

## SKEPTICISM OR REPUTATION IN STOCK REPURCHASES?

This work investigates the buybacks in Brazil through the prism of the credibility and reputation of the announcers companies. Through an unexploited data base, the annual reference form (*Formulário de Referência*), which enables the differentiation of announcements of repurchases by the real quantities purchased. Main results were the existence of reputation for companies that have an effective rate of repurchase of at least 70%, and a penalty for companies that bluff. Cumulative abnormal return for group that had historical events was 0.98% on the first day, the fifth day 1.33% and 1.38% after the first month. As for the case in which the events were preceded immediately repurchase ads with effective rates of repurchase at least 70%, was 1.42% on the first day, 2.70% on the fifth day and 5.09% at the end the first month.

### 1. INTRODUCTION

The stock repurchase theme integrates a broad subject, which is the distribution of profits. In Brazil there are three existing mechanisms of distribution are: earnings, interest on equity (IOE) in portuguese, *juros sobre o capital próprio* (JSCP), a Brazilian mechanism, and stock repurchases. In the period from 1999 to 2005, Motta (2007) reports a growth of the profits distribution rate through repurchase of approximately 24% per year. In the United States of America growth is similar, though slightly higher. According to Grullon and Michaely (2002) in the period from 1980 to 2000 the annual growth's rate of repurchases was 26.1% and in 2000 the total spent on repurchase exceeded the distributions by dividends.

Although Miller and Modigliani (1961) demonstrate that the policy of profit distribution is irrelevant, later empirical works point the opposite. Innumerable theories to explain why. The main causes are: legislation, taxation, agency problems and information asymmetry. Specifically, in relation to share repurchases, the main reasons for its occurrence are presented. According to Grullon and Ikenberry (2000), there is agency cost of free cash flow, initially presented by Jensen (1986), the motive of capital allocation in the market, the reason for dividend substitution and the adjustments of the structure of capital, and lastly the reason of signaling. This can be divided into two: (i) the signalization of future investment opportunities with excessive present value and (ii) indicating that the market is undervaluing the company in the stock market. Dittmar (2000) empirically studies the motivations and points that companies repurchase shares to take advantage of the market undervaluation and to distribute excess capital. However, repurchases do not replace

earnings. Companies also repurchase to change their leverage ratio, cut off acquisitions, and counter the dilution effects of stock options. Chan, et. Al. (2010) still point to a new motivation, bluff, that is, managers can press for raising share prices, announce stock repurchases.

This work focuses on the signalization reason since Glosten and Milgrom (1985) define that information asymmetry happens because some investors perform more precise analyzes with the same data (superior analysis) or insider information. Since the effective repurchase rate information is public, in Brazil, there is only the cost of obtaining and processing the data. On the other hand, O'Hara (1995) affirms that the asymmetry of information can generate deviations in the fundamental prices of the financial assets, with even more strong effects in the short term. This paper analyzes the existence or not, after previous announcements of repurchases shares programs in open market. The existence of reputation or skepticism in the repurchase announcements, that is, if effectively acquiring the shares announced in past events positively signalize to the market and if it absorbs such information, with higher abnormal returns after the repurchase announcement of such shares. Reputation is characterized by abnormal returns for stock market shares in the present event, which is preceded by an announcement of repurchase of own shares that materialized at a perceptible level to the market. Skepticism is characterized by the fact that the market does not reach any expectation of certainty as to the effectiveness of the current announcement of repurchase of own shares. Finally, the penalization would be the event in which the market would form expectations of low effectiveness on repurchase by the advertiser after last announcement with an effective low repurchase rate, it would be observed a null or negative effect on the abnormal returns calculated. Ota et. Al. (2019) find that reputations matters in share repurchases programs. Another crucial term for the job is the effective repurchase rate that is characterized by the percentage of the actual purchase by the advertiser company compared to the advertised. Bonaimé (2012) finds goodwill for the US market. Lie (2005) analyzes de stock repurchase market of own share in open market from 1981 to 2000 and finds that the operational increase is limited due to companies that really buy shares after the announcement, showing an indication to the market. The information about the repurchase effective rate presents itself as a major pointer for abnormal refunds. Therefore, it will study the information contained in the effective repurchase rates, presenting a fundamental role on returns of the Brazilian stock market.

With an unexplored database without the necessity to estimate the effective repurchase rate, this is the first work, as the author knows, to study the reputation based on data without estimation and segregated of amount passed on effectively acquired own shares issued by the company itself. In other word, testing the reputation on the information distributed by the company itself and if the market sees past behavior when it valorizes new corporative announcements.

Therefore, the main goal of this paper is to analyze the existence or not of reputation in the own shares repurchases announcements on open market and if the market sees as a positive signal the own shares repurchases on past events. It will also be analyzed the inverse: if low repurchase rates points to market penalization, or else, if the market doesn't observe this information or is indifferent to the past, doesn't presenting any difference about the abnormal returns calculated for any past level of the effective repurchase rate.

## 2. BIBLIOGRAPHICAL REVIEW

Vermaelen (1981) using a database formed by repurchases public offers from 1962 to 1977 in the North American market and using an accumulated abnormal returns methodology finds that companies that repurchase shares experience a permanent increase in its shares prices.

Focused on signalization reason, Bonaimé (2012) analyzed, in the period between 1988 to 2007, the American shares repurchases market, focused on open market announcements. According the author, the companies could create a reputation based on prior repurchases. Initially she tested if the effectively bought level in a repurchase would persist in other future operations of the same company. After averages comparing in different groups, she observed that there was a difference. If a company repurchase is positively correlated with its conclusion on future repurchases, so a company can develop a "reputation" related to its repurchases and it's logical that the stock market analyzed the reputation of a company when it analyzes the most recent announcement of a new shares repurchase plan. Therefore, as a next step, the paper analyzed if the result of the previous share repurchase program influenced on credibility of its next repurchase announcement. For testing, the author operationalized a Tobit to analyze if there was a reputation on past announcements, estimated the event as being two days before and two days after the announcement. She concluded that the effectively repurchased level on last operation is the best variable predictor to the next repurchase level, therefore showing the reputation's existence. For the American case, Bonaimé (2012) concluded that the return depends on the effective past repurchase ratings, suggesting the market watches reputation, Ota et. Al. (2019) find that reputations matters in share repurchases programs in Japan. Therefore, this paper will use a never used before database that enables to calculate real previous completeness ratings to analyze the existence or not of reputation in in share repurchases.

Lie (2005) analyzes the own shares repurchases market in open market from 1981 to 2000 and, starting from the signalization reason, studies if the companies that announces repurchases shows improvement in operational performance. She found that the performance improvement is limited due to companies that really buy shares after announcement.

Ikenberry, Lakonishok and Vermaelen (1995) study if there is an inferior reaction, an underreaction, to the shares prices after repurchase announcements, in the period from 1980 to 1990, and find out that there is a long-term return, on buy-and-hold structure of 4 years, the abnormal return after the announcement is 12.1%.

Eid and Motta (2007) analyzed the main mechanisms of profit distribution and presented the main advantages and disadvantages for each method and ordered the types by its finality, for the Brazilian case. They point that repurchases are used in a complementary way in profit distribution politics, the financial flexibility being the biggest advantage, since the non-announcement in a posterior year negatively affect the prices. About the tax requirement, in Brazil, not as many countries, there is a disadvantage with the repurchases, once that earnings aren't taxed and the repurchases are under aliquots of 15% over capital earnings.

Castro Jr. and Yoshinaga (2019) study if the Brazilian stock market captures the evidences of the shares repurchases programs in open market on long-term. They calculated the hypothetical portfolio formed by shares in which the companies announced the repurchase in open market. All the shares presented the same ponderation and in a second analysis pondered by value, like strength. These accounts presented a duration of 36 months and for the abnormal returns calculation it used the Capital Asset Price Model (CAPM). For the risk-free used the CDI, for the market return used the Ibovespa and the abnormal return measured by alpha. The main result obtained was the existence of positive abnormal returns statically significant for the two and three years strategy, in both portfolio proportion, by value or by announcement. It also observed that dividends growth companies don't statically present positive abnormal returns and value companies showed high abnormal returns.

### 3. DATA

The deliberation dates, the informed amount of own shares repurchases intentions, common or preferred shares by company, the really acquired amount of common and preferred shares and its average prices was obtained on the CVM site, <http://www.cvm.gov.br>, in the link, ITR, DFP, IAN, IPE, FC. FR and outras informações, reference forms, for the period from 2007 to 2014. When there is an announcement of open Market repurchases in the same company for common and preferred shares simultaneously. The data of the average prices of every share, the number of shares, company's net equity, company's cash book, short-term investment, operating expenses, the liabilities and assets were assured by the software Economática. So, it calculated the real percentage of the real comparing to the announced, and named the effective repurchase rating:

$$\text{Effectively repurchased rate} = \frac{\text{Effectively repurchased quantity}}{\text{Repurchase announced quantity}} \quad (1)$$

The sample obtained in the reference forms, provided by CVM, totaled five hundred and twenty-eight announcements for the period from January 2007 to June 2014. The FIBAM Cia Industrial announcement of 03/21/2007 was withdrawn for not presenting an initial purchase amount, decreasing the sample to five hundred and twenty-seven announcements. Of these, 39 didn't presented the effectively bought amount information. Another point of interest is the fact that some announcements referring to 2013 and 2014 still didn't presented the effectively repurchased amount information, however they're still in the sample because they are in validity time for repurchase; they are 9 cases of common shares and 2 of preferred shares.

Thereby, we have a final sample of four hundred and eighty-nine announcements of own shares repurchases in open market and five hundred and seventy-nine different repurchases operations, in other words, there is ninety announcements of common and preferred shares repurchases in a single event.

The Table 1 presents the number of announcements by year, in it is possible to analyze that the years of 2007, 2008, 2001 and 2013 present the biggest own shares repurchases announcements in open market and that the common shares presents the biggest number of announcements. On the fourth column of the table 1 we see the information about the effective repurchases rating. The year 2008 presented the biggest number of repurchases of the sample and an effective repurchase rating of 46,95%, this rate is superior than the total average of 36,85%. That was a world crisis year, with impact on the stock market and prices decreasing, therefore, this high repurchase rate is according to the result of Dittmar (2000) where the companies repurchase shares in undervaluation periods. The repurchase ratings for the period from 2007 to 2014 of 36,85% is inferior to the found in USA by Bonaimé (2012), of 72,57%.

The sample includes 134 distinct companies, in these 108 presents history, in other words, announce repurchases more than once, and 26 realized only one repurchase announcement. There is the table 2 below containing the repurchases announcements of own shares by company and the number of companies with every amount.

TABLE 1

Number of announcements and Values in R\$					
Year	Repurchase Plan Size (Number of shares in MM)	Effectively Repurchase Size (Number of Shares in MM)	Effectively Repurchase Size (rate)	Repurchase Plan Size (R\$ in MM)	Effectively Repurchase Size (R\$ in MM)
2007	4,455.57	1,709.72	49.13%	20,906.09	8,212.00
2008	2,497.30	1,636.51	46.95%	30,982.67	20,743.82
2009	686.04	123.09	38.53%	8,090.43	1,465.37
2010	885.29	285.96	29.67%	14,186.46	5,302.10
2011	7,218.04	322.91	34.02%	55,407.77	6,414.36
2012	928.29	159.57	29.00%	12,732.15	2,284.75
2013	9,061.00	233.71	38.71%	63,974.40	3,127.38
2014	459.34	47.36	20.02%	4,582.04	422.43
Total	26,190.92	4,518.86	36.85%	210,862.04	47,972.25

Font: CVM Site, altered by the author, 2019.

TABLE 2

Number of announcements by company																		
Number of Company Announces	26	22	18	17	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Companies Amount	1	1	2	1	2	1	2	1	2	2	1	5	11	9	19	16	26	32

Font: CVM Site, altered by the author, 2019.

For regression, it was calculated the Previous Period Return, the Market to Book, the Size, the total cash, the cash-flow, the financial leverage, the standard deviation of return on shares, the standard deviation of cash-flow and the announcement size. The market value and the announcement size are obtained with day of announcements data, the Market to Book is calculated reason is calculated based on data available on the end of previous quarter to announcement. The same for Cash-book, Cash-flow and financial leverage. The past returns are calculated in the period from 210 to 10 days before the announcement. The Table 3 below presents the variables used, descriptions and the theory that seeks testing or being the control.

TABLE3

OLS variables description		
Variable	Description	Theory
Size	Market value	Informational asymmetry
Market to Book	Market value / book value	Signaling
Past return	Past CAR	Signaling
Cash	(Cash + short-term investments) / market value	Agency
Cash-flow	Operational cash-flow / market value	Agency
Financial leverage	Total liabilities / total assets	Agency
Announcement size	% of market value	Agency
SD returns	Standard deviation of return	Financial flexibility
SD cash-flow	Standard deviation of cash-flow	Financial flexibility

Source: Prepared by the authors, 2019

There is below a statistic summary with the explanatory variables of regression and characteristics of the companies that compose the studied sample.

TABLE 4

Statistic Summary						
	N of Obs.	Average	Standard error	Percentuais		
				10%	50%	90%
Effectively repurchase rate	579	0.368	0.408	0.000	0.171	1.000
Cash	474	0.200	0.316	0.011	0.120	0.422
Past return	517	-0.004	0.117	-0.136	-0.012	0.136
Past effectively repurchase rate	424	0.408	0.415	0.000	0.249	1.000
Market to Book	559	3.010	4.609	0.787	1.819	4.855
Cash-flow	513	0.048	0.216	-0.092	0.038	0.197
Returns standard deviation	557	1.946	2.457	0.427	1.303	3.978
Announcement size	572	0.042	0.343	0.001	0.012	0.059
Financial leverage	550	0.608	0.374	0.203	0.503	1.213
Cash-flow standard deviation	528	0.095	0.130	0.016	0.055	0.217
Size (R\$ MM)	572	19,100	38,100	420	2,879	65,200

Source: Prepared by the authors, 2019.

#### 4. METHODOLOGY

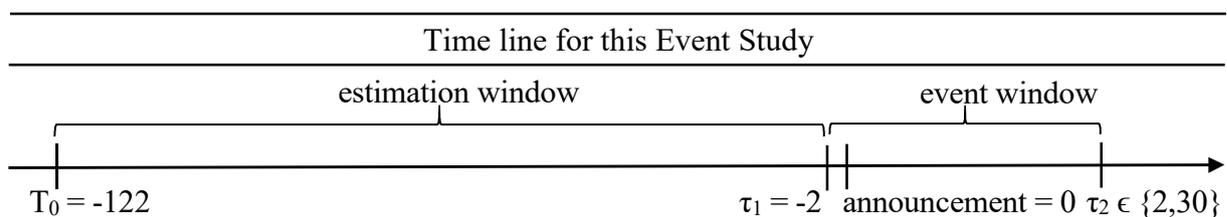
By waiting that asymmetry of information generates deviants in financial assets prices, the

first study of this paper consists of testing, using the event study methodology, if there is major cumulative abnormal returns (CAR) in repurchase announcements of Brazilian public companies and mainly, if there is a cumulative abnormal return even bigger in posterior announcements from those in which there has been a substantial effective repurchase in immediately prior announcements. It also tests the possibility of penalties by the market for companies that realized low effective repurchase ratings in immediately prior announcements, or yet, none of hypothesis presented, in case the information doesn't show any relevance. In sequence, it realizes a J2 test, a test of t of hypothesis as found in Gabrielli and Saito (2004), used with the objective to test the distinct groups about the differences in abnormal returns ratings. Lastly, regressions in least ordinary squares (LOS) are done, allowing the control by other important variables to the model and consequently including other theories about the motivations on repurchase announcement.

The Event Study Methodology is used in finances starting from the assumption of efficient markets, where the prices are quickly affected by new information, Fama (1991). The central kernel of the used methodology in this paper is found on Campbell, Lo and Mackinlay (1997), and other works also contributed for this approach, Dann (1981), Vermaelen (1981), Brown and Warner (1985), Comment and Jarrell (1991) and Gabrielli and Saito (2004).

Initially may be defined the event and its estimation window, being the event of this study, the own shares repurchase announcement, with the date defined by the communicate release date of the decision of the directors' board of each company to the market, via Relevant Fact. There are several windows in this work. It was estimated a period of 2 (two) dais before and 2 (two) days after the event, summing up to five days, according to Bonaimé (2012). It also analyzed with two days before to the event and thirty days after. As a robustness, tests were also carried out 10 and 5 days before the date of the announcement. Below is an illustrative figure of the main window to be estimated.

PICTURE 1



Font: Campbell (1997); Altered by the author

The next definition necessary to the event study is the estimation for the normal and abnormal return;

$$\epsilon_i^* = R_{it} - E_{it}[R_{it}|X_t] \quad (2)$$

In this equation,  $\epsilon_i^*$ ,  $R_{it}$ , e  $E_{it}(R_{it})$ , are respectively, the abnormal returns, the observed

(return that really happened on the specific date) and the expected normal return for the time period  $t$ . The term  $X_t$  represents the conditional information for the normal performance model. According to Campbell, Lo and Mackinlav (1997) there is two alternatives for this normal performance model: the first is the structure of constant medium return and the second alternative is the market model, in which  $X_t$  is the market return. Thus, a linear relationship between the return of each share and the market return is assumed. This second model was chosen because it removes from the return the portion due to market variations consequently decreasing the variance of the abnormal return and increasing the potentiality of the test for the analysis the event effects. As a market choice, we will use Ibovespa. The estimated equation is:

$$R_{it} = \alpha_i + \beta_i R_{mt} \quad (3)$$

where  $R_{it}$  is the return of time  $t$  of the action  $I$  in the period prior to the event, the estimation window, and  $R_{mt}$  is the return of market in the time  $t$ .

The return is calculated based on shares prices of shares and the Ibovespa prices, directly, simple return, and not continuously compound, as informed in Campbell, Lo and Mackinlav (1997). Simultaneously was realized a test with IBrX return, for the return market strength. The chosen estimation window is from 120 days before the estimation period. Also for strength, it was realized testes with 30, 60, 90, 240 and 360 days of estimation windows, for the case with -2 days of the event belonging announcement. In Attachment (Annex) 1 there is a scheme of all events and the estimation windows. After finding alphas and betas for each company, we calculate the normal returns, and then proceed with the abnormal returns calculations, using the equation (2). The next step on the procedure consists in add appropriately  $\epsilon_i^*$ , the abnormal return of each company in the specific day. There is two dimensions in this calculation: the time and the asset or specific event. It starts with the distinct event averages for each day: (4)

$$\bar{S}^* = \frac{1}{N} \sum_{i=1}^N \widehat{\epsilon}_i^*$$

In  $\bar{S}^*$  which is the sample average of the abnormal returns of  $N$ , the numbers of observations.  $\widehat{\epsilon}_i^*$  is the abnormal returns estimation obtained through application of the equation (2), for every specific day of every event of every company. The second computed dimension is the time, therefore we calculate the so-called cumulated abnormal returns (CAR), that is the sum of the cumulated abnormal return from the first day of event ( $\tau_1$ ) until the specific date as last event day ( $\tau_2$ ). As the abnormal returns are included by event for every day of event, we realize the sum of these  $\bar{S}^*$  for every characteristic subgroup. (5)

$$\overline{CAR}_{(\tau_1, \tau_2)} = \sum_{\tau_1}^{\tau_2} S^*$$

To make statistical inferences under H0, that is, that the accumulated abnormal returns are different than zero, we use: (6)

$$J_1 = \frac{\overline{CAR}_{(\tau_1, \tau_2)}}{[\hat{\sigma}^2_{(\tau_1, \tau_2)}]^{1/2}} \cong N(0,1)$$

Where: (7)

$$\hat{\sigma}^2_{(\tau_1, \tau_2)} = \frac{1}{N^2} \sum_{i=1}^N \hat{\sigma}^2_{(\tau_1, \tau_2)}$$

Replacing (7) on (6): (8)

$$J_1 = \frac{\overline{CAR}_{(\tau_1, \tau_2)}}{\sqrt{\frac{\hat{\sigma}^2_{(\tau_1, \tau_2)}}{N}}}$$

For the test of cumulated abnormal returns to compare groups with open shares repurchases in open market after announcements with effective repurchases superior to CARs of every repurchases, we use: (9)

$$J_2 = \frac{\overline{CAR}_{a(\tau_1, \tau_2)} - \overline{CAR}_{b(\tau_1, \tau_2)}}{\sqrt{\frac{\hat{\sigma}^2_a(\tau_1, \tau_2)}{N} + \frac{\hat{\sigma}^2_b(\tau_1, \tau_2)}{N}}}$$

After the  $J$  calculations, we did consult the distribution table Normal Z, for the conference of statistical significance of the results.

Lastly, we do the regression in which test if the company is trying to signalize self-undervaluation, through the return if a prior period and the Market to Book. We test if there is information asymmetry, by the mean of Size. We test also if agency problem with the variables cash, cash-flow and financial leverage. The last tested theory is the financial flexibility and the variable for this test are the standard deviation of share returns and the standard deviation of the cash-flow.

## 5. RESULTS

### 5.1 First analysis

The complete base (1) is used for the general observation of own share repurchases behavior, therefore testing Hypothesis 1, about the existence of cumulated abnormal returns significant for the study of the event pointed.

The basis of announcements that follow a first event (2), that presents previous repurchases historic and without differentiating the effective rate of repurchase in the previous event, the base (1) is used together to test whether or not there is a statistical difference between (1) and (2), thus testing whether there is any evidence that the past repurchase is information relevant to the cumulative abnormal return, and also hypothesis 3, that companies with lower effective repurchase rates would be penalized by the market. It should be noted that there is a possible mitigation bias, since in the sample with all historical repurchases, there are also repurchases with high effective rates of previous repurchases. For this reason, the same test will be carried out with the division by quartiles, facilitating the test of hypothesis 3. Group 4 is also tested, in which all events in which the previous effective repurchase rate was equal to zero and group 5 when the effective repurchase rates in the event itself are zero. The comparison between groups 4 and 5 also allows the analysis of penalization effect.

The value of 70% of the effective repurchase rate of previous ads (3) was stipulated as the value to analyze whether there is a positive reputation after high repurchase rates in previous events, thus testing hypothesis 2 on the existence of reputation for ads of share buybacks in the open market, and if so, whether the market offers a premium for companies with high effective repurchase rates. If no assumption is made, it is concluded by Hzero, that the market does not show any differentiation in relation to past effective repurchase rates.

Table 5 shows the result of the analysis of the averages of the different events of repurchase ads in the open market. By day, it can be observed that in the five initial groups analyzed, days one presented statistical significance to 1% and the third day to 5% in the first three and without significance in the two endings. Also notice the non-anticipation of the market to the announcement, insignificant values statistically and economically close to zero, with the exception of group 3, with the companies that realize an effective repurchase rate in the immediately superior repurchase of more than 70% in these announcements, there appears to be an anticipation on day two preceding the announcement at 10% statistical significance, but not one day in advance. From table 5 it is also possible to note that the abnormal excessive return on the first day after the announcement is higher in events in which the previous effective repurchase rate was greater than 70%. Abnormal return of 1.21%, against 0.9% with the total sample and 0.83% in events with a history of at least one previous buyback. Groups (4) and (5) show the lowest cumulative abnormal returns of 0.67%. Apparently the market absorbs the bluff on the first day, however that effect is lost in previous days.

TABLE 5

AR of repurchase announcements events per day										
Day	(1) All data		(2) Post repurchases only		(3) Previous repurchase whit 70% of effective rate		(4) Previous repurchase whit 0% of effective rate		(5) Repurchase whit 0% of effective rate	
	S	J*	S	J*	S	J*	S	J*	S	J*
-2	0.09%	0.91	0.08%	0.85	0.30%	1.77	-0.02%	-0.08	-0.04%	-0.32
-1	0.05%	0.91	-0.01%	-0.14	-0.11%	-0.59	-0.22%	-0.85	0.20%	1.17
0	0.09%	0.77	0.09%	0.73	0.02%	0.10	0.00%	0.01	-0.07%	-0.38
1	0.90%	8.05	0.83%	6.99	1.21%	5.67	0.67%	2.21	0.67%	3.48
2	0.13%	1.07	0.03%	0.25	0.44%	1.45	-0.47%	-1.98	-0.06%	-0.35
3	0.22%	2.22	0.19%	1.88	0.45%	2.22	0.09%	0.42	-0.07%	-0.52
4	0.14%	1.48	0.16%	1.70	0.28%	1.44	0.05%	0.26	0.03%	0.19
5	-0.05%	-0.54	-0.04%	-0.46	0.11%	0.59	-0.27%	-1.31	-0.15%	-1.03
11	-0.02%	-0.18	-0.06%	-0.65	0.23%	1.02	-0.44%	-2.39	-0.14%	-1.01
15	0.03%	0.28	0.07%	0.71	0.29%	1.66	0.08%	0.35	-0.16%	-1.48
30	0.06%	0.66	0.05%	0.53	0.02%	0.11	0.05%	0.21	0.30%	1.85

Source: Prepared by the authors, 2019

Table 6 presents conclusive results for hypotheses 1, 2 and 3. After the announcement day, all CARs are statistically significant from day one to day thirty, with the exception of group 4, so there is cumulative abnormal return after repurchase announcements, except in the case in which the previous repurchase was zero, thus the worst abnormal return, and an indication for acceptance of hypothesis 3, since in comparison (5) - (4) there is statistical significance at 5% on day two after the announcement. The worst-performing group, the one with zero prior repurchase rate history, compared to the group with zero repurchase in the event itself.

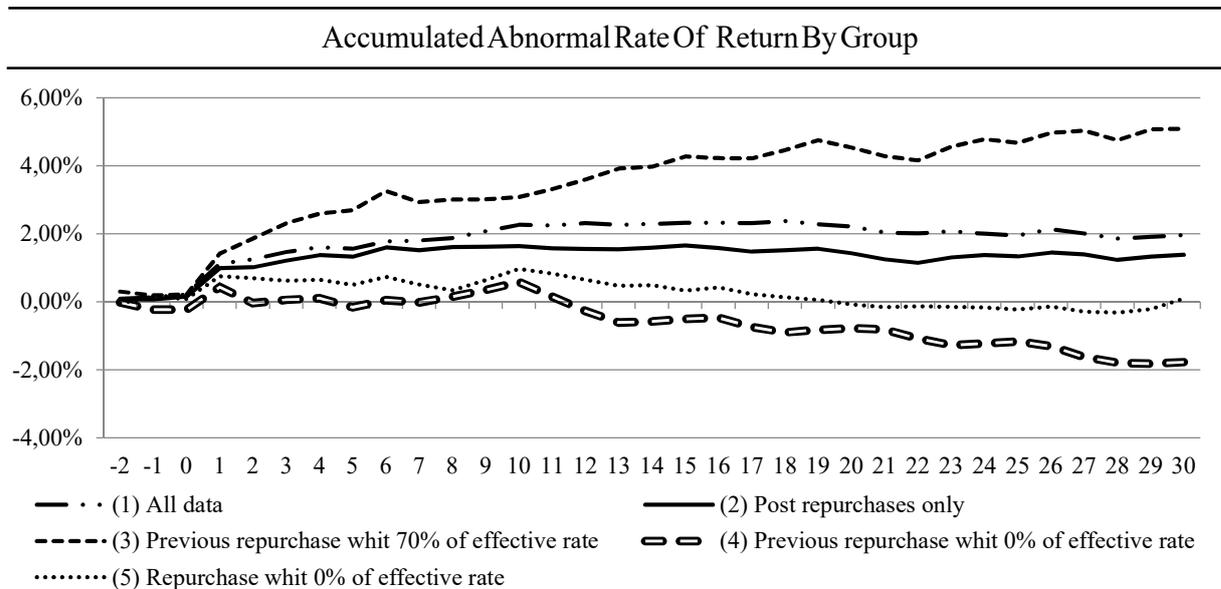
Within one month, there is an excessive return (1) of 1.97% for the sample of all events, of 1.38% when the group is analyzed with past announcements (2) and 5.09 % for repurchase announcements in which immediately prior announcements have occurred with at least 70% effective rate of repurchased shares (3). For group (4), it was -1.77%, and for group (5), it was 0.09%. This same analysis in a 2-day period after the event was 1.25% for group (1), 1.02% for group (2), 1.86% for group (3), -0.03 % for group (4), but without statistical significance, that is, the number is undifferentiated from zero and 0.69% for the group (5). For all CARs, there is a constancy of higher accumulated abnormal returns for the group with an effective repurchase rate above 70% in the previous event, followed by the sample with all events, with zero repurchase and the worst result with the group with a history of repurchases with effective repurchase rates equal to zero in the immediately preceding event.

When analyzing hypothesis two, (3) - (1), there is a reputation in the market, that is, when analyzing (1) all repurchase events against (3), only the observations in which the immediately preceding announcement presented at least 70% of the effective rate of repurchased shares, there are significant values from the second to the thirtieth day for the CAR. Thus, there is a premium for companies that repurchase at least 70% of their announcement of repurchase of own shares in the open market in an immediately subsequent announcement.

When analyzing hypothesis three, there is a market penalty for companies that announce repurchase and have an average effective repurchase rate of less than 70% in previous announcements, as presented in statistically different CARs, according to the column indicated by (3) - (2) in Table 6, from the first day after the announcement at 10% of statistical significance, this significance increases to 1% on subsequent days.

Picture 2 presents visually the difference of cumulative abnormal returns for a group with all events, the second group with events that have at least one previous buyback without any definition for the effective repurchase rate, the third group are the companies in which the immediately preceding repurchase had an effective repurchase rate of at least 70%, group four with immediately preceding effective repurchase rate equal to zero, and finally group five, in which the companies had an effective zero repurchase rate in the event itself.

PICTURE 2



Source: Prepared by the authors, 2019

TABLE 6

**Hipotesis 1, 2 e 3 – CARs, Reputations and Penalization**

Day	(1) All data		(2) Post repurchases only		(3) Previous repurchase whit 70% of effective rate		(4) Previous repurchase whit 0% of effective rate		(5) Repurchase whit 0% of effective rate		(3)-(2)	(3)-(1)	(1)-(2)	(2)-(4)	(2)-(5)	(5)-(4)
	CAR	J CAR	CAR	J CAR	CAR	J CAR	CAR	J CAR	CAR	J CAR	J CAR	J CAR	J CAR	J CAR	J CAR	J CAR
-2	0.09%	0.91	0.08%	0.85	0.30%	1.77	-0.02%	-0.08	-0.04%	-0.32	1.15	1.11	0.06	0.39	0.74	-0.10
-1	0.13%	1.14	0.06%	0.54	0.19%	0.89	-0.23%	-0.81	0.15%	0.84	0.52	0.25	0.41	0.96	-0.40	1.13
0	0.22%	1.90	0.15%	1.28	0.21%	1.01	-0.23%	-0.83	0.08%	0.46	0.25	-0.03	0.41	1.26	0.32	0.94
1	1.12%	9.76	0.98%	8.22	1.42%	6.74	0.44%	1.52	0.76%	4.10	1.80	1.24	0.83	1.76	1.03	0.94
2	1.25%	10.74	1.02%	8.33	1.86%	7.99	-0.03%	-0.11	0.69%	3.77	3.22	2.33	1.41	3.46	1.47	2.18
3	1.47%	12.92	1.21%	10.16	2.31%	10.13	0.06%	0.23	0.62%	3.49	4.28	3.31	1.57	3.91	2.77	1.73
4	1.61%	14.49	1.37%	11.83	2.59%	11.59	0.11%	0.42	0.65%	3.75	4.84	3.94	1.47	4.47	3.49	1.73
5	1.56%	14.41	1.33%	11.73	2.70%	12.35	-0.16%	-0.64	0.50%	2.95	5.56	4.66	1.48	5.39	4.08	2.17
11	2.25%	21.04	1.57%	14.69	3.31%	15.48	0.15%	0.67	0.82%	5.05	7.28	4.45	4.48	5.66	3.83	2.40
15	2.32%	22.38	1.65%	15.84	4.27%	20.68	-0.50%	-2.25	0.33%	2.10	11.31	8.44	4.53	8.77	7.02	3.05
30	1.97%	19.80	1.38%	13.45	5.09%	24.65	-1.77%	-8.09	0.09%	0.58	16.07	13.63	4.09	13.04	6.89	6.92

Source: Prepared by the authors, 2019

In the analyzes below, the events with zero effective repurchase rate in the event itself are tested, but the effective repurchase rates in the immediately preceding event are differentiated. Table 7 presents results that are indicative of favoring hypotheses 1, 2 and 3. Column (6) elucidates repurchase notices with an effective zero buy-back rate in the event itself and does not present a previous announcement, ie the first ads in the sample, there may be bias, since there may be previous announcement, although this is not observed by the database, again it would be attenuation bias since the expected effect is non-differentiable cumulative abnormal return of zero. Column (7) represents the events with effective repurchase rate zero in the event itself and with some previous announcement. Lastly, column (8) shows the effective repurchase zero announcements in the current event but this time with a past effective repurchase rate of over 70%. After the day of the announcement, all CARs are statistically significant for column (7), from column two (8), column (6) does not show accumulated abnormal returns different from zero at statistical significance. An increase in statistical and economic significance is observed for column (8), while for column (7) the behavior is opposite, decreasing. Within two days after the event, there is an excessive return of 0.71% for the historical sample (7), and 1.68% when the group is analyzed with past announcements with effective higher repurchase rates to 70% (8) and not differentiable from zero for the group of effective rate of repurchase zero in the event itself and without any history.

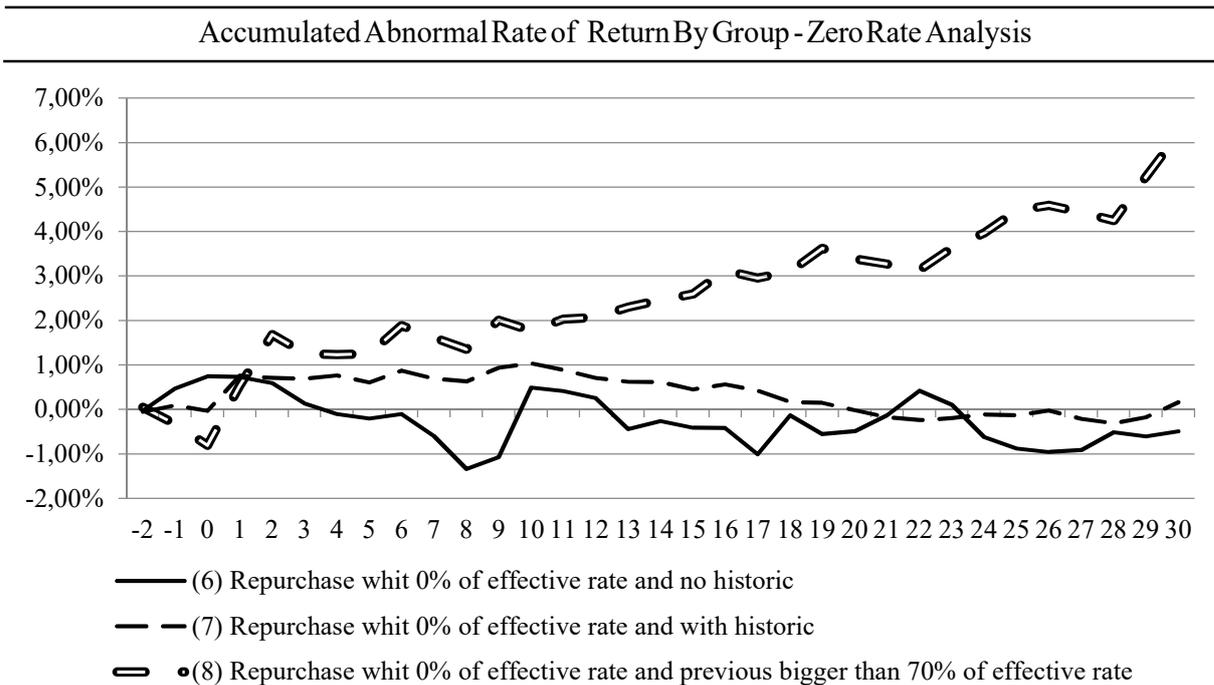
TABLE 7

Hypotheses 1, 2 and 3 - CARs, Reputation and Penalization - Zero Rate Analysis								
Day	(6) Repurchase whit 0% of effective rate and no historic		(7) Repurchase whit 0% of effective rate and with historic		(8) Repurchase whit 0% of effective rate and previous bigger than 70% of effective rate		(6)-(7)	(8)-(6)
	CAR	J CAR	CAR	J CAR	CAR	J CAR	J CAR	J CAR
-2	-0.03%	-0.08	-0.05%	-0.31	0.05%	0.22	0.06	0.36
-1	0.15%	1.05	0.09%	0.48	-0.33%	-1.03	0.77	-1.13
0	0.08%	1.63	-0.03%	-0.16	-0.80%	-2.46	1.56	-2.02
1	0.76%	1.64	0.76%	3.76	0.54%	1.49	-0.06	-0.53
2	0.69%	1.38	0.71%	3.51	1.68%	4.02	-0.24	2.10
3	0.62%	0.32	0.70%	3.60	1.26%	3.19	-1.18	1.28
4	0.65%	-0.25	0.77%	4.09	1.24%	3.12	-1.87	1.07
5	0.50%	-0.48	0.61%	3.31	1.26%	3.08	-1.79	1.44
11	0.82%	0.83	0.89%	5.22	2.03%	4.97	-0.90	2.59
15	0.33%	-0.85	0.45%	2.74	2.60%	6.56	-1.69	5.02
30	0.09%	-1.04	0.17%	1.01	6.20%	15.60	-1.31	14.03

Source: Prepared by the authors, 2019

Figure 3 presents visually the difference of the cumulative abnormal returns for the group with no history (6), the group with the events that present at least one previous buyback without any definition for the effective repurchase rate (7), and the group with the companies in which the immediately previous repurchase had an effective repurchase rate of at least 70% (8). All effective repurchase rates in the event itself are equal to zero.

PICTURE 3



Source: Prepared by the authors, 2019

### 5.3 Regression

The regression below, in table 8 shows the accumulated abnormal returns being the dependent variable, varying with the window of the event, always starting with 2 days prior to the announcement, adding the announcement itself and then varying the number of days after the announcement. announcement, as reported in the header, changing in ascending order from 1 to 30 days after the announcement. All regressions were performed with year dummies, cluster at company level. The variables; cash, Market to Book, Cash Flow, Leverage and Repurchase Announcement Size have gone through the winsorization. The main independent variable of interest, the effective repurchase rate of the previous announcement, is now 5% statistically significant in CAR 5, remaining at this level of significance in CAR 15 and 30. The size of the repurchase announcement is shown an important variable for the current abnormal return,

presenting statistical significance at 5% in CAR 1 and CAR 5, and 1% in CAR 15 and CAR 30. The past return on the stock market demonstrates significance at 10% in CAR 1, 5% in CAR 2 and CAR 5. In CAR 15 there is no significance and in CAR 30 it returns the statistical significance to 1%. The adjusted square R shows an improvement of 312% from CAR 2 to CAR 5.

TABLE 8

Regression of Determinants of Abnormal Returns on Repurchase Ads of Own Issue Shares					
*** Significant at 1%, ** Significant at 5% and * Significant at 10%					
	CAR 1 day	CAR 2 days	CAR 5 days	CAR 15 days	CAR 30 days
Cash	-0.002 (-0.08)	-0.005 (-0.15)	-0.002 (-0.06)	-0.038 (-0.60)	0.011 (0.12)
Past return	-0.063* (-1.97)	-0.080** (-2.46)	-0.107** (-2.40)	-0.103 (-1.52)	-0.254*** (-3.05)
Past effectively repurchase rate	0.003 (0.39)	0.011 (1.36)	0.022** (2.05)	0.032** (2.12)	0.050** (2.34)
Market to Book	0.001 (0.59)	-0.001 (-0.34)	-0.000 (-0.13)	-0.004 (-1.27)	-0.004 (-0.82)
Cash-flow	0.023 (0.80)	0.046 (1.04)	0.070 (1.24)	0.073 (1.05)	0.176** (2.01)
Returns standard deviation	0.001 (0.72)	0.000 (0.20)	0.001 (0.64)	0.001 (0.14)	0.004 (0.91)
Announcement size	0.002** (2.23)	0.002 (1.47)	0.002** (2.00)	0.004*** (3.13)	0.007*** (4.02)
Financial leverage	-0.001 (-0.10)	0.005 (0.44)	0.002 (0.16)	-0.009 (-0.43)	-0.006 (-0.28)
Cash-flow standard deviation	-0.008 (-0.30)	-0.019 (-0.47)	-0.007 (-0.15)	-0.072 (-1.15)	-0.101 (-1.43)
Size	0.000 (0.91)	0.000 (1.56)	0.000 (1.45)	0.000*** (3.34)	0.000*** (2.88)
N	290	281	278	278	278
Pseudo-R <sup>2</sup>	-0.0021	0.0057	0.0235	0.0325	0.0942

Source: Prepared by the authors, 2019.

## 6. CONCLUSION

This work uses an unexplored database so far, for the knowledge of the author, with information about the quantity actually repurchased in the repurchase announcements of its own shares in Brazil, in order to examine whether there is valid information and how the market values the correct distribution of past information of the companies as to their effective repurchase rate in previous announcements.

According to Bonaimé (2012), the existence of a reputation for accumulated abnormal returns is found for the Brazilian market when the actual repurchase rates passed on in subsequent announcements are higher.

The main conclusions found in this study are that the market actually prices in a different way the shares that go through repurchases of own shares as to their effective repurchase rate in previous events. The total sample set had an accumulated abnormal return of 1.12% on the first day, 1.56% on the fifth day, 2.32% on the fifteenth day and closed one month with an accumulated abnormal return of 1.97%. There is a penalty for companies that advertise but have low effective rates of return, as is the case of companies with a repurchase history, on the first day the return is 1.02%, 1.33% on the fifth day, 1.71% on the 15th day and 1.38% in a month. Another point that confirms this penalty can be found in the comparison between the group that represents the repurchase events with the effective rate of repurchase of the immediately preceding event with value zero and the group with zero in the effective repurchase rate in the advertisement itself, the group with history presents values lower than the second, statistically significant from the CAR of the second day. There is also a positive reputation for companies with effective repurchase rates above 70% in previous announcements, 1.42% on the first day, 2.70% on the fifth day, 4.27% on the fifteenth day and 5%, 09% at the end of one month. These results are corroborated when a robustness analysis is performed with the division of the sample into quartiles, there is a clear difference of perception for companies that repurchase more than 50% in immediately previous share repurchase announcements. The OLS regression confirms the effect of the repurchase rate effectively repurchased in previous events from the CAR of 5 days to 5% of significance. Other variables relevant to the result are the size of the repurchase announcement and the past return.

The past return apparently has a longer-term effect, as presented in the regression, but also presents what might be called a trigger for the advertisement, when analyzing the event with 10 days prior to the announcement, there is a significant negative CAR.

The market index used presents an important but not definitive role in the analysis, in the comparison between Ibovespa and IBRX, it is observed that in the second, the abnormal returns found are economically superior, however, there is no statistically significant difference.

Thus, one can affirm the existence of reputation and penalization in the market for the repurchase of own shares for the Brazilian case.

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