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Why do companies frequently acquire?

Por que as empresas realizam aquisições com frequência?

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Keywords
Frequent Acquirers.
Acquisition Experience.
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Abstract

Despite the relevance of frequent acquisitions as a corporate strategic program, little is known about the reasons for its occurrence. Studies focus on identifying the factors that determine the first acquisition, disregarding that companies can engage in successive events. To fill this gap, this study identifies the reasons that lead companies to become frequent acquirers, comparing them with what is already known about the motivations for the first acquisition. By Logistic and Poisson Regressions, we identified that the predictors of the first acquisition contribute to explain the frequency of occurrence of these events. Also, acquisition frequency can be considered a strategy to support business competitiveness, which has the executives' self-interest as its primary driver.

Palavras-chave
Adquirentes Frequentes.
Experiência em Aquisições.
Aquisições Corporativas.

Resumo

Apesar da relevância das aquisições frequentes como um programa estratégico corporativo, sabe-se pouco sobre os motivos de sua ocorrência. Os estudos focam na identificação dos fatores que determinam a primeira aquisição, desconsiderando que as empresas podem se envolver em sucessivos eventos. Para preencher essa lacuna, este estudo identifica os motivos que levam as empresas a se tornarem adquirentes frequentes, comparando com o que já se sabe sobre as motivações para realização da primeira aquisição. Por meio de Regressões Logísticas e de Poisson, identificamos que os preditores da primeira aquisição contribuem para explicar a frequência desses eventos. Ainda, a frequência de aquisições pode ser vista como uma estratégia para manter a competitividade da empresa, cujo principal propulsor é o auto interesse dos principais executivos.

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Pratical implications

Companies carry out acquisitions often as part of a strategy, according to industry characteristics and associated with the proportion of shares owned by the Chief Executive and their presence in the Council. The frequency is less associated with the financial conditions of the acquiring company in the year of the operation. These results show that, for the American market, businesses employ acquisitions strategic pattern, not as isolated actions.

1 INTRODUCTION

Acquisitions are a crucial strategy in the corporate world. Between 2012 and 2017, more than 27 trillion dollars were invested in these events worldwide (Statista, 2018). In parallel to this practical importance, both in financial and strategic terms, acquisition activities have become a focus of study in several academic fields, such as strategic management, finance, and sociology.

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Research on this topic has generated considerable knowledge and shown important facts about the trends and characteristics of this phenomenon (Arikan & Stulz, 2016; Dodd, 1980; Ghosh, 2004; Haleblian, Devers, McNamara, Carpenter, & Davison, 2009). One of the main lines of research was based on identifying the antecedents of the acquisitions (Dietrich & Sorensen, 1984; Erdogan, 2012; Hannan & Pilloff, 2009; Palepu, 1986). A range of determining factors related to managerial self-interest, to environmental factors, and characteristics of the company and the business have been identified and widely researched (see Haleblian et al., 2009).

However, when reviewing the antecedents of acquisitions, most researches consider only focal acquisitions, usually the first acquisition made by a company (Dietrich & Sorensen, 1984; Erdogan, 2012; Hannan & Pilloff, 2009; Palepu, 1986). Thus, they ignore that companies can engage in successive acquisitions during their existence. This is intriguing because a general data analysis on acquisitions is enough to realize that performing acquisitions often is an increasingly common corporate behavior (Al Rahahleh & Wei, 2012).

Some scholars have recognized the frequency of acquisitions as a mechanism from which companies learn, by experience, to better manage the acquisition processes (Aktas, de Bodt, & Roll, 2013; Haleblian et al., 2009). On the other hand, some researchers are still skeptical in this regard (Hayward, 2002; Kusewitt, 1985; Zollo & Singh, 2004). This is because, if the central argument is to learn to acquire by experience, it would be expected that the more the company acquires, the better the performance of acquisitions and, as a result, the higher the frequency with which this type of business is conducted.

However, the increased frequency of acquisitions does not seem to be motivated by the performance achieved by the company in previous events, since they continue to acquire even when researches report negative or null relations between the experience and the performance of a focal acquisition (Hayward, 2002; Kusewitt, 1985; Zollo & Singh, 2004).

Simple accumulation of experience does not affect the performance of the company. It is only in the cases in which acquiring companies are able to discriminate between their acquisitions properly, i.e., separate acquisitions that are similar in sectoral terms from those that are not, that the codification of knowledge can positively influence the acquisition performance (Haleblian & Finkelstein, 1999; Zollo & Sing, 2004). That is, it takes time to learn how to acquire and, in between, it is a fact that the frequency increases because 60% of all acquisitions carried out in the world are made by frequent acquirers (Henningsson, 2014).

Therefore, organizations can ignore the results obtained in previous acquisitions. Thus, it is possible that the company behavior, regarding conducting acquisitions often, depends on the experience, but not on the performance of past events. That is because companies tend to ignore the inferences regarding the performance of previous acquisitions, especially when they raise questions about the merits of a focal acquisition (Haunschild, Davis-Blake, & Fichman, 1994). This fact is reinforced because the frequent acquisition is considered a strategic program, which already at an early stage has its impact on the planned long-term performance of the firm (Barkema & Schijven, 2008).

The frequency of acquisitions seems to be affected by the company's experience with this type of event. This fact shows that the classical variables, considered determinants of the first acquisition, are insufficient to explain this behavior. Also, research has made inferences about the determinants of acquisition frequency in a fragmented way, not providing a unified view of the motivations underlying this behavior and thus leaving a remarkable gap in this literature.

In this context, this research analyzes the reasons that lead companies to become frequent acquirers, from what is already known about the motivations for the first acquisitions. We use the classic determinants of acquisitions along with the experience in these activities to explain the frequent acquisition behavior of companies. Logistic and Poisson regressions were performed with longitudinal data to examine a sample of 1,286 publicly traded American companies. This research is a pioneer by presenting empirical evidence that the classic predictors of first acquisition contribute, along with the company's experience with these activities, to explain the acquisition behavior. Besides, our results are an essential contribution to explain part of the reasons why organizations perform acquisitions often, even when there is a consensus that the results obtained with these activities are mostly null or negative.

2 THEORETICAL FRAMEWORK AND RESEARCH HYPOTHESES

2.1 Determinants of acquisitions

The literature presented a range of reasons that explain the occurrence of the first acquisition of a company. They include the managerial self-interest, represented by executives' greed and the pursuit of self-aggrandizement (Ferreira et al., 2014; Haleblian et al., 2009). Managerial self-interest is one of the main explanations for the destruction of value in acquisitions (Capron & Pistre, 2002). According to Brown and Sarma (2007), negative returns for shareholders of the acquiring companies can be explained by the costs of an agency, that is, because the executives carry out acquisitions to increase their wealth and status. Similarly, they can be explained by the power of the Chief Executives of companies, since they are the most powerful members of the corporate elite and can seek to impose their will on the other members (Brown & Sarma, 2007).

The literature also points out different characteristics of the company, business, and environment as engines of acquisitions. The characteristics of the company represent the traits that can help or hinder the participation of an enterprise in acquisition activities (Haleblian et al., 2009). They include company size, free cash flow, leverage, and company performance (Haleblian et al., 2009; Masulis, Wang & Xie, 2007).

Regarding size, Akhigbe, Madura, and Whyte (2004) show that the probability of larger companies acquiring smaller ones is higher because of the high costs of the transaction and post-deal integration. In the case of frequent acquirers, size is a predictor because it can affect the strategic choices of an organization since large companies are subject to inertia forces and, therefore, more likely to repeat their previous actions (Haleblian, Kim, & Rajagoplan, 2006). Free cash flow and leverage are antecedent factors because companies with more resources available and/or with a better capacity to raise external financing are more prone to acquiring than those with less capacity (Masulis et al., 2007).

The acquisition literature has also paid special attention to company performance. Although this literature still does not address the real effects of the following acquisition strategy on the performance of new acquisitions, effects of the performance of the acquiring company on its next performance have already been documented. Heron and Lie (2002), for example, show that acquiring companies with strong operational performance before the acquisition continued to have such performance.

Tobin's q, which represents the company's investment opportunities, is a way to capture this performance, given its implicit positive association with the future cash flows of the company (Fu, Singhal & Parkas, 2016). Another metrics of performance found in the acquisition literature is the Market Share. Ghosh (2004) states that acquisitions are a way for the company to increase its Market Share, seeking greater market power, reducing sector competition, and benefiting from monopoly revenue. In this sense, the performance of the acquiring company possibly affects the occurrence of these events.

Business characteristics are understood as predictors and indicators of success or failure in acquisitions (Haleblian et al., 2009). One of the main characteristics, pointed by the literature is the relative size of the acquisition. The results show that the business value positively affects the likelihood of a future acquisition. This is possibly related to the fact that a major acquisition can be seen as a more important event than a smaller one, and if the performance achieved is positive, it can boost the confidence of the acquirer more than a similar result obtained from a minor acquisition and thus promote further acquisitions (Haleblian, Kim, & Rajagopalan, 2006).

Environmental characteristics act as a selection mechanism in the classic evolutionary sense, assigning a context to acquisitions and providing feedback on the value and viability of the current behaviors of the organization (Zollo & Winter, 2002). The main environmental characteristic, directly identified to the likelihood of occurrence of these events, is the density of acquisitions in the sector since companies tend to acquire more to mimic the strategies of others, wishing to obtain the same results (Haleblian, Kim & Rajagoplan, 2006). Therefore, the literature on the determinants of acquisitions is extensive and allows one to infer that:

H_{1a}: Managerial self-interest, environmental factors, and characteristics of the company and the business are determinants of the first acquisition of a company.

H_{1b}: Managerial self-interest, environmental factors, and characteristics of the company and the business are determinants of the acquisition frequency of a company.

2.2 Effects of experience on the frequency of acquisitions

In the previous topic, we argued that managerial self-interest, environmental factors, characteristics of the company and the business are determinants of the acquisition frequency of a company. However, when engaging in more than one event, the company starts to gain experience in the acquisition process, which is possibly a predictive factor for new events (Haleblian, Kim, & Rajagoplan, 2006; Peng & Fang, 2010). Accordingly, we propose that the experience added to the already known predictors of the first acquisition can explain the frequent occurrence of these events.

This argument is based on the literature on behavioral learning, which suggests that the behavior of companies is driven by experience-based routines (Levitt & March, 1988; Nelson & Winter, 1982). Specifically, this literature argues that organizations learn when performing tasks and that the knowledge gained from experience is stored in their routines, thus becoming records in their history (Nelson & Winter, 1982).

According to Baum, Li, and Usher (2000), choices and actions encoded in routines are more likely to be accepted by the organizational members and decision-makers. The literature provides evidence that the members, who have experience with a strategic action tend to repeat the same action later (Haleblian, Kim & Rajagopalan, 2006).

Amburgey and Miner (1992), when explaining the occurrence of dull moments in acquisition activities, call this trend of the organization in maintaining the strategic direction of previous actions in a current strategic behavior of strategic moment. The authors use the concept of inertia to justify the fact that companies experienced in a particular acquisition type – vertical, horizontal, or conglomerate – are more likely to follow the same pattern later. Haleblian, Kim, and Rajagoplan (2006) also present results consistent with the idea that organizational routines, once established, are subject to inertial pressures. The authors show that acquiring companies are more likely to acquire as they gain experience with a particular acquisition, similar or not.

In the literature, acquisitions related to the same industry of the acquiring company are commonly associated with the quest for greater participation and market power (Anand & Singh, 1997; Ghosh, 2004). In turn, acquisitions not related to their industry account for acquisitions with a focus on financial synergies.

Therefore, theoretical and empirical evidence posit a deterministic relationship between experience and internal actions of an organization, consistent with allegations that companies are more likely to repeat a strategic action when they have prior experience in such action (Gulati, 1995). This is because, although decision-makers of organizations are not initially sure about the results of their activities, repeating the action leads to greater experience, increasing confidence and reducing uncertainties as the understanding and the ability to execute the routines improve (Levitt & March, 1988). The arguments allow one to infer that:

H_2: The experience of a company in previous acquisitions, whether from its industry or a different one, raises its acquisition frequency.

3 METHODOLOGY

Research hypotheses were tested by longitudinal data on a sample of American non-financial publicly traded companies. The analyses include the period between January 1996 and December 2014. The data were obtained in two different databases and then combined. Acquisition information was collected from Thomson Financial's SDC Database and financial and market information, from Compustat.

To form the sample of acquiring companies, all businesses encoded as an acquisition of majority stake announced and completed from January 1, 1996 to December 31, 2014 were selected. We kept in the sample only companies in which the acquirer controlled less than 50% of the shares of the target firm before the announcement date and more than 90% following the acquisition (Bena & Li, 2014). Following the literature on the topic, we required that: (1) the value of the deal was equal to or over US$ 1 million (in 1996 dollars), to eliminate economically insignificant transactions; (2) the transaction was unconditional and complete; (3) the acquiring companies were not part of the financial sector nor the utilities sector; (4) the acquirers had at least three years of financial data prior to the announcement dates available in the database (Bena & Li, 2014).

To form the control sample, we considered one of the main criticisms of acquisition studies: the fact of acquiring companies often being compared to others that do not capture the perspectives of the company if there was no deal, leading to biased estimates (Bena & Li, 2014). To minimize this problem of sample heterogeneity to form the control group, we used propensity score matching, a method that aims to reduce selection bias by searching businesses similar or paired regarding observable characteristics (Rosenbaum & Rubin, 1983).

To this end, we downloaded from Compustat all companies active between 1996 and 2014, excluding those from the financial and utility sectors. Later, we excluded from this group of companies those already identified as acquirers in Thomson Financial's SDC Database. From this information, we started the pairing process by Stata 12. Acquiring companies were combined with non-acquirers first by sector (Standard Industry Classification of 2 digits) and then by propensity scores estimated from a size and book-to-market indices.

For each acquisition announced in year t, a minimum of two (2) and a maximum of three (3) potential acquiring companies (correspondents) that had not carried out any acquisition were identified in Compustat. Since many acquiring companies were excluded from the acquisition sample because of the filters used, they were subject to the control group. To avoid problems in the analyses, we took care to verify that the control group paired companies had not been involved in acquisitions during the observed focal period.

The book-to-market was included in the pairing characteristics because it captures the main drivers of acquisitions: opportunities for growth (Bena & Li, 2014), overvaluation (Shleifer & Vishny, 2003; Bena & Li, 2014, Rhodes-Kropf & Viswanathan, 2004), and complementarity of resources (Bena & Li, 2014; Rhodes-Kropf & Robinson, 2008). In the light of the procedures used, the experimental and control groups have become comparable, and any observable differences between these groups can be considered small and due to the odds ratio. Technically, ensuring that the estimate of the counterfactual result is unbiased (Roberts & Whited, 2013), i.e., that the estimates of the results of the acquiring companies, if they had not been involved in acquisitions, and of the results of the control sample, if they had performed acquisitions, are not biased.

After pairing, we obtained a final sample with 5,044 companies, of which 1,286 performed between 1 and 8 acquisitions and 3,758 were not involved in any acquisition, composing an unbalanced information panel over 18 years. All market and accounting data were winsorized to a 5% level, as a way to eliminate the effects of outliers.

3.1 Dependent Variables

First acquisition The use of binary models to identify the determinants of acquisitions is commonly found in the literature (Akhigbe et al., 2004; Bena & Li, 2014, among others). Thus, we have built a dummy variable, where a value of 1 indicates that that year, the company made its first acquisition and 0 indicates otherwise, to test the hypothesis H1a of this research. For each observation of a company that performed its first acquisition, there are several observations for the control companies. Accurately, this dependent variable represents the chance of occurrence of first acquisition for a particular company i in a specific time t.

Acquisition frequency The literature has considered the acquisition frequency as the number of occurrences of acquisitions for a particular company i in a specific time t. To our knowledge, this is the first research using a variable of frequency as a dependent variable to verify the number of occurrence of acquisitions. The other researches identified used frequency as an explanatory variable (Hayward, 2004; Haleblian, Kim, & Rajagopalan, 2006).

For the construction of this variable, we based ourselves on models that can be used when the dependent variable is a count variable. Therefore, acquisition frequency is the annual amount of acquisitions carried out by each company (number of occurrences).

3.2 Independent and Control Variables

Company characteristics Were inserted five variables to capture the effects of the characteristics of the company. The first is company size, measured by the logarithm of the total assets in dollars (Akhigbe et al., 2004). The second, leverage, was calculated from the division of long-term debt by the total value of the company (Masulis et al., 2007). The third is the free cash flow, obtained by deduction of interest costs, income tax, and capital expenditure of the value of net income before depreciation (Masulis et al., 2007). The fourth and fifth variables represent company performance, whose Tobin's q and Market Share were used as proxies. Tobin's q was measured from the division of the market value of the company by the replacement value of the assets (Fu et al., 2016) and the Market Share was calculated by dividing the gross revenues of a company by the gross revenues of all companies in the industry (Ghosh, 2004).

Managerial self-interest Managerial self-interest is approximated by three variables. The first is the Executive's power, measured from the division of the CEO's remuneration by the total assets of the company (Brown & Sarma, 2007). This variable represents the ability of Executives to impose their overly optimistic points of view on the company's decisions. Dominant Executives probably exert their command in determining the strategic actions of the company, and may act on their behalf to the detriment of the shareholders (Brown & Sarma, 2007, p. 363). The second is the ratio of shares held by the CEO compared to the total volume of shares of the company (Cooper, Gulen, & Rau, 2013). The third is the participation of CEOs at the board, where the value 1 indicates they are a member of the board for company i at time t and 0 indicates otherwise (Shimizu, 2007).

Environmental characteristics Environmental conditions, especially regulation and uncertainty, can affect both the behavior of acquisition of a company and its consequences, and maybe determinants of corporate strategic choices (Haleblian, Kim, & Rajagopalan, 2006). To minimize potential problems with omitted variables, we tested the effects of Sarbanes Oxley in all the estimated models. This American law, signed on July 30, 2002, was motivated by corporate financial scandals (including that of Enron, which ended up dramatically affecting the audit company Arthur Andersen). In none of the estimated models, we obtained effect or significance for this variable. Thus, it was not included in the analyses.

To make that decision, we relied on previous research, which identified that acquisition activities do not seem to be prevented by regulatory characteristics. Matsusaka (1996), e.g., when examining the influence of regulatory actions on acquisition behavior, found that antitrust laws do not prevent acquisition activities. Rossi and Volpin (2004) confirm this finding by presenting evidence that, in countries with high accounting and governance standards, such as the United States, companies are more likely to carry out acquisitions.

On the other hand, regarding uncertainty, Bergh and Lawless (1998) show that, in situations of decreasing environmental uncertainty, highly diversified companies are more prone to carry out acquisitions than less diversified ones. In turn, in situations of increasing uncertainty, such as during the subprime crisis, financial markets are undergoing a volatile and uncertain environment that significantly decreases the number of acquisitions in the market (Gaughan, 2009). From these arguments, we inserted three variables to capture the effects of environmental characteristics on the likelihood of a company to perform its first acquisition and/or increase the frequency with which it gets involved in these events.

The first is a density of acquisitions in the industry. This variable, measured from the sum of the number of acquisitions made by all companies in a particular industry (Standard Industry Classification of 2 digits), was inserted because previous research suggests that the intensity of acquisition activities in an industry can affect the acquisition behavior of individual companies (Haleblian, Kim, & Rajagoplan, 2006).

The second variable is the industry's revenue, measured by the sum of the revenues of all the companies of an industry every year analyzed. This variable was included to track changes over time and those inherent in overall industry revenues (Haleblian, Kim, & Rajagopalan, 2006). The third variable is a subprime crisis, a dummy in which 0 represents the years before 2007, beginning of the crisis in the United States, and 1 indicates the period after 2007.

Acquisition characteristics Based on the literature, we included three variables representing business characteristics. The first of them is relative acquisition size, measured from the division of the value of the assets of the target firm by the value of the assets of the acquirer (Haleblian, Kim, & Rajagoplan, 2006). This variable was included because a larger acquisition can be perceived as a more important event than a smaller one, and may increase the confidence of the acquirer, further promoting acquisitions (Haleblian, Kim, & Rajagopalan, 2006).

Amburgey and Miner (1992) argue that the similarity between the acquirer and the target firm affect future acquisitions; thus, we inserted two variables to capture this effect. The first, called related acquisition, was obtained by the cumulative sum of the number of companies of similar industries (Standard Industry Classification of 2 digits) acquired by a bidder over the years. The second, called non-related acquisition, was obtained by the cumulative sum of the number of companies of different industries (Standard Industry Classification of 2 digits) acquired by a bidder over the years. There is no relationship of complementarity between these variables since companies can acquire more or less target firms inside or outside their industry. Finally, we inserted dummies to control the effects of time and company in all the estimated models.

3.3 Empirical Modeling

The dependent variable used to test the first hypothesis, first acquisition, is binary. Thus, we used the binomial logistic regression model with panel data. To verify the suitability of this model, we applied the Hausman-MacFadden (1984) and Small and Hsiao (1985) tests, and, alternatively, the Suest-based Hausman test, to verify the independence of the irrelevant alternatives, and, therefore, the assumption of independence between the error terms.

The other two research hypotheses have acquisition frequency as the dependent variable. Because this variable is discreet and composed of non-negative integers, the estimate by ordinary least squares would not provide robust results, making, therefore, preferable to use models appropriate for count data, such as Poisson regression (Das & Kapil, 2015).

The Poisson model has the strong restriction that the variance and the mean must be an equal, assumption that is often violated in data sets of real count (Hu, 2000). If the data present overdispersion, an alternative is using the Negative Binomial regression model, which corrects the problem by adding more variance (non-observed heterogeneity) by an additional parameter α (Colin Cameron & Trivedi, 1998). Thus, the empirical strategy of this study was to estimate the Poisson and Negative Binomial models, using the LR test to define the most appropriate model. The test results were not significant (Prob chi2 = 1.0000), showing that the Poisson model is best suited. This choice is also based on the results of Schwarz and Akaike's Bayesian information criteria, which were a bit better for the Poisson model.

To minimize possible problems of omitted variables, thus considering the non-observed heterogeneity, we chose to estimate the research models with fixed effects. To confirm the suitability of this choice, we used the Hausman test (1978). Also, before starting the estimation of models, we carried out tests to verify their suitability. The first tests indicated the presence of heteroscedasticity and autocorrelation. As a way to overcome these problems, we applied robust standard errors grouped at the firm level in all the estimated regressions. We also calculated the variance inflation factor of predictor variables and analyzed the correlations between them. No evidence of multicollinearity was found.

4 RESULTS

Table 1 shows the descriptive statistics for the variables used in the study. Because of the pairing by propensity score has done to select the sample of non-acquirers, we can see that acquiring companies and those that make up the control sample have, on average, similar values of Tobin's q, industry revenue, and size. Besides, free cash flow is, on average, negative for businesses that comprise the control sample. For the sample of acquirers, the average value is positive. This is justified by the evidence already presented in the literature that companies with more cash flow are more likely to carry out acquisitions (Harford, 2002). Leverage and Market Share also showed no statistically significant differences between the control and acquirer samples.

Regarding managerial characteristics, the participation in the board, CEO power, and percentage of shares owned by the CEO are, on average, higher for acquiring companies. This result is consistent with the acquisition literature concerning the positive influences of managerial self-interest on the occurrence of acquisitions (Shi et al., 2017). Finally, one can observe that companies of the acquiring sample performed, on average, more acquisitions of target firms related to their sector of activity than unrelated companies.

Table 1. Descriptive statistics for the key variables of the research

	Control Sample					Acquirer Sample					Total Sample				
Variables	N	Mean	Standard Deviation	Min	Max	N	Mean	Standard Deviation	Min	Max	N	Mean	Standard Deviation	Min	Max
Acquisition Frequency	40075	0.00	0.00	0.00	0.00	16646	0.93	0.94	1.00	8.00	56721	0.27	0.66	0.00	8.00
First acquisition	40075	0.00	0.00	0.00	0.00	16646	0.07	0.26	1.00	1.00	56721	0.02	0.15	0.00	1.00
Size (total assets log)	40075	6.55	2.03	1.93	11.82	16646	6.93	1.82	1.93	11.82	56721	6.66	1.98	1.93	11.82
Free cash flow	37067	-0.04	0,39	-0,45	2,8	15283	0.02	0.16	-4.65	0.57	52350	-0.02	0.34	-4.50	2.80
Leverage	39924	0.16	0.17	0.00	3.21	16546	0.15	0.16	0.00	0.98	56470	0.16	0.17	0.00	3.21
Tobin's q	40073	2.49	3.26	0.53	28.94	16605	2.36	2.49	0.54	7.15	56678	2.46	3.05	0.54	28.94
Participation of CEO in the board	40075	0.29	0.45	0.00	1.00	16646	0.48	0.50	0.00	1.00	56721	0.34	0.47	0.00	1.00
CEO's power	40075	1.22	4.75	0.00	24.88	16646	1.96	6.02	0.00	22.23	56721	1.44	5.17	0.00	24.88
Shares owned by CEO (%)	40075	0.99	4.41	0.00	63.47	16646	1.26	4.57	0.00	87.6	56721	1.07	4.47	0.00	87.6
Acquisition density	40075	0.00	0.00	0.00	0.00	16646	8.91	9.30	0.00	38	56721	6.98	8.23	0.00	38
Industry revenue (trillion US$)	40075	5.56	4.43	0.72	18.5	16646	5.40	3.99	1.84	18.5	56721	5.52	4.30	1.84	18.5
Market Share	40018	0.02	0.05	0.00	1.00	16609	0.02	0.05	0.00	1.00	56627	0.02	0.05	0.00	1.00
Relative acquisition size	40075	0.00	0.00	0.00	0.00	16646	0.03	0.31	0.00	14.85	56721	0.03	0.31	0.00	14.85
Subprime crisis	40075	0.38	0.48	0.00	1.00	16646	0.36	0.48	0.00	1.00	56721	0.37	0.48	0.00	1.00
Related acquisitions	40075	0.00	0.00	0.00	0.00	12134	0.88	0.88	0.00	8.00	12134	0.88	0.88	0.00	8.00
Unrelated acquisitions	40075	0.00	0.00	0.00	0.00	5704	0.74	0.73	0.00	5.00	5704	0.74	0.73	0.00	5.00

Source: Research data, 2018.

Table 2 shows logistic regression estimates, which have first acquisition as a dependent variable, as well as Poisson regressions, which have acquisition frequency as a dependent variable.

Table 2. Determinants of first acquisition and of corporate acquisition frequency

Variables	**First Acquisition**		**Acquisition Frequency**		**Acquisition Frequency**	
Predictive and control variables	β	Standard Error	β	Standard Error	β	Standard Error
Company size	0.318***	(0.101)	0.120***	(0.014)	0.059***	(0.028)
Free cash flow	−0.024	(0.065)	−0.003	(0.006)	0.017	(0.011)
Leverage	−0.020	(0.073)	−0.018**	(0.008)	−0.000*	(0.014)
Tobin's q	0.136*	(0.072)	0.006	(0.095)	0.005	(0.020)
Participation of CEO in the board	0.429**	(0.245)	0.048*	(0.026)	0.058*	(0.035)
CEO's power	0.005	(0.086)	0.001*	(0.008)	0.031**	(0.013)
Shares owned by CEO (%)	0.061***	(0.087)	0.000*	(0.010)	0.006*	(0.016)
Acquisition density	−0.101	(0.066)	0.011**	(0.005)	0.004**	(0.024)
Industry revenue	−0.174	(0.142)	−0.012	(0.016)	−0.012	(0.016)
Market Share	−0.233***	(0.078)	0.020*	(0.011)	0.024*	(0.022)
Relative acquisition size	1.474***	(0.044)	0.147***	(0.004)	0.059***	(0.008)
Subprime crisis	−4.139***	(0.718)	−1.818***	(0.194)	−3.916***	(0.739)
Related acquisitions					0.276***	(0.043)
Unrelated acquisitions					0.280***	(0.044)
Company fixed effects	*Yes*		*Yes*		*Yes*	
Time fixed effects	*Yes*		*Yes*		*Yes*	
Number of observations	14.172		14.884		14.884	

Source: Research data, 2018.

Note: The variables of the regressions are standardized. Robust standard errors for heteroscedasticity are between parentheses.

* p-value ≤ 0.10; ** p-value ≤ 0.05; *** p-value ≤ 0.01.

The contents of the regression in which first acquisition is the dependent variable indicate that the coefficients of the variables company size, percentage of shares owned by CEO, and relative acquisition size were positive and significant at the 1% level. At the same level, the coefficients of the Market Share and subprime crisis variables were negative on the likelihood of the company carry out its first acquisition.

Tobin's q and participation of the CEO in the board also showed positive and significant coefficients (p-value ≤ 0.05). These results support the hypothesis H1a of this research, by showing that, at least, one variable that represents managerial self-interest and company, environment, and business characteristics appears as a predictor of the first acquisition. For the dependent variable first acquisition, the coefficients of the variables company size and relative acquisition size were positive and significant (p-value ≤ 0.01), and the same occurs when the dependent variable is acquisition frequency.

Regarding the dependent variable acquisition frequency, the participation of the CEO on the board, percentage of shares owned by the CEO, CEO's dominance, the density of acquisitions in the market, and Market Share showed significant positive results on the likelihood of the company increasing acquisition frequency. In turn, leverage and subprime crisis showed negative effects. These results indicate that, as occurred with the determinants of first acquisition, at least, one variable that represents managerial self-interest and company, environment, and business characteristics appears as predictive of acquisition frequency, thus supporting the hypothesis H1b of this research.

Finally, regarding the coefficients of the variables that indicate the company's experience with acquisitions related or not to its industry, we observed that, at 1% significance level, both the experience with acquisitions related to the company's industry and those unrelated positively affect the increased frequency of acquisitions. This result supports hypothesis H2, by showing that the company's experience in acquisitions is linked to the classic determinants to explain the frequency of occurrence of these events.

4.1 Discussion

The traditional predictors of first acquisition, with some differences, along with experience in acquisitions, contribute to explain the frequency with which companies are involved with these events. Thus, we incorporate to the literature useful insights about the determinants of the strategy of acquiring in series. By observing if the predictors of first acquisition also predict acquisition frequency, five of them have shown similar effects. Company size (in total assets) has a positive effect. Both for first acquisition and frequency, larger companies assimilate the high transaction and post-deal integration costs (Akhigbe et al., 2004) and by inertia are more likely to repeat actions, maintaining acquisition frequency (Haleblian, Kim, & Rajagoplan, 2006).

A highlight in the results is the role exercised by the CEO. All three variables associated with the presence of the CEO are associated with acquisition frequency (CEO's participation in the board, a percentage of shares owned by the CEO, and proportion of the CEO's remuneration compared to the total assets). There seems to be a strong influence by CEOs, by their presence in the board and the potential influence of the acquisitions in their remuneration. Still, relative acquisition size affects both the first acquisition and the continuity of these events. We believe that, when acquiring, with a high volume of financial resources involved, executives seek to achieve greater market dominance, which generates greater glamour to the company and, thus, to their post (Malmendier & Tate, 2008; Haleblian, Kim, & Rajagoplan, 2006).

Concerning the subprime crisis, both for first acquisition and acquisition frequency, the uncertainty generated in American economy presented a negative effect on the occurrence of acquisition. Such an outcome was expected, since the entire American financial system was at high risk and, as already shown, in periods of recession there is a decline in acquisition activities (Martynova & Renneboog, 2005).

Only Market Share, although significant, presented different effects. The effect is negative for the probability of first acquisition, but positive for the chance of companies increasing their frequency of acquisition. This result suggests that when there is an increase in the Market Share of a company, the chance of performing its first acquisition decreases. On the other hand, it indicates that an increase in the Market Share positively contributes for the company to increase its acquisition frequency. A possible explanation for this situation is that, unlike companies that perform their first acquisition, frequent acquirers have references of previous events. Thus, the increase in Market Share can be associated with the positive results of acquisitions carried out, increasing the chance of the company repeating the same action (Haleblian, Kim, & Rajagopalan, 2006). Levitt and March (1988) show that, although executives are not sure about the results of their activities, repeating the action leads to greater experience, increasing the confidence and likelihood of recurrence of the action.

Also, frequent acquisitions are a strategic corporate program, which, already in an early stage, has a planned long-term performance (Barkema & Schijven, 2008). By analyzing the descriptive statistics of the research, we can observe that acquiring companies have, on average, the same market share of the companies in the control sample. Intuitively, we believe that a reason for this similarity is the use of the strategy of acquiring in series to achieve higher market power and become more competitive within the industry since there are other companies with a very similar market share without being involved in any event.

The variable leverage was significant only in situations in which acquisition frequency is the dependent variable. The results show that an increase in the level of indebtedness reduces the chance of the company increased its acquisition frequency, indicating that the strategy of acquiring in series is limited to the volume of debt of the company. The CEO's power and acquisition density in the market were also significant only in the models in which acquisition frequency is the dependent variable, both with positive signs. This result indicates that the CEO's power and the fact that other companies of the same sector are involved with acquisitions positively impact the decision of acquiring in series, but not the decision of making the first acquisition.

The effects of Tobin's q were found only regarding the conduction of the first acquisition. An increase in the level of Tobin's q of the company exerts a positive effect on the chance of it performing its first acquisition, but not on acquisition frequency. This result can be explained when we consider that Tobin's q is a proxy for the company's investment opportunities (Fu et al., 2016) and that, as such, it exerts influence on the occurrence of an investment made for the first time. On the other hand, acquisition frequency, as a strategic program, does not depend on an increase in the company's investment opportunities.

Finally, the company's experience in acquisitions related or not to its industry positively affects the occurrence of these events. The number of related acquisitions carried out by frequent acquirers is, on average, higher than the number of unrelated acquisitions, indicating that, by making frequent acquisitions a strategy, companies possibly seek greater market participation and power. Moreover, this result confirms the theoretical and empirical literature evidence that companies are more likely to repeat a strategic action when they have prior experience in such an action (Gulati, 1995).

5 FINAL CONSIDERATIONS

We believe that this study is the first to analyze the differences between a company choosing to make the first acquisition and making this strategy a common action. We have identified that some characteristics of the company, executives, environment, and business predetermine, similarly, both the first acquisition and the frequent occurrence of these events. These characteristics are linked to company size, managerial self-interest, and the recession periods in the American market.

However, as shown, other factors exerted influence on the first acquisition or acquisition frequency. Those that affect only the latter include leverage and acquisition density. An interesting discovery is that increased leverage has shown a negative effect on the frequency of occurrence of these events. Another finding is that acquisition frequency is strongly associated with a sector of activity, but this is not observed in the first acquisition. In addition, the higher the market share, the greater becomes the acquisition frequency, but this also does not occur in the first acquisition. It is like the frequent buyers were always in search of greater market power, confirming the hypothesis of managerial self-interest present in the acquisition literature.

We have also shown that the company's experience in acquisitions, related or not to its sector of activity, positively affects the number of occurrence of these events. In general, the classic predictors of first acquisition contribute, along with the company's experience with these activities, to explain the frequent acquisition behavior of firms. This evidence suggests that acquisition frequency is a strategy, or corporate program, aimed at the increasing the company's competitiveness in the sector. Such a strategy would have as its main thruster the interest and expertise of top executives.

The results presented here are a first analysis of the effects of the studied variables on the behavior of frequent acquirers. We did not consider the effects of acquisition frequency on the performance of the company and of other proxies that can represent the antecedents of these events. Besides, the inferences made regarding Market Share must be further studied, since this is a fertile field of study.

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