

## **Brand Equity and Corporate Value: Evidence from a Quasi-Natural Experiment in an Emerging Market**

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### **Resumo**

We investigate the relationship between brand equity and the corporate value of the companies using the rankings of the most valued brands of Brand Finance, Brand Analytics and Interbrand. We document important interactions between brand equity and the company's performance index using a "quasi-natural experiment" provided by the disclosure of the most valuable brands. Previous studies have already looked at the relationship with brand equity and corporate value, but these surveys often use cross-section data, portfolio comparisons or time series data. We used a data panel, with data collected from the CVM and Economática reports for the period 1990 to 2018 (29 years), consisting of a sample of 689 companies with shares traded in "Brazil, Bolsa e Balcão" (B3) representing 7,970 observations with unbalanced data. The main results indicate that, the fact of considering the company as valuable in Brand Finance and Brand Analytics rankings increased significantly its intangible, the return of the asset and the Free Cash Flow, but not the market value. The participation of companies in this Interbrand ranking does not add significant value to the company.



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### Abstract:

We investigate the relationship between brand equity and the corporate value of the companies using the rankings of the most valued brands of Brand Finance, Brand Analytics and Interbrand. We document important interactions between brand equity and the company's performance index using a "quasi-natural experiment" provided by the disclosure of the most valuable brands. Previous studies have already looked at the relationship with brand equity and corporate value, but these surveys often use cross-section data, portfolio comparisons or time series data. We used a data panel, with data collected from the CVM and Economática reports for the period 1990 to 2018 (29 years), consisting of a sample of 689 companies with shares traded in "Brazil, Bolsa e Balcão" (B3) representing 7,970 observations with unbalanced data. The main results indicate that, the fact of considering the company as valuable in Brand Finance and Brand Analytics rankings increased significantly its intangible, the return of the asset and the Free Cash Flow, but not the market value. The participation of companies in this Interbrand ranking does not add significant value to the company.

Keywords: brand equity, firm performance, quasi-natural experiment

### 1 INTRODUCTION

Shareholders and top managers are increasingly asked to demonstrate firm positive results. "The ultimate goal of any marketing expenditure should be to increase the value of the firm" (HANSENS et al., 2009, p. 115). Companies are valued not only for their tangible equities, but also by their intangible resources. In this context, the subject "brand equity" has been attracting business community, marketing practitioners and scholars due to the strategic relevance and the recognition that brand equity can bring value to the company and its clients (AAKER, 1996; PAPPU et al., 2005). Brands become growth and profitability levers (KAPFERER, 2004) and may reflect an increase in price premium, volume premium and profit premium (KELLER AND LEHMANN, 2006; MIZIK AND JACOBSON, 2009).

There is currently an increasing awareness that valuable brands are resources capable of improving shareholder value (AAKER, 1996; KERIN and SETHURAMAN, 1998; MORTANGES and RIEL, 2003). Although the corporate world recognizes the estimation of brand equity as an important marketing activity, the quantification of the returns on marketing activities in financial terms continues to be a major challenge for marketing and brand managers (MIZIK & JACOBSON, 2008; OLIVEIRA et al., 2015), making the "financial impact of brands remains a fertile and exciting research area" (ENG and KEH, 2007, p. 98).

Nonetheless, there are some notable studies on the subject. For instance, researches made by Madden et al. (2006), Fehle et al. (2008), Dutordoir et al. (2015) and Johansson et al. (2012) compared the market financial performance of a portfolio comprised of companies compounded by the most valuable brand in their market with portfolios of other companies listed in the stock exchanges. These studies demonstrated that a portfolio of companies that developed valuable brands creates value for its companies because it presents higher returns than market portfolios.

Many of these previous studies work with portfolio, making conclusions about the brands performances throw the comparison of portfolios performances not observing firms` or brand`s performance separately. Most of the previous studies usually use time series database, not observing the impact in the stock market of the announcements of the most valuable brands. Hence, in order to observe the potential association between brand equity and corporate value, our research investigates the relation between brand equity and firm performance indexes using a quasi-natural experiment provided by the announcement of the rankings of the most valuable brands published by Brand Finance, Brand Analytics and Interbrand. In this research, we used a data panel, with data collected from the CVM and Economática reports, consisting of a sample of 689 companies of one emergent market: Brazil, analyzing companies with shares traded in “Brazil, Bolsa e Balcão (B3)”.

Despite the increasing significance of brand equity in literature, most studies that seek to verify the association between the existence of valuable brands and the creation of corporate value limit themselves to the American context. Studies investigating brand equity in emergent countries are still incipient (OLIVEIRA et al., 2018). Therefore, this work contributes to the marketing literature by approaching the fields of marketing and finance, analyzing the performance of companies separately in an emerging market through an almost natural experiment. It follows that a better understanding of the Brazilian context can only be satisfied by a study of Brazilian brands.

This paper is composed of five sections. The first is the introduction, followed by a review of the literature, which discusses the main approaches to brand equity measurement, including the measurement methods used by Brand Finance, Interbrand and Brand Analytics. After that, the theme of brand equity and brand corporate is discussed. The next section addresses the methodological aspects of the research, followed by the presentation of the results. The article concludes outlining the final considerations, managerial and theoretical contributions and limitations of the research.

## 2 BRAND EQUITY

Brand equity is an extremely relevant construct for marketing area (OLIVEIRA et al, 2015) and has been the focus of academic research and administrative practice in recent years (AAKER, 1996; KELLER, 1993; YOO and DONTHU, 2001; BUIL, CHERNATONY, MARTÍNEZ, 2013) However, there is not yet a complete consensus on its conceptualization. This is due to the different perspectives that involve the analysis of brand equity.

Despite the different perspectives, the concepts proposed by David A. Aaker and Kevin Lane Keller are widely accepted by academia of marketing (YOO, DONTHU, LEE, 2000; YOO AND DONTHU, 2001; BUIL, CHERNATONY, MARTÍNEZ, 2013). Aaker (1991) defines brand equity as a set of assets and liabilities linked to the brand - its name and symbols - capable of aggregating or subtracting value from a product or service, generating benefits for the company or its customers. Keller (2003) argues that a valuable brand creates stronger and more favorable associations in the customer's mind and emphasizes that brand equity can bring benefits to the company by boosting the profitability and growth of its organizations (KAPFERER, 2004; KELLER, 2003; OLIVEIRA ET AL., 2015).

Likewise, there are different perspectives for measuring brand equity, and there is no consensus in the literature on this (OLIVEIRA et al., 2015; DAVCIK et al., 2015; MIZIK, 2014). One of the perspectives is the value of the consumer-based brand equity (CBBE). This approach predicts that consumers will react more favorably to a branded product than to an unbranded product in the same category (AAKER, 1991; KELLER, 1993; YOO, DONTHU AND LEE 2000, SCHIVINSKI and DROBROWSKI, 2016). It can be measured directly from

the consumers' responses to the different elements of the organization's marketing program or indirectly by identifying the potential sources of CBBE (CHRISTODOULIDES, DE CHERNATONY, 2010; HSIEH, 2004; KELLER, 1998; TONG AND HAILEY, 2009).

The other perspective (firm-based brand equity - FBBE) is company oriented and focuses on measuring the financial value of the brand - (SIMON and SULLIVAN, 1993; VARGAS NETO, 2003; AILAWADI, LEHMANN, AND NESLIN, 2003; GONÇALVES FILHO, SANTOS JÚNIOR, SOUKI, 2017). Therefore, it is perceived that despite the many proposals for approaches to estimate brand equity, a single uniformly accepted theoretical basis has not yet emerged (RAGGIO & LEONE, 2007). Thus, the estimation of the equity of the brand (MADDEN; FEHLE; FOURNIER, 2006) and the quantification of the returns of the marketing activities in financial terms continue to represent a challenge for brand managers today (MIZIK; JACOBSON, 2008).

In addition to these approaches, there are still those that seek to integrate both perspectives of brand equity measurement - FBBE and CBBE (OLIVEIRA, 2013). Some authors, such as Srinivasan, Park and Chang (2005), Shankar et al. (2008) and Ferjani et al. (2009) suggest using primary data collected from consumers first to measure the equity of the brand based on the consumer, from that information combined with market data estimate the monetary value of the brand.

Shankar et al. (2008) developed a brand equity model that combines financial and survey data with consumers. Srinivasan et al. (2005), in turn, sought to estimate the price and premium volume of the brand as a utility function, based on a consumer survey. Ferjani et al. (2009) have developed a utility model that provides estimates of brand equity. The authors did not collect data directly with the consumer, instead they performed an experiment with unbranded products to determine the value of these products, involving the possibility of not making the purchase in the model. All of the studies mentioned have limitations, but they represent the academy's efforts to bring the two approaches to brand equity closer together. In addition to academic research, some companies and institutes have developed brand valuation models, including the methodologies of Brand Finance, Interbrand and Millward Brown, which annually publish rankings of the most valuable brands.

## 2.1 INTERBRAND, BRAND FINANCE AND BRAND ANALYTICS

Besides the academy efforts to develop measurement of brand equity, some companies and brand evaluation institutes work with their own measurement methodologies, as the rankings announced by Brand Finance, Interbrand and Brand Analytics, which present the most valuable brands of that period.

The Interbrand uses a method that involves financial analysis of the brand - economic profit calculation, demand analysis - generating the brand's index and competition analysis, considering the brand risk and the score of the brand strength and brand equity relative to the net present value of the brand profits. The Interbrand looks at the brand's competitive strength, the brand's role in the purchasing decision, and financial performance (Interbrand, 2016). The requirements to compose the Interbrand ranking are: to have Brazilian origin, even if it is currently controlled by foreign capital; present the financial information publicly; publish individual results by brand and generate positive economic profit (INTERBRAND, 2016). Interbrand rankings were used for the years 2001, 2002, 2003, 2004, 2005, 2007, 2010, 2011, 2012, 2013, 2014, 2015, 2016 and 2017.

Annually, Brand Finance evaluates the largest brands worldwide. Thus, the 500 most valuable brands in the world in all sectors and countries are included in the Brand Finance Global 500 report (BRAND FINANCE, 2019). Brand Finance uses the Royalty Relief

approach for calculation. This involves estimating likely future revenues that are attributable to a brand by calculating a royalty rate that would be charged for its use to arrive at a "brand equity", understood as a net economic benefit that a licensor would achieve by licensing the brand (Brand Finance, 2019). The Brazilian brands present in the rankings of Brand Finance from 2008 to 2018 were included in the present research.

The methodology of the ranking "BrandZ Top 100 - Most Valuable Brands" is developed by Millward Brown Optimor and the analyzes are conducted by Brand Analytics. The value of the company is segregated from the value of the tangible assets. This difference is called intangible assets. To calculate the share of this intangible asset associated with the brand, the brand contribution index is used, which is quantified from the consumer choice decision process (Millward Brown, 2015). They compiled this study, the rankings released by Millward Brown Optimor corresponding to the years 2006 to 2018.

Previous academic research has already adopted rankings in order to point companies with valuable brands. For example, Billet, Jiang, and Rego (2014) used EquiTrend to measure brand perceptions. Dutordoir, Verbeeten and Beijer (2015), Fehle et al. (2008) and Madden, Fehle, and Fournier (2006) adopted Interbrand's rankings to create the portfolio of the most valuable brands. On the other hand, Oliveira, Stefanan and Lobler (2018) used the Brand Analytics ranking to create the portfolio of the most valuable brands. In turn, Johansson, Dimoftea and Mazvancheryl (2012) used Interbrand and EquiTrend as brand equity metrics. This research, however, works with ratings from three different institutions: Interbrand, Brand Finance and Brand Analytics.

## 2.2 BRAND EQUITY AND CORPORATE VALUE

Many researchers have already studied the relationship between brand equity and corporate value, as shown in Table 1. Cross-sectional studies were not included in this table because they are not recommended for the analysis of complex phenomena involving causality. Many of previous studies made a good effort using time series data - e.g.: Billet, Jiang e Rego (2014), Madden, Fehle and Fournier (2006), Fehle et al. (2008), Dutordoir, Verbeeten e Beijer (2015) and Johansson, Dimofte e Mazvancheryl (2012), Oliveira, Stefanan and Lobler (2018), but just Yeung e Ramasamy (2008) present panel data, observing Global Brand Equity. Agrawal e Kamakura (1995) have used the study of events for dealing with brand issues. We have just found one research using panel data. However, we have not found a quasi- experiment natural to study the relationship with brand equity and firm performance, especially in an emergent market.

Study	Brand Equity	Place and Period	Method	Performance Metrics
Agrawal and Kamakura (1995)	Newspapers of contract notices and news services of the period	USA (1980-1992)	Study of events	Stock returns
Yeung and Ramasamy (2008)	Global Brand Equity (BWV) da Business Week Top 100 and Thomson Banker One Database.	USA (2000-2005)	Dashboard data structure	ROI, ROA, gross profit margin, net margin, margin before taxes and price and return the shares.
Billet, Jiang and Rego (2014)	EquiTrend, and the Center for Research in Security Prices	USA (2000-2006)	Fama and French (1993)	Return and Risk
Dutordoir,	Interbrand	USA	Fama and French	Cash Flow

Verbeeten and Beijer (2015)		(2001-2012)	(1993)	Vulnerability, Growth Opportunities and potential of the price increase
Fehle et al. (2008)	Interbrand	USA (1994-2006)	Carhart's model	Return and Risk
Johansson, Dimofte and Mazvancheryl (2012)	Interbrand and EquiTrend.	USA (2008)	Fama and French (1993)	Return and Risk
Madden, Fehle and Fournier (2006)	Interbrand	USA (1994-2000)	Fama and French (1993)	Return and Risk
Oliveira, Stefanan and Lobler (2018)	Brand Analytics	Latin America (2004-2013)	Carhart (1997)	Return and Risk
Present Research	Interbrand, Brand Finance and Brand Analytics	Brazil (1990-2018)	Quasi-Natural Experiment	Return, Cash Flow, Intangible and Leverage

Table 1. Brand equity and Corporate Value Studies

Most of these researches is developed in United States and many of them work with portfolios, making conclusions about the brands performances throw the comparison of portfolios performances not observing firms` performance separately - e.g.: Billet et al. (2014), Madden et al. (2006), Fehle et al. (2008), Dutordoir et al. (2015), Johansson, Dimofte and Mazvancheryl (2012), Oliveira, Stefanan and Lobler (2018).

The organizational performance metrics most present in the studies presented in Table 1 are risk and return. Most of the studies sought to apply the measurement through financial models, such as the three-factor model of Fama and French (1993) and Carhart's four-factor model (1997). The work of Fehle et al. (2008) applied the four-factor carhart model in a sample of US companies with Interbrand brands of the most valuable brands between 1994 and 2006. The authors identified that companies with valuable brands perform statistically and economically better than the general market. The work of Oliveira, Stefanan and Lobler (2018) also used the Carhart model and was developed in the context of the emerging market, comparing the performance of shares of high-value brand companies with shares of other companies listed on the Latin American stock market. exchange . The definition of the study's valuable brands was based on Millward Brown reports and the sample included 732 stocks collected at Economatica over a 10-year period.

Studies with the model of Fama and French (1993), such as Billet, Jiang and Rego (2014), Johansson, Dimofte and Mazvancheryl (2012) and Madden, Fehle and Fournier (2006) also involved the analysis of risk and return metrics. Except for the work of Dutordoir, Verbeeten and Beijer (2015) in which the authors analyzed stock price reactions to changes in brand equity using as moderators the high cash flow vulnerability, valuable growth opportunities and the high potential for growth prices of products or services. Other studies, as Agrawal and Kamakura (1995) and Yeung and Ramasamy (2008), have already used metrics measured directly from firm performance, as Stock returns, ROI, ROA, gross profit margin, net margin, margin before taxes and price and return the shares.

The present research, besides studying the relation of brand equity and company performance through an almost natural experiment, uses data collected from the CVM and Economatica reports for a longer period than previous searches. We also use rank rankings of valuable brands from different institutions, which makes it possible to make comparisons. In addition, we sought to approach marketing and finance in this study by analyzing the

relationship between brand equity and firm performance, including return metrics, cash flow, intangible assets, and organizational leverage.

### 3 METHODOLOGICAL ASPECTS

To identify the association between brand equity and company value, we collected data from the CVM and ECONOMATICA reports for the period from 1990 to 2018 (29 years) paired 5 years before and 5 years after the event. The companies that contemplate the sample have shares traded in “Brazil, Bolsa e Balcão” (B3). Thus, the final sample consisted of 689 companies or 7,970 observations with unbalanced data. To analyze the data, a quasi-experimental approach was used which, unlike the real experiment, in which the elements are chosen at random to prevent bias in the estimates, elements in a quasi-experiment or natural experiment emerge from the way the change is made. The estimation of the model requires the comparison of a sample that received a specific treatment or that underwent a change (denominated treatment group) and a second identical, or as similar as possible, sample that did not receive treatment in the period before and after the change (referred to as the control group).

Dependent Variables			
Variables	Formula	Variables	Formula
ROA – Return on assets	$ROA = \frac{Op.income(1 - Tax)}{total\ assets}$	Tobin's Q*	$Q = \frac{(MVE + PS + D)}{total\ assets}$
IA. – Intangible Assets	$IA = \frac{Intangible\ Assets}{Total\ Assets}$	FC – Cash Flow	$MB = \frac{(EBIT(1 - Tax) + Depr. - CAPEX)}{Total\ assets}$
Covariables			
Variable	Formula/Description	Authors	Sig.
Brand - More than one brand	When the company has more than one brand considered valuable in the ranking.	-	+
Tang – tangibility of the assets**	$Tang = \frac{Inventories + fixed\ assets}{Total\ Assets}$	Pöyry and Maury (2010), Almeida and Campello (2007)	-
		Kieschnick and Moussawi (2018); Lemmon, Roberts and Zender (2008)	+
Size: AT – total assets; PL – equity; EBITDA.	- Logarithm of the company's total assets; - Logarithm of the company's equity; - Logarithm of profits before interest, taxes, depreciation and amortization.	Pedersen and Thomsen (1997)	+
		Klapper and Love (2004)	-
AL – leverage	$AL = \left( \frac{Current\ Liabilities + Non-current\ liabilities}{Equity} \right)$	Jensen and Warner (1988), Boubakri and Cosset (1998), Brick, Palia and Wang (2006)	-
		Frank and Goyal (2009)	+

Table 1. Description of variables

Note: \* MVE – stock price of the firm multiplied by the number of outstanding common shares; PS – settlement value of the outstanding preferred shares; D – total debt (current liabilities minus current assets plus inventories and long-term debt) (calculation suggested by Chung and Pruitt, 1994).

In this study, the treatment group consisting of companies that were considered valuable brands by Interbrand (MIB), Brand Finance (MBF) and Brand Analytics (MBZ), and the control group is composed of companies that were not considered valuable brands. The

three periods are considered the years in which these companies entered the rankings. Was used the Difference in Difference (DID) method which, for Vig (2013), is ideal when causal relations are established in a quasi-experiment, in which the effects of an event are compared groups affected by an intervention, with those who were not affected.

The implicit assumption of the DID estimator is that the unobserved difference between the mean of the treated and control products does not change over time, allowing that when the difference in difference is made, the selection bias is negated and the DID estimator is not biased. To estimate the values, a linear regression is used, according to Equation (1).

$$Y_{it} = \delta_0 + \delta_1 \cdot post_t + \delta_2 \cdot treated_i + \delta_3 \cdot (treated_i \times post_t) + \delta_n \cdot C + \sum_i^n EFset_i + \sum_t^n Eftemp_t + \varepsilon_{it} \quad (1)$$

Where  $i$  represents the company;  $t$  stands for time;  $Y_{it}$  is the dependent variable of the study;  $\delta_1$  captures aggregate factors that would cause changes in  $Y$  over time, even in the absence of a policy change;  $\delta_2$  captures possible differences between the treatment and control groups before the change (shock) studied;  $\delta_3$  represents the coefficient of interest;  $\delta_n$  represents the covariates coefficients;  $C$  represents the covariates;  $EFset$  represents the fixed sector effects;  $Eftemp$  represents the time fixed effects and  $\varepsilon_{it}$  the error parameter. The variables described in Table 1 were corrected according to the IGP-DI and converted into US Dollars.

#### 4 ANALYSIS OF RESULTS

Before starting the analysis, the correlation test and the verification of the consistency of the data through the descriptive statistics are applied. As expected, a strong correlation (equal to or greater than 0.7) is identified between total assets, Ebitda and shareholders' equity. To avoid possible collinearity problems, none of these variables with high correlation is used in the same regression. Afterwards, the statistical analysis is performed.

As seen in Table 2, the sample was divided into companies of the treatment group (1,090 observations) and control group (6,896 observations). Most of the variables in the treatment group presented medians and medians nearby, with the exception of Intangible and size variables (Ebitda, Equity and Total Assets). For the control group, practically all variables, with the exception of Tangibility, presented great disparities. For these, 1% winsorization and, for the size variables, the neperian logarithms were applied.

It can be seen that the return on assets of companies with valuable brands is 5%, higher, at a significance level of 1%, than the non-valuable brands, whose value is -12%. For Tobin's Q, the most valuable companies have a market value that represents 5% of the equity value, and for non-valued companies, this value exceeds the equity by 60%. This difference is also significant at 1%. In terms of free cash flow, the treatment group presents a value that represents 10% of total assets, and for the control group, this value reaches the -10% mark, evidencing that the cash flow of the valuable companies is significantly higher than the other companies. Despite the fact that the two groups had very close Intangibles (8% and 6% of the total assets) and Tangibles (44% and 41% of the total assets) the difference between them was significant at 10% and 1%, respectively.

Stats	ROA	Tobin's Q	FCF	Intangible	Tangible	Leverage	Ebitda*	Equity*	T. Assets*
Treatment									
N	1090	497	646	1090	1090	1090	1090	1090	1090
Mean	0.05	0.05	0.10	0.08	0.44	0.64	4.96	4.13	11.03
p50	0.05	0.01	0.09	0.01	0.46	0.58	1,76	0.74	1.74
Variance	0.01	0.06	0.01	0.02	0.02	0.26	4.39x10 <sup>8</sup>	5.14x10 <sup>8</sup>	3.05x10 <sup>9</sup>
Min	-1.89	0.01	-0.53	0.00	0.01	0.02	-0.76	-3.49	0.01
Max	0.36	3.56	0.38	0.79	0.93	8.84	101.29	118.09	260.98
Sd	0.09	0.25	0.07	0.14	0.15	0.51	10.64	11.52	28.16
Skewness	-9.33	9.08	-0.29	2.41	-0.65	8.96	5.51	5.82	5.41
Kurtosis	190.20	104.88	13.20	8.71	3.40	116.63	39.44	44.26	38.59
Control									
N	6880	3294	3239	6880	6880	6880	6.880	6.880	6.880
Mean	-0.12	1.60	-0.10	0.06	0.41	1.65	1.77	1.55	3.75
p50	0.03	0.01	0.07	0.01	0.45	0.59	0.18	0.12	0.36
Variance	0.88	112.64	0.84	0.23	0.04	42.26	4.47x10 <sup>8</sup>	2.11x10 <sup>9</sup>	4.21x10 <sup>9</sup>
Min	-7.76	0,00	-6.91	-0.02	0.00	0.00	-0,37	-46.77	0.00
Max	0.36	91.41	0.38	37.68	1.00	54.19	211.37	1,434.00	1,560.72
Sd	0.94	10.61	0.92	0.47	0.20	6.50	10.75	23.36	33.07
Skewness	-7.28	7.8	-6.38	72.44	-0.04	7.28	11.03	48.06	30.65
Kurtosis	57.17	64.06	44.88	573.47	3.38	56.7	146.03	269.53	126.91
t test	-5.91	3.26	-5.52	-1.34	-3.40	5.17	-9.10	-3.58	-6.93
t -p	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00

Table 2. Descriptive Statistics

\*In Million, converted into dollars on December 3, 2018 at \$3.87.

The most valuable companies are much less leveraged, with liabilities representing 64% of shareholders' equity, with the remaining companies presented liabilities that surplus in 65% the shareholders' equity, showing that valuable companies incur significantly less debt. Finally, in terms of size, valuable companies are significantly larger, with average Ebitda of \$ 4.96 million, equity of \$ 4.13 million and total assets of \$ 11.03 million. For other companies, these amounts are \$ 1.77 million, \$ 1.55 million and \$ 3.75 million, respectively. In summary, the most valuable companies have higher internal performance, but lower market performance, have more tangible and intangible assets in relation to the total, are larger and less leveraged.

#### 4.1 INFLUENCE OF BRAND EQUITY ON CORPORATE VALUE

Figure 1 shows an example of analysis. It was considered the Natura Company, which belongs to the treatment group and was considered valuable in the 3 rankings (Interbrand in 2004, Brand Analytics in 2006 and Brand Finance in 2011) compared to the Grazziotin Company, of the same trade, but which was never considered valuable in any of the rankings.

In terms of intangible assets, Natura did not show significant changes in relation to Grazziotin when it was considered a valuable brand by Interbrand in 2004. Already, after entering the Brand Analytics ranking in 2006, the company presented a considerable increase in intangible, which was even more significant when it came to be in the Brand Finance ranking in 2011. In these periods, Grazziotin did not show substantial variation in intangible

assets, evidencing that the fact that Natura belonged to valuable brands had a significant impact on intangible assets from the company.

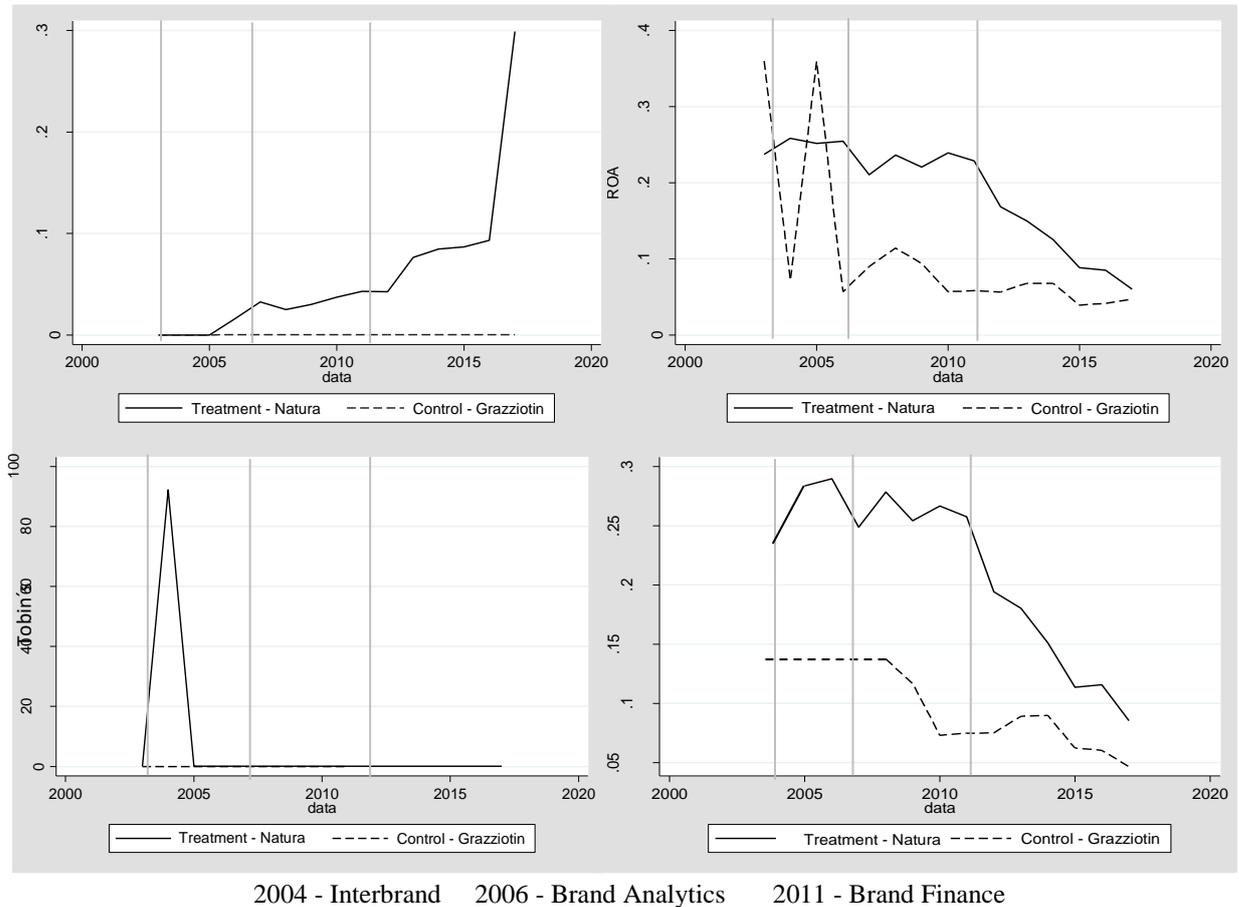


Figure 1. Sample of Treated and Control Brands

Regarding the ROA, Natura did not show any variation after being considered valuable by Interbrand, and in that same period, Graziotin presented considerable oscillations. After being considered a valuable brand by Brand Analytics, the difference in terms of asset return was the largest between the two companies, decreasing this range after Natura was considered valuable by Brand Finance. In the case of Tobin's Q, the value of the brand only influenced the company's market performance after being considered valuable by Interbrand.

By the end, according to the fourth chart, Natura had a significant increase in Free Cash Flow after being considered a valuable brand by Interbrand, decreasing this value in the later period, until considered valuable by Brand Analytics, in which it had an increase followed by a decrease. When it was considered valuable by Brand Finance, Free Cash Flow decreased considerably, approaching the value of Graziotin.

The analysis of the regressions by the Dif-in-Diff method consists of 3,440 observations from the control group before and after the period the brand was considered. For the treatment group, there were 545 observations before and after the period. Table 2 shows the results divided into two parts: 12 regressions without covariates (Panel A) and 12 regressions with covariates (Panel B), totaling 24 regressions. This number was obtained, since regressions were generated for each dependent variable (Intangible, ROA, Tobin's Q and Free Cash Flow) covering each of the 3 rankings (Interbrand, Brand Finance and Brand

Analytics). In the model, the variable "post" represents a dummy indicating the moment when the company was considered valuable for one of the 3 rankings and the variable "Treated" indicates another dummy representing whether the variable belongs to the treatment group or to the control group. The important variable, in this case, is the interaction between the two "Post x Treated" which indicates the difference of the two groups before and after the period.

As can be seen, in almost all analyzes, the fact of considering the company as a valuable in the Brand Finance and Brand Analytics rankings increased by 0.04% its intangible, by 0.05% to 0.09% the return of the asset and by 0.10% to 0.21% the Free Cash Flow, all at a significance level of 1% to 5%. In terms of Tobin's Q, the insertion in the Interbrand ranking caused companies to decrease their market value from 0.11% to 0.13%, with a significance level of 1%. In the other analyzes, the fact that the company belongs to the Intebrand ranking did not generate significant results, except in the ROA, where it presented controversial results, being positive for the analysis without covariates and negative in the analysis with covariables. Due to these factors, it is identifying that the participation of companies in this ranking does not add significant value to the brands of the company.

In terms of covariates, the fact that the company has more than one valuable brand positively affects the intangible by 0.02% and the market value from 0.15% to 0.18%, all at a significance level of 1%. However, it negatively influences the internal performance of companies, generating a decrease of 0.10% to 0.11% in the return of the asset (with the exception of Interbrand regression), at a significance level of 1%, and a decrease of 0.02 to 0.03% in free cash flow, at a significance level of 5%.

The tangibility is negatively related to intangible and free cash flow. This fact indicates that the 1% increase in the tangible assets of the company generates a decrease of 0.14% in intangible and from 0.01% to 1.05% in the company's cash flow, both at 1% of significance. This result corroborates with Pöyry and Maury (2010), who affirm that tangibility represents resources that are costly for the company, generating a decrease in its value. On the other hand, this variable was directly related to the ROA and Q, indicating that the 1% increase in tangible assets generates an increase of 0.01% in the return of the asset and 0.69% in the market value of the companies, corroborating with Kieschnick and Moussawi (2018) and Lemmon, Roberts and Zender (2008), who assert that the greater the investment in fixed assets, the company abdicates from a short-term return (cash flow) to a long-term return.

In the case of leverage, in almost all analyzes, except for the regression related to the free cash flow with covariates for the Interbrand ranking, this variable was positively related to the value of the company, that is, the increase of 1% in the Company's indebtedness generates a 0.01% increase in intangible assets, from 0.01% to 0.14% in the return of assets, 0.03% in market value and 0.01% in free cash flow of companies, at a level of significance of 1% to 5%. This result is in line with the study of Frank and Goyal (2009), which indicates that the higher the company's indebtedness, the greater the tax benefit obtained, generating a lower capital cost and, consequently, a better internal and market performance.

Finally, the 1% increase in company size (measured by total assets) generates an increase of 0.01% in intangible assets, 0.14% in the return on assets and 0.01% in free cash flow, corroborating with Pedersen and Thomsen (1997), who stated that, the bigger the company, the more professional it is, generating more results. However, in terms of Q, this variable presented opposite results, where the 1% increase in size decreases the company's market value by 0.18%. This result corroborates with Klapper and Love (2004), who identified that small firms have greater incentives to perform better in search of growth opportunities.

Table 3 – Regressions Brand Value and firm value

Panel A - Without Covariates												
Variable	IMBF	IMBZ	IMIB	RMBF	RMBZ	RMIB	QMBF	QMBZ	QMIB	FMBF	FMBZ	FMIB
Post	<b>0.11***</b>	<b>0.09***</b>	<b>0.05***</b>	<b>-0.06***</b>	<b>-0.07***</b>	<b>-0.04*</b>	0.04	0.03	<b>0.13***</b>	<b>-0.23***</b>	<b>-0.24***</b>	0.01
<i>P</i>	0.00	0.00	0.00	0.01	0.00	0.09	0.30	0.34	0.00	0.00	0.00	0.90
Treated	<b>0.00***</b>	0.00	<b>0.02***</b>	<b>0.13***</b>	<b>0.12***</b>	<b>0.14***</b>	<b>-0.13***</b>	<b>-0.13***</b>	<b>-0.06***</b>	<b>0.02**</b>	0.00	<b>0.21***</b>
<i>P</i>	0.00	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.79	0.00
PostxTeated	<b>0.04**</b>	<b>0.04**</b>	0.00	<b>0.08***</b>	<b>0.09***</b>	<b>0.05***</b>	-0.04	-0.04	<b>-0.13***</b>	<b>0.20***</b>	<b>0.21***</b>	-0.02
<i>P</i>	0.00	0.00	0.93	0.00	0.00	0.06	0.26	0.27	0.00	0.00	0.00	0.68
Const.	<b>0.00***</b>	0.00	<b>0.02***</b>	<b>-0.09***</b>	<b>-0.08***</b>	<b>-0.09***</b>	<b>0.14***</b>	<b>0.14***</b>	<b>0.07***</b>	<b>0.11***</b>	<b>0.14***</b>	<b>-0.11***</b>
<i>P</i>	0.00	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
<i>F-p</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<i>R</i> <sup>2</sup>	0.18	0.13	0.03	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Panel B - With Covariates												
Variable	IMBF	IMBZ	IMIB	RMBF	RMBZ	RMIB	QMBF	QMBZ	QMIB	FMBF	FMBZ	FMIB
Post	<b>0.05***</b>	<b>0.05***</b>	<b>0.06***</b>	<b>0.70***</b>	<b>0.69***</b>	0.01	<b>0.20***</b>	<b>0.20***</b>	<b>0.20***</b>	<b>-0.22***</b>	<b>-0.22***</b>	<b>0.18***</b>
<i>P</i>	0.00	0.00	0.00	0.00	0.00	0.83	0.00	0.00	0.00	0.00	0.01	0.00
Treated	<b>-0.03***</b>	<b>-0.03***</b>	-0.01	<b>-0.16***</b>	<b>-0.17***</b>	<b>0.04***</b>	<b>0.14***</b>	<b>0.15***</b>	<b>0.21***</b>	<b>0.08***</b>	<b>0.07*</b>	<b>0.19***</b>
<i>P</i>	0.00	0.00	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00
PostxTeated	<b>0.04***</b>	<b>0.04***</b>	-0.01	<b>0.05**</b>	<b>0.08***</b>	<b>-0.04***</b>	0.02	-0.02	<b>-0.11***</b>	<b>0.11***</b>	<b>0.10***</b>	-0.06
<i>P</i>	0.00	0.00	0.46	0.05	0.00	0.00	0.70	0.69	0.01	0.00	0.01	0.15
Brand	0.01	0.01	<b>0.02***</b>	<b>-0.10***</b>	<b>-0.11***</b>	<b>0.02***</b>	<b>0.15***</b>	<b>0.16***</b>	<b>0.18***</b>	<b>-0.02**</b>	<b>-0.02**</b>	<b>-0.03**</b>
<i>p</i>	0.25	0.34	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.03	0.02
Tang	<b>-0.14***</b>	<b>-0.14***</b>	<b>-0.14***</b>	<b>0.01***</b>	<b>0.01***</b>	<b>0.01***</b>	<b>0.69***</b>	<b>0.69***</b>	<b>0.69***</b>	<b>-0.01***</b>	<b>-0.01***</b>	<b>-1.05***</b>
<i>p</i>	0.00	0.00	0.00	0.00	0.00	0.89	0.00	0.00	0.00	0.00	0.00	0.00
AL	<b>0.01***</b>	<b>0.01***</b>	<b>0.01***</b>	<b>0.01***</b>	<b>0.01***</b>	<b>0.01***</b>	<b>0.03**</b>	<b>0.03**</b>	<b>0.03**</b>	<b>0.01***</b>	<b>0.01***</b>	<b>-0.06***</b>
<i>p</i>	0.01	0.01	0.01	0.00	0.00	0.00	0.02	0.02	0.02	0.00	0.00	0.00
AT	<b>0.01***</b>	<b>0.01***</b>	<b>0.01***</b>	<b>0.14***</b>	<b>0.14***</b>	0.00	<b>-0.18***</b>	<b>-0.18***</b>	<b>-0.18***</b>	<b>0.01***</b>	<b>0.01***</b>	<b>0.01***</b>
<i>p</i>	0.00	0.00	0.00	0.00	0.00	0.38	0.00	0.00	0.00	0.00	0.00	0.01
Const.	<b>-0.06***</b>	<b>-0.06***</b>	<b>-0.06***</b>	<b>-8.94***</b>	<b>-8.94***</b>	<b>-0.10**</b>	0.34	0.34	0.34	<b>0.20***</b>	<b>0.20***</b>	<b>0.57***</b>
<i>p</i>	0.00	0.00	0.00	0.00	0.00	0.02	0.60	0.60	0.60	0.00	0.00	0.00
<i>EFSet.</i>	Yes											
<i>EFTemp</i>	Yes											
<i>F-p</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<i>R</i> <sup>2</sup>	0.32	0.32	0.32	0.28	0.28	0.23	0.29	0.29	0.29	0.14	0.14	0.27

\* = Significant to 10%, \*\* = Significant to 5%, \*\*\* = Significant to 1%, r<sup>2</sup> = R-Squared, F-p = F test probability; p – P-va.

Note: All the regressions are tested with the Kernel-based Propensity Score Matching diff-in-diff and the results are qualitative similar.

In the analysis, the sectorial and temporal fixed effects were also considered. The degree of explanation of the model, obtained by the  $R^2$ , increased considerably when the covariates were inserted, identifying that the independent variables explain the dependent variable of the model from 14% to 32%.

## 5 CONCLUSION

Our research bolsters previous studies which argue for brand equity as an important company asset (Aaker, 1996; Oliveira et al., 2015). We have done a step forward using a Financial model not conventional in Marketing area. We used a quasi-natural experiment inspired in Finance literature, aiming to approximate Marketing and Finances areas, in order to supply to academics and practioners tools to analyze long-term investments in building brand equity, particularly when confronted with competing investment opportunities and increasing demands for spending accountability (Madden et al., 2006; Fehle et al., 2008).

Besides studying the relation of brand equity and corporate value through an almost natural experiment, in the present research we use data for a longer period than previous searches. In addition, we analyzed the performance of companies separately adopting return metrics, as cash flow, intangible assets, and organizational leverage.

We also use rank rankings of valuable brands from different institutions, which makes it possible to make comparisons. The results indicate that, the fact of considering the company as valuable in the Brand Finance and Brand Analytics rankings increased significantly its intangible, the return of the asset and the Free Cash Flow, but not the market value. The participation of companies in this Interbrand ranking does not add significant value to the company. Moreover, it was identified that the most valuable companies have higher internal performance, but lower market performance, have more tangible and intangible assets in relation to the total, are larger and less leveraged.

This study contributes to the marketing literature by approaching the fields of marketing and finance, analyzing the performance of companies separately over a long period, with different return metrics and different rankings of valuable brands. And besides, it studies a different market from the main streaming literature, by observing an emerging market, through an unconventional method in marketing area, an almost natural experiment, obtained by Financial studies.

One potential limitation of this research was the choice of the parameter to determine valuable brands. Data and information about the value of Brazilian brands is limited in availability. Brand research institutes have recently carried out evaluations about Brazilian brands that analyze a limited number of companies. Moreover, Interbrand only reports on those brands that achieve top ranking, usually ten brands. Given that Interbrand and other ranking did not try to analyze all brands which constitute the market (Madden, Fehle and Fournier, 2006), and that only brands belonging to companies holding stocks listed in BOVESPA were analyzed, it is necessary to point out that the results and conclusions of this project are limited to the behavior of companies in the Brazilian stock market.

For future researches, we encourage the use of different parameters to identify valuable brands and business performance indexes. We also encourage reapplications of our study in other emerging economies and in developed economies, as well the comparison of the results.

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