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ARTIGOS

DIVIDEND CLIENTELE, NEW INSIGHTS, AND NEW QUESTIONS: THE BRAZILIAN CASE

CLIENTELA EM DIVIDENDOS, NOVOS ELEMENTOS E NOVAS QUESTÕES: O CASO BRASILEIRO

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ABSTRACT

This paper analyzes the dividend clientele effect and the signaling hypothesis in the Brazilian stock market between 1996 and 2000. During this period, the dividend tax was zero and the capital gains tax varied between zero and 10%. Brazilian firms face two information regimes, which allow us to test the signaling hypothesis. From a sample of 394 observations studied, 39% show a first ex-dividend day stock price higher than the price on the last cum-dividend day. The market price is higher for unanticipated dividends but, even with pre-announced dividends, stock prices are higher than the expected level, which is inconsistent with the clientele hypothesis. We also find evidence of a positive abnormal volume around the unanticipated dividend date, which is consistent with the signaling hypothesis, but no abnormal trading volume around pre-announced dividend dates. Our findings are inconsistent with the clientele hypothesis but provide support for the signaling hypothesis

KEYWORDS *Dividends, taxes, clientele, signaling, capital markets.*

RESUMO

Este artigo analisa o efeito de clientela em dividendos e a hipótese de sinalização no mercado brasileiro de ações entre 1996 e 2000. Neste período, a tributação sobre dividendos era nula e sobre ganhos de capital variou entre zero e dez por cento. As firmas brasileiras enfrentam dois regimes de informação, o que nos permite testar a hipótese de sinalização. De uma amostra com 394 observações, 39% possuem um preço de ação maior no primeiro dia *ex-dividend* do que no último dia de *cum-dividend*. O preço de mercado é maior para dividendos não antecipados, mas mesmo para dividendos pré-anunciados, os preços das ações são maiores do que o esperado, o que não é coerente com a hipótese de clientela. Também encontramos evidências de um volume de contratos positivamente anormal por volta da data não antecipada de dividendo, o que é coerente com a hipótese de sinalização, mas não se verificou nenhum volume de negociações anormal por volta das datas pré-anunciadas de dividendos. Nossos resultados são inconsistentes com a hipótese de clientela, mas suportam a hipótese de sinalização.

PALAVRAS-CHAVE Dividendos, tributação, clientela, sinalização, mercados de capitais.

INTRODUCTION

This paper analyzes the dividend clientele effect and the signaling hypothesis in the Brazilian stock market between 1996 and 2000. From a sample of 394 observations studied, 39% show a first ex-dividend day stock price higher than the price on the last cum-dividend day. The market price is higher for unanticipated dividends but, even among pre-announced dividends, stock prices are higher than the expected level, which is inconsistent with the clientele hypothesis. We also find evidence of a positive abnormal volume around the unanticipated dividend, which is consistent with the signaling hypothesis, but no abnormal trading volume around pre-announced dividend. Overall, our findings are inconsistent with the clientele hypothesis but provide support for the signaling hypothesis.

Elton and Gruber (1970) were the first to test Miller and Modigliani's hypothesis of the existence of a clientele effect in the U.S. market. Since then several papers have studied the clientele effect. However, very few studies on dividend clientele effects are tested in a setting with well-defined taxation policy to test the clientele hypothesis and the varying information announcements required to test the signaling hypothesis. Specifically, from a taxation standpoint, during the sample period we studied, dividends were tax-exempt and capital gains were taxed at 10% – a unique setting worldwide. From a signaling standpoint, dividends paid by Brazilian firms can be either pre-announced in a Shareholders General Meeting (SGM), or unanticipated and decided in a Board of Directors Meeting (BDM). Our study takes advantage of this unique institutional aspect of the Brazilian regulatory system to provide new insights into the literature on the market reaction to dividends.

Our study has important implications for investors trading in emerging economies. Brazil has attracted increased attention as one of the BRIC countries (Brazil, Russia, India and China). Emerging markets have become a new frontier for international investors looking to obtain better gains. Dividends are an important source of cash flow for long-term investors and clientele is one of the unsolved questions on this market. Therefore, to the extent that managers and investment managers are concerned about dividends, our study provides evidence of an inefficient price adjustment around dividends paid by Brazilian companies.

Using an event study methodology we find that, similarly to Procianoy and Verdi (2003), stock prices increase subsequent to the last cum-dividend day and remain at a new price level for a few days. This demonstrates that the eventual correction is not immediate. In addition, we find evidence about a positive abnormal volume around the dividend payments via a BDM, which is consistent with the

signaling hypothesis, but we do not find abnormal trading volume around the ex-dividend date for dividends previously announced via the SGM. Our findings remain constant throughout our entire sample period and raises the question as to why arbitrageurs do not take advantage of this scenario and make this mispricing disappear over time.

The next section presents the theory background. Section II presents the methodology used in this paper. Section III describes our sample, and results are presented in section IV. The last section presents

THEORY BACKGROUND

Dividend policy has been a topic of extensive investigation in financial economics. Miller and Modigliani (1961) study the effect of dividend policy on company value and find that under certain assumptions - specifically perfect capital markets, rational behavior and perfect certainty – a company's dividend policy should have no effect on its value. However, Miller and Modigliani (1961) also argue that in imperfect markets, the existence of a systematic preference for stocks paying high dividends as opposed to earning capital gains (say for tax reasons) could lead to a clientele effect in which investors would self-select to stock of their respective preferences. In the US, due to different taxation regimes, investors self-select into companies that provide them with the highest after-tax cash-flow generating different clienteles for different companies.

Elton and Gruber (1970) were the first to test Miller and Modigliani's hypothesis of the existence of a clientele effect in the U.S. market. The clientele effect predicts that since investors are taxed in different individual brackets, the difference between dividend taxes and capital gains taxes would lead to clientele preference. This hypothesis states that investors who pay relatively high taxes on dividends would prefer to acquire low dividend yielding stocks, whereas investors who pay relatively low taxes on dividends would be interested in acquiring high dividend yielding stocks. Elton and Gruber (1970) predict that ex-dividend stock price behavior is related to the tax rate of marginal shareholders. In this case, in a rational market, the fall in price on the ex-dividend day reflects the value of the dividend vis-à-vis capital gains to the marginal stockholder. From this hypothesis, they develop a model that infers marginal stockholder tax brackets from observing the ex-dividend behavior of stock prices. They find a positive and statistically significant relation between dividend yield and the stock price drop on the first ex-dividend day. Their findings are consistent with the clientele hypothesis.

Since Elton and Gruber (1970), several papers have tested the EG model with mixed evidence on the clientele effect (Michaely and Murgia (1995), Amihud and Murgia (1997), Frank and Jagannathan (1998), Romon (2000), Milonas and Travlos (2001), Milonas, Travlos, Xiao and Tan (2002), Lasfer and Zenomos (2003), Daunfeldt (2002)). More recently, Elton, Gruber and Blake (2002) tested ex-dividend effects on a different sample aiming to "put to bed the argument about the significance of taxes in determining the ex-dividend behavior of common stocks."

Procianoy and Verdi (2003) contribute to this literature by studying the clientele effect for a sample of Brazilian companies during the sample period 1989 to 1993 during which Brazilian corporations faced a unique taxation regime in which dividends were tax-exempt whereas capital gains were taxed (in contrast to most countries in which dividend taxes are higher than capital gains taxes). Contrary to the clientele hypothesis, they find evidence of a price increase on the first ex-dividend day and conclude that the clientele hypothesis is not supported by Brazilian data. The findings in Procianoy and Verdi (2003), although interesting, are puzzling because they suggest that investors were paying more for a stock without dividend than they were for the same stock with the right to receive the dividend.

We investigate the clientele effect for the sample period of 1996 to 2000 in order to extend the research in Procianoy and Verdi (2003) in several important ways. First, the sample period of 1996 to 2000 provides an out-of-sample test of the results in Procianoy and Verdi (2003) by selecting a period in which dividends were also tax-exempt whereas capital gains were taxed. Most importantly, the results in Procianoy and Verdi (2003) might be confounded by the information relating to dividends. That is, given the peculiar way of announcing dividends in Brazil (described in more detail below), the positive market reaction on the first ex-dividend day could be due to a positive signal being communicated to the market due to the dividend announcement (see Bhattacharya (1979), John and Williams (1985), and Miller and Rock (1985) for a description of the signaling theory of dividends). We test this hypothesis by identifying this confounding factor and exploring the dividend announcement to test the signaling hypothesis of dividends. Finally, we extend Procianoy and Verdi (2003) by studying the abnormal volume around the ex-dividend date (in order to study the information content of the dividend announcement) and by estimating a multiple regression that studies the simultaneous factors driving the market price adjustment on the ex-dividend date.

Brazilian companies are allowed to pay dividends using two processes: a Shareholders General Meeting (SGM) and a Board of Directors Meeting (BDM). All SGMs are called at least 8 days in advance and clearly state their proposal (e.g. to pay a dividend). After the SGM, and either on the same

day or in the following day, the company issues a press release announcing the dividend decision. With BDM dividends, on the other hand, there is no previous summons as prior public disclosure of the dividend decision is not required, and any information anticipating the meeting's decisions is limited to insider information that is unavailable to the market. Therefore, on the last cum-dividend date, SGM dividends are already expected whereas BDM dividends are unexpected dividends to investors. The latter may contain a positive signal to the market (Easterbrook (1984) and Jensen (1986)). We obtain data on the form of the dividend announcement (BDM or SGM) and test the clientele effect in the Brazilian market after isolating the information component of the dividend. These two different dividend announcement procedures will generate two different answers from market investors as a result of different signaling effects.

Using a sample of 394 dividend distributions from 119 different companies that are representative of large corporations operating in the Brazilian economy between 1996 and 2000 we find, in line with Procianoy and Verdi (2003), that on the first ex-dividend day the actual stock price is on average 1.8% higher than the price expected by the dividend clientele model and results in an abnormal return of 1.5%, significant at the 1% level. Using multiple regressions, we observe a positive and statistically significant effect of YIELD, suggesting that the shares of companies paying high dividend yields trade at higher prices on the ex-dividend day. In addition, we also observe that unexpected dividends have a positive effect on stock prices since dividends announced via a BDM are priced 0.9% higher than dividends announced through an SGM (significant at the 5% level). However, even in the case where dividends are previously announced via an SGM the stock prices are higher than the expected level. This suggests that the findings in Procianoy and Verdi (2003) are not purely driven by the information content of the dividends announced via a BDM.

METHODOLOGY

Clientele Model

Elton and Gruber (1970) predict that the stock price on the ex-dividend day varies as a function of the dividend paid and the tax rates on dividends and capital gains. They argue that the fall in price on the ex-dividend day reflects the value of the dividend vis-à-vis capital gains to the marginal stockholder.

We follow Procianoy and Verdi (2003) to estimate the ex-dividend stock price:

$$P_1 = P_0 - D * (1 - I_{div}) / (1 - I_{capg}) \quad (1)$$

where P_1 is the first ex-dividend stock price; P_0 is the last cum-dividend stock price; D is the dividend paid on each stock; I_{div} is the dividend tax; and I_{capg} is the capital gains tax.

In the period under study, there were no taxes on dividends whereas capital gains were taxed at 0% for pension funds and 10% for all other investors. Therefore, stocks on their first ex-dividend day should vary between two extreme values. The maximum theoretical price for pension fund investments that were exempt from taxes on dividends and on capital gains should be:

$$P_{1Tmax} = P_0 - D \quad (2)$$

For remaining investors, dividends were not taxed and capital gains were taxed at 10%. In this case, the minimum theoretical price would be:

$$P_{1Tmin} = P_0 - D / 0.9 \quad (3)$$

If no signal is sent to the market, then the stock price on the first ex-dividend day is expected to remain within the following interval:

$$P_{1Tmin} \leq P_1 \leq P_{1Tmax} \quad (4)$$

We measure the percentage price difference between the actual stock price and the predicted stock price. The price difference between P_1 and P_{1Tmin} is defined as follows:

$$PD_1 = P_1 / P_{1Tmin} - 1 \quad (5)$$

Similarly, the price difference between P_1 and P_{1Tmax} is defined as follows:

$$PD_2 = P_1 / P_{1Tmax} - 1 \quad (6)$$

Therefore, if ex-dividend prices are adjusted according to the clientele model, we expect positive values for PD_1 and negative values for PD_2. We use mean daily stock prices because we expect

mean values to more accurately represent the average market adjustment on the ex-dividend date. In order to avoid stock market influence in our results, we adjust stock prices on the first ex-dividend day according to the following formula:

$$P_{1a} = (Ibov_0/Ibov_1) * P_1 \qquad (7)$$

where P_{1a} is the adjusted stock price on the first ex-dividend day; $Ibov_0$ and $Ibov_1$ are São Paulo Stock Exchange Indices - IBOVESPA - for the last cum-dividend day and the first ex-dividend day, respectively; and P_1 is the stock price on the first ex-dividend day. The market adjustment is consistent with the market-adjusted-return model that we use to compute abnormal returns. This model is equivalent to the market model with the restriction that estimated intercepts are zero and that slope coefficients (beta) are equal to one for all companies (Campbell, Lo and MacKinlay (1997)). Brown and Warner (1985) show that this model, although parsimonious, performs reasonably well as a benchmark portfolio for event studies using short windows.

Price differences adjusted to the market on the first ex-dividend day, PD_{1a} and PD_{2a}, are computed according to equations 5 and 6 but replacing P_1 for P_{1a}.

Multiple Regressions

Procianoy and Verdi (2003) study the determinants of the market reaction around the ex-dividend date using univariate statistics. We extend this analysis by estimating multiple regressions of Price Differences (PD1a and PD2a) as explanatory variables.

As described above, Brazilian companies may decide to pay dividends via the shareholders general meeting (SGM) or a board of directors meeting (BDM). Due to this Brazilian characteristic, we code the INFO variable as '1' for BDM dividends and '0' for SGM dividends to test any signaling differences on the first ex-dividend day. Dividends paid via a BDM are considered unexpected to the market and may contain a signal about the company's future profitability. On the other hand, dividends paid via the SGM are announced at least eight days in advance, with publication of the summons to the meeting, so there should be no information passed to the market by the ex-dividend date. Therefore, if on average, dividends send a positive signal to the market, then we expect BDM dividends to be priced higher than SGM ones.

In line with Procianoy and Verdi (2003), we control for dividend YIELD, defined as the dividend paid divided by the share price on date '0' to test the influence of companies that pay high

dividends to price (results are similar if we use total assets as the deflator). If investors see a high YIELD as a signal of future profitability, then we expect high YIELD dividends to be positively correlated with prices on the first ex-dividend day. We also control for company size (SIZE), defined as the natural logarithm of total assets, and for past operational performance (EBITDA), defined as earnings before interest, taxes, depreciation and amortization deflated by total assets. Both SIZE and EBITDA are measured at the beginning of fiscal year when the dividends were paid. Finally, we include YEAR dummies to control for macroeconomic effects. In addition, we expect that over time investors will learn from experience and that, eventually, the stock market will adjust accordingly, so each year's unexpected results should get closer to the theoretical value. We define n-1 dummy variables coded '1' if the dividend was paid in the specific year and '0' otherwise.

We estimate a linear model using ordinary least squares described as follows:

$$PD_{1a}\ (PD_{2a}) = \beta_0 + \beta_1*YIELD + \beta_2*INFO + \beta_3*SIZE + \beta_4*EBITDA + \square\ \beta_i*YEAR_i \quad (8)$$

We predict β_1 and $\beta_2 > 0$ because high YIELD dividends and dividends that are unexpected may contain a signal to the market.

Event Study

Following Procianoy and Verdi (2003), we perform an event study to evaluate the presence of abnormal returns in an 11-day event window around the last cum-dividend day. This method is unbiased and a powerful test of whether there are unexpected returns around the event date (Brown and Warner (1985)). Abnormal returns are calculated according to the market-adjusted-return model and computed as the difference between the observed stock price return and the market portfolio return:

$$AR_{it} = R_{it} - R_{mt} \quad (9)$$

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.

We compute the cumulative abnormal return as the sum of the average daily abnormal returns (MacKinlay (1997)).

$$CAR_t = \square\ AR_t \quad (10)$$

CAR_t is the cumulative abnormal return of the stock price between date '0' and date t and AR_t is mean abnormal return on date t.

In addition to abnormal returns, we compute the abnormal trading volume ($ABVOL_0$ and $ABVOL_1$) to study the market adjustment around the ex-dividend date and to test whether this adjustment is a function of the type of dividend announcement (BDM or SGM). Following Kalay (1982), for each dividend payment we calculate the average daily trading volume between dates -40 and dates –10. We calculate the abnormal volume on date t as the difference between the average stock volume during days –40 and –10 and the stock volume on date t. We extend this measure to an event window from date -5 to date +5.

We measure trade volume to test the existence of abnormal volume around the ex-dividend date. Abnormal volume could arise from clientele trade due to tax incentives, or from investors trading on new information revealed to the market. We expect that the existence of abnormal volume for expected dividends (paid via the shareholders meeting) will mainly reflect clientele trade driven by tax incentives, since the new information revealed to the market is minimal given that the dividends have been previously announced. On the other hand, an abnormal trade related to unexpected dividends may reflect either clientele trade or trade due to the new information disclosed to the market.

SAMPLE DESCRIPTION

We collect stock prices and financial data from the ECONOMATICA database. We include companies whose stocks were traded on the São Paulo Stock Exchange between January 1, 1996 and December 31, 2000, and that paid at least one dividend in the period. We exclude all stocks that do not trade on cum- and ex-dividend days to avoid illiquid stocks. The final sample is composed of 394 dividend distributions from 119 different companies, which are representative of large companies in the Brazilian economy.

The sample contains 58% of the stocks on the IBOVESPA index in the Brazilian market during May-August, 1996 and 1997, 56% of the stocks in the index in 1998 and 1999, and 72% of the stocks in the index in 2000. All variables are winsorized at 1% and 99% (i.e., for each variable we re-assign its value if it is less (greater) than the 1^{st} (99^{th}) percentile to the value of the 1^{st} (99^{th}) percentile) to mitigate the influence of outliers.

Table I – Panel A presents the frequency of observations per calendar year. We observe a concentration of events in 1996 because, starting in 1997, Brazilian firms were allowed to pay a special type of dividend, which has a different tax treatment. These dividends are tax deductible at the company level up to the long term interest rate (this deductibility is similar to the interest deductibility of debt) but are taxed at the investor level at 15%. We exclude special dividends from the sample because of the different tax treatment and because we are interested in testing the dividend clientele model when dividends are not taxed. Panel B presents the average number of observations per calendar month. The Table reports the average number of observations per month across all years in the sample. Analysis of individual years provides similar distributions. We observe some clustering in April because of companies whose fiscal year ends in December and that pay dividends in April. For the remainder of the analysis, we present results using the full sample, but similar results are obtained once we remove April's observations, thereby reducing the concern of dependence between observations and of confounding events like earnings announcements. Also, in a sensitivity test we exclude all observations from 1996 and the inferences of our results are qualitatively the same.

Table I – **Frequency of observations** **(continua)**

Panel A - Frequency of Observations by Year

Year	Frequency	% Frequency
1996	131	33.25
1997	81	20.56
1998	55	13.96
1999	63	15.99
2000	64	16.24

Panel B - Frequency of Observations by Month
Month frequencies are tabulated across all years.

Month	Frequency	% Frequency
January	39	9.90
February	35	8.88
March	54	13.71

(conclusão)

April	109	27.66
May	16	4.06
June	16	4.06
July	31	7.87
August	41	10.41
September	14	3.55
October	17	4.31
November	11	2.79
December	11	2.79

RESULTS

Clientele Model

Table II presents the market-adjusted results for our sample. Untabulated results using raw returns are identical to the ones reported in this paper. The first two columns tabulate the price differences for the total sample, and the remaining columns divide the sample between SGM and BDM dividends. For the total sample, we observed an average price difference PD1a (PD2a) of 1.8% (1.4%) on the first ex-dividend day, significant at the 1% level. This means that for the full sample the stock price on the ex-dividend day was 1.8% (1.4%) higher than the minimum (maximum) theoretical price predicted by the dividend clientele model. For the sub-sample of BDM dividends (unexpected by the market), the average price difference PD1a (PD2a) is 2.2% (1.8%) whereas for SGM dividends, the average price difference PD1a (PD2a) is 1.4% (1.0%). The difference between the two samples is significant at the 5% level.

In general, we observe that the stock trades at a higher price than the expected price predicted by the dividend clientele model. For the total sample, only 4% of the cases had stock prices within the theoretical interval for the first ex-dividend day. In 65% of the observations, stock prices were higher than the maximum theoretical price and in 31% of the cases the stock prices were lower than the minimum theoretical price. More surprisingly, we find that, in 39% of the cases the stock price on the

ex-dividend date was higher than the stock price on the last cum-dividend date for the whole sample. This demonstrates that stock price behavior on the first ex-dividend day did not conform to theoretical expectations and in most cases was higher than expected prices.

Table II – **Ex-dividend day price adjustment**
PD1 is the price difference between P_1 and $P_{1Tmin.}$ *PD2* is the price difference between P_1 and $P_{1Tmax.}$ *SGMs* are events where the dividends are paid via the shareholders general meeting, and *BDMs* are events where the dividends are paid via a board of directors meeting. #Mean difference test comparing BDM vs. SGM. ***, **: 1% and 5% significance level, respectively.

	All		**BDM**		**SGM**	
Variable	**PD1**	**PD2**	**PD1**	**PD2**	**PD1**	**PD2**
Mean	0.018***	0.014***	0.022***	0.018***	0.014***	0.010***
STD	0.041	0.038	0.045	0.041	0.036	0.034
Min	-0.056	-0.060	-0.056	-0.060	-0.056	-0.060
Median	0.009	0.007	0.012	0.009	0.007	0.005
Max	0.213	0.183	0.213	0.183	0.194	0.173
N	394	394	208	208	186	186
t-value	8.81	7.49	7.17	6.42	5.19	4.02
z-value#					2.04**	2.11**
% > 0	68.79	64.72	73.56	68.75	63.44	60.22

In order to investigate in more detail what kind of companies have price increases on the ex-dividend date, we define a dummy variable 'UP' coded as '1' for those companies where the ex-dividend price is higher than the cum-dividend price (i.e. P_1 greater than P_0). Table III presents mean values for the total sample and the sub-sample dividends by the type of dividend (SGM vs. BDM) and by dividend yield quintiles. We observe that in 39% of the cases the trading price was higher on date '1' than on date '0'. This number increases to 60% for the low-yield dividend sub-sample and decreases to 15% for the high dividend yield group (the non-parametric test for difference in means is statistically significant at the 1% level). We also find that prices are more likely to increase on the ex-dividend date for unexpected dividends (42%) than for expected dividends (34%), but the non-parametric test for difference in means is only marginally significant (p-value < 0.11).

In general we observe that low-yield dividends increase the probability of price increases on the ex-dividend day. This finding is expected by the dividend clientele model since the higher the dividend yield, the higher the expected drop in the share price. However, to the extent that the price actually increases, the clientele model cannot explain this finding. The evidence also suggests that the price increase is due to the new information disclosed to the market when the dividend is paid via a BDM.

However, even for expected dividends where the information content is low, we still observe price increases. These results do not rule out the clientele hypothesis but do go against the theoretical predictions of the clientele model. They suggest that when dividends are unexpected, following the signaling hypothesis, the information disclosed to the market increases the probability of price increase on the ex-dividend date.

Table III – **UP Frequency**
UP is a dummy variable coded '1' if the stock price on date 1 was higher than the stock price on date '0'. *SGMs* are events where the dividends are paid via shareholders general meetings, and *BDMs* are events where the dividends are paid via board of directors meetings. *YIELD* is the dividend paid divided by the stock price on date '0' multiplied by 100.

UP	**Yield Quintiles**					
	1	2	3	4	5	All
All						
Mean Yield (%)	0.13	0.85	2.07	3.67	8.30	3.01
Mean UP	0.60	0.48	0.42	0.28	0.15	0.39
N	78	79	79	79	79	394
t-value	10.8	8.5	7.48	5.49	3.74	15.71
BDM						
Mean Yield (%)	0.20	0.81	2.04	3.67	7.91	3.00
Mean UP	0.59	0.46	0.49	0.33	0.18	0.42
N	59	28	41	36	44	208
t-value	9.2	4.84	6.17	4.18	3.09	12.32
SGM						
Mean Yield (%)	0.11	0.91	2.10	3.66	8.61	3.02
Mean UP	0.63	0.49	0.34	0.23	0.11	0.34
N	19	51	38	43	35	186
t-value	5.55	6.93	4.39	3.57	2.09	9.85

Multiple Regression Analysis

Table IV presents the descriptive statistics for the variables included in the multiple regression models. Dividends paid via a BDM represent 53% of the sample. The mean (median) dividend yield is 3%

(2.1%) and more than 75% of the sample paid dividend yields smaller than 5%. Panel B provides Pearson correlations for the variables. We observe that YIELD is positively correlated with price differences but negatively correlated with the UP variable.

Table IV – **Descriptive Statistics** **(continua)**

PD1 is the price difference between P1 and P1Tmin. PD2 is the price difference between P1 and P1Tmax. UP is a dummy variable coded '1' if the stock price on date '1' was higher than the stock price on date' '0'. YIELD is the dividend paid divided by the stock price on date '0' multiplied by 100. INFO is a dummy variable coded '1' for dividends announced via a BDM and '0' for dividends announced via the SGM. SIZE is the natural logarithm of a firm's total assets in the year before the dividend payment. EBITDA is earnings before interest, taxes, depreciation and amortization deflated by total assets. P-values are presented in italics.

Panel A – Descriptive statistics

Variable	N	Mean	STD	Q1	Median	Q3
PD1	394	0.018	0.041	-0.004	0.009	0.030
PD2	394	0.014	0.038	-0.006	0.007	0.027
UP	394	0.386	0.487	0	0	1
YIELD (%)	394	3.01	3.27	0.60	2.14	4.18
INFO	394	0.528	0.500	0	1	1
SIZE	394	14.792	1.695	13.353	14.832	15.755
EBITDA	394	0.053	0.070	0.000	0.012	0.092

Panel B – Correlation Matrix

	PD1	PD2	UP	YIELD (%)	INFO	SIZE
PD2	0.99 *<.0001*	--				
UP	0.24 *<.0001*	0.28 *<.0001*	--			
YIELD (%)	0.54 *<.0001*	0.46 *<.0001*	-0.29 *<.0001*	--		
INFO	0.10 *0.0422*	0.11 *0.0351*	0.08 *0.1084*	0.00 *0.9496*	--	

(conclusão)

SIZE	-0.25	-0.22	0.09	-0.41	0.17	--
	<.0001	*<.0001*	*0.0731*	*<.0001*	*0.0006*	
EBITDA	-0.01	-0.02	-0.25	0.12	-0.14	-0.18
	0.9191	*0.7509*	*<.0001*	*0.0135*	*0.0064*	*0.0003*

Table V presents the results for the multiple regressions with PD_{1a} and PD_{2a} as the dependent variables. Following our predictions, we observe a positive and statistically significant (at the 1% level) effect of YIELD, which suggests that the shares of companies that paid high dividends compared to the stock price traded at higher prices on the ex-dividend day. We also observe that unexpected dividends have a positive effect on stock prices since dividends announced via a BDM are priced 0.9% higher than dividends announced via the SGM (significant at the 5% level). This result is consistent with the informative effect of dividends given that dividends announced to the market via the shareholders general meeting (SGM) had been previously released and already incorporated into prices; hence the smaller market reaction. Finally, we observe no YEAR effect, suggesting that price differences do not reduce over time.

We estimate the model with a proxy for unexpected dividends calculated as the percentage difference between the current dividend yield and the dividend yield in the previous year. The purpose of this variable is to capture whether the dividend represents good or bad news for investors. We are able to estimate this variable for 352 observations, but its inclusion does not change the results presented in the paper.

In general, these results raise new questions about the determinants of stock prices on the first ex-dividend day. The results seem to contradict the clientele model since we observe a price increase on the first ex-dividend date. Furthermore, the findings favor the signaling hypothesis showing that unexpected dividends have positive effects on stock prices.

Table V - Multiple Regression Analysis for Price Difference

PD1 is the price difference between P_1 and $P_{1Tmin.}$ *PD2* is the price difference between P_1 and $P_{1Tmax.}$ *1996, 1997, 1998* and *1999* are dummy variables coded '1' if the dividend was paid in the specific year and '0' otherwise. *YIELD* is the dividend paid divided by the stock price on date '0' multiplied by 100. *INFO* is a dummy variable coded '1' for dividends announced via a BDM and '0' for dividends announced via the SGM. *SIZE* is the natural logarithm of a firm's total assets in the year before the dividend payment. *EBITDA* is earnings before interest, taxes, depreciation and amortization deflated by total assets. T-values are in italics, and *** and ** indicate significance at the 1% and 5% levels, respectively.

	PD1	**PD2**
	I	II
Intercept	0.020	0.021
	1.050	*1.110*
YIELD (%)	0.006***	0.005***
	11.110	*8.870*
INFO	0.009**	0.008**
	2.340	*2.330*
SIZE	-0.002	-0.002
	-1.460	*-1.520*
EBITDA	-0.036	-0.033
	-1.340	*-1.280*
1996	0.001	0.001
	0.200	*0.240*
1997	0.005	0.004
	0.770	*0.760*
1998	-0.003	-0.003
	-0.410	*-0.400*
1999	0.001	0.001
	0.180	*0.240*
R-Square	0.31	0.23
N	394	394

Table VI presents the results for a logistic regression using UP as the dependent variable. We find a negative relation between YIELD and UP. The results suggest that stocks that pay low dividends yields are more likely to increase in price on the first ex-dividend day. Another interpretation is that the market is not informed that the stock is traded ex-dividend. In this case, the higher the dividend yield, the higher the probability that the market knows that the stock is being traded ex-dividend, and

therefore the lower the likelihood of a price increase. We also find a positive coefficient on INFO although the result is not significant at conventional levels.

At first sight, one could argue that the reason that prices are driven up on the first ex-dividend day is that some dividends are small and may be unexpected to the market. In this case, the clientele model would not be able to predict the stock price. However, we refer to the results from Table III that show that, even for the highest yield quintile and for expected dividends (SGM cases), we observe that prices increase on the first ex-dividend date in 11% of the cases. Overall, the results in Tables V and VI explain part of the puzzle but some questions remain unanswered.

Table VI – **Multiple Regression Analysis for 'UP'** **(continuação)**
UP is a dummy variable coded '1' if the stock price on date '1' was higher than the stock price on date '0'. *1996, 1997, 1998* and *1999* are dummy variables coded '1' if the dividend was paid in the specific year and '0' otherwise. *YIELD* is the dividend paid divided by the stock price on date '0' multiplied by 100. *INFO* is a dummy variable coded '1' for dividends announced via a BDM and '0' for dividends announced via the SGM. *SIZE* is the natural logarithm of a firm's total assets in the year before the dividend payment. *EBITDA* is earnings before interest, taxes, depreciation and amortization deflated by total assets. T-values are in italics, and *** and ** indicate significance at the 1% and 5% levels, respectively.

	Dependent Variable: UP
Intercept	2.808**
	2.226
YIELD (%)	-0.273***
	-5.050
INFO	0.326
	1.344
SIZE	-0.142*
	-1.831
EBITDA	-7.865***
	-4.029
1996	-0.245
	-0.656
1997	-0.496
	-1.245
1998	-0.321
	-0.732
1999	-0.170
	-0.404

(conclusão)

R-Square	0.16
N	394

Event Study

We perform an event study to test whether the results above were produced by momentary speculation, insider trading, or over-reaction due to a preference for "birds-in-hand" as described by Bhattacharya (1979). We remove all observations with three or more days without negotiation in the event window, resulting in 368 observations. We censored the daily abnormal returns from the 1st and 99th percentiles to avoid the influence of extreme observations.

We tabulate abnormal returns and cumulative abnormal returns for the total sample and for the sub-sample depending on the information content of the dividend (SGM vs. BDM). Results in Table VII show, for the total sample, a positive abnormal return on the first ex-dividend day of 1.5%, significant at the 1% level. The abnormal return is higher for the unexpected dividends (1.8%) than for the expected dividends (1.1%).

We also observe that the abnormal return on date '0' is positive and statistically significant for the unexpected dividends. This suggests that some of the BDM dividend announcements are made before the market closes on the last cum-dividend date or that the market anticipates the information decided upon in the board meeting. Another possibility could be insider trading before the information becomes public knowledge in the market. Figure 1 presents the cumulative abnormal return, 'CAR', during the event window. We observe that the abnormal returns on the first ex-dividend day decrease on the following days but still remain at a new price level that is higher than the new expected theoretical price. Overall, the results corroborate tests performed on the clientele hypothesis in the previous section that find an abnormal return on the first ex-dividend day.

Table VII -**Abnormal Returns**

Abnormal returns are calculated according to the market model as the difference between the observed stock price return and the market portfolio return. We compute the cumulative abnormal return as the sum of the average abnormal return. Date '0' represents the last cum-dividend day. *SGMs* are events where the dividends are paid via shareholders general meetings, and *BDMs* are events where the dividends are paid via board of directors meetings. ***, **, *: 1%, 5% and 10% significance levels, respectively.

	All		**BDM**		**SGM**	
Date	**AR**	**CAR**	**AR**	**CAR**	**AR**	**CAR**
-5	0.002	0.002	0.000	0.000	0.004	0.004
-4	0.001	0.003	0.002	0.002	0.000	0.004
-3	0.000	0.003	-0.001	0.001	0.001	0.005
-2	0.000	0.003	0.000	0.001	0.000	0.005
-1	0.000	0.003	-0.001	0.000	0.001	0.006
0	0.004**	0.006*	0.005**	0.005	0.002	0.008
1	0.015***	0.021***	0.018***	0.023***	0.011***	0.020***
2	-0.003**	0.018***	-0.001	0.022***	-0.006***	0.014**
3	-0.001	0.017***	0.001	0.023***	-0.003*	0.010
4	0.001	0.018***	0.000	0.022***	0.003	0.013*
5	0.000	0.018***	-0.002	0.021***	0.002	0.015**
Obs	364		197		167	

Table VIII presents the abnormal volumes for the total sample and for the sub-sample depending on the information content of the dividend (SGM vs. BDM). Daily abnormal volumes are censored [removed from?] the 1st and 99th percentiles. We find positive abnormal volumes for the dates –1, 0, and +1, but the result is mainly driven by the unexpected dividends since the abnormal volumes for the expected dividends are positive but not statistically significant.

Figure 2 presents daily abnormal volumes for the three samples. The results suggest an abnormal behavior due to the information content of the dividend; however, we do not find any abnormal behavior suggesting there is clientele trade, i.e., driven by the different tax incentives or insider trading over the few days before any stock becomes ex-dividend.

We re-estimate the abnormal volumes (untabulated) for each year to check for the existence of a time trend. We would expect that the abnormal volume would decrease over time reflecting the market learning about the stock mispricing. Consistent with our predictions, we find that abnormal volumes in 1996 (133% for both BDM and SGM) are much higher than the abnormal volumes in the rest of the period (28%), although both are statistically different from zero. However, even after excluding 1996, we still find a positive and statistically significant abnormal volume on dates '-1', '0', and '+1' for the dividends paid via a BDM (52%, 49%, and 29%, respectively).

Table VII -**Abnormal Volume**
We calculate the abnormal volume on date *t* as the difference between the average stock volume between days –40 and –10 and the stock volume on date *t*. Date '0' represents the last cum-dividend day. *SGMs* are events where the dividends are paid via shareholders general meetings, and *BDMs* are events where the dividends are paid via board of directors meetings. ***, **, *: 1%, 5% and 10% significance levels, respectively

	All	**BDM**	**SGM**
Date	**ABV**	**ABV**	**ABV**
-5	0.073	0.071	0.075
-4	0.135	0.080	0.188
-3	-0.037	0.076	-0.147*
-2	0.112	0.142	0.082
-1	0.241***	0.293**	0.189
0	0.665***	1.099***	0.242
1	0.358***	0.636***	0.087
2	0.031	0.138	-0.074
3	0.007	-0.032	0.045
4	0.118	0.295*	-0.054
5	0.193*	0.487**	-0.093
Obs	314	155	159

CONCLUSION

We investigate the clientele effect during the sample period of 1996 to 2000. The clientele hypothesis was first proposed by Miller and Modigliani (1961) and then tested by Elton and Gruber (1970). Since then several papers have tested the EG model with mixed evidence, with Procianoy and Verdi (2003) producing important evidence that is inconsistent with the existence of a clientele effect in the Brazilian market. Contrary to the clientele hypothesis, they find evidence of a price increase on the first ex-dividend day, suggesting that investors were paying more for a stock without a dividend than they were for the same stock with the right to receive the dividend.

This paper extends the research in Procianoy and Verdi (2003) by exploring the fact that Brazilian companies are allowed to pay dividends via two processes: Shareholders General Meeting (SGM) and Board of Directors Meeting (BDM). All SGMs are called at least 8 days in advance and clearly state their proposal whereas BDM dividends are not pre-announced. Therefore, on the last cum-

dividend date, SGM dividends are already expected whereas BDM dividends are unexpected by investors.

Using a sample of 394 dividend distributions from 119 companies during 1996 to 2000 we find, like Procianoy and Verdi (2003), that on the first ex-dividend day the actual stock price is on average 1.8% higher than the price expected by the dividend clientele model and results in an abnormal return of 1.5%, which is significant at the 1% level. Dividends announced via a BDM are priced 0.9% higher than dividends announced via the SGM (significant at the 5% level). However, even with dividends that are previously announced via the SGM the stock prices are higher than expected. This suggests that the findings in Procianoy and Verdi (2003) are not purely driven by the information content of the dividends announced via a BDM. Finally, we find evidence of a positive abnormal volume around the dividend payments via a BDM, which is consistent with the signaling hypothesis, but we do not find abnormal trading volumes around the ex-dividend date for dividends previously announced via the SGM.

Although we cannot rule out clientele adjustments to prices on the ex-dividend date, our results are inconsistent with the clientele model's predictions and support the signaling theory of dividends. Our results explain some of the findings in Procianoy and Verdi (2003) but many questions remain unanswered since we find, like these authors, that investors pay more for a stock without dividend than for the same stock with a dividend.

Nevertheless, our study contributes to academic literature by jointly studying the clientele and the signaling hypotheses in a unique setting. In addition, our results have implications for the non-academic community such as managers, asset management investors, and institutional investors looking to increase the returns on their investments. Finally, given the increased attention to emerging economies, an opportunity exists to investigate a similar question in other markets such as Russia, India, and China. We leave this for future research.

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