

FUNDAÇÃO GETÚLIO VARGAS
ESCOLA DE ADMINISTRAÇÃO DE EMPRESAS DE SÃO PAULO

GABRIEL ALEJANDRO MICHELOUD

**HOW DO INVESTORS RESPOND TO SHARE BUYBACK PROGRAMS?
EVIDENCE FROM BRAZIL DURING 2008 CRISIS**

SÃO PAULO

2013

GABRIEL ALEJANDRO MICHELOUD

**HOW DO INVESTORS RESPOND TO SHARE BUYBACK PROGRAMS?
EVIDENCE FROM BRAZIL DURING 2008 CRISIS**

Dissertação apresentada à Escola de Administração de Empresas de São Paulo, da Fundação Getúlio Vargas, em cumprimento dos requisitos para obtenção do título de Mestre em Administração Empresas.

Linha de Pesquisa: Corporate Finance

Orientador: Prof. Dr. Richard Saito

SÃO PAULO

2013

Micheloud, Gabriel Alejandro.

How do investors respond to share buyback programs? Evidence from Brazil during 2008 crisis / Gabriel Alejandro Micheloud. - 2013
23 f.

Orientador: Richard Saito

Dissertação (MPA) - Escola de Administração de Empresas de São Paulo.

1. Ações (Finanças) - Preços. 2. Ações (Finanças) - Retrovenda. 3. Crise econômica - Brasil. I. Saito, Richard. II. Dissertação (MPA) - Escola de Administração de Empresas de São Paulo. III. Título.

CDU 336.76

GABRIEL ALEJANDRO MICHELOUD

Dissertação de Mestrado

**HOW DO INVESTORS RESPOND TO SHARE BUYBACK PROGRAMS?
EVIDENCE FROM BRAZIL DURING 2008 CRISIS**

Dissertação apresentada à Escola de Administração de Empresas de São Paulo, da Fundação Getulio Vargas, em cumprimento dos requisitos para obtenção do título de Mestre em Administração Empresas.

Linha de Pesquisa: Corporate Finance

Data de aprovação: 10 de Maio de 2013

Banca examinadora:

Prof. Dr. Richard Saito (Orientador)
FGV-EAESP

Prof. Dr. Rafael Schiozer
FGV-EAESP

Prof. Dr. Paulo R. S. Terra
EA – UFRGS

Abstract

This paper provides empirical evidence of how effective share repurchase programs were as instruments to signal low prices during 2008 crisis in Brazil. Although we found that stock prices did not respond to buyback programs in the period 2006 to 2012 (1.65% cumulative abnormal returns after 5 days), the average stock price reaction in 2008 (2.93%) is higher and different with statistical significance. Furthermore, we found that the share price reaction from companies with market capitalization below R\$10 billion is higher than the one from larger companies. In addition, we found that the response to the buyback programs is positively correlated (i) to the company's purchasing activity after the announcement, (ii) to the maximum amount of shares announced which can be bought and (iii) to the quantity actually bought during the program. This research is unique in providing empirical evidence on the Brazilian case by analyzing 377 programs announced during that period. The research also confirms that the stock reaction is not influenced by the company's purchasing activity in prior announcements.

Keywords: Open market repurchases, short-term returns, signaling hypothesis, reputation

Resumo

Este artigo avalia empiricamente a eficácia dos programas de recompra de ações como instrumento de sinalização de preços baixos durante a crise de 2008 no Brasil com base em 377 programas de recompra. Os resultados não confirmam que o instrumento sinaliza conforme evidenciado pela reação dos preços das ações período entre 2006 e 2012 (1,65% de retornos anormais cumulativos depois de 5 dias), mas por outro lado, o diferença no impacto médio no preço das ações em 2008 (2,93%) é significativo estatisticamente. Além disso, ao segmentar a amostra entre empresas de baixo e alto valor de capitalização, há evidência empírica que as ações de empresas com baixa capitalização são mais sensíveis ao anúncios de recompra. Com base em dados ex-ante, mostramos que se a empresa realmente informa que poderá fazer volumes grandes de recompra, as ações tendem a ajustar o seu preço de forma estatisticamente significativa. Há evidências que o impacto no preço da ação não é influenciado por recompras realizadas em programas anteriores.

Palabras clave: recompra de ações, rendimento de curto prazo, teoria da sinalização, reputação

Index

1	INTRODUCTION.....	6
2	BRIEF LITERATURE REVIEW AND HYPOTHESES.....	7
3	THE BRAZILIAN REGULATORY FRAMEWORK.....	10
4	METHODOLOGY AND SAMPLE.....	12
5	TESTS AND MAIN RESULTS.....	16
6	CONCLUSIONS.....	20
7	REFERENCES.....	21

1. Introduction

Share repurchases have become an increasingly popular method for corporations to distribute cash to its shareholders for the last 20 years. In 2001, Fama and French showed that the number of firms paying dividends in the United States has dramatically declined over the past 20 years. Grullon and Michaely (2002) provided evidence that corporations in the United States between 1972 and 2000 have been substituting dividends for share repurchases.

There have been several studies investigating the reasons why corporations adopt share repurchase programs, being the signaling hypothesis the most prevalent explanation (Vermaelen 1981, Grullon and Ikenberry 2000). The traditional version of this hypothesis is based on the asymmetric information between the marketplace and the firms' managers. By announcing a share buyback, senior management signals to the less informed players on the low valuation of the shares. If markets respond efficiently, stock prices should adjust up immediately.

Other commonly stated reasons are 1) reduction of the agency problem derived from excess free cash flow, 2) return of excess capital to shareholders in a tax efficient manner (dividend substitution) and 3) adjustment of the company's capital structure (Grullon and Ikenberry 2000, Freitas Nascimento, Galsi and Neris Nossa 2009).

In Brazil, in theory, a cash distribution in the form of "interest on equity (JSCP)" or dividends would be a more efficient strategy than a stock repurchase, since in the latter case it is not provided a tax shield for stockholders. Repurchasing stocks would trigger capital gains taxes at the shareholder level while dividends are tax free for the receiving party. However, this does not mean that repurchase announcements have no impact on stock prices or that they do not have informational value for players operating in the Brazilian market.

On one side, studies based on companies traded on the US stock exchanges offered empirical evidence about stock prices appreciation as a result of stock repurchase announcements. In the United States, the average announcement price impact is 3% (Ikenberry, Lakonishok, and Vermaelen 1995, and Grullon and Michaely 2002). But, on the other side, empirical studies in Brazil have found much lower impacts on stock prices after repurchase announcements (Moreira and Procianny 2001, and Gordon and Bonomo 2002). In our study we found average cumulative abnormal returns without statistically significance of 1.65% after 5 days of the announcement. To certain extent, this does not confirm prior studies in other countries and has served as a motivation for conducting this research.

This research examines 377 announcements of open market stock repurchases programs made by 122 companies listed on BOVESPA during 2006 and 2012 to measure its impact on share prices. We extend and confirm the results achieved in prior studies finding non-significant cumulative abnormal

returns over 5 days. This confirms that, in Brazil, stock prices do not react according to the traditional signaling hypothesis. We find that the average stock price reaction in 2008 is different to the average reaction in other years, suggesting that the undervaluation version of the signaling hypothesis proves right in that crisis environment. In addition, as suggested by the price pressure hypothesis, we find that the average reaction to programs in which the companies have actively purchased stocks after the announcement is statistically significantly different from the reaction to programs in which the companies did not purchase. Finally, we find that the stock reaction is not influenced by the company's purchasing activity in prior announcements.

This paper is structured as follows. Section 2 provides some background on stock price appreciation hypotheses. Section 3 reviews the Brazilian legal and tax aspects of dividends and share buyback programs. Section 4 presents the methodology and the sample used to test the impact of stock repurchase announcements. Section 5 states the results of the tests done. Section 6 concludes.

2. Brief Literature Review and Hypotheses

When deciding what to do with the net income generated by the firms, managers can distribute it to shareholders or hold it as retained earnings. If they decide to return cash to their shareholders, they can either pay dividends or buy back shares. On one side, the dividend irrelevance theory (Miller and Modigliani 1961) shows that the firm's value is determined only by the income produced by its assets and not by how this income is split between dividends and retained earnings. On the other side, Gordon (1959) argues that stocks' risks decline as dividends increase. At the most fundamental level, these theories do not distinguish between cash distributions or share repurchases, being them perfect substitutes.

There are two main mechanisms to repurchase stocks: open market transactions and self-tender offers. Also, companies can engage in direct negotiation with shareholders mainly in greenmail transactions. In self-tender offers, the company makes a public offer to repurchase a pre-specified number of shares at a certain premium price (or range of prices in Dutch auctions), with a certain period during which the offer is valid. In open market repurchases, firms announce their intention to buy back stocks in the open market. As transactions are executed through a broker at regular commission rates and current market prices, investors selling their shares are often unaware that the firm itself is buying them. The three methods differ on several dimensions: transaction size and costs, execution time, buyback price and their uneven wealth impact. Open market repurchases are considerably more frequent but significantly smaller in magnitude than self-tender offers.

Several studies offer empirical evidence on stock prices appreciation as a result of stock repurchase announcements. According to Ikenberry, Lakonishok, and Vermaelen (1995) and Grullon and

Michaely (2002), the average announcement price effect of the programs is 3%. Moreira and Procianny (2001) examined 110 programs in Brazil from May 30, 1997 to October 31, 1998 finding very small abnormal returns after the announcements. The pattern observed in the abnormal returns and in the cumulative abnormal returns did not allow them to infer the outcome of the repurchase announcement.

Gabrielli and Saito (2003) studied 647 stock repurchase announcements from companies listed on BOVESPA since January 1, 1994 to June 30, 2002. They found that for announcements in the period 1994 to 1999 the stocks presented negative abnormal returns of, on average, 10% during the first three months after the announcements. In the following period, from 1999 to 2002, these results changed and they found positive abnormal returns. According to the Gabrielli and Saito, the CVM rule 299 from February 1999 achieved its goal related to protecting the minority shareholders.

Several hypotheses have been developed to explain this appreciation effect, being the signaling one the most prevalent. Other commonly stated hypotheses are (i) the dividend substitution (Grullon and Michaely, 2002), (ii) the free cash flow reduction (Easterbrook, 1984 and Jensen, 1986) and (iii) the price pressure (Scholes, 1972).

If insiders have better information about the firm's future cash flows, the payout policy might convey information not previously known to the market. In the late 1970s and early 1980s, many signaling models following this rationale were developed (Bhattacharya, 1979; Grullon, Michaely and Swaminathan, 2002; Barberis, Shleifer, and Vishny, 1998). The basic intuitive idea in all these models is that firms adjust payout to signal their earnings prospects. A rise in payout typically signals that the firm will do better and a decrease suggests that it will do worse.

Managers can signal the quality of their investments decisions by committing to a large payout as shown in Bhattacharya's model (1979). This way managers signal that they are confident of the quality of the investments done. If those investments are not good enough to generate cash to pay the committed amounts, management will have to bear the cost of external financing or reduce the payout guidance. The dissipative cost that allowed the signaling to occur is the potential outside financing costs as the higher payout increases the chances that the firm will need outside financing. This model implies that dividends and share repurchases are perfect substitutes and the announcement of dividend payments or stock repurchases should signal better future for the company, appreciating the stock.

Grullon, Michaely and Swaminathan (2002) explore the hypothesis related to growth opportunities with the increase in payout. According to their maturity hypothesis, firms increase payout when growth opportunities decline. The payout increase contains two pieces of news. The good news is that the risk has decreased, and the bad news is that profits may decline as the company might not have

new investment opportunities. The positive market reaction implies that news about risk dominate news about profitability. In addition to the good news conveyed about a risk reduction, investors might interpret a payout increase as good news per se (they reduce the overinvestment problem), and the stock price would rise. In this model, dividends and share repurchases are close substitutes, although, due to the dividend conservatism stated by Brav, Graham, Harvey, and Michaely (2005), dividends will have a stronger signaling power.

From a different point of view, the undervaluation correction version of the signaling hypothesis provides a new approach to the asymmetric information problem. As in models such as that of Barberis, Shleifer, and Vishny (1998), investors' sentiments drive prices to levels that are lower than firms' fundamentals. When this occurs, equity becomes undervalued. At these times, managers repurchase stock as a positive NPV (net present value) project and to signal the market its misperception of the company's real value. In these models, share repurchases and dividends are not substitutes and a share buyback announcement should signal the low valuation adjusting up the stock price.

Following the dividend substitution hypothesis (Grullon and Michaely, 2002), stock repurchase programs should increase the stock prices as they reduce the total taxation imposed on shareholders, as long as taxes on capital gains are lower than on dividends. In a world where dividends are taxed more heavily than capital gains and where capital gains are not taxed until realized, a company that pays no dividends will be more attractive to a taxable individual investor than a similar one that pays dividends. But even if the statutory tax rate on dividends and capital gains were equal, from a tax perspective, receiving unrealized capital gains is superior to dividend payments as capital gains do not have to be realized immediately and the associated tax can be deferred. Also investors can choose when to realize capital gains, unlike with dividends, for which they have limited choice in the timing. This hypothesis does not apply to the Brazilian environment as capital gains are taxed at a higher rate than dividends, being stock repurchases a tax inefficient mechanism to distribute cash to shareholders.

Another hypothesis addressing agency problems between senior managers and outside shareholders is provided by Easterbrook (1984) and Jensen (1986). By paying out cash (through dividends or share repurchases), the company would increase firm value by reducing potential overinvestments or potential wealth transfer from shareholders to bondholders. The key point in Jensen's argument (1986) is that failure to disgorge cash leads to its diversion or waste, which is detrimental to outside shareholders' interest. The key point in Easterbrook's argument (1984) is that retained earnings lead to a transfer of wealth from shareholders to bondholders as latter are better protected by a lower debt-equity ratio. Both, dividends and stock repurchase would be good mechanisms to achieve this goal. Although, empirical evidence favors dividends as the most effective mechanism to impose discipline, repurchasing stocks is a fast way to give cash back to shareholders.

Finally, in their presentation of the price pressure theory, Myron Scholes (1972) and Kraus and Stoll (1972) argue that the trading of stocks in any volume, either as repurchase or as selling of treasury stocks can bring price fluctuations. In such cases, stock price movements will occur as a result of a temporary disequilibrium between supply and demand. Once the unbalance is over, prices will return to their previous level. Scholes (1972) found no evidence to corroborate this hypothesis in the case of the United States market. However, Davidson III et al. (1996) claim that the price pressure could, at least in part, explain the stock price reversion when the tender offer period ends.

In summary, although current theories do not provide a unique prediction of what the relation should be between dividends and share repurchases, they seem to support that the announcement of a cash distribution (either by a dividend payment or share repurchase) will convey information to the market appreciating the stock.

From a different perspective, Netter and Mitchel (1989) examined the stock price movements of firms that announced repurchases in the two-week period immediately after the October 1987 market crash. They found that the announcements generated a positive abnormal return, on average, and that firms outperformed the market in the 40 trading days after the announcement. Their findings are consistent with the theory that repurchases announced at the time of the October 19 stock market crash signaled undervalued stock prices. Also, they found indirect evidence suggesting that a substantial proportion of the firms that announced a repurchase did not follow through with the repurchase in the four months after the crash.

Finally, Bonaime (2012) analyzed 11697 repurchase announcements between 1988 and 2007 to understand whether firms establish a reputation with respect to releasing accurate information and whether the stock market considers past behavior when evaluating new corporate announcements. She found that returns around the open market repurchase announcements are a function of lagged completion rates, suggesting that the market considers a firm's reputation when evaluating the credibility of open market repurchase announcements.

3. The Brazilian Regulatory Framework

In Brazil, all corporations should follow Law 6404 of December 15, 1976. Under its section 202, it is mandatory for corporations to distribute dividends. The law establishes that corporations' bylaws should clearly state the annual dividend payment policy, defining the dividends to be paid as a percentage of liquid earnings or of capital. Bylaws are superior to the Law in this case, but, if they are silent on the issue, the article 202 establishes that corporations must pay 50% of its annual adjusted earnings as dividends. The same article establishes a minimum 25% dividend payment if the bylaw is silent and the shareholders meeting decide to change it. Also, the law establishes that preferred shares

should have, at least, the right to participate on dividends distribution higher to 25% of the annual earnings; or the right to receive dividends 10% higher than the common shares; or the right to receive same compensation than controlling shareholders in case of change of control.

The payout policy is also influenced by the tax legislation on dividends, capital gains, and interests on equity. In 1995, the tax legislation introduced the option for companies to remunerate their own capital through interests on equity restricted to the long term interest rate, up to a maximum of 50% of the net profit, adjusted according to specifications of the legislation itself. From then on, interests on equity are seen as financial expenses, deductible for income tax and social welfare contribution. This generates a tax shield increasing the value of the company. Dividends distributed after 1996 are tax-free for receiving shareholders. Proceeds (generating capital gains) from tendering into all forms of repurchases are taxed at 15% rate. So, different from the case in the United States and many other jurisdictions, in Brazil taxes on dividends are lower than taxes on capital gains. So, in theory, in Brazil, interest on equity and dividends are better distribution strategies as they generate a tax shield for stockholders not provided if stocks are repurchased.

The Brazilian market contemplates only two forms of stock repurchases: open market transactions and public offers. The open market stock repurchases are regulated by the Corporate Law and by the Comissão de Valores Mobiliários (CVM). According to the Corporate Law, the shareholders' general meetings or the Board of Directors meetings are the only forums with authority to approve stock repurchase programs. CVM rule 10 enacted on February 14, 1980 (and its subsequent modifications) regulates the acquisition of its own stocks by listed companies for cancelation or for keeping in treasury. According to rule 10, companies must publish specific information regarding their intention to buy-back stocks, such as: period of time (maximum 365 days), number of shares (maximum 10% of the public float over the last 12 months), type of shares (common, preferred or both), and brokers allowed to buy the shares on behalf of the company. This rule provides basic information on the program and it is designed to prevent stock price manipulation, insider information and potential losses to shareholders. After the acceptance of this notice by the BOVESPA and the issuance of a press release to the market, the company can start acquiring shares. The issuer is not required to announce the completion of the bid.

Though not required by law, public tender offers traditionally implied a change in the ownership structure or going private. Nevertheless, Law #6404/76 does not forbid the use of this instrument in ways similar to a self-tender offer mechanism. This type of repurchase, however, involves an obligation of the company to repurchase, so it cannot be used inadvertently by the company as a false signaling.

If we assume that managers would prefer to signal better outlooks through stock repurchases than through dividends, open market transactions may not be the best mechanism as they do not force the company to finally acquire the shares it announced to be intended to buy back. A public tender offer would be a much better signaling strategy.

4. Methodology and sample:

Following the conclusions achieved by Ikenberry, Lakonishok, and Vermaelen (1995) and Grullon and Michaely (2002) on the 3% average price impact in the United States and the hypotheses on price appreciation after a buyback program announcement even though stock repurchases are a tax inefficient strategy in Brazil, using an event study, we aim to investigate empirical evidence to confirm that:

Hypothesis 1: *The announcements of a stock repurchase program, in Brazil, do not provide significant new information to the market and so stock prices do not react generating abnormal returns.*

Following the results achieved by Netter and Mitchel (1989) on the abnormal returns after the October 1987 market crash and the undervaluation version of the signaling hypothesis stated by Barberis, Shleifer, and Vishny (1998), by comparing the average abnormal returns achieved by the programs announced on each year of the sample, we aim to corroborate that:

Hypothesis 2: *In special situations, like 2008 crisis, stock repurchase announcements can generate abnormal returns as stocks could have been driven to low values based on non-stock specific information (undervaluation).*

Finally, following Bonaime's (2012) study, that by honoring prior announcements, management team generates a reputation with regards to its repurchases and that the market examines a firm's reputation when evaluating the announcement of a new plan, by analyzing the average abnormal returns of programs that followed ones in which the company has bought shares, we aim to test that:

Hypothesis 3: *Stock price reaction to announcements is influenced by the company's purchasing activity on prior announcements.*

In order to confirm or reject our hypotheses above, we perform an event study. The usefulness of this study comes from the fact that, given rationality in the marketplace, the effect of an event will be reflected immediately in the asset price.

The initial task is to define the event and to identify the period over which the security prices will be examined. We define the event as the formal communication to the CVM of the approval of the stock

repurchase program by the Board of Directors. We control the date and time that the formal announcement communication was received by CVM to define which date would be the announcement day and which one the first trading session. For announcements received before 5pm, we define that the first trading session is the same of the announcement date. If the communication was received by CVM after 5pm, the first trading session would be the following day. The event period is 5 days from the announcement date.

In order to define if security returns were different from those which would have been appropriate it is necessary to specify a model to determine expected returns. There are three general models to generate ex-ante expected returns. For each model, the abnormal return for a given security in any time period t is defined as the difference between its actual ex-post return and that which was predicted under the assumed return-generating process. Following prior studies, we calculate expected returns according to the Market Adjusted Returns model which assumes that ex-ante expected returns are equal across securities, but not necessarily constant for a given security. We compute abnormal returns as the difference between the observed stock price and the market portfolio return:

$$AR_{it} = R_{it} - R_{mt} \quad [1]$$

Where,

AR_{it} is the abnormal return of stock i on date t ;

R_{it} is the return of stock i on date t ; and

R_{mt} is the market return on date t . We use the IBOVESPA index as the market portfolio. This index is the main indicator of the Brazilian stock market's average performance. The issuing companies of the stocks that compose the index theoretical portfolio are responsible, on average, for about 70% of the sum of all BM&FBOVESPA's companies' capitalization.

The cumulative abnormal return (CAR) is computed as the accumulated abnormal returns:

$$CAR_{it} = \sum_{t=1}^5 AR_{it} \quad [2]$$

We collect data of open market stock repurchase programs announced by companies listed on the São Paulo Stock Exchange between January 1, 2006 and June 1, 2012. We search for “fato relevante”, “Ata de Reunião do Conselho de Administração” and “Comunicados ao Mercado” at CVM website available at <http://www.cvm.gov.br/> and on each company's section at the BMF Bovespa website www.bmfbovespa.com.br/cias-listadas/empresas-listadas. Stock prices are collected from the Bloomberg database.

We find 466 announcements. We exclude 20 cases for which stock prices were not available at Bloomberg, leaving the sample with 446 announcements. We also exclude all stocks that, in the event

window going from 3 days before the announcement to 5 days after, had at least one day without trading activity. The final sample contains 377 events from 122 different companies; 224 announcements are related to common stocks, 140 to preferred shares and 13 to units. Companies from the financial sector were the announcers of 35% of the programs, followed by companies in the basic materials, the consumer non-cyclical and the real estate sectors. These 4 sectors represent 72.4% of the announcements (Chart 1)

Chart 1: programs announced by sector.

Sectors	Companies		Programs	
	#	%	#	%
Basic Materials	12	9.8%	50	13.3%
Capital Goods and Services	15	12.3%	37	9.8%
Construction & Transportation	10	8.2%	24	6.4%
Consumer Cyclical	10	8.2%	27	7.2%
Consumer Non-Cyclical	21	17.2%	49	13.0%
Financial	27	22.1%	132	35.0%
Information Technology	4	3.3%	7	1.9%
Oil & Gas	2	1.6%	2	0.5%
Real Estate	17	13.9%	42	11.1%
Telecom	1	0.8%	2	0.5%
Utilities	3	2.5%	5	1.3%
Total	122	100.0%	377	100.0%

When reviewing the sample by market capitalization, we observe that 69% of the announcements were issued by companies with total value lower than R\$10billion (Chart 2).

Chart 2: programs announced by market capitalization.

Market Cap (in billion Reais)	Programs		
	Number	%	Acumulated
R\$0 - 2	150	40%	40%
R\$2 - 5	66	18%	57%
R\$5 - 10	46	12%	69%
R\$10 - 50	64	17%	86%
R\$50 +	51	14%	100%

The chart 3 below presents the frequency of observations per calendar year, descriptive statistics on the size of the repurchase announcements (shares to be bought as percentage of the free float) and on the length of the program announced. We observe a concentration of events in 2008 due to the financial market crisis. The Brazilian BOVESPA stock index reached a high of 73,516 on May 20, 2008. At its lowest point, the BOVESPA stock index had plunged 59.96% and ended at 29,435 on October 27, 2008. Also, by mid October 2008, CVM decided to incentivize stock repurchase programs by allowing companies to reduce the free float below 25% for a period of 18 months. This triggered many companies to announce stock repurchase programs.

Chart 3: number of observations by year, statistics on announcement size and length of programs

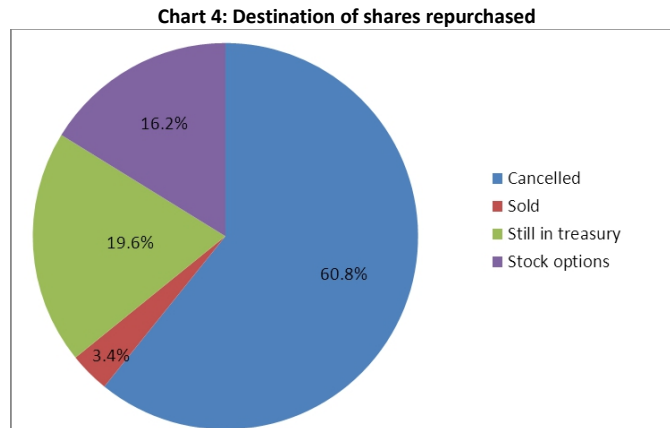
Year	Number of		Announcement Size		Length of the Program	
	Programs	Companies				
2006	24	15	Mean	5.36%	Mean	290
2007	34	29	Standard Error	0.19%	Standard Error	5.9
2008	103	71	Median	5.00%	Median	365
2009	56	39	Mode	10.00%	Mode	365
2010	54	43	Standard Deviation	3.70%	Standard Deviation	114
2011	89	71	Sample Variance	0.14%	Sample Variance	12976
2012	17	17	Minimum	0.03%	Minimum	4
			Maximum	10.03%	Maximum	365
			Count	377	Count	377

As shown in Chart 3, on average, companies announced their desire to repurchase 5.36% of their free float stocks. This is in line with findings of prior studies (Ikenberry, Lakonishok, and Vermaelen 1995), but less than the maximum percentage permitted by Brazilian law. This average is highly influenced by the extreme cases, being the mode the best estimate to analyze. As Brazilian regulations allow companies to buyback up to 10% of their last 12 month free float, most of the companies authorize this maximum quantity. In order to calculate the free float, the company should consider the total outstanding shares less the ones owned by the controlling shareholder or group.

Regarding the length of the programs (Chart 3), companies announced that management has, on average, 290 days to complete the program. According to Brazilian regulations, the maximum period for which a Board authorization is valid is 365 days. If this time is exceeded, the authorization will be cancelled and a new meeting should be held to extend the time horizon of the program. The facts that the average length of the programs is almost 10 months and that its mode is 365 days reduce the signaling power of the announcement. This seems to be a broad authorization that management prefers to have on hands in case the stock underperforms the market in the future. This length suggests that the Brazilian managers do not announce the stock repurchase to signal a current stock situation but just to have the authority to buyback shares in case they fall below desired levels in the next 12 months.

Although it is not required by law, some companies issued statements announcing the closing of the programs and the amounts purchased. From the 377 cases, we find closing statements for 195 announcements from 71 different companies. In 153 programs companies had bought stocks spending R\$14.9 billion and in 42 of them companies confirmed that there were no purchases over the authorized period. We check if the cash and equivalents available for these companies at the announcement date could suggest that the company had really intended to honor its announcement. We find that, for both groups, the cash and equivalents as percentage of the total assets were, on average, similar (20.77% for companies that finally did not repurchase and 23.10% for companies that actually bought shares). This does not allow us to make any special statement on the probability of the announcement to be honored.

We review the destination of the stocks repurchased in the 153 cases that the companies had confirmed buying back: 60.5% of the shares were cancelled, 19.6% were still kept in treasury by the end of 2012 (it is useful to state that the Brazilian legislation does not establish a maximum period for shares to be kept in treasury), 16.2% were used to fund stock option plans and 3.4% were sold in the open markets or used as payment currency in companies mergers and acquisitions (Chart 4).



5. Tests and main results

From the total sample of 377 announcements, we calculate the daily average abnormal return and the cumulative abnormal returns for the first 5 days after the event. Although 62.1% of the cases show positive abnormal returns on the first trading session after the announcement, the average abnormal return in that date is 0.79% and the standard deviation is 3.23%. The average cumulative abnormal return is also positive in the 5 day window. The results of the complete sample analysis (Chart 5) are insufficient to establish a positive correlation between repurchase announcements and stock price increases or decreases proving that, in the Brazilian case, the stocks do not react to announcement as suggested by the main hypotheses. So, we confirm our first hypothesis that stock repurchase announcements, in Brazil, do not provide significant new information and, so, stocks do not react.

Chart 5: Daily and cumulative abnormal returns for the full sample

Day	AR*	CAR*
+1	0.79%	0.79%
+2	0.30%	1.09%
+3	0.21%	1.30%
+4	0.14%	1.44%
+5	0.20%	1.65%

* not statistical significantly to levels of 5%, 10% and 15%.

These results are lower than the ones obtained in studies done on US stocks. According to Ikenberry, Lakonishok, and Vermaelen (1995) and Grullon and Michaely (2002), the average announcement price effect of the programs is 3%. The main explanation for these lower abnormal returns in the case

of the Brazilian stocks could be the different taxation rules which make the share repurchase a tax inefficient mechanism to distribute cash to shareholders. Other potential explanation is that, with the evolution of the communication means and the asset management industry in a smaller size market, the asymmetry of information between management and investors has been reduced and the stock repurchase announcements do not provide significant new information to the market, except in some specific sectors where information cannot be anticipated by the market.

If we divide the sample between those programs announced by companies with market capitalization lower than R\$10 billion (Chart 6) and those above that value, we find that the average 5 day cumulative abnormal return for smaller companies' stocks (2.11%) is statistical significantly (at 1% level) higher than the one from larger companies (0.60%). This suggests that, in the case of smaller companies, the announcements do provide some new information to the market.

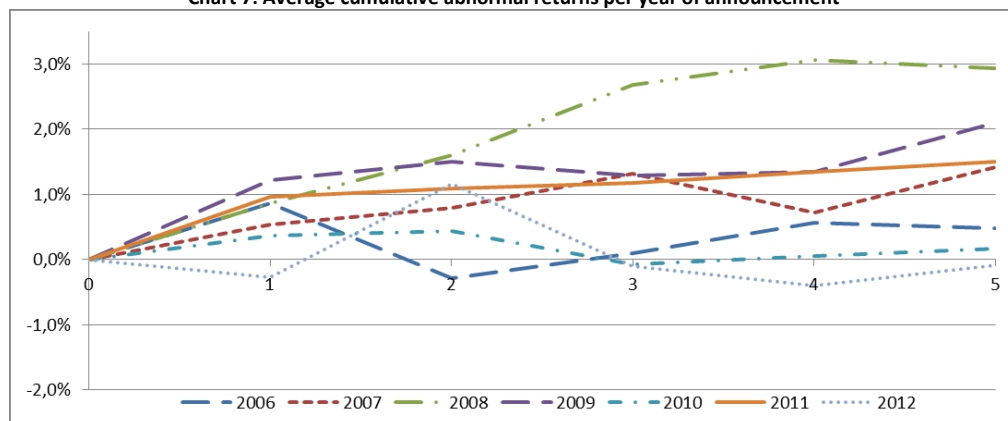
Chart 6: Average cumulative abnormal returns per market capitalization

Day	R\$0 - 10 n=262		R\$10+	
	n= 262		n= 115	
	AR*	CAR*	AR*	CAR*
+1	1.03%	1.03%	0.23%	0.23%
+2	0.43%	1.46%	0.01%	0.25%
+3	0.26%	1.72%	0.10%	0.35%
+4	0.16%	1.88%	0.09%	0.44%
+5	0.22%	2.11%	0.16%	0.60%

* not statistical significantly to levels of 5%; 10% and 15%.

When analyzing the entire sample but controlling for announcement year (Chart 7), we observe a higher cumulative abnormal return over 5 days in 2008. This suggests that the 2008 financial crisis may have dropped prices far below its fundamental value, and management used stock repurchases to signal their confidence in the company outlook (the undervaluation correction version of the signaling hypothesis). Paying the higher tax burden could have been the dissipative cost to make the signaling more effective.

Chart 7: Average cumulative abnormal returns per year of announcement



We perform a Z-test on the difference of the cumulative abnormal return means among each year in the sample (Chart 8). We find that the average cumulative return in the year 2008 is significantly different from the average on 2006 (at a 10% level of significance), on 2010 (at a 5% level of significance) and on 2011 (at a 15% level of significance). These results suggest that the undervaluation correction hypothesis proves correct for the Brazilian market in years of financial market crisis. Announcements made during the financial crisis had been able to signal an undervaluation and stocks had observed higher abnormal returns after the management's stock repurchase announcements. This confirms our second hypothesis and it is also consistent with Netter and Mitchell's (1989) findings on stock reactions after October 1987 stock market crash.

Chart 8: Z-values for the difference in the average abnormal returns of 2008 and each other year

Years	z-test values
2008 vs 2006	97.2%
2008 vs 2007	85.0%
2008 vs 2009	76.2%
2008 vs 2010	99.8%
2008 vs 2011	93.3%
2008 vs 2012	96.7%

Using the 195 cases in which the companies issued a program closing statement, we analyze the reaction to the announcements when the company actually bought shares (2.18%) compared to the cases in which the company did not buy (0.77%) (Chart 9). The difference between the averages from each group is statistically significant at the 10% level. This difference suggests that the fact that the company was actually repurchasing its stock in the market generated larger abnormal returns. This supports the price pressure theory that the presence of the company as a buyer adds demand to the stock and increases its price.

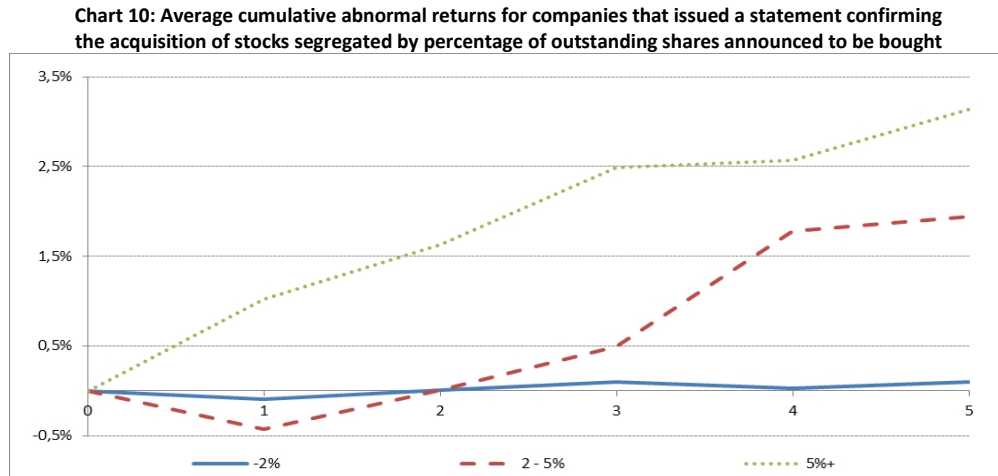
Chart 9: Daily and cumulative abnormal returns for companies that issued a statement confirming the acquisition of stocks and confirming that they did not acquire

Day	Bought n=153		Not bought n=42	
	AR*	CAR*	AR*	CAR*
	+1	0,47%	0,47%	0,39%
+2	0,45%	0,92%	0,14%	0,53%
+3	0,60%	1,52%	0,44%	0,97%
+4	0,29%	1,81%	0,09%	1,06%
+5	0,37%	2,18%	-0,29%	0,77%

* not statistically significant to level of 5%, 10% and 15%.

We group the announcements in three sub-segments to study if the stock reaction was influenced by the quantity announced to be bought (Chart 10). We use three sub-segments: programs that announced to buy less than 2% (36 cases; 0.10% cumulative abnormal returns after 5 days), those that announced its intention to buy more than 2% but less than 5% (31 cases; 1.94% cumulative abnormal returns after 5 days) and those which announced intention to buy more than 5% (86 cases; 3.13% cumulative

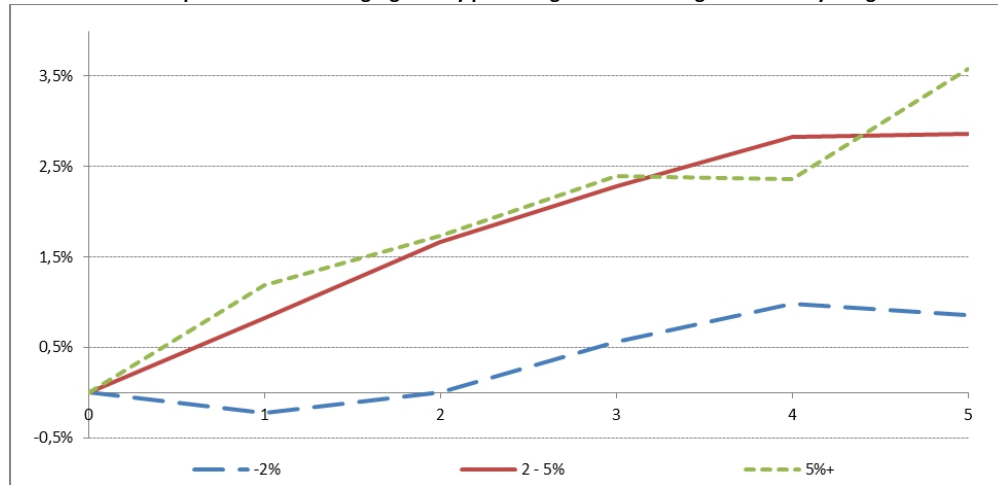
abnormal returns after 5 days). This last group is significantly larger (in number of cases) than the first two sub segments. This may be a consequence of the Brazilian regulation allowing a maximum repurchase of 10% of the free float. It seems that Boards of Directors tend to authorize its management to purchase up to the maximum allowed by law. This is in line with the thesis that Brazilian management teams use the stock repurchase programs just as a broad authorization to have on hand and not to signal a current specific stock situation.



These results confirm the findings in prior studies as the stock price reaction is positively correlated to the amount of shares announced to be bought. When the company announces a small quantity, usually to fund the exercise of stock option plans, the market does not react to the announcement. When the quantity announced is higher, the market does react to the announcement with a higher stock price appreciation.

Then, we group the companies again in three new sub-segments to study if the stock reaction to the announcement was influenced by the quantity finally bought (Chart 11). We use the same three sub-segments: companies that bought less than 2% (71 cases; 0.85% cumulative abnormal returns after 5 days), those that bought more than 2% but less than 5% (29 cases; 2.87% cumulative abnormal returns after 5 days) and those which bought more than 5% (53 cases; 3.58% cumulative abnormal returns after 5 days). We find similar results to the one obtained with the announced quantities. As the amount of shares repurchased increase, so do the abnormal returns. The average cumulative returns, when considering the amount finally bought, are slightly higher than the ones only considering the amount intended to be bought. This is consistent with the price pressure hypothesis, as the presence of the company actually buying increase demand on the stock pushing up prices. Although it is not possible to assure that the company was actually buying immediately after the announcement, it was verified that the average 5 day after the announcement trading volume was 146% larger than the average volume from 5 days before it.

Chart 11: Average cumulative abnormal returns for companies that issued a statement confirming the acquisition of stocks segregated by percentage of outstanding shares finally bought



Finally, we analyze if the management creates a reputation regarding their announcement in the market and if that influences the stock returns. In other words, does the experience in the first announcement influence the second announcement? For that, we separate the announcements that followed one in which the company had actually bought shares in a new group. The average cumulative abnormal return after 5 days for these cases was 1.89%, which is not significantly different from the one for all cases with closing confirmation (1.87%). This result rejects our third hypothesis, confirming that managers do not create its reputation in the market and that purchasing activity in prior announcements does not influence subsequent announcements and their impact on the stock prices.

6. Conclusions:

This research confirms that, in Brazil, stock prices do not react to buyback announcements as suggested by the signaling hypothesis. The announcements do not generate important positive or negative reactions on the event day and non-significant cumulative abnormal returns over 5 days. Although some basis for the signaling theories can be observed, as in 62.1% of the cases the stocks had positive abnormal returns on day one, the tax inefficiencies related to stock repurchase seems to dominate the signaling news.

This research also confirms that, in special cases, the undervaluation correction hypothesis proves to be right. In moments of financial crisis as in 2008, the stock repurchase announcements conveyed information to the market and stocks reacted differently. The announcements made in 2008 while the US mortgage backed securities bubble crisis impacted the world-wide financial markets had different reaction from the ones made in “normal” years.

Another important contribution from this research is the confirmation that the purchasing activity of the company that announced the program has an impact on the stock appreciation. As Scholes (1972) theory argues, the company activity creates a temporary disequilibrium between supply and demand pressing the stock price. The reaction when companies actually bought shares is statistically different from the one observed for companies that announced but did not buy shares.

Also, the research confirms that the market reaction is not influenced by prior events when responding to stock repurchases announcements. The reaction to announcements made by companies which have previously honored its commitments does not show differences from the one from companies that had announced and not bought in the past.

Finally, this research leaves one hypothesis to be tested in future studies on the Brazilian stock market. After reviewing 377 cases which had non-significant impacts on the stock prices and after realizing that, in the majority of the cases, the Board of Directors extended authorizations for the maximum time and quantity allowed by the regulations, it could be that Brazilian managers announce stock repurchase programs just to have the ability to buy back shares and not to signal any special stock situation at the moment of the announcement. This is also supported by the fact that, in many cases, we find that new authorizations are issued by the time old ones are expiring.

7. References

1. BARBERIS, N.; SHLEIFER, A.; VISHNY, R. A model of investor sentiment. *Journal of Financial Economics*, v. 49, p. 307-343, 1998.
2. BHATTACHARYA, S. Imperfect information, dividend policy, and “the bird in hand’ fallacy. *Bell Journal of Economics*, v.10, p. 259-270, 1979.
3. BRAV, A.; GRAHAM, J. R.; HARVEY, C. R.; MICHAELY, R. Payout policy in the 21st century. *Journal of Financial Economics*, v.77, p. 483–527, 2005.
4. BONAIME, A. Repurchases, Reputation, and Returns. *Journal of Financial and Quantitative Analysis*, v.47, p. 469–491, 2012.
5. DAVIDSON III, W.N.; CHHACHHI, I.; GLASCOCK, J.L. A test for price pressure effects in tender offer stock repurchases. *The Financial Review*, v.31, p. 25-49, 1996.
6. EASTERBROOK, F. Two agency-cost explanations of dividends. *American Economic Review*, v.74, p.650-659, 1984.

7. FAMA, E.; FRENCH, K. Disappearing dividends: Changing firm characteristics or lower propensity to pay? *Journal of Financial Economics*, v.60, p. 3-43, 2001.
8. FREITAS NASCIMENTO, S.; GALSI, F.; NERIS NOSSA, S. Motivações determinantes para a recompra de ações: um estudo empírico no mercado de ações brasileiro no período de 1995 a 2008. *RAM, Rev. Adm. Mackenzie (Online)*, São Paulo, v. 12, n. 5, Oct. 2011 .
9. GABRIELLI, M. F.; SAITO, R. Recompra de ações no Brasil: regulamentação e impactos sobre minoritários. *Anais Enanpad*, 2003.
10. GORDON, A.; BONOMO, M. Recompra de Acoes: uma abordagem empirica. *FGV*, 2002
11. GORDON, M. Dividends, Earnings and Stock Prices. *Review of Economics and Statistics*, v. 41, p. 99-105, 1959.
12. GRULLON, G.; IKENBERRY, D. L. What do we know about stock repurchases? *Journal of Applied Corporate Finance*, v. 13, p. 31 – 51, 2000.
13. GRULLON, G.; MICHAELY, R. Dividends, Share Repurchases, and the Substitution Hypothesis. *Journal of Finance*, v.57, p. 1649-1684. 2002.
14. GRULLON, G.; MICHAELY, R.; SWAMINATHAN, B. Are dividend changes a sign of firm maturity?. *The Journal of Business*, v. 75, n 3, p. 387-424, 2002.
15. IKENBERRY, D.; LAKONISHOK, J.; VERMAELEN, T. Market underreaction to open market share repurchases. *Journal of Financial Economics*, v.39, p. 181-208, 1995.
16. JENSEN, M.C. Agency costs of free cash flow, corporate finance and takeovers. *American Economic Review*, v.76, p. 323-329, 1986.
17. KRAUS, A.; STOLL, H. R. Price impacts of block trading on the New York Stock Exchange. *Journal of Finance*, v.27, p.569-588, 1972.
18. MILLER, M.; MODIGLIANI, F. Dividend policy, growth, and the valuation of shares. *Journal of Business*, v. 34, p. 411–433, 1961.
19. MOREIRA, L. F.; PROCIANOY, J. L. Open market stock repurchases at Sao Paulo stock exchange – BOVESPA. *International Finance Review*, v.5, p. 345-363, 2001.
20. NETTER, M. J.; MITCHELL, L. M. Stock-repurchase announcements and insider transactions after the October 1987 stock market crash. *Financial Management*, p. 84-96, 1989.

21. SCHOLLES, M. The market for securities: substitution versus price pressure and the effects of information on share prices. *The Journal of Business*, v.45, p. 179-211, 1972.
22. VERMAELEN, T. Common stock repurchases and market signaling: an empirical study. *Journal of Financial Economics*, v.9, p. 139-183, 1981.