its own cashflows. With a rising importance and need of valuation of intangible assets, several national and international brand valuation standards have been brought forward such as the IDW S5 in Germany and the ISO 10668 on an international level (IDW S5, 2015) (International Organization for Standardization, 2010) (ISO 10668, 2010). The brand values used in the empirical part of this study are obtained from Interbrand, a brand consultancy that publishes one of the most popular brand rankings: "Best Global Brands". Interbrand uses a version of the Income Approach, one of the three standardized brand valuation approaches, and discounts the brand´s earnings to calculate the brand value (Interbrand, 2012).

3 Real Option Theory

The Real Option Theory arose from criticism of the commonly applied net present value valuation techniques. Real Option theory aim to capture this growth option value that

might be attached to a strategic investment and that goes beyond the directly connected cash flows (c.f. Myers, 1984, p. 136) (c.f. Bockemühl, 2001, p. 20). The strategic flexibility attachted to an investment describes the management´s ability to react to environmental changes and seize growth opportunities (c.f. Bockemühl, 2001, p. 18) (c.f. Schulmerich, 2010, p. 23).

While there are various types of real options that stress the management´s operational flexibility regarding the timing and possibility of (des-)investments or changing in- and outputs e.g., the growth option has strategic charasteristics. A growth option represents the possibility of carrying out an independent follow-up investment project, whereby the investment opportunities arise from an initial investment. The initial investment could be an investment in the company´s goodwill or the brand for that matter with the growth option arising at a later point after said initial investment which demonstrates its strategic nature (c.f. Bockemühl, 2001, pp. 47-50) (c.f. Hommel, 2003, pp. 66-67).

Generally speaking, there are two ways to approach the measurement of the present value of growth opportunities in a firm: the "bottom-up" approach and the "top-down" approach (c.f. Smit & Moraitis, 2015, p. 103). The "bottom-up" approach aims to identify all the firm´s options and then valuates the options independently or in options bundles. The "top-down" approach, such as the approach presented in this paper, uses the market value of equity from financial markets and subtracts the present value of existing assets (PVEA) (as an annuity) to derive the present value of growth opportunities. Therefore, the discounted earnings method or DCF method is used to establish a base value of the firm that reflects its current strategy, which is then extended by the value of real options that captures the management´s scope of action or "the present value of growth opportunities" (PVGO) (Myers, 1977, p. 150).

4 Literature Review

Empirical literature employs several additional proxies for a firm´s value of growth opportunities such as the Market to Book ratio (MTB), e.g. by Smith and Watts (1992) and Barclay et al. (1995), the Tobin´s Q by Aivazian et al. (2005), McConnel and Servaes (1995) or Lang et al. (1996), or other proxies related to sales growth or the PE ratio by Lang et al. (1996). Kester (1984) finds that the percentage of market value represented by growth options differs across the different industries and increases with the the length of time the project can be deferred, the project risk, the level of interest rates and how

exclusive the owner´s right is to exercise the option. Brealey and Myers (1996) find that the PVGO of growth stocks is considerably higher than on income stocks. Smit and Trigeorgis (2004) support this, adding that firms operating in more volatile industries tend to have higher option value. Regarding the link between brand value and PVGO, Makrominas (2017) finds the relation between recognized intangibles and PVGO to be positive; Liu and Sporleder (2007) likewise find that brand value has a positive effect on the growth option value of the firm. Dias and Ryals (2002) proposed that by building brand value, real options are created for the company due to the possibility of brand extensions and future exploitation, which in return could enhance firm growth (c.f. Dias & Ryals, 2002, pp. 4-6). Tahat et al. (2017) support this by finding that intangibles, in particular goodwill, have positive effects on current and future performance.

5 Hypothesis

The earnings attributed to the brand when calculating its value are a share of the company´s overall earnings. These in turn are used to determine the PVEA which is why the brand value given by Interbrand is expected to be at least partially part of the PVEA. The growth option value of the brand, however, is expected to be a share of the firm´s PVGO. The relative brand value (brand value scaled by the company´s market capitalization) should therefore influence the PVGO. This leads to the null hypothesis:

H_0: Relative brand value has no influence on the PVGO of the firm: $\beta = 0$.

6 Methodology

The empirical analysis uses a sample of 85 public global brand companies within 16 industries that were observed over the period from 2008 to 2017 whose brand values were obtained from Interbrand´s yearly published list of 100 "Best Global Brands". To investigate whether relative brand value impacts the PVGO (expressed in percent of the share price) of a firm, multivariate linear panel data regression is used. Other factors that have been found to impact the PVGO in empirical research are included as control variables: leverage, firm size and industry uncertainty.

A series of statistical tests such as the Breusch and Pagan Lagrange multiplier test, the Hausman test and the Sargan-Hansen statistic revealed that the appropriate model for the data analysis is the fixed effects model (c.f. Breusch & Pagan, 1979) (c.f. Baltagi, 2011,

p. 275). To correct for both heteroscedasticity (detected by modified Wald test) and autocorrelation of the errors (detected by Woolridge test), cluster-robust standard errors were applied (c.f. Brüderl & Ludwig, 2019) (c.f. Arellano, 1993) (c.f. Woolridge, 2002, pp. 282-283).

7 Results

Both regession models, model (1) using multiple imputation for the missing data, *model (2)* using listwise deletion, are significant at the 1% level. While the coefficient of the relative brand value is positive in both models (0.058 and *0.046)*, neither of them is significant. Therefore, the H_0 of this study that relative brand value does not impact the PVGO cannot be rejected and hence no statistically significant relationship between the two variables could be confirmed. Findings on the control variables firm size (MCAP) (positive regressor) and leverage (debt/equity) (negative regressor) likewise are not significant. The coefficient for the *industry_beta* is positive (0.218) *(0.125)* and significant at the 10% level for model (1), indicating that the industry level uncertainty has a positive influence on PVGO, which is in line with real option theory and previous research (c.f. Smit & Trigeorgis, 2004) (c.f. Kester, 1984). The *year* dummy-variables are significant between the 1% and 10% level, with a growing negative coefficient over the observed time period ((-0.093) to (-0.337)) *((-0.122) to (-0.423))*. This indicates a clear downwards trend of the PVGO over the period of 2009 to 2017.

8 Conclusion

The PVGO approach applied in this paper examines the firm´s value as a sum of the present value of assets already in place and their present value of growth opportunities. These growth opportunities are the sum of growth options available to a firm. Following theoretical and empirical research that suggest that brand value and intangibles create growth opportunities for the firm, this paper examined whether brand value impacts the PVGO of a firm. Although other previous research finds different results when focusing on particular industries, no statistically significant impact of the brand value on the PVGO across all firms and industries could be found. It is possible that the outcomes of the analysis would be different if the analysis was conducted paying special attention to the heterogenous characteristics of the different industries the companies are nested in.

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