Dividend Taxation and Equity Value: The Tax Changes of 2003

by

Jacob S. Piersol

(Under the direction of William D. Lastrapes)

Abstract

The passage of the Jobs and Growth Tax Relief Reconciliation Act (the Tax Relief Act) in May of 2003 presented researchers with an opportunity to empirically test whether shareholder-level dividend taxation has an effect on share prices. The majority of the previous work addressing this question supports the idea that taxes on dividends affect stock prices, but there is disagreement over whether or not the effect of taxation is related to the magnitude of dividend yield. In this paper, I test the null hypothesis that shareholder-level dividend taxation has no effect on share prices. This paper makes a contribution to the current literature in that I include a proxy for liquidity as a control variable and test whether there is any interaction between highly illiquid stocks and dividend yield relative to stock prices. The findings presented here support previous authors' findings that a decrease in shareholder-level taxes on dividends affects share prices. However, I do not find that the effect on prices increases with dividend yield. I also find that liquid stocks tend to realize lower abnormal returns during the period surrounding the Tax Relief Act than less liquid stocks. To my knowledge, no other work has discussed such an interaction between dividend yield and liquidity.

Index words: dividend taxation, dividend policy, liquidity, equity value, Jobs and Growth Tax Relief Reconciliation Act

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Dedication

For Bethany and Braden

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Chapter 1

Introduction

On May 28, 2003, President Bush signed the Jobs and Growth Tax Relief Reconciliation Act of 2003 (the Tax Relief Act). The Tax Relief Act lowered the top federal individual tax rate on dividends from 38.1% to 15% and lowered the tax rate on capital gains from 20% to 15%. In this paper I investigate the impact of this tax-cut on stock prices of dividend-issuing firms.

A body of literature exists on this and similar topics. Ayers, Cloyd, and Robinson (2002) show that there is a negative relationship between dividend taxes incurred by the marginal investor and share value. McKenzie and Thompson (1995) also find significant evidence to support the hypothesis that taxes on dividends affect stock prices. Both of these studies analyze an increase in the tax rate on dividends. The Tax Relief Act represented a large decrease in the tax rate on dividends faced by individual investors. Gadarowski (2004) analyzes the Tax Relief Act and finds that the reduction in the dividend tax rate increases share value.

The purpose of the study is to analyze the effect of the Tax Relief Act on stock prices. The Tax Relief Act lowered the top federal individual tax rate on dividends from 38.1% to 15%. I expect to find that stock returns for dividend firms are positively affected by the tax cut.

Although there is a wide body of literature that investigates dividend taxation and its effect on stock prices, there are—to my knowledge—no papers that discuss the role liquidity plays in this context. Liquidity is the degree to which a security or an asset can be traded without any price effect. Liquid assets can be quickly converted into cash, and liquidity is commonly characterized by high trading volume. I believe these characteristics might make liquid stocks more appealing to investors than less liquid stocks. I include a proxy variable representing the level of liquidity of each firm's stock. My prediction is that since illiquid assets are harder to trade without price concessions in a short period relative to highly liquid assets, and since liquid stocks may be preferred by certain investors, illiquidity will have a negative marginal effect on cumulative abnormal returns and cumulative raw returns. Since I believe that dividend-firm stock returns will be positively affected by this legislation, I test the notion that liquidity constraints will mitigate this positive reaction through use of an event study where I investigate the reaction over a short period.

It is important to understand the effects of the Tax Relief Act. If returns increase due to the passage of the bill, firms can take this information into account when setting dividend policy. Additionally, the role of liquidity in this context helps explain the role of liquidity in asset-pricing. The bill was offered as part of an economic stimulus package, where an immediate response is the goal. A clear understanding of the effect of the Tax Relief Act in the short term is one potential way[1] to assess whether the goal of boosting the economy was achieved.

[1] Success or failure of the stimulus package should not be determined through exclusive use of the research I perform here. Other factors should be considered such as consumer spending, jobs growth, GDP, etc.

Chapter 2

Review of Related Literature

Researchers in finance, accounting, and economics have long been interested in the question: How do shareholder-level taxes affect the prices of common stocks? Some authors contend that shareholder-level dividend taxes are irrelevant. Miller and Scholes (1978, 1982) claim that investors are in one way or another able to creatively minimize tax penalties by finding "loopholes" in the tax code. Taxation of dividends, therefore, has no effect on the market value of these securities. If this "tax-irrelevance" view holds, then changes in the dividend tax rate should have no effect on share value. This view is supported by the findings of Chen, Grundy, and Stambaugh (1990), who find no evidence of a tax-induced penalty on dividends.

There is a wide body of literature in disagreement with the tax-irrelevance view. The "tax-relevance" view, spawned by Auerbach's (1979), work predicts that dividend tax rates affect stock prices. McKenzie and Thompson (1995) study the effects of an increased tax rate on dividends by analyzing the Canadian tax changes of 1986. They employ a stock market event study and find that taxes do affect stock prices. Auerbach (1979) theorizes that firm dividend policy does not affect the magnitude of these changes. This view is supported in recent work by Harris and Kemsley (1999) and Harris, Hubbard, and Kemsley (2001). They conclude that shareholder-level dividend taxes are fully capitalized in share price (i.e., the cost of the tax is included in the price of the asset) and that dividend policy does not affect the amount of tax capitalized in share prices. This view has been labeled as the "tax-capitalization" view.

An additional school of thought exists among those who accept the tax-relevance view. The "tax-penalty" view (often referred to as the traditional view) contends that a firm's dividend policy affects the relationship between shareholder-level dividend tax rates and stock prices. Ayers et al. (2002) and Dhaliwal, Li, and Trezevant (2003) show that tax-induced price effects depend on dividend yield—stocks with relatively high dividend yield experience price changes of greater magnitude than lower dividend yield stocks. Dhaliwal, Erickson, Frank, and Banyi (2003) and Hanlon, Myers, and Shelvin (2003) examine the findings of Harris et al. (1999, 2001). They find that the Harris et al. model is flawed, and that the data provide no support for their predictions and conclusions.

Poterba and Summers (1985) provide a formal outline of the theoretical foundations of each view related to the effects of dividend taxation. They also provide evidence in support of the traditional view.

An additional question that has been raised by recent authors is: Given that dividend taxation has an effect on stock prices, to what extent is this effect realized by investors who are tax advantaged? Ayers et al. (2002) study the effect of the Revenue Reconciliation Act of 1993, which increased the individual dividend tax rate. They find that the higher a firm's dividend yield, the more negative the firm's stock price reaction. They also find that firms with high institutional ownership experience a price reaction lower in magnitude. This suggests that the tax status of the marginal investor influences the extent to which these taxes are reflected in stock prices. Dhaliwal et al. (2003(b)) present similar results, and find that both a firm's dividend policy and its ownership structure affect the size of the dividend tax penalty. Both of these studies support the traditional view mentioned above, and illustrate the need for future researchers to include a measure representing the tax status of the marginal investor.

Although the above-mentioned literature does much to explain the impact of dividend taxation on stock prices, there are—to my knowledge—no papers that discuss the role liquidity plays in this context. The role of liquidity relative to asset pricing has been discussed extensively in other contexts, however.

Amihud and Mendelson (1986) were among the first researchers to investigate the role of liquidity in asset pricing. They used the bid-ask spread as a proxy for liquidity and found a positive relationship between the spread and annual returns. This finding suggests that investors with longer holding periods are willing to select less liquid stocks. More recently, Brennen and Subrahmanyam (1996) have also shown that stock market liquidity may be priced in asset returns. Eleswarapu and Reinganum (1993) found evidence to support Amihud and Mendelson, but found that the effect is mainly confined to the month of January.

Bid-ask spread is a natural measure for liquidity since it indicates the magnitude of any concession that will have to be made to execute a trade. However, a problem with using this to measure liquidity is that it is very difficult to obtain spread data—especially for longer time periods and for large numbers of firms. Recent authors often use different proxies for liquidity. Brennan, Chordia, and Subrahmanyam (1998) use dollar volume traded to measure liquidity. Although their findings support the use of this measure, it is not without problems. Volume does not account for shares outstanding, nor is it without potential size bias. Datar, Naik, and Radcliffe (1998), Chui and Wei (1999), and Chan and Faff (2005) use share turnover (the ratio of shares traded to shares outstanding) as a proxy for liquidity. Each of these papers supports the use of a proxy for liquidity in studies involving asset pricing. Given the difficulty involved in obtaining useful spread data, and the problems with using volume, I use a share-turnover measure to represent liquidity.

Chan (2002) examines monthly returns following public news, and finds that stocks experience negative drift following news events. Underreaction tends to be stronger in more illiquid stocks. I use an event study to investigate stock price reaction to the Tax Relief Act. Since less liquid stocks may not adjust quickly to new information during the short event period, I use a measure of liquidity in my investigation.

Chapter 3

Research Method

3.1 Hypothesis Development

Much debate still exists as to whether shareholder-level dividend taxation has an impact on share prices. As illustrated in the previous chapter, researchers disagree over whether dividend taxation affects stock prices. Even within the group of authors who agree that there is an effect, there is still disagreement: Does the magnitude change as dividend policy changes across firms? If the tax-relevance theory holds as it has in previous studies[1], I would expect share prices to react positively to the news of the tax decrease. If the traditional (tax-penalty) view holds, I expect to see returns greater in magnitude for high-dividend firms than for typical dividend firms. In addition, if it is the case that illiquidity has an adverse effect on stock prices, I would expect the positive effect on prices caused by the tax cut to be reduced in those stocks with high levels of illiquidity. To address these issues I test the following hypotheses:

H_O : There is no share price reaction to the dividend tax rate decrease.

H_o : Liquidity has no effect on share price reaction.

[1]Such as Ayers, et al. (2002), McKenzie and Thompson (1995)

For each firm in my sample, I calculate the cumulative daily abnormal return (CAR)[2], and cumulative raw returns ($CRET$)[3] for the event period and each of the eight five-day periods surrounding the event[4]. I use two types of regression in the study. In the first, (3.1), I use measures of dividend yield and liquidity, with an event indicator variable. In the second, (3.2), I use measures of dividend yield, liquidity, and institutional ownership for each of the nine five-day periods. For the first regression, I regress CAR on dividend yield, a dummy variable indicating the event period, liquidity, interactions of these variables, and control variables. I then repeat this process and use $CRET$ as the dependent variable. I use the dichotomous and then the continuous forms of dividend yield and liquidity for regression (3.1) analysis. I use interaction variables to measure the varying effects dividend yield has on CAR for liquid versus illiquid stock:

$$\begin{aligned} CAR_{it} \text{ or } CRET_{it} &= \alpha_0 + \beta_1 DIV_{it} + \beta_2 EVENT_{it} + \beta_3 LIQ_{it} \\ &+ \beta_4 DIV_{it} \times LIQ_{it} + \beta_5 DIV_{it} \times EVENT_{it} + \beta_6 LIQ_{it} \times EVENT_{it} \\ &+ \beta_7 DIV_{it} \times LIQ_{it} \times EVENT_{it} + \beta_k X_{it} + \epsilon_{it} \end{aligned} \tag{3.1}$$

where for firm i at time period t:

- CAR = The cumulative abnormal return for sample firm i cumulated over the event and each five-day period t surrounding the passage of the Tax Relief Act: May 22-May 29, 2003.

- $CRET$ = The cumulative raw return for sample firm i cumulated over the event and each five-day control period t.

[2]Cumulative daily abnormal returns (CAR) are the sum of each sample firm's daily market model abnormal returns for each event or non-event period. I follow Boehmer et al. (2002) and estimate the market model parameters for each sample firm by regressing firm daily returns from a 150-day control period (May 30, 2002 - December 31, 2002.

[3]Cumulative raw returns (CRET) are the sum of each sample firm's daily returns for each event or non-event period as reported by the CRSP daily stock file.

[4]The event period is the five-trading-day period surrounding passage of the Tax Relief Act (May 22-29, 2003). Eight five-trading-day control periods (four before and four after) surround the event period.

- $EVENT$ = A dummy variable equal to one during the event period.
- DIV = A dummy variable equal to one for firms that meet dividend requirements outlined in section 3.3; or, in its continuous form, dividend yield: the total of common stock dividends issued for fiscal year 2002 divided by the firm's market value for 2002.
- LIQ = A dummy variable, (IL), equal to one if the turnover ratio is in the bottom quartile. A value of one indicates that the stock has a low level of liquidity relative to all firms; or, in its continuous form, share turnover ($TURN$): the number of shares traded divided by shares outstanding.
- X = A vector of k control variables including *size*, *profitability*, *leverage*, and *book-to-market* ratio.

Second, I regress CAR (then $CRET$) on measures of dividend yield, level of institutional ownership, liquidity, interaction of these variables, and control variables. Unlike in the first regression, I perform analysis for the event period, the combined non-event periods, and each individual control period. I use both dichotomous and continuous forms of dividend yield, institutional ownership, and liquidity in the regressions. The use of this interactive model makes it possible to determine whether dividend yield has varying effects on CAR or $CRET$ for different liquidity levels:

$$\begin{aligned} CAR_{it} \text{ or } CRET_{it} &= \alpha_0 + \beta_1 DIV_{it} + \beta_2 INST_{it} + \beta_3 LIQ_{it} \\ &+ \beta_4 DIV_{it} \times INST_{it} + \beta_5 DIV_{it} \times LIQ_{it} + \beta_6 INST_{it} \times LIQ_{it} \\ &+ \beta_7 DIV_{it} \times INST_{it} \times LIQ_{it} + \beta_k X_{it} + \epsilon_{it} \qquad (3.2) \end{aligned}$$

where variables for firm i at time period t are the same as in regression (3.1) with the exception of:

- $INST$ = The percentage of shares under institutional ownership; or, in its dichotomous form a dummy variable equal to one if the firm has majority institutional ownership.

Dhaliwal et al. (2003(b)) show that dividend yield affects stock returns. Specifically, they use a sample of firms over a nine-year period and find that there is a return premium that increases with dividend yield. I construct eight additional five-day control periods, with four on each side of the event window. I do this to control for the fact that dividend-firms affect CAR and $CRET$ outside the event period as well. The use of the eight control periods allows me to compare event returns to non-event returns. These eight control periods contain the same variables as the event period, only differing in that they are taken from different time periods. Merging these eight control periods with the event period creates the final sample.

3.2 Data Collection

The initial sample data are drawn from the Center of Research in Security Prices (CRSP), where I gather daily returns and dividend distribution data. I collect data on all firms from 2002 and 2003. To be considered a dividend-paying firm, dividends must have been issued in 2002 and 2003. In addition, I require that firms have CRSP share code 11, which excludes non-corporate distributions on common stock[5]. Firms are also required to have CRSP distribution code 1232, which indicates that a firm pays regular quarterly cash dividends.

As is common in the literature, I follow Fama and French (2001) and exclude utilities (SIC code 4900-4949) and financial firms (SIC code 6000-6999) from the sample. Utilities are regulated, which can affect a firm's dividend policy. I exclude financial firms because their financial ratios tend to differ from those of industrial firms. Lastly, I only include observations that contain all the data required to perform calculations. The entire sample consists of 38500 observations representing 4297 different firms. Of these firms, 1037 are considered dividend-firms.

[5]This ensures that dividends are declared on ordinary common shares. See Blouin, Raedy, and Shackelford (2004).

I include several variables in the sample to control for firm characteristics (such as size, profitability, institutional ownership, etc.) that may influence the results. I gather the data for these variables from Compustat and Thompson Financial.

3.3 Variable Calculations and Characteristics

The purpose of this paper is to test whether the change in the dividend tax rate affected stock prices, and to what extent the price reaction was influenced by liquidity. I first estimate daily abnormal returns for each firm using a standard market model as outlined by Boehmer et al. (2002): The market model equation is

$$R_{it} = \alpha_i + \beta_i R_{mt} + \epsilon_{it} \tag{3.3}$$

where R_{it} is the firm return during the estimation period, and R_{mt} is the market return during the estimation period. I then subtract the residuals from regression (3.3) from the event-period returns to get abnormal returns for event period:

$$AR_{it} = R_{it} - \hat{\alpha}_i - \hat{\beta}_i R_{mt} \tag{3.4}$$

I then calculate the daily cumulative abnormal returns over the event period and each of the control periods. The regression contains nine cumulative abnormal return (CAR) estimates for each firm[6]. CRSP reports returns data as "the change in the total value of an investment in a common stock over some period of time per dollar of initial investment." Thus, returns of r can be interpreted as a gain (or loss) of r dollars per dollar invested. To calculate $CRET$ I simply sum raw returns for each firm i during each time period t.

I use data from Compustat to calculate dividend yield. Dividend yield equals the total of common stock dividends issued for fiscal year 2002 divided by the firm's market value for 2002. Market value equals the product of common shares outstanding and share price. I use the continuous form and three dichotomous specifications for DIV. First, I define DIV as a

[6]Except where observations were eliminated due to lack of necessary data. I eliminate 173 observations for this reason.

simple dummy equal to one if the observation meets the dividend-firm requirements outlined in the previous section; second, a dummy variable DIV equal to one if the observation is a high-dividend-firm (i.e., dividend yield exceeds the median dividend yield for dividend-firms); third, a dummy variable DIV equal to one if the observation is a highest-dividend-firm (i.e., dividend yield is within the upper quartile of yields for dividend-firms).

As a proxy for liquidity, I use mean share turnover by firm for each period. I calculate daily share turnover as the number of shares traded divided by the daily number of shares outstanding.

I collect institutional ownership data from Thompson Financial's CDA/Spectrum Institutional (13f) Holdings database. The percentage of institutional ownership represents the ratio of total shares owned by managers to total shares outstanding. Ayers et al. (2002) find that since institutional owners are not subject to these individual taxes (such as the Tax Relief Act), the impact of an individual tax change is lessened in situations where there is a high level of institutional ownership. They find that for lower levels of institutional ownership (less than 56%), returns are affected to a significantly greater degree than those with higher institutional ownership. Their evidence supports the need to control for the tax status of the marginal investor when performing studies investigating shareholder reactions to tax changes.

The remainder of the control variables are chosen based on their tendencies to affect abnormal returns. The natural log of each firm's market value as of December 31, 2002 equals $size$. I define profitability ($prof$) as income before extraordinary items divided by market value. I use leverage (lev) to quantify the risk associated with each firm's stock, and define leverage as the ratio of total liabilities to market value. I use the book-to-market ratio (btm) to identify undervalued or overvalued securities and divide the book value (common equity) by market value. Generally, a ratio greater (less) than one represents undervalued (overvalued) stock. I gather control variable data from Compustat (fiscal year 2002, except market value as mentioned above).

Chapter 4

Results

Initially I test whether, and to what extent, firms experience abnormal returns during the time periods of interest. Table 4.1 illustrates that during the event period, sample firms experience higher abnormal returns than during surrounding weeks. Firms in the sample realize abnormal returns 92.1% higher during the event period than in the weeks surrounding the event period. As expected, firms that issue dividends experience positive abnormal returns. In fact, during the event period, dividend firms experience returns 167.4% higher than during the surrounding weeks. In contrast, non-dividend firms experience returns only 86.6% higher during the event period than during the surrounding weeks. In other words, all firms benefit during the event, but the magnitude is greater for dividend firms than for non-dividend firms.

In my analysis using regression (3.1) I exclude firms with greater than 50% institutional ownership. I do this for two reasons. First, as mentioned in Chapter 2, Ayers et al. (2002) and Dhaliwal et al. (2003(b)) indicate that researchers should account for the possibility that certain shareholders are tax-advantaged. Specifically, firms with high levels of institutional ownership should not realize much impact from the Tax Relief Act. Second, there may be a correlation between institutional ownership and liquidity. I eliminate firms owned mainly by institutions to mitigate this possibility. For the sake of comparison, I also use regression (3.1) in the analysis after I exclude firms with *less* than 50% institutional ownership. Table 4.2 presents descriptive statistics for all sample firms and for firms owned mainly by individuals (i.e., over 50% individual ownership). Data are presented for all sample firms and firms paying dividends.

Table 4.1: **Mean Abnormal Returns for All Firms and Dividend Versus Non-Dividend Firms During Event Period and Non-Event Periods**

Table 4.1 illustrates how mean abnormal returns vary between event and non-event periods, and show the percentage change from non-event to event periods. Return values represent the dollar return for each dollar invested.

	Non-Event	*Event*	*% Change*
All Firms	0.01629	0.03130	92.1
Dividend Firms	0.00451	0.01206	167.4
Non-Dividend Firms	0.02008	0.03747	86.6

Each estimate is significant at the 1% level.

For the dichotomous specification of regression model (3.1), α_0 is the expected abnormal return or raw return for a liquid, non-dividend stock during the control weeks. The results shown in tables 4.3, 4.4, 4.5, and 4.6 indicate that the expected abnormal return for such a stock is higher for firms owned by individuals than for institutionally owned firms. The three columns (labeled *Dividend Firms*, *High-Dividend*, and *Highest-Dividend*) present regression (3.1) results obtained through the use of three different levels of dividend yield[1]. During the event period, as indicated by the estimate of β_2, the expected returns increase. I present similar results for the continuous specification of regression model (3.1) in tables 4.7 and 4.8. These findings support my prediction that the reaction to news of the Tax Relief Act is positive.

[1]First, I define *Dividend Firms* as a simple dummy equal to one if the observation meets the dividend-firm requirements outlined above; second, the dummy variable *High-Dividend* is equal to one if the observation is a high-dividend-firm (i.e., dividend yield exceeds the median dividend yield for dividend-firms); third, a dummy variable *Highest-Dividend* is equal to one if the observation is a highest-dividend-firm (i.e., dividend yield is within the upper quartile of yields for dividend-firms).

Table 4.2: **Descriptive Statistics**

Table 4.2 presents descriptive statistics for the regression analysis sample. Groups I and II consist of the entire sample, and dividend-paying firms, respectively. Group III contains all firms with greater than 50% individual ownership, while group IV contains firms with greater than 50% individual ownership that pay dividends.

Group	*Variable*	*Mean*	*Standard Deviation*	*Lower Quartile*	*Median*	*Upper Quartile*
	Cumulative Raw Return	0.0260	0.1032	-0.0206	0.0125	0.0566
	Cumulative Abnormal Return	0.0180	0.1022	-0.0270	0.0058	0.0462
	Dividend Yield	0.0099	0.1343	0.0000	0.0000	0.0000
	Turnover	0.0095	0.1329	0.0015	0.0040	0.0088
I	*Institutional Ownership*	0.3947	0.3112	0.0990	0.3649	0.6606
	Size	5.3730	2.1512	3.8109	5.3027	6.7687
	Profitability	-0.2604	1.9505	-0.1324	0.0252	0.0660
	Leverage	1.6949	6.7129	0.2095	0.5422	1.3176
	Book-to-Market Ratio	0.7355	2.7109	0.3342	0.6213	1.0788
	Cumulative Raw Return	0.0125	0.0507	-0.0142	0.0090	0.0364
	Cumulative Abnormal Return	0.0054	0.0487	-0.0195	0.0021	0.0264
	Dividend Yield	0.0400	0.2670	0.0091	0.0190	0.0329
	Turnover	0.0052	0.0065	0.0016	0.0035	0.0065
II	*Institutional Ownership*	0.4603	0.3086	0.1611	0.5160	0.7057
	Size	7.0073	2.0645	5.6832	6.9701	8.5236
	Profitability	0.0317	0.2017	0.0286	0.0534	0.0742
	Leverage	1.2933	3.3688	0.3024	0.6565	1.3176
	Book-to-Market Ratio	0.7174	1.0165	0.3347	0.5629	0.8654
	Cumulative Raw Return	0.0310	0.1195	-0.0228	0.01338	0.0644
	Cumulative Abnormal Return	0.0249	0.1193	-0.0286	0.0088	0.0579
	Dividend Yield	0.0108	0.1606	0.0000	0.0000	0.0000
	Turnover	0.0090	0.1698	0.0009	0.0024	0.0061
III	*Institutional Ownership*	0.1835	0.1565	0.0362	0.1494	0.3182
	Size	4.5612	2.0819	3.1317	4.2441	5.6328
	Profitability	-0.4019	2.4754	-0.2635	0.0024	0.0660
	Leverage	2.1331	8.4448	0.2152	0.6068	1.5020
	Book-to-Market Ratio	0.7933	3.4456	0.3539	0.7123	1.2738
	Cumulative Raw Return	0.0133	0.0547	-0.0145	0.0093	0.0378
	Cumulative Abnormal Return	0.0082	0.0542	-0.0196	0.0048	0.0315
	Dividend Yield	0.0545	0.3582	0.0142	0.0257	0.0406
	Turnover	0.0039	0.0071	0.0007	0.0019	0.0042
IV	*Institutional Ownership*	0.1872	0.1678	0.0229	0.1461	0.3455
	Size	6.5015	2.3496	4.6995	6.4243	8.2537
	Profitability	0.0241	0.2688	0.0254	0.0547	0.0789
	Leverage	1.4897	4.4863	0.2925	0.6661	1.3642
	Book-to-Market Ratio	0.8505	1.3737	0.3812	0.6481	0.9973

Cumulative Raw Return equals the sum of daily raw returns for each of the nine five-day periods.

Cumulative Abnormal Return equals the sum of daily abnormal returns for each of the nine five-day periods.

Dividend yield equals the total of common stock dividends issued for fiscal year 2002 divided by the firm's market value for 2002.

Turnover equals the number of shares traded daily divided by the daily number of shares outstanding.

Institutional ownership is expressed as a percentage.

Size equals the natural log of each firm's market value as of December 31, 2002.

Profitability is income before extraordinary items divided by market value.

Leverage equals the ratio between total liabilities and market value.

Book-to-market ratio equals book value divided by market value.

Table 4.3: **Cross-Sectional OLS Regression (3.1) of Cumulative Abnormal Returns on Independent and Control Variables**

Table 4.3 presents results of the dichotomous specification of regression (3.1) using sample firms owned mainly by individuals. Coefficient estimates are shown with t-statistics in parentheses.

Variable		***Dividend Firms***	***High-Dividend***	***Highest-Dividend***
Intercept	α_0	0.06072	0.06031	0.06045
		(24.33)	(24.81)	(25.1)
DIV	β_1	-0.01085	-0.00896	-0.00534
		(-3.62)	(-2.57)	(-1.2)
EVENT	β_2	0.01781	0.01728	0.01721
		(5.28)	(5.31)	(5.42)
IL	β_3	-0.03751	-0.03497	-0.03371
		(-19.2)	(-18.76)	(-18.6)
DIV×IL	β_4	0.02635	0.0213	0.01739
		(6.22)	(4.17)	(2.65)
DIV× EVENT	β_5	-0.01041	-0.01119	-0.01776
		(-1.27)	(-1.12)	(-1.39)
IL× EVENT	β_6	-0.00692	-0.00679	-0.00733
		(-1.2)	(-1.23)	(-1.38)
DIV× IL× EVENT	β_7	0.00137	0.000546	0.00728
		(0.11)	(0.04)	(0.37)
size		-0.0062	-0.0063	-0.00646
		(-13.61)	(-14.91)	(-15.81)
prof		-0.00502	-0.00506	-0.00506
		(-8.41)	(-8.46)	(-8.47)
lev		0.00029812	0.00028382	0.00027353
		(2.09)	(1.99)	(1.92)
btm		0.00301	0.003	0.00297
		(8.47)	(8.43)	(8.36)
Adjusted R^2		0.0382	0.0372	0.0367
F-statistic		83.62	81.30	80.30

Cumulative daily abnormal returns (CAR) are the sum of each sample firm's daily market model abnormal returns for each event or non-event period. I follow Boehmer et al. (2002) and estimate the market model parameters for each sample firm by regressing firm daily returns from a 150-day control period (May 30, 2002 - December 31, 2002) on the CRSP value-weighted market index.

Table 4.4: **Cross-Sectional OLS Regression (3.1) of Cumulative Abnormal Returns on Independent and Control Variables**

Table 4.4 presents results of the dichotomous specification of regression (3.1) using sample firms owned mainly by institutions. Coefficient estimates are shown with t-statistics in parentheses.

Variable		***Dividend Firms***	***High-Dividend***	***Highest-Dividend***
Intercept	α_0	0.02233	0.023	0.02331
		(7.55)	(7.94)	(8.1)
DIV	β_1	-0.00038545	-0.00097327	-0.00161
		(-0.3)	(-0.55)	(-0.62)
EVENT	β_2	0.0204	0.01772	0.01675
		(9.93)	(9.83)	(9.66)
IL	β_3	-0.0134	-0.01247	-0.0119
		(-4.52)	(-4.67)	(-4.79)
DIV× *IL*	β_4	0.00503	0.00377	-0.00021479
		(1.01)	(0.61)	(-0.02)
DIV× *EVENT*	β_5	-0.01048	-0.00593	0.00445
		(-2.91)	(-1.16)	(0.59)
IL× *EVENT*	β_6	-0.00156	0.00011143	0.0008922
		(-0.19)	(0.02)	(0.13)
DIV× *IL*× *EVENT*	β_7	0.00597	0.00303	-0.01364
		(0.42)	(0.17)	(-0.39)
size		-0.0034	-0.0035	-0.00354
		(-8.4)	(-9.14)	(-9.41)
prof		-0.0099	-0.00993	-0.00999
		(-6.45)	(-6.48)	(-6.52)
lev		0.00208	0.00208	0.00206
		(7.21)	(7.18)	(7.09)
btm		0.00612	0.00608	0.00605
		(6.12)	(6.09)	(6.06)
Adjusted R^2		0.0358	0.0353	0.0351
F-statistic		51.31	50.50	50.33

Cumulative daily abnormal returns (CAR) are the sum of each sample firm's daily market model abnormal returns for each event or non-event period. I follow Boehmer et al. (2002) and estimate the market model parameters for each sample firm by regressing firm daily returns from a 150-day control period (May 30, 2002 - December 31, 2002) on the CRSP value-weighted market index.

Table 4.5: **Cross-Sectional OLS Regression (3.1) of Cumulative Raw Returns on Independent and Control Variables**

Table 4.5 presents results of the dichotomous specification of regression (3.1) using sample firms owned mainly by individuals. Coefficient estimates are shown with t-statistics in parentheses.

Variable		***Dividend Firms***	***High-Dividend***	***Highest-Dividend***
Intercept	α_0	0.06278	0.06299	0.06344
		(25.27)	(26.03)	(26.46)
DIV	β_1	-0.01458	-0.01207	-0.00812
		(-4.87)	(-3.46)	(-1.82)
EVENT	β_2	0.0326	0.03205	0.03198
		(9.72)	(9.91)	(10.13)
IL	β_3	-0.03906	-0.03673	-0.0356
		(-20.06)	(-19.76)	(-19.7)
DIV× *IL*	β_4	0.02655	0.02125	0.01717
		(6.26)	(4.16)	(2.62)
DIV× *EVENT*	β_5	-0.01123	-0.01212	-0.01926
		(-1.38)	(-1.22)	(-1.5)
IL× *EVENT*	β_6	-0.01377	-0.01345	-0.01403
		(-2.4)	(-2.45)	(-2.64)
DIV× *IL*× *EVENT*	β_7	0.00219	0.00027233	0.00692
		(0.17)	(0.02)	(0.35)
size		-0.00511	-0.00541	-0.00566
		(-11.24)	(-12.81)	(-13.87)
prof		-0.00523	-0.00526	-0.00526
		(-8.85)	(-8.9)	(-8.91)
lev		0.00004785	0.00003267	0.0000198
		(0.34)	(0.23)	(0.14)
btm		0.00231	0.00229	0.00227
		(6.53)	(6.48)	(6.4)
Adjusted R^2		0.0414	0.0403	0.0397
F-statistic		91.40	88.91	87.72

Cumulative raw returns (CRET) are the sum of each sample firm's daily returns for each event or non-event period.

Table 4.6: **Cross-Sectional OLS Regression (3.1) of Cumulative Raw Returns on Independent and Control Variables**

Table 4.6 presents results of the dichotomous specification of regression (3.1) using sample firms owned mainly by institutions. Coefficient estimates are shown with t-statistics in parentheses.

Variable		***Dividend Firms***	***High-Dividend***	***Highest-Dividend***
Intercept	α_0	0.02777	0.0302	0.03115
		(8.93)	(9.92)	(10.3)
DIV	β_1	-0.00454	-0.00469	-0.00582
		(-3.33)	(-2.54)	(-2.14)
EVENT	β_2	0.04519	0.04157	0.04036
		(20.93)	(21.94)	(22.14)
IL	β_3	-0.01617	-0.01509	-0.015
		(-5.19)	(-5.38)	(-5.75)
$DIV \times IL$	β_4	0.00738	0.00501	0.00583
		(1.41)	(0.77)	(0.5)
$DIV \times EVENT$	β_5	-0.0146	-0.00924	0.0014
		(-3.86)	(-1.71)	(0.18)
$IL \times EVENT$	β_6	-0.01592	-0.01322	-0.01192
		(-1.83)	(-1.7)	(-1.65)
$DIV\times IL\times EVENT$	β_7	0.01112	0.00793	-0.00934
		(0.74)	(0.42)	(-0.26)
size		-0.00223	-0.00271	-0.00288
		(-5.25)	(-6.73)	(-7.27)
prof		-0.00998	-0.01028	-0.01047
		(-6.19)	(-6.38)	(-6.5)
lev		0.00134	0.00134	0.00132
		(4.43)	(4.41)	(4.31)
btm		0.00197	0.00174	0.00162
		(1.87)	(1.66)	(1.54)
Adjusted R^2		0.0505	0.0489	0.0483
F-statistic		72.96	70.64	69.81

Cumulative raw returns (CRET) are the sum of each sample firm's daily returns for each event or non-event period.

Table 4.7: **Cross-Sectional OLS Regression (3.1) of Cumulative Abnormal Returns and Cumulative Raw Returns on Independent and Control Variables**

Table 4.7 presents results of the continuous specification of regression (3.1) using sample firms owned mainly by individuals. The columns labeled CAR and $CRET$ indicate the dependent variable used in analysis. Coefficient estimates are shown with t-statistics in parentheses.

Variable		***CAR***	***CRET***
Intercept	α_0	0.04039	0.04228
		(18.36)	(19.26)
DIV	β_1	-0.02228	-0.02945
		(-2.73)	(-3.61)
EVENT	β_2	0.01389	0.02619
		(5.48)	(10.36)
TURN	β_3	0.00521	0.00923
		(1.08)	(1.9)
DIV× *TURN*	β_4	10.31407	12.11186
		(4.32)	(5.06)
DIV× *EVENT*	β_5	0.0392	0.01748
		(0.77)	(0.34)
TURN× *EVENT*	β_6	-0.01171	-0.00894
		(-0.79)	(-0.6)
DIV ×*TURN*× *EVENT*	β_7	-16.21153	-9.65995
		(-1)	(-0.6)
size		-0.00483	-0.00393
		(-11.95)	(-9.72)
prof		-0.00624	-0.00652
		(-10.22)	(-10.8)
lev		-0.0000125	-0.00028744
		(-0.08)	(-1.95)
btm		0.00285	0.00214
		(7.69)	(5.78)
Adjusted R^2		0.0199	0.0201
F-statistic		42.31	43.01

Cumulative daily abnormal returns (CAR) are the sum of each sample firm's daily market model abnormal returns for each event or non-event period. I follow Boehmer et al. (2002) and estimate the market model parameters for each sample firm by regressing firm daily returns from a 150-day control period (May 30, 2002 - December 31, 2002) on the CRSP value-weighted market index.

Cumulative raw returns (CRET) are the sum of each sample firm's daily returns for each event or non-event period.

Table 4.8: **Cross-Sectional OLS Regression (3.1) of Cumulative Abnormal Returns and Cumulative Raw Returns on Independent and Control Variables**

Table 4.8 presents results of the continuous specification of regression (3.1) using sample firms owned mainly by institutions. The columns labeled CAR and $CRET$ indicate the dependent variable used in analysis. Coefficient estimates are shown with t-statistics in parentheses.

Variable		***CAR***	***CRET***
Intercept	α_0	0.0187	0.02311
		(6.63)	(7.82)
DIV	β_1	-0.00019483	0.00253
		(-0.01)	(0.16)
$EVENT$	β_2	0.00611	0.02589
		(2.8)	(11.33)
$TURN$	β_3	0.12291	0.40664
		(2.61)	(8.23)
$DIV \times TURN$	β_4	-1.70227	-2.06265
		(-1.03)	(-1.19)
$DIV \times EVENT$	β_5	-0.02416	-0.02598
		(-0.36)	(-0.37)
$TURN \times EVENT$	β_6	1.06319	1.35295
		(7.5)	(9.11)
$DIV \times TURN \times EVENT$	β_7	6.73133	5.95473
		(0.73)	(0.61)
$size$		-0.00317	-0.00252
		(-8.69)	(-6.58)
$prof$		-0.00946	-0.00905
		(-6.17)	(-5.63)
lev		0.00206	0.00124
		(7.2)	(4.13)
btm		0.00649	0.00265
		(6.5)	(2.54)
Adjusted R^2		0.0393	0.0595
F-statistic		56.29	86.62

Cumulative daily abnormal returns (CAR) are the sum of each sample firm's daily market model abnormal returns for each event or non-event period. I follow Boehmer et al. (2002) and estimate the market model parameters for each sample firm by regressing firm daily returns from a 150-day control period (May 30, 2002 - December 31, 2002) on the CRSP value-weighted market index.

Cumulative raw returns (CRET) are the sum of each sample firm's daily returns for each event or non-event period.

Regression (3.2) results are shown in tables 4.9, 4.10, 4.11, and 4.12. The estimate of α_0 indicates that the expected abnormal returns and expected raw returns are higher during the event period than the mean returns from non-event periods. These results are similar to those found with the use of regression (3.1) and support my prediction that the reaction to news of the Tax Relief Act is positive.

Table 4.9: **Cross-Sectional OLS Regression (3.2) of Cumulative Abnormal Returns on Independent and Control Variables**

Table 4.9 presents results of the continuous specification of regression (3.2). Coefficient estimates are shown with t-statistics in parentheses. The *Event* column presents results for the event period (May 22-29, 2003). The *Non-event* column presents results for the combined control periods. The last eight columns present results for each individual control week. These labels indicate the week relative to the event period (i.e., *-4* represents the control period four weeks prior to the event period).

Variable		*Event*	*Non-event*	*-4*	*-3*	*-2*	*-1*	*1*	*2*	*3*	*4*
Intercept	α_0	0.05575	0.03623	0.03472	0.04764	0.05214	0.02108	0.0597	0.04154	0.02016	0.00537
		(12.72)	(20.67)	(6.95)	(10)	(9.59)	(4.45)	(10.62)	(7.98)	(4.34)	(1.43)
DIV	β_1	0.02887	-0.02116	-0.09312	0.08549	-0.03783	-0.10309	-0.03401	0.01196	-0.00594	0.15676
		(0.57)	(-2.24)	(-1.36)	(2.65)	(-1.12)	(-1.39)	(-0.76)	(0.56)	(-0.09)	(2.61)
INST	β_2	0.00835	0.00112	0.00811	-0.01214	0.00443	0.00748	-0.00223	-0.0098	-0.00818	0.02441
		(1.38)	(0.48)	(1.18)	(-1.83)	(0.58)	(1.17)	(-0.32)	(-1.47)	(-1.34)	(4.86)
TURN	β_3	0.18508	0.2683	0.81824	3.02202	0.35246	0.63433	0.15489	0.49199	-0.18251	1.22209
		(2.24)	(8.93)	(3.71)	(16.44)	(2.81)	(7.13)	(2.38)	(6.79)	(-1.54)	(8.51)
DIV×INST	β_4	-0.17308	-0.01756	0.11105	-0.09112	-0.10529	0.29377	-0.21944	-0.17635	0.01203	-0.16903
		(-1.25)	(-0.5)	(0.86)	(-1.02)	(-0.8)	(1.48)	(-1.03)	(-1.09)	(0.05)	(-1.2)
DIV×TURN	β_5	-7.56536	10.75918	36.83435	-59.78192	27.10748	30.21166	17.27366	0.28262	5.74093	-41.97843
		(-0.47)	(3.59)	(1.47)	(-2.94)	(1.53)	(1.36)	(1.28)	(0.04)	(0.37)	(-2.47)
INST×TURN	β_6	-0.7015	-0.98178	-1.2748	-2.55788	-1.31753	-2.31834	-0.59456	-1.76055	0.08802	-0.89158
		(-2.3)	(-8.83)	(-3.11)	(-7.12)	(-2.83)	(-7.03)	(-2.45)	(-6.57)	(0.29)	(-2.95)
DIV×INST×TURN	β_7	30.10064	-11.00207	-48.61316	68.48853	-14.43726	-50.90625	11.16215	14.86023	-7.40482	40.34911
		(1.02)	(-1.94)	(-1.43)	(2.65)	(-0.47)	(-1.41)	(0.28)	(0.63)	(-0.16)	(1.24)
size		-0.00557	-0.00436	-0.00429	-0.00578	-0.00603	-0.00342	-0.00697	-0.00448	-0.0026	-0.00371
		(-7.06)	(-13.93)	(-4.74)	(-6.65)	(-6.2)	(-4.01)	(-7.03)	(-4.87)	(-3.19)	(-5.63)
prof		-0.00744	-0.00615	-0.00347	-0.00789	-0.01395	-0.00671	-0.01912	0.00367	0.00347	0.00407
		(-5.89)	(-11.39)	(-2.42)	(-5.77)	(-9.05)	(-4.96)	(-10.33)	(2.1)	(2.24)	(3.23)
lev		-0.00042075	0.00026581	0.00091892	0.00019036	-0.00104	-0.00058558	-0.00103	0.00192	0.00175	0.00108
		(-1.36)	(2.06)	(2.63)	(0.57)	(-2.66)	(-1.76)	(-2.34)	(4.7)	(4.83)	(3.83)
btm		0.00274	0.00338	0.00337	0.00504	0.00558	0.00189	0.0085	-0.00031164	0.00053344	-0.00125
		(3.55)	(10.41)	(3.86)	(6.05)	(5.68)	(2.28)	(7.59)	(-0.3)	(0.58)	(-1.73)
Adjusted R^2		0.0321	0.0281	0.0197	0.1142	0.0485	0.0321	0.0775	0.0414	0.0130	0.0338
F-statistic		13.50	87.82	8.57	49.54	20.20	13.50	32.54	17.20	5.93	14.06

Cumulative daily abnormal returns (CAR) are the sum of each sample firm's daily market model abnormal returns for each event or non-event period. I follow Boehmer et al. (2002) and estimate the market model parameters for each sample firm by regressing firm daily returns from a 150-day control period (May 30, 2002 - December 31, 2002) on the CRSP value-weighted market index.

Table 4.10: **Cross-Sectional OLS Regression (3.2) of Cumulative Raw Returns on Independent and Control Variables**

Table 4.10 presents results of the continuous specification of regression (3.2). Coefficient estimates are shown with t-statistics in parentheses. The *Event* column presents results for the event period (May 22-29, 2003). The *Non-event* column presents results for the combined control periods. The last eight columns present results for each individual control week. These labels indicate the week relative to the event period (i.e., *-4* represents the control period four weeks prior to the event period).

Variable		*Event*	*Non-event*	*-4*	*-3*	*-2*	*-1*	*1*	*2*	*3*	*4*
Intercept	α_0	0.05905	0.03955	0.03668	0.05004	0.05524	0.02249	0.06427	0.04417	0.02399	0.00816
		(13.37)	(22.41)	(7.47)	(10.64)	(10.35)	(4.79)	(11.43)	(8.72)	(5.25)	(2.22)
DIV	β_1	0.01357	-0.02957	-0.07166	0.09434	-0.04821	-0.09412	-0.04503	0.00883	-0.02003	0.15788
		(0.26)	(-3.1)	(-1.06)	(2.96)	(-1.45)	(-1.28)	(-1)	(0.42)	(-0.31)	(2.67)
INST	β_2	0.01729	0.00000748	0.0048	-0.00924	0.00526	-0.00070382	0.01509	-0.00866	-0.01501	0.01707
		(2.83)	(0)	(0.71)	(-1.41)	(0.7)	(-0.11)	(2.14)	(-1.33)	(-2.48)	(3.45)
TURN	β_3	0.07597	0.21398	1.01206	3.26052	0.25138	0.67774	0.08867	0.46518	-0.13991	1.34048
		(0.91)	(7.05)	(4.66)	(17.94)	(2.03)	(7.68)	(1.35)	(6.55)	(-1.2)	(9.46)
DIV×INST	β_4	-0.18522	-0.01478	0.08787	-0.10809	-0.10593	0.2945	-0.27635	-0.20568	0.03368	-0.15948
		(-1.32)	(-0.42)	(0.69)	(-1.23)	(-0.82)	(1.49)	(-1.28)	(-1.3)	(0.14)	(-1.15)
DIV×TURN	β_5	-3.90446	13.04632	28.02445	-68.19185	31.7216	27.14455	19.5535	1.25492	8.87751	-42.69617
		(-0.24)	(4.31)	(1.13)	(-3.39)	(1.82)	(1.23)	(1.44)	(0.17)	(0.58)	(-2.54)
INST×TURN	β_6	-0.26679	-0.76033	-1.33888	-2.40028	-0.93358	-2.47399	-0.33311	-1.61726	0.18216	-0.93345
		(-0.86)	(-6.76)	(-3.32)	(-6.75)	(-2.04)	(-7.56)	(-1.36)	(-6.17)	(0.6)	(-3.13)
DIV×INST×TURN	β_7	28.51286	-13.07441	-38.14285	78.87929	-18.72871	-47.258	15.9188	17.14572	-11.27114	40.34164
		(0.95)	(-2.28)	(-1.14)	(3.09)	(-0.62)	(-1.32)	(0.4)	(0.75)	(-0.25)	(1.25)
size		-0.00275	-0.00355	-0.00418	-0.00408	-0.00465	-0.00432	-0.00303	-0.00356	-0.00291	-0.00427
		(-3.44)	(-11.24)	(-4.7)	(-4.75)	(-4.86)	(-5.1)	(-3.04)	(-3.96)	(-3.61)	(-6.58)
prof		-0.00947	-0.00614	-0.0025	-0.00843	-0.01516	-0.00496	-0.02278	0.00333	0.00492	0.00614
		(-7.48)	(-11.38)	(-1.79)	(-6.3)	(-10.09)	(-3.72)	(-12.4)	(1.98)	(3.26)	(5)
lev		-0.00076606	-0.00006196	0.0007448	-0.0000926	-0.00154	-0.00085259	-0.00168	0.00154	0.00149	0.00094377
		(-2.46)	(-0.48)	(2.17)	(-0.28)	(-3.99)	(-2.59)	(-3.82)	(3.87)	(4.18)	(3.41)
btm		0.00285	0.00233	0.00212	0.00448	0.00504	0.00002571	0.00889	-0.00131	-0.00129	-0.00319
		(3.66)	(7.15)	(2.48)	(5.46)	(5.25)	(0.03)	(7.95)	(-1.29)	(-1.42)	(-4.5)
Adjusted R^2		0.0191	0.0203	0.0183	0.1174	0.0423	0.0408	0.0602	0.0336	0.0135	0.0412
F-statistic		8.38	63.61	8.06	51.24	17.69	17.06	25.19	14.11	6.14	17.13

Cumulative raw returns (CRET) are the sum of each sample firm's daily returns for each event or non-event period.

Table 4.11: **Cross-Sectional OLS Regression (3.2) of Cumulative Abnormal Returns on Independent and Control Variables**

Table 4.11 presents results of the dichotomous specification of regression (3.2). Coefficient estimates are shown with t-statistics in parentheses. The *Event* column presents results for the event period (May 22-29, 2003). The *Non-event* column presents results for the combined control periods. The last eight columns present results for each individual control week. These labels indicate the week relative to the event period (i.e., *-4* represents the control period four weeks prior to the event period).

Variable		*Event*	*Non-event*	*-4*	*-3*	*-2*	*-1*	*1*	*2*	*3*	*4*
Intercept	α_0	0.07585	0.05649	0.05837	0.08206	0.08029	0.03668	0.08637	0.06326	0.02862	0.02008
		(15.44)	(28.32)	(9.98)	(14.86)	(13.2)	(6.8)	(14)	(10.86)	(5.54)	(4.6)
DIV	β_1	-0.02142	-0.01123	-0.01563	-0.03078	-0.01813	-0.0082	-0.0183	0.00461	0.00224	-0.00498
		(-3.65)	(-4.82)	(-2.28)	(-4.75)	(-2.51)	(-1.29)	(-2.58)	(0.68)	(0.38)	(-1.01)
INST	β_2	-0.01675	-0.01719	-0.01744	-0.03468	-0.02131	-0.01482	-0.0244	-0.02015	-0.0088	0.0051
		(-4.07)	(-10.56)	(-3.68)	(-7.65)	(-4.25)	(-3.32)	(-4.86)	(-4.26)	(-2.11)	(1.47)
IL	β_3	-0.04285	-0.03612	-0.03644	-0.05378	-0.05273	-0.02355	-0.0594	-0.03338	-0.01763	-0.01261
		(-10.29)	(-22.13)	(-7.98)	(-11.85)	(-10.62)	(-5.32)	(-11.36)	(-6.79)	(-4.11)	(-3.66)
DIV×INST	β_4	0.0134	0.01378	0.01649	0.02504	0.01926	0.01014	0.02454	0.00993	0.00138	0.00232
		(1.76)	(4.59)	(1.88)	(2.99)	(2.07)	(1.24)	(2.66)	(1.13)	(0.18)	(0.36)
DIV×IL	β_5	0.02618	0.02551	0.03118	0.04157	0.0336	0.01559	0.04301	0.01668	0.00829	0.0133
		(2.99)	(7.39)	(3.21)	(4.31)	(3.19)	(1.65)	(3.95)	(1.64)	(0.92)	(1.81)
INST×IL	β_6	0.03139	0.02419	0.02163	0.02939	0.03761	0.02355	0.03461	0.02597	0.00215	0.01263
		(2.25)	(4.09)	(1.53)	(1.73)	(2.19)	(1.36)	(1.89)	(1.37)	(0.13)	(0.98)
DIV×INST×IL	β_7	-0.01847	-0.02325	-0.01763	-0.02077	-0.03796	-0.02818	-0.03393	-0.01346	0.00194	-0.02888
		(-0.76)	(-2.21)	(-0.64)	(-0.68)	(-1.33)	(-0.9)	(-1.01)	(-0.43)	(0.06)	(-1.3)
size		-0.00547	-0.00567	-0.0048	-0.00567	-0.00756	-0.00433	-0.00873	-0.0077	-0.00384	-0.00321
		(-6.3)	(-16.27)	(-4.78)	(-5.84)	(-7.1)	(-4.58)	(-8.06)	(-7.54)	(-4.27)	(-4.28)
prof		-0.00606	-0.0051	-0.00299	-0.00891	-0.01257	-0.00628	-0.01721	0.00446	0.00443	0.00386
		(-4.87)	(-9.58)	(-2.12)	(-6.5)	(-8.32)	(-4.66)	(-9.51)	(2.58)	(2.9)	(3.05)
lev		-0.00026041	0.00051836	0.00103	0.00028129	-0.0006588	-0.00049709	-0.00026422	0.00218	0.00197	0.00097581
		(-0.86)	(4.13)	(2.99)	(0.84)	(-1.78)	(-1.51)	(-0.64)	(5.59)	(5.72)	(3.45)
btm		0.0026	0.00345	0.00346	0.00552	0.00586	0.00191	0.00941	-0.00026605	0.0005463	-0.00141
		(3.44)	(10.95)	(4.02)	(6.61)	(6.37)	(2.33)	(9.04)	(-0.27)	(0.63)	(-1.95)
Adjusted R^2		0.0583	0.0400	0.0313	0.0840	0.0719	0.0251	0.1026	0.0393	0.0165	0.0089
F-statistic		24.66	128.19	13.36	36.06	30.63	10.82	44.61	16.57	7.37	4.39

Cumulative daily abnormal returns (CAR) are the sum of each sample firm's daily market model abnormal returns for each event or non-event period. I follow Boehmer et al. (2002) and estimate the market model parameters for each sample firm by regressing firm daily returns from a 150-day control period (May 30, 2002 - December 31, 2002) on the CRSP value-weighted market index.

Table 4.12: **Cross-Sectional OLS Regression (3.2) of Cumulative Raw Returns on Independent and Control Variables**

Table 4.12 presents results of the dichotomous specification of regression (3.2). Coefficient estimates are shown with t-statistics in parentheses. The *Event* column presents results for the event period (May 22-29, 2003). The *Non-event* column presents results for the combined control periods. The last eight columns present results for each individual control week. These labels indicate the week relative to the event period (i.e., *-4* represents the control period four weeks prior to the event period).

Variable		*Event*	*Non-event*	*-4*	*-3*	*-2*	*-1*	*1*	*2*	*3*	*4*
Intercept	α_0	0.08133	0.05966	0.06022	0.08677	0.08285	0.03541	0.09422	0.06519	0.03115	0.02208
		(16.57)	(29.75)	(10.49)	(15.87)	(13.92)	(6.6)	(15.39)	(11.5)	(6.12)	(5.14)
DIV	β_1	-0.03237	-0.01519	-0.01716	-0.0386	-0.02398	-0.00523	-0.03354	0.00101	0.00189	-0.00444
		(-5.5)	(-6.46)	(-2.55)	(-6.01)	(-3.38)	(-0.82)	(-4.73)	(0.15)	(0.32)	(-0.91)
INST	β_2	-0.01026	-0.01607	-0.01784	-0.03124	-0.01849	-0.01785	-0.01443	-0.01795	-0.01062	0.00243
		(-2.48)	(-9.8)	(-3.83)	(-6.95)	(-3.76)	(-4.02)	(-2.88)	(-3.89)	(-2.57)	(0.71)
IL	β_3	-0.04986	-0.03789	-0.03625	-0.05796	-0.05462	-0.0188	-0.0695	-0.03372	-0.01664	-0.01158
		(-11.98)	(-23.08)	(-8.08)	(-12.9)	(-11.23)	(-4.27)	(-13.39)	(-7.05)	(-3.94)	(-3.41)
DIV×*INST*	β_4	0.0142	0.01428	0.01674	0.02613	0.01999	0.00995	0.02473	0.00966	0.002	0.00303
		(1.86)	(4.71)	(1.94)	(3.15)	(2.19)	(1.22)	(2.68)	(1.12)	(0.26)	(0.48)
DIV×*IL*	β_5	0.02932	0.02605	0.03052	0.04375	0.03472	0.01285	0.04715	0.01577	0.00702	0.01259
		(3.34)	(7.48)	(3.19)	(4.57)	(3.36)	(1.36)	(4.34)	(1.58)	(0.79)	(1.73)
INST×*IL*	β_6	0.02461	0.02155	0.01929	0.02472	0.03126	0.02381	0.02458	0.02086	0.0026	0.01401
		(1.76)	(3.61)	(1.38)	(1.47)	(1.85)	(1.38)	(1.34)	(1.12)	(0.15)	(1.1)
DIV×*INST*×*IL*	β_7	-0.01587	-0.02124	-0.01607	-0.01926	-0.03361	-0.02918	-0.02452	-0.00961	0.00159	-0.03152
		(-0.65)	(-2)	(-0.6)	(-0.64)	(-1.2)	(-0.93)	(-0.73)	(-0.31)	(0.05)	(-1.44)
size		-0.00194	-0.0047	-0.00464	-0.0035	-0.0058	-0.00551	-0.0037	-0.00649	-0.00424	-0.00396
		(-2.23)	(-13.38)	(-4.69)	(-3.64)	(-5.56)	(-5.84)	(-3.43)	(-6.5)	(-4.76)	(-5.34)
prof		-0.00781	-0.005	-0.00209	-0.00949	-0.01371	-0.0047	-0.02038	0.00422	0.00576	0.00582
		(-6.32)	(-9.41)	(-1.52)	(-7.04)	(-9.34)	(-3.53)	(-11.45)	(2.53)	(3.86)	(4.71)
lev		-0.0005492	0.00022519	0.00083718	0.00001521	-0.0011	-0.00081473	-0.00071325	0.00187	0.00172	0.0008158
		(-1.81)	(1.79)	(2.48)	(0.05)	(-3.05)	(-2.49)	(-1.75)	(4.93)	(5.09)	(2.93)
btm		0.00273	0.00244	0.00219	0.00499	0.00541	-3.37E-07	0.01006	-0.00116	-0.00118	-0.00336
		(3.61)	(7.7)	(2.59)	(6.04)	(6.02)	(0)	(9.74)	(-1.21)	(-1.38)	(-4.75)
Adjusted R^2		0.0613	0.0346	0.0287	0.0793	0.0709	0.0277	0.1000	0.0323	0.0163	0.0126
F-statistic		26.14	110.69	12.35	34.05	30.26	11.93	43.61	13.77	7.30	5.89

Cumulative raw returns (CRET) are the sum of each sample firm's daily returns for each event or non-event period.

Results are presented in tables 4.3 - 4.12. First, I use regression (3.1) to analyze the effect of the Tax Relief Act. The first focus of this paper is to assess the impact of the Tax Relief Act on the stocks it *directly* affects—dividend-paying stocks owned by individuals. For each of the dichotomous specifications for regression (3.1) and each of the three dividend specifications, abnormal returns and raw returns are higher during the event period than during non-event periods. This partially is in line with my prediction. While it is true that returns are higher during the event for non-dividend firms (indicated by the positive estimates of β_2) I do not find this to be true for dividend firms, as indicated by the negative estimates of β_5[2]. The second focus is to determine whether relatively illiquid stocks fail to realize the gains of more liquid stocks during the event period. If this is the case, it is an indication that less liquid stocks are less capable of responding to new information. I predicted that the positive impact on stock returns caused by the Tax Relief Act would be reduced in those stocks with high levels of illiquidity. These findings support my prediction that liquidity has an effect on stock returns, but oppose my prediction in that the interaction between illiquidity and dividend stocks is positive. The results presented in tables 4.3 - 4.6 are unclear with regard to institutional ownership's effect on returns. This indicates that a continuous measure of institutional ownership may be more appropriate.

I present the results of the continuous specifications of regression (3.1) in tables 4.7 and 4.8. Positive estimates of β_2 again provide support for the notion that event period returns are higher than non-event returns. The estimate of β_4 shows how liquidity's role varies as dividend yield varies. The results show opposite effects for firms owned primarily by individuals and firms owned primarily by institutions. This may be because individual investors are more susceptible to liquidity constraints (therefore are attracted to liquid stocks), whereas institutional investors[3] are attracted to stocks with higher long-term expected returns (less liquid

[2]The estimate of β_5 measures the event's effect on dividend paying firms, and is negative for each of the statistically significant cases.

[3]Firms with high institutional ownership are not as affected by liquidity constraints because institutional owners have relatively more bargaining power than individuals. Institutional owners often participate in large block trades, which makes liquidity less of a concern.

stocks). The estimates of β_5 provide no evidence to support my predictions. The estimates for stocks owned mainly by individuals are positive, but are statistically insignificant.

Next, I use regression (3.2) to analyze the effect of the Tax Relief Act. The estimates for β_1 are comparable to the estimates of β_5 from regression (3.1), and as shown on tables 4.9 and 4.10, indicate that during the event period, firms that pay dividends have higher abnormal returns than those that do not. These estimates are statistically insignificant however, and results shown on tables 4.11 and 4.12 oppose this finding. Therefore, no inference can be made to support the notion that during the event period, firms that pay dividends have higher abnormal returns than those that do not.

Analysis of the role of liquidity in this context becomes more clear. The estimate of β_5 measures the effect of liquidity on dividend paying firms. While the estimates drawn from the continuous specifications are statistically insignificant, they are in agreement with the results of the dichotomous regression—liquidity has a negative effect in this context.

I believe that the continuous measure of institutional ownership is more appropriate, as it is difficult to construct an institutional ownership indicator. Therefore, I prefer the continuous specification of regression (3.2) for analysis. My findings regarding institutional ownership are in line with previous authors' work. Negative estimates of β_4 for the continuous specification indicate that institutional ownership reduces the Tax Relief Act's effect on returns for dividend stocks[4]. This is likely because such firms are not directly affected by the legislation. I also find that the interaction of institutional ownership and liquidity, as indicated by the estimates of β_6, has a negative effect on abnormal returns. I interpret this as an indication that such firms are not affected by the legislation, and are less dependent on liquidity. As stated above, firms with high institutional ownership are not as affected by liquidity constraints because institutional owners have relatively more bargaining power

[4]The estimates for β_4 are positive for the dichotomous specification of regression (3.2), but as noted above, I believe that the dichotomous measure of institutional ownership is less suitable than the continuous measure. Therefore, I interpret the continuous results to be more valid.

than individuals. Institutional owners often participate in large block trades, which makes liquidity less of a concern.

The goal of this research is to show whether, as a result of the Tax Relief Act, dividend yield affects abnormal returns; and, if so, whether this effect varies as liquidity varies for different stocks. In other words: Does the effect of DIV on CAR or $CRET$ vary as liquidity changes? First, the results fail to support the idea that dividend stocks experience higher abnormal returns during the event period than during non-event periods. There is an effect during the event period, but this effect is not isolated to dividend stocks. In addition, returns vary as dividend yield varies, as indicated by the estimates of β_5 from tables 4.3 - 4.6. Second, the estimates of β_4 and β_5, from regressions (3.1) and (3.2), respectively, indicate that there is an interaction between liquidity and dividend yield's effect on returns. The results tend to support the notion that the effect of dividend yield on returns increases for less liquid stocks.

Chapter 5

Concluding Remarks

This study investigates the impact of a decrease in the dividend tax rate on stock prices. I examine abnormal returns during the period surrounding the passage of The Jobs and Growth Tax Relief Reconciliation Act of 2003. This legislation reduces the maximum tax rate on dividends from 38.1% to 15% and reduces the tax rate on capital gains from 20% to 15%. I predict that, when controlling for other influential factors, this legislation will lead to an immediate increase in share prices. Specifically, I predict that dividend stocks will have positive abnormal returns greater than other types of stock. I also predict liquid stocks will experience higher abnormal returns than illiquid stocks.

My results support the tax-relevance view, but provide little support of the traditional (tax-penalty) view that stocks with *high* dividend yield experience *greater* abnormal returns. I find that liquidity is a factor in this context, and that illiquid stocks benefit during the event period, exhibited by higher returns than more liquid shares. Generally, short-term stock returns are reduced by illiquidity, but they benefit from the Tax Relief Act.

My study makes two contributions to the existing literature investigating the effects of dividend taxation. First, I find further evidence to support the tax-relevance view. Second, I find that liquidity plays a role in determining share prices and stock returns. Specifically, I find that less liquid stocks tend to have higher returns. This is important given the recent focus by many researchers on the asset-pricing role of liquidity.

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