

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

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

## **Abstract:**

We investigated 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. We used a data panel, with data collected from the CVM and ECONOMATICA reports, consisting of a sample of 689 companies with shares traded in "Brazil, Bolsa e Balcão" (B3). 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, corporate value, quasi-natural experiment*

*Track: Methods, Modelling & Marketing Analytics*

## **1 Introduction**

Shareholders and top managers are increasingly asking to demonstrate firm positive results. “The ultimate goal of any marketing expenditure should be to increase the value of the firm” (Hanssens, Rust & Srivastava., 2009, p. 115). 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, Quester & Cooksey 2005). Hence, there is an increasing awareness that valuable brands are resources capable of improving profitability and shareholder value (Aaker, 1996; Mizik & Jacobson, 2009). 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 (Oliveira et al., 2015), making the “financial impact of brands remains a fertile and exciting research area” (Eng & Keh, 2007, p. 98).

Nonetheless, there are some notable studies on the subject. For instance, Madden, Fehle and Fournier (2006), Fehle et al. (2008) and Dutordoir et al. (2015) 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. They demonstrated that a portfolio of companies that developed valuable brands creates value for its companies because they present higher returns than market portfolios.

Most of the previous studies usually use time series database, not evaluating the impact in the stock market of the announcements of the most valuable brands. Hence, our research investigates the relation between brand equity and corporate value 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 ECONOMATICA reports, consisting of a sample of 689 companies of one emergent market: Brazil.

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).

## **2. Brand equity**

Aaker (1996) defines brand value 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 (Keller, 2003, Oliveira et al., 2015).

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. 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 value 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). 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 value", understood as a net economic benefit that a licensor would achieve by licensing the brand (Brand Finance, 2018).

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).

Previous researchers made a good effort to study the relationship between brand equity and corporate valued by sing time series data - e.g.: Madden, Fehle and Fournier (2006), Fehle et al. (2008), Dutordoir et al. (2015) and Oliveira et al. (2018) -, but just Yeung and Ramasamy (2008) present panel data, observing Global Brand Value. Most of these research is developed in United States and many of them work with portfolios, making conclusions about the brands performances throw the comparison of portfolios performances (risk and return), using Fama and French (1993) or Carhart (1997) methodology. Hence, they did not analyze firms` performance separately.

We have not found the use of a quasi-experiment natural methodology focus on the study of the relationship of brand equity and corporate value.

### **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). 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.

Dependent Variables			
Variables	Formula	Variables	Formula
ROA – Return on assets	$ROA = \frac{Op.income(1-Tax)}{totalassets}$	Tobin’s Q*	$Q = \frac{MarketValue}{total assets}$
IA. – Intangible Assets	$IA = \frac{IntangibleAssets}{TotalAssets}$	FC – Cash Flow	$MB = \frac{(EBIT(1-Tax) + Depre. - CAPEX)}{Totalassets}$

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).	-
		Kieschnick and Moussawi (2018).	+
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	$AL = \left( \frac{Current\ Liabilities + Non-current\ liabilities}{Equity} \right)$	Boubakri and Cosset (1998),	-
		Frank and Goyal (2009)	+

Table 1. Description of variables

#### 4. Analysis of Results

The sample was divided into companies of the treatment group (1,090 observations) and control group (6,896 observations). 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.

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.

Regarding the ROA, Natura did not show any variation after being considered valuable by Interbrand, and in that same period, Grazziotin 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.

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 543 observations before and after the period. Our results are 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.

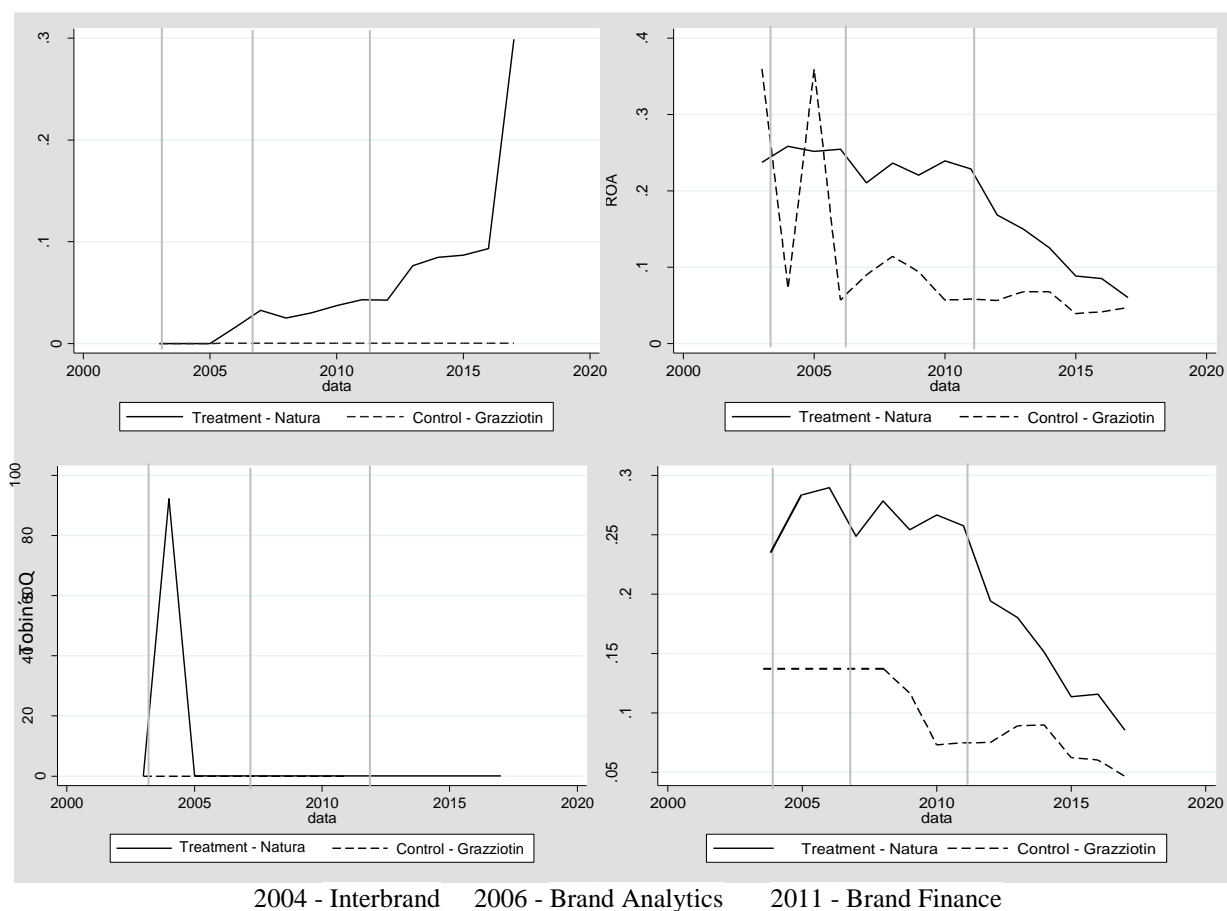


Figure 1. Sample of Treated and Control Brands

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%. Almost in all the

analysis, it is identified that the participation of companies in this Interbrand 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), 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).

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 the statement of Pedersen and Thomsen (1997): 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.

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



Table 3 – Regressions Brand Value and firm value

Panel A - Without Covariables												
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
Terated	<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 Covariables												
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
Terated	<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	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>EFTemp</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	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.

## 5. Conclusions

Our research bolsters previous studies which argue for brand equity as an important company asset (Aaker, 1996). We used a panel data and 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.

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.

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, 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 o use 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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