


The CEO's origin and fame in relation to company performance and market perception*

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ABSTRACT

This article investigated decisions to change chief executive officer (CEO) and the relationships between the characteristics of the new CEO chosen and both company performance and stock market perceptions. Our study aims to broaden the understanding in an area that remains underexplored by the literature. In particular, we present a new direction for the study of Malmendier and Tate (2009) by addressing the question of superstar CEOs considering the market's perception regarding the hiring of an executive and their performance in the new company. The article highlights a new research question that permeates the market's perception with regard to changing executives classified as superstars. In addition, the study connects the literature on superstar CEOs and changing executives, presenting new findings for the theme. The results obtained provide new findings for the literature and elucidate that superstar CEOs are positively evaluated by the market at the time of the hiring announcement. However, these executives do not show better performance than the other companies in the sector in subsequent periods, which corroborates and extends the negative aspects found by Malmendier and Tate (2009). The methodology used was an event study, OLS, Logit, and Probit. This article highlights that bigger companies with better operational performance have a greater probability of choosing a new CEO with superstar status in situations of changing executives. CEOs of external origin and classified as superstars are, on average, better evaluated than their peers by the market in the event window relating to the hiring announcement. However, the performance of these executives may fall short of the results calculated for the sector average. The aforementioned results broaden the discussion regarding decisions to change executives and highlight new findings about the role of the CEO's origin and their status of recognition and fame.

Keywords: CEO changes, event study, company performance, superstar.

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1. INTRODUCTION

Decisions to change chief executive officer (CEO) are one of the ways most widely-used by a company's governance as a measure to revive earnings (Dardour et al., 2018).

These decisions to change CEO, however, go beyond questions merely related with the company's financial performance and take on an even greater connotation with regard to the market's perception and share price volatility. A new CEO can create uncertainties regarding their skills in a way that raises the volatility of returns (Pan et al., 2015). Also analyzing the aspect of share price volatility, Clayton et al. (2005) indicate that a CEO's voluntary departure presents lower volatility results if compared with a forced change of CEO.

Regarding the performance of the business, various studies and academic research have covered CEOs by analyzing their characteristics, duality of presence as a CEO and board member, family management ties, internal or external origin, and the relationship that these variables present when compared with the company's financial indicators (Warner et al., 1988; Khurana & Nohria, 2005; Bennedsen et al., 2007; Zagorchev, 2013; Dardour et al., 2018).

The decision to change CEO, when disclosed by a company, can be interpreted in different ways due to various aspects related to the characteristics of the new CEO and their provenance (Clayton et al., 2005; Pan et al., 2015). Different studies have observed that the new CEO's origin, whether they belong to the current organization (internal) or they are hired from outside the company (external), is a relevant characteristic for future expectations of financial performance and of the market's perception in relation to the changes (Giambatista et al., 2005; Jalal & Prezas, 2012; Khurana & Nohria, 2005; Weisbach, 1988).

This article evaluates decisions to change CEO and emphasizes the relationships between both the origin and fame of the hired CEO and company performance and stock market perceptions. Our study contributes to the literature on corporate finance and executive changes in at least three aspects. First, we determine whether recognized CEOs with more media prestige (superstars) are evaluated differently by the stock market in the events announcing their hiring by a particular company.

Rosen (1981) addressed the discussions regarding superstars and the importance of that phenomenon to modern economics. The aspects relating to the economics of superstars have reached the corporate world and, especially, the leadership positions of organizations. CEOs obtain classifications that resemble those of celebrities when they achieve successful performance during their activities (Hayward et al., 2004; Treadway et al., 2009; Fleck et al., 2014).

Malmendier and Tate (2009) investigated the self-promotion process of a CEO and how it affects company results in the long run and they found that as CEOs raise their status and fame, company results worsen over time.

Unlike the research of Malmendier and Tate (2009), our study highlights executive changes and addresses the question of superstar CEOs considering the market's perception regarding the hiring of the executive and their performance in the new company. Thus, by analyzing the relationships that exist between superstar CEOs and abnormal returns, this study aims to broaden the understanding in this underexplored area.

The article uses an additional strategy to the one presented by Malmendier and Tate (2009) to determine if a particular CEO is considered a superstar by the media. Besides the classification made through awards received (similarly to the procedure adopted by the aforementioned researchers), we use information on the volume of Google searches for each CEO in our sample, in accordance with various recent studies (Bank et al., 2011; Takeda & Wakao, 2014; Ekinci & Bulut, 2020). This procedure is important to determine the prestige attributed by the media to certain executives, since it incorporates the recurrent participation of executives in news and programs with international and national reach.

Finally, we investigate the CEO's performance in the new company, comparing (i) the results between CEOs promoted internally and those hired from the market and (ii) executives classified as superstars by the media versus CEOs without a status of recognition and fame at the time of the change announcement. We believe that this is the first article to investigate the relationships between superstar CEOs and abnormal stock returns in the event of a change announcement. The conclusions of this study, although broadly descriptive, provide contributions of an academic and practical nature to the theme.

2. THEORETICAL FRAMEWORK

Changing the CEO is often one of the instruments most widely used by corporate governance when company performance presents below-expected results (Dardour et al., 2018).

Studies conducted in France, between 2003 and 2012, indicated that accounting performance has greater weight than stock market performance for decisions to change CEOs (Dardour et al., 2018).

In addition, the choice of a family CEO can imply even greater problems in relation to company performance. Studies conducted in Denmark indicate that operational performance is statistically lower for family CEOs if compared with those that have no family ties (Bennedsen et al., 2007). Studies show evidence that the Board of Directors structure and monitoring affect CEO turnover and that greater board independence leads to a process of more rigorous monitoring of them (Guo & Masulis, 2015). The participation of external directors on the board also negatively affects the chance of the CEO being changed when the company presents below-expected performance (Dardour et al., 2018).

The details of monitoring CEOs are related with the agency problem (Jensen & Meckling, 1976). Their remuneration is often analyzed using the aspects of the agency problem as one of the possible solutions. Bertrand and Mullainathan (2001) show empirical results regarding the importance of the monitoring process in defining the CEO's remuneration.

There is a tendency for company performance to deteriorate before a change of CEO occurs and change announcements are perceived by the market with optimism and with positive abnormal returns on the share price, suggesting that investors generally analyze change of CEO announcements as good news for improving future company performance (Warner et al., 1988; Weisbach, 1988; Bonnier & Bruner, 1989; Huson et al., 2004).

The way the current CEO is substituted and the successor to the position is decided on also strongly affect the possibility of the company improving its performance (Huson et al., 2004; Khurana & Nohria, 2005).

Warner et al. (1988) presented a negative relationship between stock price performance and decisions on changes in company management. It warrants highlighting that the results obtained by the authors in the United States present different conclusions to the studies conducted in France by Dardour et al. (2018), in which management performance was presented with greater weight in explaining a CEO change.

Zagorchev (2013) investigated how a change of CEO announcement in the financial sector in the United States affects the stock market. The study focused on analyzing companies solely from the financial sector and showed that the CEO's type of departure is fundamental for understanding the market's subsequent reactions.

CEO changes are also presented as a way of communicating changes to the market and trying to recover legitimacy with investors and other stakeholders. There is evidence that the market responds positively to the announcement of a CEO change when the companies clearly signal a break from the old standards (Gangloff et al., 2016). These effects corroborate with the idea that investors are concerned about succession issues (Shen & Cannella, 2003).

The CEO's characteristics and profile affect the decision-making process and may be associated with unethical and opportunistic behaviors. One study with 68 Brazilian companies concluded that there is a positive correlation between narcissistic CEOs and tax avoidance practices (Araújo et al., 2020). Another study conducted with 227 companies listed on the B3 between 2010 and 2016 indicates that new CEOs tend to manage earnings through accounting choices within the limits of the norms to present better performance than that of their predecessors (Souza Neto et al., 2021).

A CEO change is understood by the market as uncertainty regarding the new strategies that may be adopted, as well as the ability of the new CEO. In the case of a forced CEO departure, volatility increases by 24% in the first year (Clayton et al., 2005). These results are in line with the findings of Pan et al. (2015) and Orekhova et al. (2019). Another recent study highlights the CEO's importance for the company's operational performance: when they are hospitalized for a 10-day period, the company presents a 0.5 percentage point reduction in its operational performance (Bennedsen et al., 2020).

In addition, studies indicate positive correlations between company performance and an external CEO being chosen for the position (Garcia-Blandon et al., 2019). Moreover, by analyzing whether CEOs have an MBA or not, they did not find any statistically significant differences; however, they highlight that those with training in engineering tend to present better performance (Garcia-Blandon et al., 2019). From analyzing the area of training in engineering, the results of the studies of Garcia-Blandon et al. (2019) are aligned with those of Murphy et al. (1991), when they focus on the relationships

between talent allocation and productivity growth in the United States. On the MBA aspect, Bertrand and Schoar (2003) indicate that a CEO with an MBA has a positive relationship with the performance of the business. Kaplan et al. (2012) highlight that performance is positively related with the CEO's abilities.

The recent literature on CEO changes has presented, as being of the utmost importance for companies, the decision on the type of origin of candidates: internal and external CEOs (Weisbach, 1988; Giambatista et al., 2005; Khurana & Nohria, 2005; Jalal & Prezas, 2012). The decision to change a CEO for a substitute from within the organization is related with reduced informational asymmetry in that choice process, since the members of the Board of Directors already have more detailed information on the candidate (Harris & Helfat, 1997; Tian et al., 2011).

One study of a causal nature presents evidence that a CEO unrelated with the family has high value for the company's management process (Bennedson et al., 2007). Bloom and Van Reenen (2007) indicate that poorer management practices are more common in family businesses, in which the management control was past to the eldest son. The strategic changes of internal CEOs have more incremental and continuous characteristics by focusing on existing organizational resources and by tending toward a view of strategic change that is more limited to previous experiences within the company itself (Zang & Rajagopalan, 2010).

Recent research shows that the activity of CEOs goes beyond merely administrative questions, as they occupy spaces that resemble that of celebrities. They are classified as celebrities when they achieve successful performance in different situations over time (Hayward et al., 2004; Treadway et al., 2009; Fleck et al., 2014). The superstar is a phenomenon that is of major importance in the modern world. In his seminal article, Rosen (1981) covers the economic effect of people who achieve superstar status.

The study of Malmendier and Tate (2009) presents evidence that an increase in the CEO's fame and power is intimately related with agency problems and that these executives tend to destroy company value in the long run. By becoming a superstar CEO, the dedication directed

toward activities that involve self-benefits, such as writing books, participating on the boards of other companies, and playing golf, starts to occupy the executive's agenda (Malmendier & Tate, 2009).

The study highlights the effect of value destruction over time after the CEO receives an award. Analyzing return on assets (ROA), those who win awards destroy company profitability in the two years subsequent to receiving the award. However, their total remuneration is positively affected after receiving the award (Malmendier & Tate, 2009).

Crespim Junior (2019), inspired by the studies of Malmendier and Tate (2009), presented a reinterpretation regarding the popularity of CEOs, addressing the Brazilian market. His results indicate an increase in their popularity in the period from 2013 to 2017. Under the aspect of company performance, the ROE and ROA indicators presented a positive relationship with CEO popularity. With regard to remuneration, the results obtained indicate that greater popularity is associated with higher remuneration.

Maia et al. (2018) studied the relationship between the manager's reputation and corporate performance from four perspectives: innovation, international, operational, and market. The researchers observed positive differences for market performance (measured by the market-to-book ratio) between managers with more and those with less reputation.

As the corporate communication process evolves and exposes the CEO and, as a result, the media and journalists focus on their image, a culture of fame is created (Hayward et al., 2004; Treadway et al., 2009; Fleck et al., 2014) that negatively affects their behavior and leads to a drop in company performance (Malmendier & Tate, 2009).

This article contributes to the research of Malmendier and Tate (2009) by focusing on executive changes and the role of superstar CEOs as managers of a new company. In addition, we evaluate announcements of the hiring of a new CEO considering the executives' origin (internal and external). With this, we explore the relevance of superstars and of the origin of the executives hired in terms of company performance and the market's reactions at the time changes are announced.

3. DATA AND EMPIRICAL STRATEGY

The analyses were carried out based on a single database containing 132 observations organized in a cross-sectional format after collecting and organizing information on companies listed on the Brazilian Stock Exchange (B3) for the period from January of 2010 to December of 2019. The information on each CEO was collected by searching the database of the Brazilian Securities and Exchange Commission (CVM) using a Reference Form. The company stock quotations and performance indicators were obtained from the Economática® system.

The superstar CEO variable was built based on an analysis of different awards received by them – similarly to the procedure adopted by Malmendier and Tate (2009) – and on the volume of Google searches for each one, similarly to various recent studies (Bank et al., 2011; Takeda & Wakao, 2014; Ekinci & Bulut, 2020).

As a first criterion, we evaluated different awards received by the executives. For that, nine potential widely-distributed and business-focused sources were mapped: *Forbes*, *Valor Econômico*, *Exame*, *Época Negócios*, *Você S/A*, *Você RH*, *HSM Management*, *Harvard Business Review (HBR)*, *Grupo Gestão RH (GGRH)*, and *Americas Society/Council of the Americas (AS/COA)*. Unfortunately, we perceived that the awards and recognition culture that is widespread in the U.S., which enabled the data to be collected in the study of Malmendier and Tate (2009), is not observed in a consolidated way in Brazil and only the awards attributed by *Forbes* and *Valor Econômico* were used. In *Forbes* it was possible to access seven editions between 2014 and 2019. In *Valor Econômico* it was possible to access 10 editions between 2010 and 2019 (one edition per year). It warrants mentioning that the seven editions of *Forbes* and the 10 editions of *Valor Econômico* are special publications dedicated to awards and highlights of the best CEOs every year. It should also be mentioned that CEO appearances in normal editions are frequent. However, such appearances do not represent an award as such and so they were not considered in the database for defining the superstar CEO variable.

In addition, as this study focused its attention on market perceptions, the proxy based on awards seemed to be insufficient. It is possible to imagine the existence of CEOs whose names are popularly known in the market

for their achievements, independently of them having received awards or not. Thus, by considering the result of searches carried out on Google for the name of each one of them, in the 12-month period prior to the month of the Material Fact, it is possible to establish a similar recognition criterion to the strategy adopted by Bank et al. (2011) for company recognition.

These data were collected using the SEMrush tool and, through it, the approximate results were obtained, for the 12-month period prior to the month of the event, of the total number of searches in Google Brasil, considering possible different forms of search with abbreviations or incomplete names. We should highlight that the empirical strategy of considering the number of Google searches for the CEO is similar to the method adopted by Crespim Junior (2019) in his study that proposes a reinterpretation of the study of Malmendier and Tate (2009) for the reality of the Brazilian market.

The criterion for defining the superstar CEO dummy variable took into consideration the combination of awards received and the quantity of searches for their name in the 12 months prior to the month of the hiring announcement by the company. Thus, the CEOs awarded by *Forbes* or by *Valor Econômico* or with a high quantity of Google searches in the year prior to the hiring announcements were classified as superstars (we analyzed the quantity of searches for all the executives in the sample and defined as superstar CEOs those executives with the highest quantity of searches). Therefore, this variable considers the award winners and executives with name searches above the 8th decile in the quantity of searches as a classification criterion.

The content derived from the Google search results was analyzed with caution. Cases of ethical scandals, corruption, management problems, or company difficulties can raise the result of searches for the CEO, making them a superstar not for better performance achieved or their high expertise in business-related analysis for the media, but rather for a problem involving them. To eliminate that, cases related to corruption scandals and indications of negative contents were not considered for defining a superstar CEO.

Table 1 presents a detailed description of the variables chosen based on the theoretical review of this paper.

Table 1
Definition of the explanatory variables

Group	Variable	Symbol	Definition
Variables of interest of the new CEO	Origin	Orig	Dummy for the new CEO's origin. If an external CEO is chosen it will be equal to 1.
	Superstar	Star	Dummy: if the CEO is a superstar they receive a value equal to 1.
Characteristics of the new CEO	Education	Edu	The CEO's years of study on a higher education course, considering graduate level, post-graduate level, MBA, Master's, or Ph.D..
	Area of training	Train	Dummy: for Engineering areas it equals 1 and other areas of training it equals 0. Garcia-Blandon et al. (2019) and Murphy et al. (1991) presented indications that training in engineering is associated with better performance.
	MBA, post-graduate, Master's, and/or Ph.D.	Post	Dummy variable with the value of 1 for CEOs who concluded an MBA, post-graduate, Master's, and/or Ph.D. course and 0 for CEOs only trained to graduate level or without full higher education.
	Gender	Gender	Dummy variable with the value of 1 for men and 0 for women.
	Years of experience	Exp	Years the new CEO has worked in management roles as clearly disclosed in the Material Fact of the Change of CEO or in the Reference Form of the CVM at the time the new CEO is registered.
Company variables	Rate of Return	ROA	Last information disclosed by the company before the date of the event. Calculation based on net income divided by total assets.
	Leverage	Lev	Last information disclosed by the company before the date of the event. Calculation based on total debt divided by net equity.
	Earnings per Share	E/S	Last information disclosed by the company before the date of the event. Company earnings in the period divided by the quantity of shares in circulation.
	Market-to-Book Ratio	M/B	Last information disclosed by the company before the date of the event. Market value of the company (share price multiplied by the quantity of shares in circulation) divided by the company's book value.
	Size	LnSiz	Last information disclosed by the company before the date of the event. Value of total assets expressed in natural logarithm.
	Governance	Gov	Dummy variable: the value is equal to 1 for companies classified as new market and level 2.

CVM = Brazilian Securities and Exchange Commission.

Source: Elaborated by the authors.

As a first investigation, this article analyzed the differences of means or proportions of the characteristics of the CEOs at the time of the change and the company's performance, immediately before the change announcement, separating the samples according to the variables of interest: origin (internal or external) and recognition and fame (normal or superstar).

The test statistics were used for the point estimator of the difference between the two sample means, as

a parameter for verifying the existence of differences between the CEOs for the groups, according to origin and recognition and fame.

To determine the decisions regarding hiring the new CEO, we used the discrete choice (Logit and Probit) models in a complementary way to the difference of means tests. The econometric specification for the probability models is expressed in formula 1.

$$Prob(y = 1|x) = G(\alpha_0 + \alpha_1 ROA_{it-1} + \alpha_2 Lev_{it-1} + \alpha_3 E/S_{it-1} + \alpha_4 M/B_{it-1} + \alpha_5 LnSiz + \alpha_6 Gov_{it-1} + \varepsilon_i)$$

1

in which Y is a dummy variable with a value of 1 for an external CEO and 0 for an internal one or 1 for a superstar CEO and 0 for a normal one; G is the cumulative distribution function (CDF), whose specific form depends on the estimator used (Logit or Probit); α_0 is the intercept; α_n are the coefficients for each one of the explanatory variables; and ε is the random error term. The other variables are defined in Table 1.

To investigate the effects of the change announcement on market perceptions, we adopted an event study as a technique. The procedure for estimating the expected return (\bar{R}_i) considers historical price information to define the estimation window. For daily data, the adoption of a 30-day minimum temporal window is recommended (Soares et al., 2002). The procedure adopted in this study considered as a standard pre-event window period the 100 days prior to the event window.

The expected return estimate (\bar{R}_i) was defined using simple linear regression, in which $\bar{R}_i = \alpha + \beta * R_{mt}$. The \bar{R}_i variable is the rate of expected return (normal return) on assets in a time period t , α is the intercept of the linear regression, R_{mt} is the market return in the specific days of the event window, and β is the angular coefficient of the

linear regression. In this study we considered the return on the São Paulo Stock Exchange Index (Ibovespa) as a proxy for market return.

The event study was conducted for three different event windows: one day before the event and one day after it (-1,+1), three days before the event and three days after (-3,+3), and five days before the announcement and five days after (-5,+5). As a premise, days without trading were eliminated for the historical series of quotations at the time of elaborating the estimation and event windows.

We used multiple regressions with estimation of the coefficients using ordinary least squares (OLS) to verify the relationships between the cumulative abnormal returns in the event windows and the variables of interest of the study (origin and superstar).

$$\begin{aligned} CAR_i = & \alpha_0 + \alpha_1 ROA_{it-1} + \alpha_2 Lev_{it-1} + \alpha_3 E/S_{it-1} + \alpha_4 M/B_{it-1} + \alpha_5 Gov_{it-1} \\ & + \alpha_6 LnSiz_{it-1} + \alpha_7 Edu_{it-1} + \alpha_8 Train_{it-1} + \alpha_9 Post_{it-1} + \alpha_{10} Gender_{it-1} \\ & + \alpha_{11} Exp_{it-1} + \alpha_{12} Orig_{it-1} + \alpha_{13} Star_{it-1} + \alpha_{14} Orig * Star_{it-1} + \varepsilon_i \end{aligned}$$

2

in which α_0 is the intercept; α_n are the coefficients for each one of the explanatory variables; and ε is the random error term. The other variables are defined in Table 1.

Finally, we investigated the relationship between the change of CEO decision, emphasizing the origin and

superstar variables, and company performance over time. We chose three indicators as a proxy for business results: ROA, as a measure of operational performance; E/S, as a measure of shareholder value; and market-to-book ratio (M/B), as a measure of the general perception of market value and growth opportunity.

4. RESULTS ANALYSIS

4.1 Descriptive Statistics

Table 2 presents the descriptive statistics of the companies' financial results variables, for a final sample of 132 observations.

The winsorization technique was adopted to carry out the analyses. We adopted 5% as a parameter for

the technique, due to the limited quantity of data in the database. Winsorization at 1% would represent an adjustment in only the highest value and lowest value and would not be enough to correct the distortions in the database.

Table 2
Descriptive statistics of the company variables

Companies (n)	Treatment	Descriptive statistic	Company indicators					
			ROA	Lev	E/S	M/B	Siz	Gov
132	Without winsorization	Minimum	-613.7	-14.2	-4819.6	-126.6	0.0	0.00
		Mean	-8.7	104.5	-91.5	0.4	47.9	0.76
		Maximum	73.1	450.5	1385.5	24.8	866.8	1.00
		Standard deviation	61.2	120.7	556.8	16.2	149.0	0.43
	Winsorization at 5%	Minimum	-34.3	0.0	-322.8	-0.5	0.2	0.00
		Mean	-1.7	103.9	-23.6	2.0	22.0	0.76
		Maximum	17.9	425.5	5.2	8.4	118.9	1.00
		Standard deviation	13.0	116.4	78.3	2.3	35.0	0.43

Note: The company financial result variables represent the available information immediately prior to the date of the change of CEO announcement. The set of variables “without winsorization” present the values obtained without any treatment in the adjustment. The set of variables “with winsorization” present the values after winsorization at 5% for the highest and lowest observations. Size in million BLR using total assets as a proxy.

Source: Elaborated by the authors.

Table 3 covers the characteristics of the new CEO for the final sample of 132 observations. The results are presented highlighting the variables of interest.

Table 3
Descriptive statistics of the characteristics of the new CEO variables

Characteristics of the CEO		Total		Origin				Fame/Recognition			
				Internal		External		Normal		Superstar	
		CEO (n)	%	CEO (n)	%	CEO (n)	%	CEO (n)	%	CEO (n)	%
TOTAL		132	100	92	70	40	30	97	73	35	27
Gender	Man	127	96	89	67	38	93	70	34	26	18
	Woman	5	4	3	2	2	4	3	1	1	0
Education	No higher education	4	3	4	3	0	4	3	0	0	0
	Full higher education	48	36	37	28	11	34	26	14	11	7
	MBA/post-graduate	63	48	38	29	25	49	37	14	11	8
	Master's/Ph.D.	17	13	13	10	4	10	8	7	5	4
Area of training (graduation)	Engineering	52	39	34	26	18	34	26	18	14	11
	Business	58	44	42	32	16	46	35	12	9	7
	Others	17	13	12	9	5	12	9	5	4	1
	None	5	4	4	3	1	5	4	0	0	0
Years of study	≤ 3 year	3	2	3	2	0	3	2	0	0	0
	4 to 5 years	47	36	36	27	11	34	26	13	10	7
	6 to 7 years	45	34	30	23	15	33	25	12	9	6
	8 to 9 years	15	11	10	8	5	10	8	5	4	3
	> 9 years	22	17	13	10	9	17	13	5	4	2
Years of experience in management roles	≤ 5 years	10	8	8	6	2	9	7	1	1	0
	5 to 15 years	53	40	35	27	18	39	30	14	11	7
	16 to 25 years	47	36	33	25	14	34	26	13	10	8
	26 to 35 years	16	12	11	8	5	11	8	5	4	3
	36 to 40 years	3	2	3	2	0	2	2	1	1	1
	> 40 years	3	2	2	2	1	2	2	1	1	0

Note: “%” represents the relative frequency based on the total quantity of CEOs contained in the database. Information at the time of the change of CEO announcement. Training in Business covers the areas of Management, Economics, and Accounting.

Source: Elaborated by the authors.

Before advancing with the analysis of the results of the regressions, we investigated possible multicollinearity problems among the variables of the study. Correlation and variance inflation factor (VIF) analyses indicate the absence of multicollinearity problems in the variables.

4.2 Differences between Companies and CEOs for the Variables of Interest

4.2.1 CEO characteristics

Table 4 presents the means and differences between means and proportions for the internal CEO and external CEO groups. The variables referring to years of study and having an MBA, post-graduate degree, Master's, or Ph.D.

were the only ones to present considerable differences between the means or proportions that were statistically significant at 10%.

The analysis of the "post" variable may suggest that decisions to promote internal CEOs are more based on the achievements and performance already presented by them in the company. These results are consistent with the discussions of Harris and Helfat (1997) and Tian et al. (2011) on the information asymmetry in the process of changing CEO. It would be reasonable to suppose that, when the CEO is external, using their educational trajectory and academic titles as a basis could help in reducing the information asymmetry of the process.

Table 4

CEO characteristics: differences for internal and external

CEO characteristics		Total		Origin of the new CEO					
				Internal CEO		External CEO		Difference	
		Mean or proportion	Standard deviation	Mean or proportion	Standard deviation	Mean or proportion	Standard deviation	Mean or proportion	<i>t test</i>
Gender	Man = 1	0.96	0.19	0.97	0.18	0.95	0.22	-0.02	-0.48
Post	MBA/Post-graduate/ Master's/ Ph.D. = 1	0.61	0.49	0.55	0.50	0.73	0.45	0.17	1.84*
Train	Engineering = 1	0.39	0.49	0.37	0.49	0.45	0.50	0.08	0.87
Edu	Schooling (years)	6.15	2.54	5.91	2.60	6.70	2.34	0.79	1.71*
Exp	Management roles (years)	16.96	9.51	17.14	9.89	16.55	8.69	-0.59	-0.34

Note: CEO characteristics for the total of 132 observations and for the internal CEO (92 observations) and external CEO (40 observations) subsamples. The means and standard deviations are presented for the CEO characteristic variables.

*** = $p < 0.01$; ** = $p < 0.05$; * = $p < 0.10$.

Source: Elaborated by the authors.

Table 5 presents the results of the means and proportions and the differences between means and proportions for the normal CEO and superstar CEO groups.

The variables referring to years of study and whether the CEO has an MBA, post-graduate degree, Master's, or Ph.D. do not present major differences for the normal CEO and superstar CEO groups and are not statistically significant. These results may mean that a formal education is not the main component for achieving superstar status and are in line with the ideas of various studies that indicate that they obtain fame according to the performance achieved during their management (Hayward et al., 2004; Treadway et al., 2009; Fleck et al., 2014).

The proportion of CEOs with training in engineering is, on average, 16% higher for the superstar group and statistically significant at 10%. These results corroborate the findings of Crespim Junior (2019) in his reinterpretation of the studies of Malmendier and Tate (2009) for Brazil. Considering that a superstar status is achieved based on the previous performance achieved, these results may suggest a greater concentration of engineers in the superstar CEO group in comparison with the normal group, which is aligned with the results of Garcia-Blandon et al. (2019) regarding the greater performance for those trained in Engineering and with those of Garcia-Blandon et al. (2019) regarding the higher growth rates in countries with a greater proportion of engineers.

Table 5*CEO characteristics: differences for normal and superstar CEOs*

CEO characteristics		Total		Fame/recognition of the new CEO					
				Normal CEO		Superstar CEO		Difference	
		Mean or proportion	Standard deviation	Mean or proportion	Standard deviation	Mean or proportion	Standard deviation	Mean or proportion	<i>t test</i>
Gender	Man = 1	0.96	0.19	0.96	0.20	0.97	0.17	0.01	0.34
Post	MBA/Post-graduate/ Master's/ Ph.D. = 1	0.61	0.49	0.61	0.49	0.60	0.50	-0.01	-0.09
Train	Engineering = 1	0.39	0.49	0.35	0.48	0.51	0.51	0.16	1.70 *
Edu	Schooling (years)	6.15	2.54	6.14	2.65	6.17	2.24	0.03	0.06
Exp	Management roles (years)	16.96	9.51	16.30	9.66	18.80	8.95	2.50	1.39

Note: CEO characteristics for the total of 132 observations and for the normal CEO (97 observations) and superstar CEO (35 observations) subsamples. The means and standard deviations are presented for the CEO characteristics variables.

*** = $p < 0.01$; ** = $p < 0.05$; * = $p < 0.10$.

Source: Elaborated by the authors.

Table 4 presents initial evidence that education and the obtainment of academic titles are more relevant for decisions to hire external CEOs. With regard to superstar CEOs, the results in Table 5 show no differences for the aforementioned characteristics, which may indicate that the choice of them is based on their experience and previously achieved performance.

4.2.2 Company performance before the change of CEO announcement

Table 6 presents the means and differences between

means for the normal CEO and superstar CEO groups in relation to the company performance variables.

From interpreting the differences of means, it is possible to verify whether company characteristics are associated with a greater chance of the CEO chosen being a superstar. We found positive differences of means that were statistically significant at 1% for the ROA and Size performance variables. The M/B variable presented a positive difference that was statistically significant at 10%. Governance presented a difference that was statistically significant at 5%.

Table 6*Company performance: differences for normal and superstar CEOs*

Company performance (result prior to the date of the event)		Total		Fame/recognition of the new CEO					
				Normal CEO		Superstar CEO		Difference	
		Mean or proportion	Standard deviation	Mean or proportion	Standard deviation	Mean or proportion	Standard deviation	Mean or proportion	<i>t test</i>
ROA	Return on Assets	-2.18	12.51	-4.14	13.84	4.93	7.26	9.07	4.74***
Lev	Debt over NE	110.39	117.11	103.19	119.89	105.80	107.65	2.61	0.12
E/S	Earnings per Share	-24.90	80.62	-29.09	84.79	-8.22	54.81	20.87	1.62
M/B	Market-to-Book	1.79	2.04	1.74	2.18	2.66	2.44	0.93	1.95*
Siz	Ln Assets	15.60	1.83	15.11	1.90	16.46	1.49	1.35	4.18***
Gov	Governance = 1	0.75	0.43	0.71	0.46	0.89	0.32	0.17	2.02**

Note: Company performance for the total of 124 observations and for the normal CEO (89 observations) and superstar CEO (35 observations) subsamples. The means and standard deviations are presented for the company performance variables after winsorization at 5%.

*** = $p < 0.01$; ** = $p < 0.05$; * = $p < 0.10$.

Source: Elaborated by the authors.

The differences observed suggest that bigger companies have more chance of hiring a superstar CEO than smaller ones. These results can be directly associated with the effect that superstar status has on CEO remuneration, as discussed in the studies of Malmendier and Tate (2009).

ROA and M/B can also be associated with greater company capacity to hire a superstar CEO. It seems reasonable to affirm that the concentration effect of superstars on a limited number of people who earn a significant amount of money, as described by Sherwin Rosen (1981), is a factor that limits the capacity of smaller companies or those with low earnings to access these professionals.

Table 7 presents the coefficients for the models of the probability of the new CEO being a superstar, according to company performance prior to the change announcement. The results for the coefficient signs and statistical significance of the regression estimators generally converge with the same results obtained by the differences test. Through the initial analyses of differences between means and based on the Logit and Probit regressions we can highlight that companies with more assets and better operational performance (ROA) have a greater probability of choosing a new CEO with superstar status.

Table 7
Logit and Probit estimation results for superstar CEOs

Company performance	Dependent variable: Fame/recognition of the CEO (superstar CEO = 1)							
	Without winsorization				Data winsorized at 5%			
	Logit		Probit		Logit		Probit	
	Coefficient	Marginal effect	Coefficient	Marginal effect	Coefficient	Marginal effect	Coefficient	Marginal effect
Constant	-7.700*** (2.2405)	-	-4.616*** (1.3042)	-	-8.677*** (2.7171)	-	-5.070*** (1.5621)	-
ROA	0.0512 (0.0314)	0.005	0.0292 (0.0178)	0.005	0.1068** (0.0467)	0.016	0.0547** (0.0247)	0.015
Lev	-0.0004 (0.0013)	0.000	-0.0002 (0.0007)	0.000	0.0001 (0.0025)	0.000	0.0000 (0.0015)	0.000
E/S	0.0009 (0.0013)	0.000	0.0004 (0.0007)	0.000	-0.0043 (0.0048)	-0.001	-0.0019 (0.0027)	-0.001
M/B	0.1462* (0.084)	0.014	0.0931* (0.0517)	0.016	0.1098 (0.1349)	0.016	0.0750 (0.0807)	0.021
Siz	0.3480*** (0.1284)	0.032	0.2067*** (0.0752)	0.036	0.4106** (0.1598)	0.060	0.2373** (0.0929)	0.065
Gov	1.0398 (0.6571)	0.080	0.6506* (0.374)	0.093	0.8973 (0.6423)	0.114	0.5887 (0.3723)	0.140
Pseudo-R ²	21.0%		21.3%		21.8%		21.7%	
LL	-58.3		-58.1		-57.7		-57.7	
Observations	124		124		124		124	

Note: Estimation results of the non-linear probability models (Logit and Probit). The results present the estimated coefficients and marginal effect. Standard errors are presented in parentheses. LL is an abbreviation for log-likelihood. The sample went from 132 observations to 124 due to the exclusion of financial companies in the regression.

*** = $p < 0.01$; ** = $p < 0.05$; * = $p < 0.10$.

Source: Elaborated by the authors.

4.3 Event Study Results

Table 8 presents the mean cumulative average abnormal return (CAAR) values for different event windows and the difference of means tests for the groups related to the CEO's origin and their status of recognition and fame.

By analyzing differences in CAAR for the events separated between internal and external CEO, it is possible to note that, for all the event windows, the

results presented positive differences. For the (-1,+1) event window, the result was statistically significant and reveals that the abnormal returns related with a CEO change are more expressive at the time the information on the change occurs.

In the case of a superstar CEO, the result was positive for the (-1,+1) and (-5,+5) windows. No statistically significant differences were observed for the event windows.

Table 8*Differences in CAAR in relation to the CEO's origin and status of fame and recognition*

Characteristics of the new CEO	N°CEO	CAAR [-1;+1]		CAAR [-3;+3]		CAAR [-5;+5]		
		Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation	
TOTAL	132	0.09%	9.22%	0.31%	12.46%	-0.99%	13.40%	
CEO's origin	Internal	92	-0.77%	9.40%	-0.72%	12.78%	-1.90%	13.50%
	External	40	2.11%**	8.91%	2.71%**	11.87%	1.11%	13.35%
	Diff.		2.88%*	1.72%	3.43%	2.30%	3.01%	2.54%
Superstar CEO	Normal	97	0.03%	10.47%	0.67%	14.10%	-1.48%	14.78%
	Superstar	35	0.26%	4.21%	-0.71%	6.10%	0.36%	8.69%
	Diff.		0.23%	1.28%	-1.38%	1.76%	1.84%	2.10%

Note: Company performance for the total of 132 observations and for the CEO origin and status of recognition and fame subsamples. The means and standard deviations are presented for the CAAR of the total and events.

*** = $p < 0.01$; ** = $p < 0.05$; * = $p < 0.10$.

Source: Elaborated by the authors.

Table 9 presents the results of the relationships between the abnormal returns of each event with the variables of interest: origin and superstar CEO. We considered the cumulative abnormal return (CAR) for each event window. For the superstar CEO variable, we used the search criterion concerning the 8th decile for the quantity of Google searches.

For the first three results of the regressions without the inclusion of control dummies for sector and year, we found positive correlations that were statistically significant at at least 10% for the CEO's origin in all the event windows. The superstar CEO variable and the interaction between origin and superstar were shown to be statistically significant for the results of regressions (1) and (3). The coefficients

of the variables of interest and their interaction present evidence that external and superstar CEOs are positively correlated with higher abnormal returns.

The results for the regressions with the inclusion of control dummies for sector and year were statistically significant for the CEO origin variable and the interaction between CEO origin and superstar was only statistically significant for the (-1,+1) event window. Nonetheless, the signs and magnitudes of the coefficients do not present expressive changes with the inclusion of the control dummies. The nature of the change of CEO event appears to exert a short-term effect on market perception and provides greater explanatory strength for regressions (1) and (4) precisely because they consider shorter event windows.

Table 9*Coefficients of ordinary least squares (OLS) regression*

Variables	Dependent variable: CAR with 100-day prediction window					
	Variables of interest: CEO origin and superstar CEO					
	(1)	(2)	(3)	(4)	(5)	(6)
	CAR(-1;1)	CAR(-3;3)	CAR(-5;5)	CAR(-1;1)	CAR(-3;3)	CAR(-5;5)
Constant	0.0317 (0.0924)	-0.0238 (0.1089)	-0.0113 (0.1247)	0.0142 (0.1018)	0.0010 (0.1345)	-0.0250 (0.1398)
ROA	0.0016 (0.0011)	0.0025* (0.0014)	0.0043*** (0.0015)	0.0018 (0.0013)	0.0033** (0.0013)	0.0056*** (0.0015)
Leverage	0.0002** (0.0001)	0.0002** (0.0001)	0.0002* (0.0001)	0.0002* (0.0001)	0.0003** (0.0001)	0.0002 (0.0001)
Earnings per Share	0.0001 (0.0001)	0.0001 (0.0001)	0.0000 (0.0002)	0.0000 (0.0001)	-0.0000 (0.0002)	-0.0002 (0.0002)
Market-to-Book	-0.0147** (0.0058)	-0.0181*** (0.0067)	-0.0254*** (0.0075)	-0.0148*** (0.0055)	-0.0190*** (0.0067)	-0.0242*** (0.0072)
Governance	-0.0371* (0.0219)	-0.0127 (0.0318)	0.0070 (0.0318)	-0.0349 (0.0242)	-0.0135 (0.0340)	-0.0076 (0.0378)
Size (Ln Assets)	-0.0020 (0.0056)	0.0020 (0.0075)	-0.0051 (0.0079)	-0.0031 (0.0058)	0.0029 (0.0082)	-0.0037 (0.0089)

Table 9
Cont.

Variables	Dependent variable: CAR with 100-day prediction window					
	Variables of interest: CEO origin and superstar CEO					
	(1)	(2)	(3)	(4)	(5)	(6)
	CAR(-1;1)	CAR(-3;3)	CAR(-5;5)	CAR(-1;1)	CAR(-3;3)	CAR(-5;5)
Education	0.0036 (0.0044)	0.0013 (0.0064)	0.0064 (0.0072)	0.0049 (0.0052)	0.0017 (0.0074)	0.0075 (0.0079)
Engineering Training	-0.0234 (0.0170)	-0.0287 (0.0211)	-0.0188 (0.0243)	-0.0260 (0.0191)	-0.0360 (0.0239)	-0.0309 (0.0254)
Post-graduation	-0.0301 (0.0217)	-0.0525* (0.0288)	-0.0668** (0.0308)	-0.0259 (0.0244)	-0.0492 (0.0329)	-0.0638* (0.0352)
Gender	0.0593* (0.0302)	0.0985*** (0.0357)	0.1403*** (0.0449)	0.0569 (0.0354)	0.0770 (0.0473)	0.1036* (0.0559)
Experience	-0.0020** (0.0009)	-0.0036*** (0.0011)	-0.0030** (0.0013)	-0.0022** (0.0008)	-0.0043*** (0.0013)	-0.0036** (0.0014)
CEO_Origin	0.0471** (0.0218)	0.0560* (0.0292)	0.0659** (0.0324)	0.0494* (0.0255)	0.0399 (0.0312)	0.0387 (0.0373)
Superstar_CEO	0.0410** (0.0197)	0.0169 (0.0247)	0.0540* (0.0299)	0.0368* (0.0205)	0.0066 (0.0271)	0.0495 (0.0350)
Origin*Superstar	-0.0536** (0.0258)	-0.0573 (0.0377)	-0.0918** (0.0452)	-0.0700** (0.0303)	-0.0486 (0.0440)	-0.0772 (0.0552)
Dummy (year)	No	No	No	Yes	Yes	Yes
Dummy (sector)	No	No	No	Yes	Yes	Yes
Observations	124	124	124	124	124	124
R-squared	0.2495	0.2378	0.2454	0.3124	0.3058	0.3196

Note: Results of the ordinary least squares (OLS) estimations for CAR dependent variables in different event windows. Robust standard errors of the coefficients are presented in parentheses. Company variables winsorized at 5%. The sample went from 132 to 124 due to the exclusion of financial companies in the regression.

*** = $p < 0.01$; ** = $p < 0.05$; * = $p < 0.10$.

Source: Elaborated by the authors.

Focusing on the (-1,+1) event window, we can verify that CEOs hired externally from the market are better evaluated by the shareholders of the hiring company at the time of the announcement. The result of the regressions for the CAR presents, on average, a positive effect of 4.71% (without controlling for the year of change and operating sector) and 4.94% (controlling for the year and sector information) for CEOs with an external origin compared with internal executives.

The result is similar for superstar CEOs. On average, the market attributes a positive difference of 4.10% (without controlling for the year of change and operating sector) and 3.68% (controlling for the year and sector information) for executives classified as stars.

The result of the coefficient of interaction between the superstar CEO and origin variables is negative. However, the average result attributed to the CAR (CEO_Origin + Superstar_CEO – Origin*Superstar) is positive, signaling that an announcement of the hiring of external and superstar CEOs is well received by the market.

With this, the results regarding the origin of the CEO are consistent with the findings of Bennedsen et al. (2007), whose research highlighted that external executives present better performance than internal ones. Our results show that, at least for the window closest to the event, the market reacts positively to an announcement of the hiring of an external CEO. In addition, our study also reveals that, on average, the market reacts positively to an announcement of the hiring of a superstar CEO, which we think is surprising considering the results of Malmendier and Tate (2009), whose performance of executives after they are classified as superstars worsens over time.

With regard to the control variables, companies with better operational results (ROA) appear to be associated with higher positive abnormal returns. The M/B variable presents negative and statistically significant relationships with abnormal return and may suggest that investors interpret a change of CEO in companies with future growth opportunities as a sign of greater uncertainty and

business risk, as indicated in other studies (Clayton et al., 2005; Pan et al., 2015; Orekhova et al., 2019).

Despite the “Gender” variable presenting statistical significance for various windows, the database has only five women, thus not enabling in-depth analyses for the variable. We also verified that the “Experience” variable presented a negative and statistically significant coefficient for all of the regressions. These results appear to converge with other studies that indicate that the CEO’s previous experience is negatively related to the company’s financial performance after the succession process (Hamori & Koyuncu, 2015). These relationships are particularly observed when the succession context is similar to the CEO’s previous role (same industry or similar-sized organization) and appear aligned with the studies of Serra et al. (2016), in which specific experiences present negative relationships with company performance.

4.4 CEO Change and Long-Term Value Creation

Three variables were chosen as a proxy for the organization’s performance: (i) ROA, for the CEO’s operational performance; (ii) E/S, aiming to capture the value for the shareholder; and (iii) M/B, as a measure

of the general perception of the company’s value and opportunity for growth in the future.

To obtain a comparison parameter, we used the mean performance of all the companies in the same sector, in the same comparison period before and after the event.

For various indicators, the companies that decided to change CEO present performance below the sector average. This observation converges with the idea that changing CEO is related with poor performance (Dardour et al., 2018).

The result – 12 months before the change event and immediately before the change for return on assets – does not present expressive differences between the companies that chose an internal CEO and those that chose an external one. However, internal CEO decisions present an accelerated drop in operational performance in the subsequent 24 months and an improvement after three years, while in the case of an external CEO, the operational performance recovery process occurs more quickly. These results are in line with the idea that external CEOs are more likely to make deeper strategic changes in the business, while internal ones tend to carry out incremental improvements (Zhang & Rajagopalan, 2010), as shown in Figure 1.

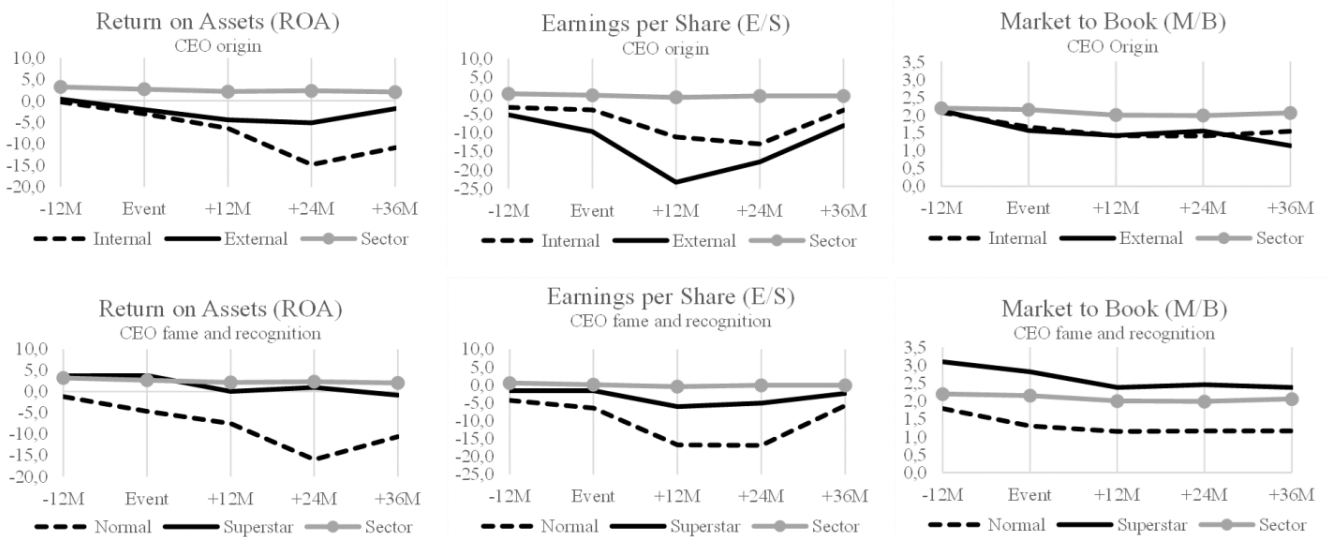


Figure 1 Graph with company performance after the CEO change separated by CEO origin and CEO recognition and fame
Note: Comparison between the sector mean and the companies in the sample, separated according to the choice between an internal CEO and external CEO for the set of CEO origin graphs and a normal CEO and superstar CEO for the set of CEO fame and recognition graphs. “Event” represents the information available immediately before the change announcement. “xxM” represents the period in months, before and after, based on the date of the event.

Source: Elaborated by the authors.

The ROA for companies that choose to hire a superstar CEO is very similar to the sector average and presents expressive differences when compared to the group of normal CEOs. It seems coherent to infer that a company change for a superstar CEO is related to a challenge outside their comfort zone and greater monitoring of the Board of Directors. Thus, we can consider the distractions observed by Malmendier and Tate (2009) to potentially be smaller when the CEO assumes the position in a different company.

From observing the earnings per share indicator, superstar CEOs appear to be capable of maintaining a more stable profitability trend and greater speed of recovering earnings per share compared with normal CEOs. It warrants mentioning, however, that there are

considerable differences between the companies in the two groups and it is not possible to clearly distinguish whether that difference is associated with the superstar CEO's ability or with aspects of the hiring company itself.

Companies that choose to hire a superstar CEO present an M/B indicator above the sector average. As discussed in previous studies (Hayward et al., 2004; Treadway et al., 2009; Fleck et al., 2014), a CEO is classified as a superstar due to their positive past performance. The market value to book value ratio provides a perception concerning the growth opportunity of that company in the future and the choice of a superstar CEO may be associated with their history of achievements in the past and the search for a professional capable of meeting the high market expectation regarding growth opportunities in the future.

5. CONCLUSION

This article investigated decisions to change CEO, from the viewpoint of the new CEO's characteristics and the possible consequences in the organization. Previous research with Brazilian companies has addressed the subject of superstar CEOs, however, as far as we know, this is the first study in Brazil to explore the recognition and fame of a CEO observing the change event and the effects on company performance and on stock market perception.

Few differences were found in internal and external CEOs' characteristics. On average, external ones present a greater concentration of observations with post-graduate, MBA, Master's, and Ph.D. titles and, on average, they study for longer than internal CEOs.

Bigger companies (total assets), with a higher ROA and better market value to book value ratio (M/B) have a greater chance of choosing a superstar CEO. These differences may indicate that access to these professionals is more limited and that only bigger companies with major future growth potential have real access to them.

In the event study analyses, we found evidence that changing CEO affects the market's perception and presents abnormal returns on shares. The results of the OLS regression suggest that external CEOs and superstar CEOs are correlated with higher abnormal returns, primarily for the (-1,+1) event window.

The results presented in this study should be analyzed with caution. The change of CEO is endogenous and does not enable causality conclusions to be addressed. In addition, the sample has only 132 cases in total, which limits more in-depth conclusions based on the regressions models.

In the short run it is possible to observe that changing CEO also has a negative effect on company performance

for the ROA, E/S, and M/B indicators and that internal CEOs appear to take more time to modify that trend when compared with external ones. These results corroborate the idea that internal ones have a greater chance of adopting an incremental process of changes while external ones have a greater propensity for more radical changes in the short run (Zhang & Rajagopalan, 2010).

The group of companies that decided to hire a new CEO with superstar status presents an M/B indicator above the sector average, while companies with normal CEOs present performance below the sector average. A first aspect may be related to the profile of the company and limited access to these professionals. However, it is also possible to infer that decisions to hire a superstar CEO may be related with market expectations and with future growth opportunities and choosing a superstar CEO may be a strategy adopted considering professionals who, in the past, have already achieved notable performance.

Despite the endogenous aspect of the decision to change CEO, the analyses conducted in this study broaden the discussion regarding a subject that remains underexplored in Brazil. The results presented have academic and practical relevance for the discussions on changing CEOs. Besides the academic contribution highlighted throughout the article, this research provides practical relevance for corporate decisions, as it indicates the effects of changing CEO on company performance and how choosing an external or internal CEO or superstar or normal CEO can affect future results.

For future studies, we suggest a more in-depth analysis in relation to the circumstances of the change, taking into consideration the characteristics of the CEO who leaves the role.

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