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Payout Policy in Brazil: Dividends versus Interest on Equity

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Abstract

Brazilian tax law allows firms to make cash distributions to shareholders in two forms: dividends and interest on equity. Theory suggests that firms should favor interest on equity payments because the net tax burden is lower compared to dividends. We find that taxes are a primary determinant of Brazilian firms' payout policy decisions, as profitability and payout ratios (nonequity tax shields) are positively (negatively) related to the likelihood that a firm pays interest on equity. However, many firms continue to pay dividends despite the tax advantages of interest on equity payments. Abnormal returns around payout policy announcements suggest that these firms are, at least in part, catering to investor demand.

JEL Classification G35

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Payout Policy in Brazil: Dividends versus Interest on Equity

1. Introduction

According to Black (1976), taxes should be a primary determinant of firms' payout policy decisions. When capital gains are tax-advantaged relative to dividends, investors should place a higher value on firms that retain earnings and repurchase shares than firms that pay dividends. Thus, tax rulings that change the relative value of payout forms to investors should result in predictable changes to firms' payout policies. However, prior research offers conflicting evidence on the association between taxes and payout policy. Michaely (1991) and Smith and Watts (1992) find little evidence that firms significantly alter their payout policies around the United States' Tax Reform Act of 1986, while studies of tax law changes in Australia (Pattenden and Twite, 2008), Canada (Khoury and Smith, 1977), Finland (Korkeamaki et al., 2010), and the United Kingdom (Poterba and Summers, 1984) find that payout policy changes in a manner consistent with expectations.

In 1996, Brazilian tax law was changed to allow firms to distribute cash to shareholders in the form of cash dividends, notational interest on equity, or a combination of the two. Dividends are taxed only at the corporate level, while interest on equity payments are tax deductible at the corporate level but subject to a withholding tax at the shareholder level. The net tax burden is lower for interest on equity payments than for dividends, which provides an incentive for firms to distribute cash to shareholders through interest on equity. We leverage Brazil's unique institutional setting to study the effect of taxes on firms' payout policy decisions.

It is our opinion that the Brazilian tax regime offers the best empirical setting available to date for studying the effect of taxes on payout policy. Whereas prior studies generally compare dividends to capital gains, we benefit from a setting in which firms have two ways to distribute cash directly to shareholders that does not involve capital gains. In effect, we believe that

dividends and interest on equity are closer substitutes than dividends and capital gains. This has important implications in terms of free cash flow theory, signaling theory, and behavioral influences on payout policy, each of which provides reasons why investors might prefer dividends to tax-advantaged capital gains. Free cash flow theory posits that dividends reduce managements' temptation to use excess cash to benefit themselves at the expense of outside investors (e.g., Easterbrook, 1984; Jensen 1986). Signaling theories suggest that dividend policy conveys information to investors (e.g., Bhattacharya, 1979; John and Williams, 1985; Miller and Rock, 1985). Behavioral arguments provide several reasons why investors might place a higher value on dividends than capital gains (e.g., Shefrin and Statman, 1984; Baker and Wurgler, 2004). Thus, if dividends provide advantages that outweigh their negative tax consequences, firms may rationally choose a payout policy that is not optimal when viewed only from the perspective of taxes. In Brazil, whether a firm chooses to pay cash dividends or interest on equity, cash is removed from managerial discretion, information can be communicated to investors, and behavioral biases can be satisfied. Thus, the choice between dividends and interest on equity isolates that effect of taxes on payout policy.

We find that the proportion of firms that make interest on equity payments dramatically increases following Brazil's 1996 tax reform. From 1996 to 2007, considering only firms that distribute cash to shareholders through dividends, interest on equity, or a combination of the two, the proportion of firms that pay interest on equity increases from 10.2 percent to 57.2 percent. However, the fact that nearly 43 percent of firms continue to pay only cash dividends is

surprising given the tax advantages of interest on equity and the frequent complaints about Brazil's high taxes.[1]

With the dramatic increase in the use of interest on equity as our backdrop, we execute an in-depth study of payout policy in Brazil with three primary objectives in mind. First, we study how firm characteristics such as profitability, payout ratio, and non-equity tax shields (i.e., tax shields not related to the tax deductibility of interest on equity payments) affect firms' payout decisions. If firms set payout policy in order to maximize after-tax returns, we expect that more profitable firms and firms with higher payout ratios should favor interest on equity payments. Because the primary benefit of interest on equity payments is the tax shield they provide, we expect that firms with significant non-equity tax shields will find interest on equity payments less attractive. Consistent with the notion that firms choose payout policies that maximize after-tax returns, we find that current earnings, retained earnings, and payout ratio (non-equity tax shields) are positively (negatively) correlated with the probability that a firm makes interest on equity payments. We also find that Brazilian companies that voluntarily commit to higher standards of investor protection and transparency tend to pay a larger fraction of their total distribution to investors in the form of interest on equity than firms that do not make such commitments.

Our second objective is to study how changes to firm characteristics affect the likelihood that a firm alters its payout policy. We expect that increases (decreases) in profitability (non-equity tax shields) make it more likely that a dividend-paying firm shifts to interest on equity payments. Consistent with our conjecture, we find that firms are more likely to switch from

[1] For example, although Estevão (2007) praises Brazil's efforts to build robust economic fundamentals to sustain growth, he suggests that fiscal consolidation policies need to rely more on tighter expenditure growth because the tax burden already represents 40 percent of the Brazilian GDP.

dividends to interest on equity when profitability (non-equity tax shields) increases (decreases). That is, an increase in profitability or a decrease in deductions from non-equity tax shields leads firms to switch to the more tax-efficient payout form. Firms that pay interest on equity are more likely to begin paying strictly dividends following increases in non-equity tax shields. Dividend (interest) payers that increase their payout ratios are also more (less) likely to shift to interest (dividend) payments, suggesting that firms tend to favor the payout form with lower net tax burden when the consequences are greater.

Our third objective is to study the market's reaction to payout policy announcements. In Brazil, payout policy decisions are made by the board of directors or proposed by the board and voted on by the shareholders. While the proposed payout is announced in advance of a shareholder meeting, the decision by the board of directors is publicly disclosed only after the board meeting. Consequently, we examine these two events separately and find that abnormal returns are positive and marginally significant for announcements of interest payouts voted on by shareholders and positive and highly significant for the announcement of both dividend and interest payouts voted on by boards of directors. Controlling for yield and firm size, we find that abnormal returns are significantly lower for interest payouts and payout decisions that are voted on by shareholders.

This paper contributes to the growing literature on corporate payout policy and addresses a question that has challenged researchers and practitioners for decades: How do taxes affect payout decisions? Related studies include Eckbo and Verma (1994), who show that Canadian firms' cash dividends are positively (negatively) correlated with corporate/institutional (managerial) voting power, and Pattenden and Twite (2008), who find that tax preferences impact payout policy following the introduction of a dividend imputation tax system in Australia.

Likewise, Korkeamaki et al. (2010) find that dividend policy changes around major tax reform in Finland account for the tax-effects of the reform on firms' shareholders. Our results suggest that Brazilian firms' payout policies are also influenced by taxes.[2] However, we also find that demand for cash dividends remains despite their apparent disadvantages.

The remainder of this paper is organized as follows. In Section 2, we discuss the related theory and our hypotheses. In Section 3, we describe our sample. We report our empirical findings in Section 4 and conclude in Section 5.

2. Related theory and hypotheses

To understand the importance of payout policy, one must consider the impact of taxes, and tax deductible distributions, on firm value. In their seminal paper, Modigliani and Miller (1963) demonstrate that, when interest payments are tax deductible, firm value increases with the firm's debt level. However, Miller (1977) notes that personal taxes also play a role because personal tax rates often differ for interest payments and equity distributions. Miller expresses the value of a levered firm in the presence of both corporate and personal taxes as follows:

$$V_L = V_U + \left[1 - \frac{(1-\tau_C)(1-\tau_{PS})}{(1-\tau_{PB})}\right] B_L, \tag{1}$$

where V_L is the value of a levered firm, V_U is the value of an unlevered firm, τ_C is the corporate tax rate, τ_{PS} is the personal income tax rate on income from common stock, τ_{PB} is the personal income tax rate on income from debt, and B_L is the value of the levered firm's debt.

[2] Procianoy (1996) finds that Brazilian firms' payout policies are affected by changes to the personal tax rate on dividends implemented in the late 1980s.

Brazilian tax law allows for distributions to shareholders in the form of dividends or notational interest on equity. Although shareholders are subject to a withholding tax on interest payments and there are no personal taxes on dividends, the net tax effect of interest payments is lower because they are deductible at the corporate level. Within this institutional framework, Lee-Ness and Zani (2001) model the value of a company with outstanding debt and equity as follows:

$$V_L = V_U + \left[1 - \frac{(1-\tau_C)(1-\tau_{PS})}{(1-\tau_{PB})}\right] B_L + \frac{(TJLP)(S)}{k_e}(\tau_C - \tau_{PS*}), \tag{2}$$

where τ_{PS*} is the withholding rate on income from interest on equity, S is shareholders' equity before the current period's earnings, k_e is the cost of equity, and TJLP is the Long-Term Interest Rate, which is determined by the National Monetary Council as the sum of an inflation target rate plus a risk premium. The term $\frac{(TJLP)(S)}{k_e}(\tau_C - \tau_{PS*})$ in Eq. (2) represents the marginal benefit of paying interest on equity instead of cash dividends. Eq. (2) indicates that firm value increases for firms that pay interest on equity instead of cash dividends whenever the corporate tax rate (τ_C) is greater than the withholding rate (τ_{PS*}).[3]

To illustrate the consequences of Brazil's unique institutional structure, in Table 1 we report a simple numerical example.[4] As of 2007, the maximum corporate tax rate in Brazil is 34 percent, cash dividend payments are not taxed at the personal level, and a 15 percent withholding

[3] In order for interest on equity payments to qualify as tax deductible, the notional rate of return on equity cannot be higher than the TJLP, and the total amount distributed as interest on equity cannot exceed 50 percent of the current period's earnings before interest on equity and taxes or 50 percent of retained earnings plus earnings reserve before the current period's earnings.

[4] Carvalho (2003) reports a similar numerical example.

tax is levied on interest on equity payments.[5] The first results column considers a company with earnings before interest on equity and taxes of R$100,000,000 that pays R$15,675,000 in cash dividends to investors. The firm's corporate tax liability is R$34,000,000. The second column considers the same company paying R$18,441,176 in interest on equity instead of dividends. The interest on equity payment is tax deductible at the corporate level, resulting in a corporate tax liability of R$27,730,000. At the investor level, the interest on equity payment is subject to the 15 percent withholding tax, resulting in a net payment of R$15,675,000 to shareholders. In either case, investors receive a R$15,675,000 after-tax distribution from the firm. However, the aggregate corporate plus personal tax liability is R$3,503,824 lower when interest on equity is paid compared to cash dividends. This simple example illustrates the tax advantage of interest on equity payments.

<< TABLE 1 ABOUT HERE>>

The fact that more profitable firms and firms with larger distributions stand to benefit more from the tax deductibility of interest on equity payments than less profitable firms and firms with smaller distributions leads us to our first hypothesis:

H1: The probability that a firm makes interest on equity payments is positively related to the firm's profitability and payout ratio.

[5] Corporate income tax in Brazil has two components: a federal income tax and a social contribution tax. As of December 31, 2007, the federal income tax and the social contribution tax are assessed at a rate of 25 percent (a 15 percent basic rate plus 10 percent on taxable income over R$240,000) and 9 percent, respectively. The social contribution rate was 12 percent from May 1, 1999 to January 31, 2000 and 8 percent prior to May 1, 1999. Interest on equity has been treated as an expense for income tax purposes since 1996 and for social contribution tax purposes since 1997.

DeAngelo and Masulis (1980) extend Miller's model to include non-debt tax shields, which are potential substitutes for interest tax shields. Consistent with this notion, MacKie-Mason (1990) finds that firms with high tax loss carryforwards are less likely to use interest-bearing debt and that investment tax credits reduce the probability that nearly tax-exhausted firms issue debt. Unlike the aforementioned studies that consider interest payments on debt, we study interest payments on equity. Thus, we are interested in the effect of non-equity tax shields (i.e., tax shields not related to the tax deductibility of interest on equity payments) on firms' payout policy choices. Because the incremental tax advantage of interest on equity declines with non-equity tax shields, our second hypothesis predicts the following:

H2: The probability that a firm makes interest on equity payments decreases as non-equity tax shields increase.

In December 2000, the São Paulo Stock Exchange (Bovespa) launched a premium segment, called Novo Mercado, for companies that voluntarily commit to "good practices of corporate governance". Bovespa also created Nível (Level) 2 and Nível 1 for companies that are unwilling to commit to the one-share, one-vote policy required of Novo Mercado firms. Nível 2 allows for non-voting stocks but requires compliance with all other Novo Mercado rules. Nível 1 only requires compliance with a 25-percent minimum free float requirement and the more stringent disclosure rules that are common to the three good governance levels. A commitment to higher standards of investor protection and transparency is expected to manifest itself in value-maximizing firm-level decisions. This leads us to our third hypothesis:

H3: The probability that a firm makes interest on equity payments is higher for companies that voluntarily commit to higher standards of investor protection and transparency.

Prior studies provide evidence that shareholders benefit when firms make a voluntary commitment to higher standards of corporate governance. For example, Carvalho and Pennacchi (2009) find that the price differential between voting and non-voting stocks decreases for firms that voluntarily move to Bovespa's good governance segments. Likewise, Carvalhal da Silva and Subrahmanyam (2007) report a negative relation between firm-level governance and the premium paid for voting shares.

3. Sample and methodology

3.1. Sampling procedures

Our sample construction begins with all non-financial firms listed on Bovespa from 1996 through 2007. We obtain information on payout policy from annual reports filed at the Comissão de Valores Mobiliários and available through INFOinvest.[6] Firm-level financial data is obtained from Economatica. Because we are studying the choice between interest on equity and cash dividends, we eliminate firm-year observations with no cash distributions to shareholders. In order to guarantee that the firms in our sample are eligible to make tax-deductible interest on equity payments, we only retain firms with positive book value of equity and either positive earnings before interest on equity and taxes or positive retained earnings plus earnings reserve before the current period's earnings. We are left with a final sample of 286 unique firms and

[6] Comissão de Valores Mobiliários is the Brazilian equivalent of the U.S. Securities and Exchange Commission.

1,427 firm-year observations for which data is available to calculate the following variables (variable names in parenthesis):[7]

- Current year earnings before interest and taxes divided by sales (*EBIT/sales*);
- Previous year retained earnings plus earnings reserve divided by the book value of assets (*Retained earnings/assets*);
- Interest on equity and/or dividends divided by earnings before interest on equity and taxes (*Payout ratio*);
- Non-equity tax shields divided by sales (*NETS/sales*);
- Depreciation and amortization divided by sales (*Depreciation/sales*);
- Financial expenses divided by sales (*Financial expenses/sales*);
- A dummy variable set equal to one for firms listed on Novo Mercado, Nível 2, or Nível 1 in year *t,* and zero otherwise (*Good governance*);
- Inflation-adjusted book value of total assets (*Assets*);
- Capital expenditures divided by the book value of assets (*Capex/assets*);
- Market-to-book ratio (*Market-to-book*);
- Dummy variables set equal to one for firms where the single largest stockholder is a family, pension fund, or foreign investor, and zero otherwise *(Family owned, Pension fund owned, Foreign owned)*.

3.2. Descriptive Statistics

In Table 2, we report summary statistics for our sample. We separate firms into (a) firms that pay interest on equity (including firms that pay a combination of interest on equity and

[7] We winsorize all accounting variables at the 1 and 99 percent levels to mitigate the effect of outliers.

dividends) and (b) firms that pay only cash dividends. For each group, we report means and medians for our variables of interest. The final two columns report the difference in means and medians between the two groups and significance levels from *t*-tests and Wilcoxon rank-sum tests, respectively.

<< TABLE 2 ABOUT HERE>>

We use the ratios of EBIT to sales and retained earnings to assets in order to assess how current and past profitability affect Brazilian firms' payout decisions. Payout ratio is considered to study whether firms that distribute a larger portion of earnings prefer the payout form that maximizes the firm's after-tax return (interest on equity) or the payout form that minimizes shareholders' personal tax liability (cash dividends).[8] Consistent with our first hypothesis, we find that interest payers are significantly more profitable and have higher payout ratios than firms that pay only cash dividends.

Prior research finds that non-debt tax shields substitute for interest tax shields. Inspired by Titman and Wessels (1988), we estimate non-equity tax shields (NETS) from operating income (OI), interest on equity payments (IE), observed federal income tax payments (T), and the corporate tax rate (τ_C) as follows:

$$\text{NETS} = \text{OI} - \text{IE} - \frac{\text{T}}{\tau_C}, \tag{3}$$

For comparability, we normalize NETS by dividing by sales. As an alternative to NETS/sales, in some tests we use the ratio of financial expenses to sales to proxy for non-equity tax shields, where financial expenses include items such as interest payments and monetary and foreign exchange variation. Because depreciation and amortization lowers a firm's tax liability,

[8] Paiva and Lima (2001) find that firms that pay interest on equity have higher payout ratios than firms that do not pay interest on equity. However, they report that the difference is not statistically significant.

we also include the ratio of depreciation and amortization to sales. Although the average NETS/sales ratio is not different for interest on equity payers and dividend payers, Table 2 indicates that firms that pay interest on equity tend to have lower depreciation to sales and financial expenses to sales ratios than firms that pay only dividends. This is consistent with our second hypothesis which predicts a tradeoff between interest on equity payments and non-equity tax shields.

The good governance dummy identifies firms that voluntarily commit to strong firm-level governance and disclosure standards by listing on the Novo Mercado, Nível 2, or Nível 1. This variable is set to zero for all firms through 2000. Our third hypothesis predicts that the likelihood that a firm makes interest payments is greater for firms that voluntarily commit to stronger firm-level governance and disclosure standards. Consistent with this notion, we report that interest payers are nearly 7 percentage points more likely to be listed on Novo Mercado, Nível 2 or Nível 1 than dividend payers. The accounting variables in Table 2 indicate that interest payers tend to be larger than dividend payers, as measured by total assets, and tend to have stronger growth opportunities, as indicated by higher capital expenditures to assets and market-to-book ratios.[9] The ownership dummies suggest that interest on equity payers are less (more) likely to have a family (pension fund or foreign stockholders) as their largest shareholder than are dividend payers.[10]

Table 3 reports the percentage (number) of interest on equity payers and the percentage of total cash payouts in the form of interest on equity from 1996 through 2007. We report a rapid

[9] Unreported tests offer mixed evidence on the valuation effects of interest on equity payments.

[10] Punsuvo et al. (2007) suggest that pension fund ownership and corporate governance standards are substitutes for Brazilian firms.

increase in the number of firms making interest on equity payments following the tax reform. In 1996, 10.2 percent of firms that make equity distributions do so through interest on equity. By 1997 the percentage increases almost fourfold to 39.0 percent. However, despite the clear tax advantage of interest payments, nearly 43 percent of sample firms continue to pay only cash dividends in 2007. The final column of Table 3 reports that, from 1996 to 2007, interest on equity as a percentage of the total cash distribution to shareholders increases from 7.2 percent to 34.9 percent, on average.

<< TABLE 3 ABOUT HERE>>

4. Empirical results

4.1. Who pays interest on equity?

In Table 4, Panel A, we estimate probit regressions to study the factors that affect the likelihood that a firm makes interest on equity payments. The dependent variable is set equal to one for firms that pay interest on equity, including firms that pay a combination of interest and dividends, and zero for firms that pay only cash dividends. Recall that our first hypothesis predicts that firm profitability is positively related to the likelihood that a firm makes interest on equity payments. The intuition is that more profitable firms stand to benefit more from the tax deductibility of interest on equity payments. In Table 4, Panel A, we report results consistent with our hypothesis. The coefficients on the ratios of EBIT to sales and retained earnings to assets are positive and statistically significant in every model. Also consistent with our first hypothesis, we find that firms with higher payout ratios tend to favor interest on equity distributions.

<< TABLE 4 ABOUT HERE>>

Our second hypothesis predicts that non-equity tax shields decrease the probability that a firm makes interest on equity payments. Table 4 provides significant support for this notion as the negative coefficients on NETS to sales, depreciation to sales, and financial expenses to sales indicate that firms are less likely to pay interest on equity when they have higher levels of non-equity tax shields. These results suggest that non-equity tax shields substitute for the tax-deductibility of interest on equity payments, reducing the probability that a firm makes interest on equity payments.

Our third hypothesis predicts that firms that voluntarily commit to strong firm-level governance and disclosure standards are more likely to make interest on equity payments. The results in Table 4, Panel A, provide only weak support for this notion as the coefficients on the good governance dummy variable are positive but not statistically significant. Of the remaining control variables, only firm size and the pension fund dummy are significantly related to the probability that a firm makes interest on equity payments.[11] The positive relation between pension fund ownership and the probability that a firm makes interest on equity payments suggests two, non-mutually exclusive, possibilities. First, as sophisticated investors, pension funds may be more skilled at identifying and investing in firms that make better payout policy decisions. Second, pension fund may have the ability to influence firms' payout policy decisions.

As an alternative to the probit estimations reported in Panel A, in Panel B we report Tobit regressions where the dependent variable is equal to the ratio of interest on equity to total cash distributed to shareholders (dividends plus interest on equity). The results continue to support our

[11] In a related study, Mota (2007) finds that sales growth, financial leverage, and a recent IPO make it more likely that a firm makes interest on equity payments between 2002 and 2005. In unreported tests, we find that these factors are not significantly related to the probability that a firm pays interest on equity when included in our models.

hypotheses. We find that past profitability and payout ratio are positively related to the fraction of firms' equity distributions that are paid in the form of interest on equity. Also, firms with higher ratios of depreciation to sales and financial expenses to sales tend to pay less interest on equity as a percentage of their total cash distribution to shareholders. Consistent with our third hypothesis, companies that commit to higher standards of shareholder rights and transparency have interest in equity to total cash ratios that are 28 to 35 percentage points higher than firms that do not make similar commitments.

4.2. Changes to the form of payout

In Table 5, we study the firm-level factors that lead to changes in firms' forms of payout. In Table 5, Models 1 and 2 our objective is to study the effects of changes in profitability, non-equity tax shields, and payout ratios on the likelihood that a firm that pays only cash dividends begins paying interest on equity. We estimate probit regressions where the dependent variable is set equal to one for firms that pay only dividends in year t-1 and begin making interest on equity payments in year t, and zero for dividend payers in year t-1 that continue to pay only dividends in year t. We expect that changes in profitability and payout ratios (non-equity tax shields) will be positively (negatively) correlated with the likelihood that a dividend-paying firm begins making interest on equity payments. Consistent with expectations, we find that dividend-paying firms are more likely to being paying interest on equity following increases in current profitability and payout ratios. We also find that dividend payers with increases (decreases) in their NETS to sales ratio are less (more) likely to begin making interest on equity payments. This suggests that when alternative tax shields are available, dividend-paying firms are less likely to begin paying interest on equity to capture the tax benefits. Surprisingly, an increase in

depreciation expenses is also associated with an increase in the probability that a dividend payer begins making interest payments. A possible explanation for this result may be that depreciation is directly related to the level of current investments, and higher investment levels compel managers to make more efficient use of the company's cash-flow.

<< TABLE 5 ABOUT HERE>>

In Table 5, Models 3 and 4 we examine interest paying firms and the likelihood that they switch to strictly cash dividends. We estimate probit regressions where the dependent variable is set equal to one for firms that make interest payments in year t-1 and pay only cash dividends in year t. The dependent variable is set to zero for firms that continue making interest payments in year t after making interest payment in year t-1. Our objective in Models 3 and 4 is to measure the effects of changes in profitability, non-equity tax shields, and payout ratios on the probability that a firm pays only dividends in the year after one in which they make interest on equity distributions. We expect that changes in profitability and payout ratios (non-equity tax shields) will be negatively (positively) correlated with changes to dividend payments for firms making interest payments. The negative coefficient on the change in the EBIT to sales ratio is consistent with the notion that firms that become more profitable are less likely to switch from interest on equity to dividends. However, this result is only marginally significant (Model 3 coefficient *p*-value = 0.108). We find that interest paying firms are more likely to begin paying only dividends when NETS and depreciation expenses increase, which suggests that the tax deductibility of interest on equity payments is their main attraction to firms. We also find that increases in payout ratios make it less likely that an interest payer switches to dividends.

4.3. Market reaction to payout announcements

In this section, we study the market's reaction to payout policy announcements. In Brazil, distribution decisions are made in either shareholder meetings or board of directors meetings. We follow Procianoy and Verdi (2009) and study shareholder votes and board of director decisions separately. Shareholder meetings are announced at least 8 days in advance of the meeting, whereas board meetings and their decisions should not be anticipated by the market. We retrieve data on meeting dates, form of distribution, and distribution amount per share from annual reports filed at the Comissão de Valores Mobiliários which are available through INFOinvest. Stock prices adjusted for dividends and stock splits are from Economatica.

Standard event study methodologies can be misspecified when applied to less-liquid stocks in less-developed markets. To account for the possibility of thin trading, we follow Maynes and Rumsey's (1993) trade-to-trade approach, which expresses the market model for n_t unobserved one-day returns as:

$$R_{j,n_t} = \alpha_j n_t + \beta_j R_{m,n_t} + \sum_{s=0}^{n_t-1} \varepsilon_{j,t-s}, \tag{4}$$

where R_{j,n_t} is the trade-to-trade return for stock j on day t and R_{m,n_t} is the trade-to-trade return on the market index calculated to match the return period of stock j on day t. We estimate Eq. (4) using Ordinary Least Squares (OLS) between days –250 and –11 to estimate $\hat{\alpha}_j$ and $\hat{\beta}_j$. We use Ibovespa as the market index and include only those events for which stock j has positive trading volume for each of the three days centered on the event date. The abnormal return is given by Eq. (5):

$$A_{j,n_t} = R_{j,n_t} - \hat{\alpha}_j n_t - \hat{\beta}_j R_{m,n_t}, \tag{5}$$

Because the error terms in Eq. (4) are heteroskedastic with variance equal to $n_t \sigma_j^2$, we divide the data by the square root of n_t for estimating purposes. To account for cross-sectional

dependence in the data, we follow Brown and Warner (1985) and calculate cumulative abnormal returns using the time series of portfolio returns.

Announcement dates of shareholder meetings are available beginning in 2003, which corresponds to fiscal year 2002. In Table 6, Panel A we report abnormal returns around announcements of shareholder meetings from fiscal years 2002 through 2007 where the event day corresponds to the announcement of a distribution to be voted on by the shareholders. Because net taxes are lower for interest on equity payments and investors maximize after-tax returns, we expect higher abnormal returns for shareholder votes on interest on equity payouts (or a combination of interest and cash dividends) than for shareholder votes on cash dividends. Consistent with expectations, we find that returns higher around announcements of interest on equity payments. However, returns are marginally statistically significant at best and the difference in returns between interest on equity and dividend announcements is not significant for any of the return windows in Panel A.

<< TABLE 6 ABOUT HERE>>

In Panel B, we examine abnormal returns following announcements of payout decisions made by the board of directors. In order to allow for comparison with the results reported in Panel A, we again restrict our sample period to fiscal years 2002 and 2007. We report positive abnormal returns around announcements of both interest on equity and dividend distributions but, contrary to expectations, returns are larger for dividend payments. For example, cumulative abnormal returns over the three days centered on the announcement date ([–1, +1]) are 0.68 percentage points higher around dividend announcements than interest on equity announcements.

We repeat our analysis in Table 6, Panels C and D using the actual dates of shareholder and board meeting from fiscal years 1996 through 2007 as the event date (as opposed to the

announcement date of shareholder meetings reported in Panel A). We report that abnormal returns are statistically significant for dividend payouts voted on by shareholders (Panel C) and for both interest and dividend payouts decided in board meetings (Panel D). As was the case in Panel B, cumulative abnormal returns tend to be higher for dividends than for interest on equity.

In Table 7, we report the results of a multivariate analysis of three-day cumulative abnormal returns around announcements of payout decisions made in shareholder and board meetings from 1996 through 2007. In Models 1 and 2, we control for the form of payout by including a binary variable that is set to one for announcements of distributions that include interest on equity, and zero for dividend-only distributions (*Interest dummy*). As an alternative, in Models 3 and 4 we use the ratio of interest on equity to total distribution (interest plus dividend) as the dependent variable (*Interest ratio*). In addition, we include the following control variables:

- *Payout change*: a binary variable set equal to one if the previous form of payment was cash dividends and the current form of payment includes interest on equity, and zero otherwise;
- *Shareholder meeting*: a dummy variable set equal to one if the form of payment was decided during a shareholder meeting, and zero otherwise;
- *Yield*: the total amount paid as interest and/or dividends dividend by the stock price;
- The natural logarithm of the inflation-adjusted *market value of equity*.

<< TABLE 7 ABOUT HERE>>

We estimate the regressions using OLS with robust, firm-clustered standard errors. The results indicate that the form of payout has a significant impact on abnormal returns around payout announcements. Cumulative abnormal returns are 0.68-0.73 percentage points lower, on

average, for interest on equity announcements than for dividend announcements. The negative coefficients on the variable *Shareholder meeting* suggest that abnormal returns are 0.82-0.84 percentage points higher for payout decisions made by the board of directors. The remaining control variables indicate that yield is positively related to abnormal returns, a result previously reported by Novis and Saito (2003), and that firm size is negatively related to abnormal returns. The later result is consistent with the notion that larger companies have a richer information environment due to a more extensive coverage by financial analysts and the specialized press.

4.4. Ex-right day price behavior

Elton and Gruber (1970) argue that, in the presence of personal taxes on dividends and capital gains, ex-dividend day price change should reflect the post-tax value of the dividend relative to the post-tax value of capital gains. In this section, we examine stock price behavior on ex-dividend and ex-interest days between fiscal years 1996 and 2007. Our extended sample period allows us to consider the effect of changes to the capital gains tax rate in both 2002 and 2005.[12] Our sample also includes a larger cross-section of firms that pay dividends and interest on equity (168 unique companies) than is considered in prior studies. In this section, we exclude events in which a firm makes both dividend and interest on equity payments.

We estimate the tax effects of dividends and interest on equity payments by comparing the returns on the stocks that go ex-right with the return on the Ibovespa stock index between the last cum-right and the first ex-right day. Elton et al. (2005) suggest that the following relation should hold when dividends are not taxable:

[12] Perobelli et al. (2009) report that the capital gains tax rate in Brazil is 10 percent between 1996 and 2001, 20 percent between 2002 and 2004, and 15 percent beginning in 2005.

$$\frac{P_X - P_B + D}{P_B} - r = \frac{D}{P_B}\left(\frac{-t_G}{1-t_G}\right), \tag{6}$$

where P_X is the closing price of the stock on the ex-right day, P_B is the closing price of the stock on the last cum-right day, D is the distribution paid, t_G is the capital gains tax rate, and r is the estimate of the impact of market movements from close to close between the last cum- and ex-right days. We use the return on the Ibovespa to proxy for the impact of market movements (r). In the presence of personal taxes on distributions to shareholders, Eq. (6) changes as follows:

$$\frac{P_X - P_B + D}{P_B} - r = \frac{D}{P_B}\left(\frac{t_O - t_G}{1-t_G}\right), \tag{7}$$

where t_O is the tax rate on the distribution to shareholders.

We retrieve payout forms, ex-right dates, and the distribution amount per share from Proventos and unadjusted stock prices from Historical Quotes, which are available through the Bovespa Stock Exchange's web site.[13] Table 8 reports the observed mean and median values by subperiod based on the effective capital gain tax rate. Returns are winsorized at the 1 and 99 percent levels to mitigate the effect of outliers. Statistical significance is based on the null hypothesis that the mean (median) market-adjusted return equals zero.

<< TABLE 8 ABOUT HERE>>

Because dividends are not taxed and capital gains are taxed at the shareholder level, Eq. (6) indicates that the market adjusted return for dividend paying stocks should be negative on the ex-dividend day. On the other hand, Eq. (7) suggests that market-adjusted returns on the ex-interest

[13] The data are available through the following websites:

http://www.bmfbovespa.com.br/cias-listadas/consultas/proventos-em-dinheiro.aspx?idioma=en-us

http://www.bmfbovespa.com.br/shared/iframe.aspx?altura=400&idioma=en-us&url=http://www.bmfbovespa.com.br/en-us/historical-quotes/FormSeriesHistoricasI.asp

day, where interest on equity payments are subject to a 15 percent withholding tax, should be positive before 2002, negative between 2002 and 2004, and not different from zero beginning in 2005.[14] However, contrary to expectations, we find that market adjusted returns are positive and generally different from zero on ex-interest and ex-dividend days. The difference between adjusted returns on ex-interest and ex-dividend days is significant only for the 2005-2007 subperiod. These results are consistent with Bruni et al. (2004), and Procianoy and Verdi (2009), who fail to find evidence that taxes determine ex-right day behavior in the Brazilian market.

5. Conclusions

Beginning in 1996, Brazilian corporate law allows firms to distribute cash to shareholders in the form of cash dividends or notational interest on equity. The net tax burden is lower for interest on equity payments than for cash dividends, providing an incentive for firms to distribute cash to shareholders as interest on equity. This distinctive institutional characteristic provides a unique opportunity to study the effects of taxes on payout policy. We believe that our empirical setting is superior to studies that compare dividends and capital gains because Brazilian firms' have two options for distributing cash directly to investors, albeit with different tax implications.

We document a significant increase in the use of interest on equity following Brazil's tax reform. Our results are consistent with the general notion that Brazilian firms choose interest on equity payments due to their tax advantages relative to cash dividends. We find that profitability and payout ratios (non-equity tax shields) are positively (negatively) related to the likelihood that a firm pays interest on equity. Increases in profitability and payout ratios make it more likely that

[14] Market adjusted returns should be zero during the entire sample period for tax exempt investors.

a dividend payer switches to interest on equity payments. Dividend payers are less likely to begin paying interest on equity following increases in non-equity tax shields. Likewise, interest payers are less likely to switch to dividends following a decrease in non-equity tax shields. However, we do find that abnormal returns are generally higher around announcements of dividends. Thus, dividend-paying firms may be catering to investor demands.

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Table 1
Dividends versus Interest on Equity – Numerical Example.

2007 Effective Tax Rates:		
Corporate tax rate (τ_C)	34%	
Personal tax rate on dividends (τ_{PS})	0%	
Withholding tax rate on interest (τ_{PS}^*)	15%	

	Dividend payout (thousands)	Interest on equity payout (thousands)
Earnings before interest on equity	R$100,000	R$100,000
- Interest on equity	0	18,441
- Corporate taxes	34,000	27,730
Net Income	66,000	53,829
Dividends paid	15,675	0
Dividend distribution	15,675	0
Personal tax on dividends	0	0
Interest distribution	0	18,441
Withholding tax on interest	0	2,766
Net payment to shareholders	15,675	15,675
Net tax payments	34,000	30,496

Tax rates assume the effective rates as of 2007 in Brazil. The maximum corporate tax rate is 34 percent, cash dividend payments are not taxed at the personal level, and a 15 percent withholding tax is levied on interest on equity payments. The first column of results considers a company with earnings before interest on equity and taxes of R$100,000,000 that distributes R$15,675,000 in dividends to investors. The second column considers the same company making a R$18,441,176 interest on equity payment instead of a dividend payment.

Table 2
Summary statistics.

	Interest on equity payers		Dividend payers		
	Mean	Median	Mean	Median	Mean
EBIT/sales	0.1579	0.1449	0.1242	0.1072	0.0338
Retained earnings/assets	0.1233	0.1084	0.0729	0.0752	0.0504
Payout ratio	0.6758	0.3451	0.3470	0.1987	0.3288
NETS/sales	0.0415	0.0349	0.0398	0.0258	0.0017
Depreciation/sales	0.0707	0.0492	0.0784	0.0570	–0.0076
Financial expenses/sales	0.0815	0.0628	0.1295	0.0723	–0.0479
Good governance	0.1944		0.1276		0.0668
Assets (millions)	6,230	2,169	3,630	1,175	2,600***
Capex/assets	0.0674	0.0556	0.0643	0.0526	0.0032
Market-to-book	1.0158	0.8829	0.8945	0.7843	0.1213
Family owned	0.3877		0.5509		–0.1632
Pension fund owned	0.0539		0.0138		0.0401
Foreign owned	0.2940		0.2228		0.0712

This table reports summary statistics for our sample of 286 non-financial firms that pay interest on equity and/or cash dividends between 1996 and 2007 (1,427 firm-year observations). EBIT/sales is the current year's earnings before interest and taxes divided by sales. Retained earnings/assets is the previous year's retained earnings plus earnings reserve divided by book value of assets. Payout ratio is the sum of interest on equity and dividend payments divided by earnings before interest on equity and taxes. NETS/sales is calculated from operating income (OI), interest on equity payments (IE), observed federal income tax payments (T), and the corporate tax rate (τ_C) as NETS = OI – IE – T/τ_C. Depreciation/sales is the ratio of depreciation and amortization to sales. Financial expenses/sales is the ratio of financial expenses to sales. Good governance is a dummy variable set equal to one for firms listed on Novo Mercado, Nível 2, or Nível 1 in year *t* and zero otherwise. Assets is inflation-adjusted total assets in millions of R$. Capex/assets is the ratio of capital expenditures to assets. Market-to-book is the market to book ratio. Family owned, pension fund owned, and foreign owned are dummy variables set to one for firms where the single largest shareholder is a family, pension fund, or foreign shareholder, respectively, and zero otherwise. The significance level of the difference in means is based on a *t*-test and the difference in medians is based on a Wilcoxon rank-sum test. ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels, respectively.

Table 3

Frequency distribution – Interest on equity vs. cash dividends.

	Percentage (number) of interest and dividend payers		Percentage of total payout in the form of interest on equity	
Year	Interest on equity payers	Dividend payers	Interest on equity payers	Full sample
1996	10.20	89.80	0.7081	0.0723
	(5)	(44)		
1997	39.00	61.00	0.8111	0.3163
	(39)	(61)		
1998	50.52	49.48	0.8288	0.4187
	(49)	(48)		
1999	46.09	53.91	0.8576	0.3952
	(53)	(62)		
2000	53.17	46.83	0.8216	0.4369
	(67)	(59)		
2001	56.10	43.90	0.8006	0.4491
	(69)	(54)		
2002	57.94	42.06	0.7981	0.4625
	(62)	(45)		
2003	61.03	38.97	0.7705	0.4702
	(83)	(53)		
2004	67.63	32.37	0.6982	0.4721
	(94)	(45)		
2005	67.38	32.62	0.7152	0.4818
	(95)	(46)		
2006	62.96	37.04	0.6562	0.4131
	(85)	(50)		
2007	57.23	42.77	0.6092	0.3487
	(91)	(68)		

This table reports (a) the percentage (number) of sample companies that make interest on equity (or a combination of interest on equity and cash dividends) and dividend payments and (b) the percentage of the total payout to shareholders made in the form of interest on equity by year from 1996 through 2007.

Table 4
Determinants of the form of payout - Interest on equity vs. cash dividends.

Panel A: Probit regressions

	Model 1	Model 2	Model 3	Model 4
Intercept	–2.4664***	–1.9718**	–2.4062***	–1.9039**
	(–3.06)	(–2.30)	(–3.03)	(–2.26)
EBIT/sales	1.4642***	1.4468***	1.3743***	1.4595***
	(3.39)	(3.33)	(2.64)	(2.74)
Retained earnings/assets	1.8369***	2.3897***	1.8955***	2.4371***
	(4.29)	(4.27)	(4.60)	(4.63)
Payout ratio	0.1665***	0.1657***	0.1654***	0.1655***
	(4.61)	(4.52)	(4.74)	(4.73)
NETS/sales	–1.6023**	–1.3246*		
	(–2.36)	(–1.84)		
Depreciation/sales	–4.2258***	–4.1405***	–3.0028**	–3.1198**
	(–3.64)	(–3.44)	(–2.57)	(–2.56)
Financial expenses/sales			–2.0933***	–1.8761***
			(–3.77)	(–3.46)
Good governance	0.1747	0.2753	0.1385	0.2343
	(0.97)	(1.53)	(0.76)	(1.30)
Assets (Log)	0.1757***	0.1401**	0.1784***	0.1425***
	(3.34)	(2.57)	(3.41)	(2.63)
Capex/assets	–0.6457	–0.5634	–0.8177	–0.6469
	(–0.65)	(–0.55)	(–0.81)	(–0.62)
Market-to-book	0.0771	0.0505	0.0593	0.0364
	(0.82)	(0.54)	(0.62)	(0.38)
Family owned		–0.2025		–0.2349
		(–1.03)		(–1.17)
Pension fund owned		0.7853**		0.7305**
		(2.43)		(2.17)
Foreign owned		0.0277		–0.0374
		(0.15)		(–0.19)
Number of observations	1,427	1,358	1,427	1,358
Log pseudolikelihood	–826.89	–781.86	–818.10	–773.82
Pseudo R^2	0.1566	0.1561	0.1656	0.1648

Panel B: Tobit regressions

	Model 1	Model 2	Model 3	Model 4
Intercept	–1.4568*	–0.8760	–1.3733*	–0.8342
	(–1.95)	(–1.14)	(–1.87)	(–1.11)
EBIT/sales	0.5118	0.5175	0.4736	0.5843
	(1.18)	(1.16)	(1.03)	(1.23)
Retained earnings/assets	2.1961***	2.7052***	2.1750***	2.6472***
	(4.88)	(4.90)	(5.11)	(5.10)
Payout ratio	0.0751***	0.0722***	0.0725***	0.0701***
	(2.83)	(2.79)	(2.77)	(2.75)
NETS/sales	–0.7759	–0.4333		
	(–1.08)	(–0.58)		
Depreciation/sales	–2.7773***	–2.7356***	–2.0289*	–2.1861**
	(–2.67)	(–2.60)	(–1.89)	(–1.99)
Financial expenses/sales			–1.3092***	–1.0904**
			(–2.62)	(–2.29)
Good governance	0.3043**	0.3553***	0.2821**	0.3312**
	(2.23)	(2.74)	(2.07)	(2.56)
Assets (Log)	0.1117**	0.0733	0.1116**	0.0755
	(2.27)	(1.50)	(2.30)	(1.57)
Capex/assets	–0.2929	–0.1111	–0.4085	–0.1718
	(–0.34)	(–0.13)	(–0.47)	(–0.20)
Market-to-book	–0.1318**	–0.1394**	–0.1410**	–0.1457**
	(–2.02)	(–2.20)	(–2.11)	(–2.25)
Family owned		–0.2135		–0.2218
		(–1.20)		(–1.23)
Pension fund owned		0.5805**		0.5457*
		(1.96)		(1.80)
Foreign owned		–0.1097		–0.1380
		(–0.67)		(–0.84)
Number of observations	1,427	1,358	1,427	1,358
Log pseudolikelihood	–1,383.33	–1,326.10	–1,377.63	–1,320.93
Pseudo R^2	0.0923	0.0921	0.0960	0.0957

This table reports probit (Panel A) and Tobit (Panel B) regressions examining the determinants of firms' form of payout. In Panel A, the dependent variable is set to one for companies that pay interest on equity (or a combination of interest on equity and dividends) and zero for companies that only pay dividends. In Panel B, the dependent variable is the ratio of total interest paid to total cash (interest on equity plus dividends) distributed to shareholders. All regressions include year and industry dummy variables. Robust, firm-clustered standard errors are estimated and *z*-values (*t*-values) are reported in parentheses. ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels, respectively.

Table 5
Determinants of a change in payout policy.

	Interest after dividends		Dividends after interest	
	Model 1	Model 2	Model 3	Model 4
Intercept	–0.8442***	–0.7969***	–1.1908***	–1.1718***
	(–2.77)	(–2.59)	(–4.86)	(–4.78)
ΔEBIT/sales	2.0134**	1.5242*	–1.4713	–0.9343
	(2.01)	(1.68)	(–1.61)	(–1.12)
ΔRetained earnings/assets	–0.0380	–0.0386	0.9383	1.3200
	(–0.16)	(–0.17)	(0.64)	(0.88)
ΔPayout ratio	0.2594***	0.2171***	–0.0542*	–0.0399
	(3.54)	(3.24)	(–1.77)	(–1.25)
ΔNETS/sales	–2.3382***		2.1775**	
	(–2.69)		(2.05)	
ΔDepreciation/sales	4.6563*	6.1289**	7.5474*	6.4765*
	(1.80)	(2.45)	(1.84)	(1.77)
ΔFinancial expenses/sales		–0.6845		1.4652
		(–1.21)		(1.17)
ΔGood governance	0.5232	0.5060	–0.4491	–0.4447
	(1.08)	(1.06)	(–1.02)	(–1.00)
ΔAssets (Log)	0.4585	0.4479	0.7478*	0.7576*
	(1.43)	(1.39)	(1.81)	(1.82)
ΔCapex/assets	–1.1193	–0.9980	0.1594	0.5237
	(–0.68)	(–0.63)	(0.09)	(0.30)
ΔMarket-to-book	0.1724	0.2447	–0.0272	–0.0770
	(0.56)	(0.82)	(–0.15)	(–0.44)
Number of observations	417	417	564	564
Log likelihood	–205.68	–209.20	–154.42	–155.74
Pseudo R^2	0.1046	0.0893	0.1099	0.1023

This table reports probit regressions examining changes to firms' form of payout. In Models 1 and 2, the dependent variable is set to one for firms that pay only dividends in year t-1 that begin making interest on equity payments in year t, and zero for dividend payers that continue to only pay dividends. In Models 3 and 4, the dependent variable is set to one for firms that make interest payments in year t-1 and switch to strictly cash dividend payments in year t, and zero for interest on equity payers that continue to pay interest on equity. All regressions include year and industry dummy variables. Robust, firm-clustered standard errors are estimated and *z*-values are reported in parentheses. ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels, respectively.

Table 6
Abnormal returns around payout policy announcements.

Panel A: Shareholder meetings since 2002	[–1, 0]	[0]	[0,+1]	[–1,+1]
Interest on equity	0.0056*	0.0027	0.0020	0.0048
Dividends	0.0010	0.0016	0.0004	–0.0003
Difference	0.0046	0.0011	0.0016	0.0051

Panel B: Boards meetings since 2002	[–1, 0]	[0]	[0,+1]	[–1,+1]
Interest on equity	0.0018	0.0012	0.0075***	0.0081***
Dividends	0.0081***	0.0053***	0.0121***	0.0149***
Difference	–0.0063**	–0.0041*	–0.0046*	–0.0068**

Panel C: Shareholder meetings since 1996	[–1, 0]	[0]	[0,+1]	[–1,+1]
Interest on equity	–0.0002	0.0000	0.0038	0.0035
Dividends	0.0045**	0.0016	0.0100***	0.0130***
Difference	–0.0047*	–0.0016	–0.0062**	–0.0095***

Panel D: Boards meetings since 1996	[–1, 0]	[0]	[0,+1]	[–1,+1]
Interest on equity	0.0038***	0.0026***	0.0095***	0.0107***
Dividends	0.0068***	0.0048***	0.0134***	0.0154***
Difference	–0.0030	–0.0022	–0.0039*	–0.0047*

This table reports abnormal returns around payout policy announcements. Announcements of shareholder meetings and board meetings are considered separately. Abnormal returns are measured using the market model and the trade-to-trade approach reported by Maynes and Rumsey (1993). The event date in Panel A is the date the shareholder meeting is announced. Announcement dates for shareholder meetings are available beginning with fiscal year 2002. The event date in Panel B is the date of the board meeting. Board meeting dates are available for the entire sample period but we present CARs beginning with fiscal year 2002 for comparability with Panel A. The event dates in Panels C and D correspond to date of the shareholder and board meetings, respectively, between fiscal years 1996 and 2007. ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels, respectively.

Table 7
Determinants of announcement returns.

	Model 1	Model 2	Model 3	Model 4
Intercept	0.0399***	0.0420***	0.0404**	0.0425**
	(3.02)	(3.11)	(2.17)	(2.26)
Interest dummy	–0.0068***		–0.0073***	
	(–2.85)		(–2.85)	
Interest ratio		–0.0062**		–0.0066**
		(–2.44)		(–2.46)
Payout change			0.0041	0.0035
			(1.15)	(1.01)
Shareholder meeting	–0.0084***	–0.0083***	–0.0083***	–0.0082***
	(–3.66)	(–3.57)	(–3.70)	(–3.63)
Yield	0.2118***	0.2038***	0.2017***	0.1920***
	(3.94)	(3.73)	(3.76)	(3.52)
Market value of equity (Log)	–0.0020***	–0.0022***	–0.0021***	–0.0023***
	(–2.68)	(–2.79)	(–2.86)	(–2.97)
R^2	0.06	0.06	0.06	0.06

This table reports a multivariate analysis of abnormal returns around payout policy announcements. Abnormal returns are measured using the market model and the trade-to-trade approach reported by Maynes and Rumsey (1993). The dependent variable is the three day cumulative abnormal return for interest on equity or dividend payment announcements between fiscal years 1996 and 2007. Interest dummy is a binary variable equal to one if the payout is in the form of interest on equity (or a combination of interest and dividends), and zero if it is only cash dividends. Interest ratio is the ratio of interest on equity paid to total cash distributions (interest on equity plus dividends). Payout change is a binary variable set equal to one if the previous form of distribution was cash dividends and the current form of payment includes interest on equity, and zero otherwise. Shareholder meeting is a dummy variable set equal to one if the form of distribution was decided during a shareholder meeting, and zero otherwise. Yield is the total amount distributed per share (interest on equity plus dividends) divided by the stock price. Inflation-adjusted market value of equity (log) controls for firm size. All regressions include year dummy variables. Robust, firm-clustered standard errors are estimated and *t*-values are reported in parentheses. ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels, respectively.

Table 8
Ex-right day excess return behavior.

	Capital gains rate (t_G)	Interest payers		Dividend payers		Difference	
		Mean	Median	Mean	Median	Mean	Median
1996-2001	10%	0.0123***	0.0100***	0.0180***	0.0124***	–0.0057	–0.0024
2002-2004	20%	0.0091***	0.0095***	0.0097***	0.0084***	–0.0006	0.0011
2005-2007	15%	0.0071***	0.0052***	0.0014	0.0031	0.0057**	0.0021**

This table reports an analysis of ex-right day excess return behavior. Because the capital gain tax for individual investors was 10% between 1996 and 2001, 20% between 2002 and 2004 and 15% beginning in 2005, the results are reported for three subsamples: (a) 1996-2001, (b) 2002-2004, and (c) 2005-2007. From 1996 through 2007, the personal tax rate interest on equity is 15 percent and dividend distributions are not taxed. The return measure is the ex-dividend day return minus the return on the Ibovespa stock index. The significance level of the difference in means is based on a *t*-test and the difference in medians is based on a Wilcoxon rank-sum test. ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels, respectively.