NBER WORKING PAPER SERIES

EXECUTIVE FINANCIAL INCENTIVES AND PAYOUT POLICY: FIRM RESPONSES TO THE 2003 DIVIDEND TAX CUT

Jeffrey R. Brown
Nellie Liang
Scott Weisbenner

Working Paper 11002
http://www.nber.org/papers/w11002

NATIONAL BUREAU OF ECONOMIC RESEARCH
1050 Massachusetts Avenue
Cambridge, MA 02138
December 2004

The views expressed in this paper are those of the authors and not necessarily those of the Federal Reserve Board. We thank Darrell Ashton, Vivek Choudhary, Yoon Sok Lee, and Lizy Mathai for excellent research assistance. We thank seminar participants at the University of Illinois and the Federal Reserve Board for their comments and constructive suggestions.The views expressed herein are those of the author(s) and do not necessarily reflect the views of the National Bureau of Economic Research.

Executive Financial Incentives and Payout Policy: Firm Responses to the 2003 Dividend Tax Cut
Jeffrey R. Brown, Nellie Liang, and Scott Weisbenner
NBER Working Paper No. 11002
December 2004
JEL No. G32, G35, H24

ABSTRACT

Using the 2003 reduction in dividend tax rates to identify an exogenous change in the after-tax value of dividends to shareholders, we test whether the composition of executives' stock and option holdings is an important determinant of payout policy. We find that when top executives have greater stock ownership, and thus have the incentive to increase dividends for liquidity reasons, there is a significantly greater likelihood of a dividend increase following the 2003 dividend tax cut, whereas no such relation existed in the prior decade when the dividend tax rate was much higher. In contrast, executives with large holdings of stock options, whose value is negatively related to the amount of dividends paid, were less likely to increase dividends both before and after the tax change. These findings hold for dividend increases in general, as well as dividend initiations, and are robust to a rich set of firm and shareholder characteristics. Our results suggest that about one-half of the unanticipated rise in the likelihood of a dividend increase or initiation observed in 2003 can be attributed to the stock vs. option composition of top executive holdings. Many of the firms that increased dividends in 2003 scaled back share repurchases, leaving total payouts little changed. This substitution may have raised the total tax burden on distributions because share repurchases are still tax-advantaged relative to dividends. We find that while dividend-paying firms with a large fraction of individual shareholders saw the biggest stock price gains in response to the tax cut, the market appears to have at least partially anticipated for which firms the tax cut would most likely lead to a substitution of dividends for share repurchases or earnings retention and thus a higher average tax burden on total distributions for individual shareholders.

Jeffrey R. Brown
340 Wohlers Hall
University of Illinois
at Urbana-Champaign
Champaign, IL 61820
and NBER
brownjr@uiuc.edu

Nellie Liang
Federal Reserve Board
20th and Constitution Avenue, NW
Washington, DC 20551
nliang@frb.gov

Scott Weisbenner
304C David Kinley Hall
MC-706
University of Illinois
at Urbana-Champaign
Urbana, IL 61801
and NBER
weisbenn@uiuc.edu

1. Introduction

Shareholder payouts have changed dramatically over the past two decades, with dividend payout ratios falling substantially and share repurchases increasing rapidly (Fama and French 2001; Grullon and Michaely, 2002). Following the dividend tax cut in the Jobs and Growth Tax Relief Reconciliation Act (JGTRRA) of May 2003, however, dividend activity increased sharply in 2003, with 35 percent of S&P 1500 firms increasing dividends in 2003, as compared to 27 percent in both 2001 and 2002 (calculations from Compustat). A more dramatic effect is found for new dividend programs: among S&P 1500 non-dividend-paying firms, the fraction that initiated dividends jumped from only one in a hundred firms in 2001 and 2002 to nearly one in ten firms in 2003. The dividend tax cut represented a large increase in the after-tax value of dividends to individual investors, as the top marginal tax rate on dividends was cut 20 percentage points, from 35 percent to 15 percent.[1] This tax change was proposed and signed into law with unusual speed, and thus represents a largely unanticipated and exogenous increase in the after-tax value of dividends to individual investors. Survey evidence (Brav, Graham, Harvey and Michaely 2004) suggests that tax considerations play a secondary role in the payout decision. The 2003 tax cut allows us to test this by observing actual firm behavior, and thus provides a unique laboratory for identifying factors that affect dividend policy.

We use this dividend tax change to answer two central questions. First, what are the key determinants of how firms responded to the dividend tax cut? In particular, can the composition of executive company stock holdings explain the cross-sectional pattern of dividend increases?

[1] The 2003 tax change also reduced the statutory long-term capital gains tax rate from 20 to 15 percent. Repurchases still are tax-preferred because, though subject to the same rate as dividends, the tax is deferred until the capital gains are realized at the time the shares are sold (and may go untaxed through basis step-up at death). However, this preference shrunk substantially with the dividend tax cut.

Second, do the resulting dividend increases raise total firm payouts, or are they instead offset by reduced share repurchases?

There are several reasons to suspect that the composition of executive stock and option holdings might influence the firm's reaction to the dividend tax cut. The personal wealth of top executives is tied closely to the value of the firm through stock-based compensation, either in the form of shares or options (Hall and Liebman, 1998).[2] The 2003 dividend tax cut raised the after-tax value of a $1 dividend to high-income shareholders from 65 cents to 85 cents, a 31 percent increase. Thus, the cost of initiating or increasing dividend payments for executives who have large direct stock ownership decreased substantially in 2003. Further, executives who are non-diversified with large company stock ownership may place additional value on dividends for liquidity reasons, stemming from the fact that they may face explicit/contractual restrictions (e.g., Core and Guay, 1999) or implicit restrictions (e.g., insider sales may be viewed as a negative signal by the market) on their ability to sell shares of stock.[3]

In contrast, employee stock options are almost never dividend-protected (Murphy, 1999). As a result, executives compensated with options have a personal financial incentive to limit dividends because they essentially face a 100 percent implicit "tax" rate on dividends, which is thus not affected by the change in the dividend tax laws. That is, executive options fall in value with the decline in the share price that results from a cash dividend which is not offset by the receipt of the dividend to option holders.

[2] Hall and Liebman (1998) reports that stock-based pay rose in the past two decades, from only a trivial fraction of CEO compensation to roughly two-thirds of total compensation today.

[3] While executives are not allowed to short their own company stock, Bettis, Bizjak, and Lemmon (2001) show that some executives hedge the idiosyncratic risk of their portfolios through collars and equity swaps. Managers also could pre-commit to a regular pattern of stock sales to try to avoid sending a negative signal to the market when their stock is sold. To the extent any of these diversification strategies occur will make it more difficult to find a relation between executive ownership and the likelihood of a dividend increase in 2003.

Several prior studies have found that when managers have more of their wealth in the form of stock options, they tend to use dividends less heavily (Lambert, Lannen and Larcker, 1989; Jolls, 1998; Weisbenner, 2000; Fenn and Liang, 2001; Kahle, 2002). These prior studies, however, did not have available any exogenous shift in the relative cost of distributing cash through repurchases or dividends, which is what the 2003 tax cut provides.[4] Having an unexpected and exogenous change in the relative after-tax value of dividends and repurchases allows us to directly address the usual criticism that a cross-sectional relationship between executive holdings and payout policy may reflect unobservable characteristics, such as managerial quality or corporate governance, that generate both option compensation and dividend policy. In contrast to the prior literature, our identification strategy allows us to use the exogenous shift in the relative cost of paying dividends pre- and post- 2003 to identify the relationships of interest.

Using data on roughly 1,350 of the largest publicly-traded firms, representing the vast majority of U.S. stock market capitalization, we first examine how the likelihood of a dividend increase in 2003 is influenced by firm and shareholder characteristics. While our primary focus is on top five executive holdings of stock and options, we also control for firm characteristics such as growth opportunities, cash flow, and leverage, as well as the effect of shares and options held by other types of investors (e.g., non-executive individuals and institutions). We test how the relation between executive share ownership and dividend increases and initiations in 2003

[4] In independent work conducted simultaneously with ours, Chetty and Saez (2004) also investigate the determinants of firm responses to the 2003 tax cut. While their paper is focused more on estimating the responsiveness of dividends to a dividend tax rate cut, they also examine the effect of executive compensation on the likelihood of a dividend increase. Nam, Wang and Zhang (2004) also explore this issue, although their work is more limited in scope, in that it examines only S&P 1500 firms with ongoing dividend programs and thus misses the important effects of the tax cut on dividend initiations. Differing from both studies, we also explore how the dividend tax cut affected total payouts, and thus the extent to which there was substitution between dividends and share repurchases, as well as how firm stock prices reacted to the proposal and passage of the dividend tax cut.

differs from that measured in previous years, when the dividend tax rate, and hence the cost to the stock-owning executive of paying out dividends, was much higher.

Using these same data, we also test whether the dividend tax cut likely resulted in an increase in total firm payouts, or instead represented a substitution between payout mechanisms. One of the stated motivations behind the dividend tax cut was to reduce distortions to investment decisions of firms that occurred from excessive earnings retention, and thus implicitly to boost total payouts. Grullon and Michaely (2002) find that some of the increase in share repurchases over the past decade has come at the expense of a reduction (or lack of increase) in dividends. We test whether the reverse happens in response to the 2003 dividend tax cut.

We have three principal findings. First, we provide evidence that the composition of executive stock and option holdings is a very important determinant of the likelihood of increasing dividends in 2003. There is substantial variation across firms in the number of shares of stock held relative to the number of stock options held,[5] and we show that these differences are important for determining the firm response to the 2003 tax cut. Specifically, we find that relative to a firm whose executives only held stock options, a firm whose executives only held stock was 20 percentage points more likely to have increased dividends in 2003 after the change in taxes. Not surprisingly, the magnitude of the executive ownership effect is considerably larger for dividend initiations than for other dividend increases. Switching executives' holdings from just options to just stock would increase the likelihood of a dividend initiation by 13 percentage points, or roughly double the observed rate of 7 percent. By contrast, the likelihood of a dividend increase for previous dividend payers would rise by 21 percentage points. This, however, is relative to a baseline of 57 percent, suggesting that the effect of such a change in the

[5] For example, in one-quarter of the firms, the top five executives hold, on average, eight options for every share of stock in their portfolio, while another quarter of firms has executives who hold more shares than options.

composition of executive holdings is relatively smaller for firms already paying dividends. These results are robust to alternative specifications and a very rich set of controls.

Second, while there is virtually no relation between executive direct stock ownership and the likelihood of a dividend increase in the pre-dividend-tax-cut years (1993-2002), we find a significant effect after the dividend tax cut in 2003. While other factors, such as cash flow, leverage, past firm performance, executive stock option holdings, and institutional ownership are important determinants of dividend policy in general, only the effect of executive stock holdings changed significantly with the change in tax regime, which is supportive of a tax effect. Overall, we find that about one-half of the unexpected rise in the likelihood of a dividend increase observed in 2003 can be attributed to the composition of holdings of the top five executives.

Our third finding is that, despite the increase in dividends in response to the tax cut, total payouts (dividends plus share repurchases) did not increase for many of these firms. While the firms with more executive stock holdings (relative to stock options) are more likely to increase dividends, we do not find that these firms are apt to increase total payouts. This suggests that, among those firms for which the composition of executive holdings had a large effect on changes in dividend policy, there is some degree of dividend-repurchase substitution occurring. Among firms that initiated dividends in 2003, total payouts-to-assets increased on average by only 0.6 percent, despite the fact that the new dividend payments represented 2.2 percent of assets for these firms. Interestingly, the increase in dividends coupled with no increase in total payouts for many firms suggests that the dividend tax cut may have actually increased the overall tax burden for the typical individual shareholder as, even after the tax cut, capital gains are likely still tax advantaged relative to dividends.

We also find that the firms which have historically paid large dividends and which had a large fraction of individual shareholders experienced larger stock price gains in response to the proposal and passage of the tax cut. Interestingly, however, the market appears to have anticipated, at least to some extent, that some firms would substitute dividends for tax-advantaged share repurchases or the retention of earnings, and thus potentially raise the tax burden on total distributions for individual shareholders.

This paper proceeds as follows. In section 2, we discuss our sample, summary statistics of the data, and provide more background on the 2003 dividend tax cut. In section 3, we present our main results on the effect of executive share and option ownership on dividend increases. We test how the relation between the composition of executive holdings and dividend policy has changed over the pre- and post-tax-change regimes in section 4. In section 5, we examine whether firms who increase dividends are increasing total payouts, or are just substituting dividends for share repurchases, leaving total payouts unchanged. In section 6 we analyze the market response to news of the tax cut to determine whether the market anticipated for which firms the tax cut would lead to dividend substitution. Section 7 concludes.

2. Sample, Summary Statistics, and the 2003 Tax Cut

Our sample initially consists of approximately 1,700 publicly traded firms in each year from 1993 to 2003 for which we are able to obtain financial data from Compustat, stock return data from CRSP, and executive compensation from Execucomp.[6] These firms together comprise the vast majority of total U.S. stock market capitalization. In addition to share ownership and options outstanding held by the top executives, as provided by Execucomp, we are also

[6] In our regressions, we have approximately 1,350 firms represented each year because about 400 firms are dropped each year due to missing values for some right hand side variables.

interested in shares and options held by others. Because institutional investors may face different tax rates from managers and may serve as important monitors of firm activity, we collect data on institutional ownership from CDA Spectrum, including a split between mutual funds and other institutions. We also hand-collect data from company 10-k filings on options held by employees who are not among the top executive ranks. Specifically, we define options held by non-executive employees to be the difference between total and top executive holdings.

Table 1 reports summary statistics about payout policy in 2003 for our sample. We focus on dividend increases in 2003 and contrast them with those in earlier years. Dividends are defined as dividends paid on common stock (both ordinary and special) as reported by Compustat, although our findings are fully robust to using ordinary dividend payments defined by CRSP. An increase in dividends is defined as an increase in dividends per share (adjusted for stock splits). In 2003, 30.8 percent of the sample increased dividends. This frequency can be decomposed into two parts: the likelihood of a dividend initiation in 2003 is 6.8% for the non-payers in 2002, while 57.2% of dividend-payers in 2002 increased dividends in 2003. The pickup in dividends is apparent in figure 1, which shows that the 30.8 percent of firms increasing dividends in 2003 is substantially larger than the fraction of dividend increasers in 2002 and other recent years. When the sample is expanded to include all firms in Compustat, thereby bringing in smaller firms that are less likely to pay dividends, the fraction of dividend increasers on a yearly basis is somewhat reduced; however, the trend in dividend increases over this period is quite similar.

In figure 2, we illustrate that the 6.8 percent rate of dividend initiation in 2003 is higher than that for any other year since 1980. Figure 3 shows the increases among those firms already paying dividends, again reinforcing that there was a clear uptick in dividend payouts in 2003 and

that the trends are quite similar among Execucomp and Compustat samples. Recognizing that many firms regularly increase their dividends each year even in the absence of a change in the tax environment, we also look at whether dividend-paying firms also increased their dividends by a greater amount per share in 2003 than in 2002. As reported in table 1 and as shown in figure 4, there were substantially more firms increasing the size of their dividend increase in 2003. While these figures suggest that the 2003 dividend tax cut most likely led to an increase in dividends, the high level of noise in the time series underscores the importance of controlling for other economic factors, such as a firm's cash flow or cash balances on hand, that are likely to be correlated with changes in dividends and may have also been changing over this period.[7]

Because our primary question of interest is how the composition of executive holdings influences firm dividend policy, we highlight executive stock and option holdings in table 2. Consistent with prior literature, top executive ownership at the median firm is 0.8 percent, and 3.8 percent on average. While the fraction of total shares outstanding held by top executives is relatively small, this can represent substantial wealth for these individuals. For example, at the median, the value of stock held by the top executives in 2003 was almost $12 million (the median annual cash salary and bonus for top five executives totaled $3.3 million). Top executives also hold a large number of stock options, with the median ratio of options to shares outstanding of 2.6 percent, about three times the median number of direct shares of stock. One summary measure of composition of executive holdings that we use in our empirical analysis is the fraction of executive holdings that is in the form of stock (i.e., number of shares divided by shares plus options). This fraction indicates that top executives at the median firm held 25

[7] While one recent study (Blouin, Raedy and Shackelford, 2003) found it difficult to conclude that the 2003 tax cut actually increased overall dividend activity, a more recent study using additional months of data shows that overall dividend activity did clearly respond to the cut in dividend tax rates (Chetty and Saez, 2004).

percent of their stock-based holdings in stock; at the 75th percentile, top executives had more than one-half in stock.

Data from CDA Spectrum indicate that, on average, 26 percent of shares are held by mutual funds and 43 percent are held by other institutions like pension funds and endowments. Individuals (excluding top executives) hold 27 percent of shares. Similarly, employees below the top executive ranks hold more than double the number of options in aggregate than do the top five executives. In the average firm, stock options held by non-top-five employees are approximately 7.7 percent of outstanding shares of stock. It is of interest whether managers consider the tax consequences of their payout policy for non-executive individuals.

We are interested in the ownership of the remaining shares for two reasons. First, there is a differential effect of the tax cut on different types of investors. For example, the cut in dividend taxes increases the after-tax value of dividends for individual investors who hold shares directly, while only about 40 percent of all mutual fund holdings are held in taxable accounts (ICI Mutual Fund Fact Book, 2003), and many other institutional investors (e.g., pension funds) are not taxed at all. Perez-Gonzalez (2003) finds evidence that dividend payouts tend to be larger in years when dividends are less tax disadvantaged relative to capital gains, but only for firms whose large shareholders were affected by the changes in tax rates. Controlling for these other tax effects is important to ensure that our executive holdings results are not driven by some other factor, such as if firms with a high level of individual ownership also tend to compensate executives with more stock and fewer options. Second, it is well known that some institutional investors, such as pension funds, often serve as powerful monitors of firm behavior (Gillan and Starks, 1998). As such, large institutional investors may be able to influence firm payout policy for reasons that are not related to the composition of executive holdings.

Because we are testing whether the executive holdings can help to explain the differential firm responses to the 2003 dividend tax cut, an important consideration is whether the money at stake for these executives is substantial. In table 3, we show the dollar value of the 2003 increase in dividends flowing to top executives. For the 534 firms in our sample that increased dividends in 2003, dividend payments to the top five executives rose on average by $790,000 ($445,000 went to the CEO). Though the average is skewed, the increase at the 75th percentile is also quite substantial. At firms that declared dividends for the first time (6.8 percent of the sample), the increases are even larger, with an increase at the median firm of $281,000 to the top five executives, of which $140,000 went to the CEO. The bottom panel of table 3 shows the eight largest increases in dividend payments to top executives in 2003. Leading the list is Microsoft, whose top five executives received a $138 million increase in dividend income.[8] Without the dividend tax cut, Microsoft's top five executives would have paid additional taxes of $27.6 million [(0.35-0.15)*$138] as a result of the dividend initiation.

3. Empirical Results on Dividend Increases

The May 2003 dividend tax cut, which was made retroactive to January 1, 2003, was completely unanticipated until the days leading up to President Bush's speech to the Economic Club of Chicago in early January 2003. The news leakage of this idea prior to this event was minimal, and fewer than five months elapsed from the time of this announcement until the legislation passed.[9] Thus, it is certain that firms did not adjust their compensation structure prior to January 2003 in anticipation of a future dividend tax cut. As a result, we can treat our

[8] Our data includes only the January 2003 dividend increase by Microsoft, not the 2004 special dividend, which resulted in a dividend payout of over $3 billion to Bill Gates alone.

[9] Auerbach and Hassett (2004), who conduct an extremely careful analysis of the effect of the 2003 dividend tax cut on stock prices, confirm that there was very little information released prior to the announcement of the tax cut.

measure of the composition of executive holdings, which is based on 2002 data, as pre-determined, which allows us to identify the causal effect of executive holdings on changes in dividend policy in response to the tax cut.

We examine dividend initiations among prior non-dividend payers, increases among dividend-payers (measured as an increase in dividends per share appropriately adjusted for stock splits), as well as firms that "increased the increase," i.e., firms whose 2003 increase in dividends per share was greater than their 2002 increase. In addition to executive holdings, we relate changes in dividend policy to a rich set of controls, including the firm's market-to-book ratio (a proxy for growth opportunities), free cash flow, cash on hand, leverage, past firm performance, volatility, firm age, and 3-digit SIC industry. Our explanatory variables are taken as of year-end 2002, and related to the change in dividends per share from 2002 to 2003.

3.1. Dividend Increases and the Composition of Executive Holdings

Table 4 presents coefficient estimates of the likelihood of a dividend increase in 2003 based on the composition of holdings for the top executives, holding constant a large number of firm and industry factors. Our first principal finding is that the structure of executive stock and option holdings is a very important determinant of dividend policy. As shown in column 1, the coefficient on the fraction of shares outstanding held by the top executives is positive and highly significant; the coefficient of 49 indicates that moving from the 25th percentile (0.3 percent) to the 75th percentile (3.2 percent) of the fraction of shares held by the top executives raises the probability of a dividend increase by 1.4 percentage points, from a baseline of 30.8 percentage points.[10] To ensure that the executive ownership effect does not simply reflect differences across

[10] Throughout the tables, our dependent variable is measured in percentage points, while our explanatory variables are expressed as raw ratios (i.e., not in percentage points).

industries in both executive holdings and payout policy, we include industry effects at the 3-digit SIC level (the 2003 sample spans 236 such industries). We also include indicator variables for the firm's age in order to ensure that our results are not being driven by an underlying correlation of executive ownership and dividend policy with firm age that might occur if executives are more apt to have built up larger ownership in older firms and older firms are more apt to pay dividends (Ikenberry and Julio, 2004). While the industry and age effects are jointly significant at the 1 and 5 percent levels, respectively, their inclusion has no effect on the executive ownership coefficient (column 2).

Baker and Hall (2004) argue that for many incentive problems, the dollar amount of management ownership is a more accurate measure of management's incentives. Thus, in column 3 we replace our dependent variable with the log of the dollar amount of shares held, and find a positive and significant coefficient, indicating that the greater the value of executive holdings in company stock, the more likely that they increased dividends in 2003 in response to the tax cut.

Holdings of stock options also have an important effect on dividend increases that is predicted by its effect on managements' wealth.[11] The negative and significant coefficient on the share of options held by the top executives normalized by shares outstanding (column 4) indicates that a greater share of options reduces management incentives to increase dividends, since it would reduce the value of their option holdings. A move from the 25th to 75th percentile of executive option holdings reduces the probability of increasing dividends by 3.7 percentage

[11] Unfortunately, the proxy statement does not provide sufficiently detailed information on outstanding options to calculate their Black-Scholes value without making considerable assumptions, so our analysis focuses on the number of options. In later analysis, we find evidence consistent with the view that executives focus on the number of options, rather than their value, when making dividend payout decisions.

points. Importantly, the inclusion of the options variable leaves the coefficient on the top-five share ownership unchanged.

An alternative measure that is arguably a better proxy for the executives' personal interests is one that accounts for the *relative* importance of shares versus options in the executives' portfolios, rather than normalizing the number of shares or options by total shares outstanding. Thus, in column 5, we include a summary measure of holdings – the ratio of the number of shares held by the executives to the sum of the number of shares and options held by the executives. The significant and positive coefficient on this variable indicates that managers with more of their holdings in shares are more likely to increase dividends. The economic effect is quite substantial, indicating that relative to a firm whose executives held all options and no stock, a firm whose executives held all stock and no options would be 20 percentage points more likely to increase dividends (the baseline is 30.8 percent).[12] These findings provide strong evidence that the cross-sectional variation in the response of dividends to the tax cut depends on the composition of executive holdings. Moreover, when we include both the log of the dollar value of shares held as well as the composition of executive holdings, it is clearly the composition of holdings (the ratio of the number of shares of stock held to the sum of the number of shares and options held) that drives dividend increases in 2003 (column 6).

In columns 7 and 8, we find that the effect of executive holdings (stock vs. options) on dividend policy is stronger for those firms whose stock price appreciated over the past five years (just over half of the 2003 sample had a positive past five-year stock return). The executives in firms whose prices have risen recently are more apt to have accrued capital gains embedded in

[12] For ease of interpretation, we report linear probability models throughout the paper. Probit models yield very similar results. For example, the marginal effect of the composition of holdings variable (evaluated at the sample means of the covariates) from the Probit specification is a highly significant 23.0 (compared to a coefficient of 19.6 in the linear model).

their stock holdings and thus face a relatively higher tax burden if they were to liquidate their shares than would executives whose stock has recently fallen in price. Ceteris paribus, executives who would face a substantial capital gains tax liability from selling shares may be more willing on the margin to initiate or increase dividends, particularly after the tax cost of doing so was cut to 15%. In addition, recent price appreciation could indicate that executives would have a greater need to rebalance their own portfolio, and might be more anxious to do so, at least partially, by paying dividends. As shown, the effect of the shares held by the top executives (column 7) and the composition of executive holdings (column 8) is much greater for firms whose stock price has increased over the past five years. Unlike direct ownership of shares, whether the stock has gone up or down has little direct effect on the relation between executive stock options and the likelihood of a dividend increase.[13] Also, the past five-year return by itself is insignificant in every specification. Thus, the past five-year stock performance is only correlated with changes in dividend policy when the executives' holdings are mainly in the form of stock instead of stock options. In this case there is an increased likelihood the firm increased dividends in response to the 2003 tax cut.

In Table 5, we separate firms into two groups: first, those firms that did not pay dividends in 2002 (a dividend increase in 2003 would be an initiation for this group), and second, firms that already had ongoing dividend programs. We do so because dividends are "sticky" in that investors expect dividends to be paid out regularly once started and rarely cut (Lintner, 1956). As demonstrated in Figures 1 to 4, the likelihood of a dividend increase is substantially higher for those firms already paying dividends. Thus, we expect that the decision to initiate dividends is likely different than the decision to increase dividends for an ongoing program.

[13] This finding is consistent with a view that executives focus on the *number* of stock options as opposed to the *value* of the options when making dividend payout decisions.

Columns 1 to 3 replicate the overall sample results previously shown in table 4, and are provided for comparison. Columns 4 to 6 report regressions for the likelihood of a dividend initiation, 7 to 9 report results for the likelihood previous dividend-payers increase dividends, and columns 10 to 12 report results for the likelihood previous dividend-payers "increase the increase" in dividends per share (i.e., the change in dividends per share in from 2002 to 2003 is greater than the change from 2001 to 2002). The results indicate that both the fraction of shares held by top five executives and the composition of executive holdings are important determinants of all measures of a dividend increase. Specifically, shares held by management make it more likely that firms initiate and that previous dividend payers increase dividends or increase the increase in dividends in 2003, while greater option holdings make it less likely that firms do so (though the option holding results are insignificant in some specifications). Not surprisingly, the magnitude of the executive ownership effect is considerably larger for dividend initiations than for other dividend increases. Switching executives' holdings from just options to just stock (i.e., the ratio variable increases from zero to one) would increase the likelihood of a dividend initiation by 13 percentage points, or roughly double the observed rate of 7 percent. By contrast, the likelihood of a dividend increase for previous dividend payers would rise by 21 percentage points. This, however, is relative to a baseline of 57 percent, suggesting that the effect of such a change in the composition of executive holdings is relatively smaller for firms already paying dividends.

3.2. Robustness Checks

In results not reported, we have conducted several sensitivity checks, and find that our results are robust. For example, we augmented the baseline dividend-increase specification in Tables 4 with controls for past payout policy (including the dividend and share repurchase yield

in 2002), corporate governance (as measured in 2002 by the index constructed by Gompers, Ishii, and Metrick (2003)), and the *change* in free cash flow from 2002 to 2003. The inclusion of the latter two variables is done to control for any increase in dividends in 2003 attributable to a firm's corporate governance (a proxy for the presence of agency problems) or a large change in cash flow. In sum, these additional variables are each individually insignificant and their inclusion has little if any effect on the underlying variables of interest (i.e., the coefficient on executive ownership increases slightly from 48.1 to 52.2 with their inclusion and the composition of executive holdings coefficient decreases slightly from 19.6 to 18.1 with their inclusion).[14]

We also distinguish ordinary dividends from "special" dividends. This distinction is potentially important because a firm has the incentive to initiate or increase ordinary dividends only when they are confident that they can continue to pay such dividends in the future. In contrast, special dividends are a one-time tool and do not necessarily signal a long-term increase in payouts. Given the prominence of Microsoft's announcement in July 2004 that they would pay a special dividend of $3 per share, totaling about $32 billion, and the work of Blouin, Raedy, and Shackelford (2004) that finds a rise in special dividends after the tax cut, one might be concerned that the increase in dividends we measure actually reflects a one-time spike in special dividends and not a longer-term change in dividend policy.

Our Compustat measure of dividends per share includes both ordinary and special dividends. To isolate just ordinary dividends, we use CRSP (using CRSP also provides an

[14] We also tested whether the relation between executive ownership and dividend policy varied with the corporate governance of the firm (i.e., included interactions of the corporate governance index with executive ownership), but found the interaction to be insignificant as well. Besides the corporate governance index, we also estimated regressions with an indicator variable for whether the CEO was also chairman of the board, and an interaction of this variable with the executive ownership variable, and again found both the CEO is chairman variable and its interaction term to be insignificant in explaining changes in dividend policy.

alternative measure of total annual dividends we can compare with our Compustat measure). Total dividends reported in Compustat and total dividends reported in CRSP are highly correlated and yield very similar regression results (e.g., the composition of executive holdings coefficient is 19.6 when using the Compustat measure and 16.6 when using the CRSP measure). When we restrict our sample to increases in ordinary dividends, our results are essentially unchanged (the composition of executive holdings coefficient falls slightly to 15.2), which indicates that nearly all of the correlation between executive holdings and dividends is based on ordinary dividends.

Finally, we also break executive ownership into that held by the CEO and that held by other top executives to see if the holdings of the CEO are a bigger determinant of payout policy than those of the next four top executives in the firm (CEOs, on average, account for about one-half of the stock held by the firm's top five executives at the end of 2002). For dividend increases, dividend initiations, and dividend increases for dividend-payers, we find that both the composition of the CEO's holdings as well as that for the other top executives are important determinants of dividend policy in 2003, with no statistical difference in the coefficients across the two types of executives.

4. Identifying the Response of Firms' Dividend Policy to the Tax Change

The results presented thus far have focused on the determinants of changes in dividend policy in 2003. To provide an even more compelling identification strategy for identifying the effect of tax cut on payout policy, we now provide comparison of behavior after the dividend tax cut (2003) with that before the tax cut (1993-2002), when dividends were taxed at a considerably higher rate (the top personal rate varied between 35% and 40% over 1993-2002). We also consider the effect of ownership by institutions and other individuals on payout policy and

quantify the importance of executive holdings in explaining the "unanticipated" increase in dividends in 2003 relative to earlier years.

4.1. Dividend Increases in 2003 Relative to Prior Years

In table 6, we broaden our sample to further include 2002, as well as the entire decade from 1993 to 2002. To cleanly identify the effect of the tax cut, we estimate pooled regressions over the sample 2002-2003 (left panel) and 1993-2003 (right panel), in each case interacting all the explanatory variables with an indicator variable for 2003.[15] Thus, the estimated effect of these variables on dividend increases in 2003, shown in table 4, is the sum of the two sets of coefficients, those for the earlier period (either 2002 or 1993-2002) and the differential effects for 2003 (shown in bold).

Strikingly, there is no relation between dividend increases and the fraction of shares owned by the top-five executives either in 2002, or over the period 1993-2002. Only in 2003 is there a positive and significant correlation between executive ownership and dividend policy in 2003 (in no other individual year is there a significant relation). These results are consistent with the view that the dividend tax cut reduced the cost of paying dividends and thus raised the probability of a dividend increase for those firms in which management had the most to gain (such as by obtaining liquidity through dividend payments).

Also notable is the fact that while several firm characteristics are key predictors of dividend changes over the period 1993 to 2002, their effect is not significantly different in 2003 than in these earlier years. Focusing on the pooled sample from 1993 to 2003, higher free cash flow appears to be positively related to dividend increases while firms with lower cash balances

[15] The first year we can relate a change in dividend payouts to executive holdings at the prior year-end is 1993 since the Execucomp database starts in 1992.

on hand are less likely to boost dividends. The latter effect likely reflects that firms with greater needs to hold cash balances, because of higher transactions or precautionary demands (Boyle and Guthrie, 2003; Almeida, Campello, and Weisbach, 2004), are less likely to commit to paying or increasing dividends. In addition, firms with greater debt ratios, and likely higher claims from interest expense on their earnings, are less likely to pay dividends as well. Leverage may also substitute for dividends as a way to reduce agency problems (Jensen, 1986). Of primary interest for this study, however, is that while important in their own right, these determinants of dividend policy were not affected by the tax cut (i.e., the interaction term of the variable with 2003 is insignificant). Of all the other variables, only stock price volatility has a significantly different effect in 2003 relative to earlier years. Throughout the period 1993-2003, firms with higher past volatility were significantly less likely to increase dividends. While this effect is larger in 2003 than in earlier years, it is not obvious why firms with more volatile stock prices were less apt to increase dividends in 2003 relative to earlier years. In particular, it is unclear why such a change would be the result of a change in the after-tax value of dividends.

The overall pattern of results is consistent with the hypothesis that dividend policy was changing primarily in response to the fact that declining dividend taxes reduced the cost of paying dividends, and that this effect is strongest in firms where the executives' personal financial incentives are most positively affected by the dividend tax reduction.

4.2. Ownership by Institutions and Other Individuals

The previous tables provide evidence that the stock ownership of top executives has a significant effect on a firm's decision of whether to increase dividends in light of the dividend tax cut. In addition to executive stock ownership, ownership by other groups could also have led to a differential response to the tax cut. For example, a firm that is owned mostly by individual

investors would benefit relatively more from the tax cut than a firm whose shares are owned primarily by pension funds, whose dividend income is not subject to tax.[16] Further, options held by non-executives, as well as those held by top executives, have been shown to influence payout policy (Lambert, Lannen and Larcker, 1989; Jolls, 1998; Weisbenner, 2000; Fenn and Liang, 2001; Kahle, 2002). However, since options are not dividend-protected, their effect on dividends should not vary with a change in dividend tax rates. In this section we test whether these other stock and option holders influence dividend policy, and if so, whether the effect changed with the tax cut.

To address these issues, table 7 reports regression results for the 2003 sample, as well as the difference in the relevant coefficient for the 2003 regression relative to a regression estimated over 1993-2002 (shown in bold). For simplicity, we omit reporting the coefficients on all the other firm characteristics (e.g., cash flow, leverage, etc. that appeared in tables 4 and 6) although they are included as well. The first set of columns show that while the coefficient on the composition of executives' holdings (i.e., number of shares divided by number of shares and options) is larger in 2003 than the previous decade, only 44 percent (8.6/19.6) of the total coefficient of 19.6 represents an increased correlation relative to prior years. In other words, the composition of executives' holdings appears to affect dividend policy not only in 2003, but in earlier years as well.

The second and third set of columns, which break the composition ratio into its two components, shed some light on this finding. As shown in table 7 (and previously documented in table 6), the positive correlation between executive stock ownership and dividend policy only occurs after the dividend tax cut. Thus, relative to a firm where the executives have no stock

[16] While not all stocks held by individuals are in taxable accounts (e.g., some stocks are owned through tax deferred accounts such as IRAs), the fraction of direct stock ownership held in taxable accounts is higher than the fraction of mutual fund assets held in taxable accounts.

ownership, a firm where the executives hold 5 percent of the shares is 2.4 percentage points more likely to boost dividends in 2003 (the estimate is only 0.2 percentage points in the pre-tax cut 1993-2002 period). On the other hand, the effect of executive stock *options* on the likelihood on a dividend increase, while significant and substantive, is little changed when dividend tax rates are cut (coefficient increases only slightly from –103.8 in 1993-2002 period to –122.0 in 2003). Relative to a firm where the executives have no stock options, a firm where the number of options held by the top executives equals 5 percent of the firm's shares outstanding is 6.1 percentage points less likely to boost dividends in 2003 (compared to a similar 5.2 percentage points in the pre-tax cut 1993-2002 period). For stock options, which are not dividend-protected, the dividend tax rate effectively is always 100 percent and thus it is not surprising that the effect of executive stock options should not change over time.

The final set of results in Table 7 includes additional controls for the fraction of shares held by individual investors other then the top five executives and the fraction of shares held by non-mutual fund institutional investors (primarily tax-exempt pension funds). The omitted category is mutual funds, which includes both taxable and tax-exempt accounts and which would potentially benefit more from the tax cut than non-mutual fund institutional investors. Like top executives, all individuals would face a higher after-return to dividends in 2003 than earlier years. However, the share of the firm held by each of the other individuals is less likely to represent a large part of their own personal wealth, and so the provision of liquidity is not nearly as an important an incentive for dividend payments as it is for top management. Consistent with the hypothesis that the tax status of individual investors matters, we find a positive relation between the fraction of shares held by individuals and the likelihood of a dividend boost in 2003, but this

relation is persistently strong throughout 1993 to 2002 as well.[17] That is, while the dividend tax cut was more likely to have led firms with more individual shareholders to increase dividends in 2003, the estimated effect was not significantly larger in 2003, as was the case for the fraction of shares held by the top executives. This ongoing demand for dividends by individuals is consistent with Shefrin and Statman (1984) who argue that individuals may prefer dividends despite their tax disadvantage because it helps them to solve a self-control problem. That is, by committing to consume only out of dividends, investors avoid deciding how many shares to sell and how much to consume, and thus commit themselves not to consume too much.

In addition, while the dividend tax cut yields no direct increase in the after-tax value of dividends paid on shares held by tax-exempt institutions, we find a positive and significant coefficient on the fraction of shares held by non-mutual fund institutions, which presumably have more tax-exempt assets than mutual funds (the omitted category). This variable is found to be of similar importance over the period 1993 to 2002. While a pure tax story would suggest the opposite sign, this finding is consistent with the view that institutional investors such as pension funds serve an important role as monitors of firms. Pension funds, for example, are generally considered to be much more active monitors of corporations, whereas mutual funds are thought to "vote with their feet" and simply sell the shares of companies with poor governance mechanisms (Gillan and Starks, 1998). With great skepticism about the quality of corporate earnings in the post-Enron period, there was a growing perception that firms should be pressured to pay dividends, because cash distributions cannot be manipulated and make it easier for investors to verify the cash flows of the firm. In addition, DeAngelo, DeAngelo, and Skinner (2000) also argue that institutions may like the smoothness of regular dividends because it makes

[17] The coefficient on top management ownership is significantly greater than that for other individual ownership at the 5 percent level.

their task of rebalancing their portfolios more predictable and thus they increase their demand for dividends when its after-tax cost to other shareholders declines.

Finally, in unreported results, we find that options held by employees outside of the top senior ranks have a negative effect on dividend increases in 2003, but that the effect is much smaller in magnitude than for options held by the top executives. For example, in regressions estimated for 2002 and 2003, the coefficient estimate of –49.0 for lower-level employee options normalized by shares outstanding is only one-third the magnitude of the –149.0 coefficient for the same measure calculated for top-five executive option holdings.[18] This suggests that, relative to a firm with no stock option program, a firm with options outstanding representing 5 percent of shares outstanding would have a 2.5 percentage point lower probability of increasing dividends (assuming the top executives hold no options). If instead top management held all these options, the probability of increasing dividends would fall by 7.5 percentage points. Thus, as with stock ownership, the relative size of the coefficients suggest that executives place greater weight on the dividend tax implications of their own holdings than on those of other employees. Similar to executive stock options, the effect of lower management options on dividend policy is not different in 2003 relative to earlier years.

The estimated coefficients on the additional ownership variables and the option variables, both for upper management and lower level employees, suggest that they also influenced the likelihood of a dividend increase in 2003. However, only the relation with executive stock *ownership* is larger in 2003 relative to the pre-tax cut period, indicating that the tax cut did not influence dividends through these measures. Just as important, the inclusion of these other

[18] Because total options outstanding, and hence the difference between total and top executive option holdings, had to be collected by hand, we collected these data for year-end 2001 and 2002, and related non-executive options, along with other variables, to dividend changes in the next year. Thus, our comparison of 2003 with earlier years is limited to a comparison of 2003 with 2002 when this variable is included in the regression.

controls has very little influence on the executive holdings variables, suggesting that our executive holdings results are not being spuriously driven by the composition of the other owners of the firm.

4.3. Types of Dividend Increases in 2003 Relative to Prior Years

Table 8 expands upon the analysis in table 6 by testing for each type of dividend increase whether the effect of executive ownership upon payout policy is different in 2003 than in earlier years, when the dividend tax rate was more than twice as big. For each measure of dividend increase—initiations, increases for dividend-payers, and increases in the increase in dividends per share for dividend-payers—we examine the coefficient on the fraction of shares held by the top five executives, as well as the coefficient on the ratio that represents the composition of executives' holdings (i.e., number of shares divided by number of shares and options).

Similar to the specification that includes all dividend increases, both the level of stock ownership by top five executives and the composition of executive holdings have a significantly stronger effect on dividend initiations in 2003 than in earlier years. In fact, over the period 1993-2002 there is no significant relation between executive ownership and the likelihood a firm initiates dividends. While motivations for dividend initiations are clearly different after the tax cut, the results are less significant for dividend increases made by dividend-payers, although these results are enhanced when we focus instead on whether dividend payers "increased the increase" in dividends per share.

These results are not surprising, as, by definition, firms paying dividends prior to 2003 already have determined that dividend tax rates are not high enough to preclude them from starting a dividend program. Thus, a reduction in dividend tax rates likely would not have as large of an effect on future payouts for these firms. On the other hand, the high dividend tax

rates of roughly 35% to 40% before 2003 may have been a deterrent to initiating dividends for non-dividend-paying firms. Once those taxes were slashed in 2003, the calculus of whether to pay dividends was changed substantially for these firms; that is, while executives with large ownership stakes were not willing to forfeit $0.35 to $0.40 on a dollar of dividends, they may be willing to forego $0.15 for the added personal-portfolio liquidity.

4.4. Is the Effect of Executive Ownership on Dividend Policy Economically Important?

We have now shown that the composition of the executive holdings (i.e., shares vs. options) has a very strong effect on payout policy decisions in 2003. Given that many other variables were also changing in 2003, such as free cash flow, it is of interest to know how much of the overall increase in dividend activity is due to executive holdings.

We graph the actual (black line) and predicted (gray line) level dividend increases (figure 5), dividend initiations (figure 6), dividend increase for previous dividend-payers (figure 7), and the proportion of previous dividend payers that increased their increase in dividends per share (figure 8). For each year from 1993 to 2002 we estimate a regression for each of these four measures, and calculate predicted levels by applying year t-1 regression coefficients to year t covariates. By comparing "expected" 2003 dividend increases (i.e., the level of dividends that would be predicted in the absence of a tax change) to actual 2003 dividend increases, one can visually see the "unexpected" dividend increases. Given Execucomp data limitations, we can estimate our earliest dividend increase regression in 1993, and thus can make our first prediction in 1994.

In the absence of the tax cut, the expected level of dividend increases in 2003 (using 2002 coefficients) would have been 23 percent (roughly the same level as 2002). However, the actual

level of dividend increases was 30 percent.[19] The unexplained gap of seven percentage points is a measure of the tax cut effect, which could not have been anticipated in the 2002 regression estimates. Because the average prediction error is only 1.2 percentage points across the period 1994-2002, the year 2003 stands out because of the relatively large unanticipated fraction of firms that increased dividends.

Similar exercises are done for each of the alternative definitions of a dividend increase (figures 6 to 8). The largest gap between forecasts and actual payout policy (i.e., the largest "unexpected" component), in percentage terms, arises for dividend initiations (figure 6), suggesting that the dividend tax cut had its strongest effect here. Consistently, the proportion of firms initiating dividends fluctuated between 1 percent and 3 percent, with a prediction averaging just over 0.5 percent. However, in 2003, the percent of firms initiating dividends skyrocketed to 7.7 percent, while the prediction, in line with previous years, was a meager 1 percent. The prediction error in the increase in dividends for dividend payers (figure 7) and the prediction error in the fraction of dividend payers increasing the increase in their dividends per share (figure 8) are also significantly larger in 2003 than other years.

In figure 9, we decompose this "tax-induced gap," i.e., the prediction error, into the component due to the composition of executive holdings (stock vs. options) and that attributable to other factors. This decomposition highlights the importance of executive holdings in explaining dividend increases in 2003. For all dividend increases, we can assign more than one-half of the prediction error to a change in the coefficient on the composition of executive stock holdings between 2002 and 2003. That is, given the prediction error of 7.0 percentage points in 2003, a large part (4.8 percentage points) can be directly attributed to the fraction of executive

[19] This probability is slightly different from that reported in Table 2, as this estimate is from the sample of firms that have non-missing firm financial variables (e.g., free cash flow, leverage, past five-year return, etc.).

holdings held in the form of shares (versus options). Nearly a similar-sized share of the prediction error for dividend initiations can also be explained by the structure of executive holdings. These results underscore the importance of managers using dividends to disinvest wealth from the firm that arose in 2003 after the substantial reduction in dividend taxes and was absent in earlier years.

5. Executive Holdings and the Dividend Substitution Hypothesis

The 2003 Economic Report of the President, released in February of that year, provided the Bush administration's economic rationale for the dividend tax cut. In the analysis, the administration highlighted a number of reasons that a cut in dividend tax rates could have positive economic effects, including the elimination of distortions to investment decisions of firms, arguing that "the heavier tax burden on dividends can encourage investment in established businesses with internally generated earnings, because these businesses will tend to have more retained earnings because of the tax distortion." Implicit in this claim is that the dividend tax cut will increase dividends and result in higher total payouts, rather than cause firms to shift the type of payout towards dividends and away from share repurchases.

In table 9, we examine both dividends and share repurchases for firms that increased dividends. We define share repurchases as funds used to buy back shares, as reported on cash flow statements and defined in Compustat, consistent with many other studies (e.g., Jagannathan, Stephens, and Weisbach, 2000; Fenn and Liang, 2001; Grullon and Michaely, 2002). Specifically, for the subset of firms that increased/initiated dividends we report three statistics. First, we report the likelihood the firm repurchased shares in the previous year and thus has a track record of distributing cash through other means. Second, we report the decrease in share repurchases (normalized by assets) in the year of the dividend increase/initiation conditional on

having bought back stock in the prior year. Third, we report the probability that the firm increased total payouts (dividend plus share repurchases, normalized by assets) in the year of the dividend increase/initiation. We do these calculations for three cohorts of dividend increasers, those that increased in the period prior to the tax cut (1993-2002 and 2002) and those that increased dividends in 2003.[20]

The results indicate clearly that, for many firms, the increase in dividends came at the expense of repurchases, resulting in an increase in total payouts for only about one-half of the firms that increased dividends. As shown in the middle row of the upper panel, we find that among firms that initiated dividends in 2003, 68 percent had repurchased shares in the previous year, 2002. Among these repurchasing-firms, 78 percent reduced their share repurchases from 2002 levels upon initiating dividends in 2003. The net result is that 66 percent of all the firms that initiated dividends in 2003 (including those that had not repurchased shares in 2002) also increased total payouts, with the remainder actually cutting total payouts the year they started paying dividends. If no substitution had occurred, 100 percent of the firms that initiated dividends would have increased total payouts.[21]

The contrast of the effect of a dividend initiation on total payouts for 2003 relative to previous years is striking. During the previous decade (1993 to 2002), only 38 percent of firms that initiated dividends had repurchased shares in the previous year and only 56 percent of these repurchasers reduced the level of buybacks upon initiating dividends (both significantly less than the total for 2003 as indicated by being in bold print). As a result, 89 percent of firms that

[20] We report results for the Execucomp sample (roughly the S&P 1500). An analysis of all firms in Compsutat yields qualitatively similar results.

[21] We also compared share repurchases and payouts during the year a firm increased dividends to the firm's average level of dividends and share repurchases over the past three years (as opposed to just the prior year). The results regarding dividend substitution are very similar. For example, only 58% of dividend-initiators in 2003 increased total payouts above their average payout-to-assets ratio over the past three years (79% of dividend-initiators over the period 1993-2002 increased payouts relative to the prior three-year average).

initiated dividends over the prior decade also increased payouts in that same year, much closer to the 100 percent rate that we would expect if no substitution had occurred. These results are not driven by what may have been a lower inclination to repurchase shares in the early to mid-1990s, as the pattern of increased payouts upon a dividend initiation is also present when we focus only on the year 2002.

To provide some perspective on the *size* of the change in total payouts, the bottom panel of the table shows the distribution of changes in dividends, share repurchases, and total payouts (all normalized by assets) for firms that initiated dividends. Both pre- and post-dividend tax cut, the size of the dividend initiation (normalized by assets) is comparable, with no statistical difference in the mean or median. However, the changes in both share repurchases and total payouts in 2003 are considerably lower than the changes in previous years. The mean change in share repurchases (normalized by assets) is –1.6 percentage points in 2003, leading to only a 0.6 percentage point increase in the payout-to-asset ratio, compared to an average of a 4.5 percentage point increase over the period 1993-2002. Median changes in total payouts are also smaller in 2003, though not significantly different from earlier years. Perhaps most telling is the negative change in payouts at the 25th percentile in 2003 relative to the slight increase in payouts at the 25th percentile from 1993 to 2002, owing to the more frequent cutback in share repurchases that occurred in 2003.

We find similar results for the sub-sample of firms with ongoing dividend programs that increased dividends, although the differential effect on total payouts between 2003 and the previous decade is not as stark. Our tabulations show that 66 percent of firms that increased dividends had repurchased shares in 2002, and 62 percent of these firms reduced the amount repurchased in 2003 when they raised dividends. As a result, 49 percent of all dividend-paying

firms that increased dividends raised their total payout. In contrast, a dividend increase was likely to lead to an increase in total payouts in a slightly greater fraction, 55 percent, in other years.

These findings that total payouts increased for only about one-half of the firms in 2003 that increased dividend payments suggest that, despite the apparent reduction in the tax burden on total payouts, many firms did not increase total payouts because they simultaneously scaled back share repurchases. These results are especially strong considering that we have included "special" dividends that were paid in 2003, which do not imply an ongoing obligation for future payments, and thus would have pushed up total dividends and payouts in 2003.

Overall, this tabulation of changes in payouts implies a strong degree of substitution from repurchases to dividends prompted by the dividend tax cut. This substitution and lack of a substantial rise in total payouts might be somewhat surprising given that the tax burden of total payouts declined. However, for firms that had relied more heavily on share repurchases to distribute excess cash flow (which was evidently the case for many of the dividend initiators in 2003), the reduction in the tax burden is actually somewhat small. The tax rate on dividends was cut to the statutory rate on long-term capital gains (both are now 15%), but firms for which the higher tax burden of dividends was important likely had switched to share repurchases to exploit their tax advantage. With an equalization of statutory rates, these firms became more willing to substitute towards dividends and scale back their repurchases, leaving total payouts little changed.

The analysis in table 9 suggests nontrivial substitution of dividends for share repurchases, even among dividend initiators. Focusing on the subsample of firms that did not pay a dividend in 2002, and thus for whom a dividend payment in 2003 would mark the start of a new program,

in table 10 we more rigorously model the determinants of the broader payout policy choices firms made in response to the 2003 tax cut. We employ a multinomial logit specification to model the joint likelihood of two actions—initiation of dividends and the change in total payouts, which is the sum of dividends and share repurchases. These two actions lead to six possible outcomes: no dividends or a dividend initiation, and a decrease, no change, or increase in total payouts. Since there are no firms that initiate dividends and have no change in total payouts, that leaves five possible combinations of dividend and total payout changes. The multinomial logit model estimates how various firm characteristics affect the likelihood a firm adopts a certain dividend and payout choice, and the coefficients for that choice represent how an increase in the covariates affect the likelihood of the firm adopting that particular payout policy relative to the omitted base case, which we define as dividend initiation and increased payouts (as listed in the far right column of the table). In this model, the relative probability of outcome i relative to the base case is $e^{\beta X_i}$.

As would be expected, an increase in volatility, a decrease in cash on hand, a decrease in free cash flow, and an increase in growth opportunities (i.e., higher market-to-book ratio) all increase the probability a firm will not change payouts in 2003 (i.e., increases the likelihood of the $\Delta DIV = 0$ and $\Delta PAY = 0$ outcome). The negative and significant coefficient on free cash flow in the three $\Delta DIV = 0$ groups suggests that a fall in cash flow boosts the likelihood a firm will continue to not pay dividends.

Of particular interest is the relation between the composition of executive holdings variable and the payout policy decision. Scanning across the columns from left to right, the coefficients on the composition of executive holdings show that as executives hold more stock and less stock options, the likelihood of a dividend initiation (relative to maintaining a no-

dividend policy) is enhanced. The coefficient on the structure of executive holdings is not significantly different from zero for the case of a dividend initiation and decrease in total payouts ($\Delta DIV > 0$ and PAY/AS $\downarrow$). This result implies that we cannot reject the substitution hypothesis between dividend and share repurchases for dividend initiators.[22] While firms where the executive had substantial stock ownership were clearly more apt to start a dividend program after the tax cut, we cannot reject that these executive-holdings-induced dividend initiations led to an increase in *total* payouts only half the time (i.e., the probability of ($\Delta DIV > 0$ and PAY/AS $\downarrow$) and ($\Delta DIV > 0$ and PAY/AS $\uparrow$) are the same). Taking the coefficient on the composition ratio at face value, and assuming this ratio takes on its sample average of 0.35, conditional on initiating a dividend, the likelihood that total payouts increased is only 60%, i.e., $1/(1+e^{-1.2*0.35})$.

Up to this point we have focused on the likelihood of a payout policy change without examining the *amount* of the change. We next examine how the composition of executive stock ownership affects the level of payouts, again focusing on those firms that did not pay a dividend in 2002 and thus for whom a dividend payment in 2003 would mark the start of a new program. In table 11, we present Tobit estimates of the increase in dividends (which is equivalent to the amount of the dividend initiation by definition for this sample of firms) and the increase (if any) in total payouts. Rather than reporting the underlying coefficients from the Tobit model, we instead report marginal effects evaluated at the sample means of the covariates.

Not surprisingly, free cash flow and cash on hand are positively related to the size of a dividend initiation, while the market-to-book ratio and volatility are negatively related to the amount of the dividend. Consistent with earlier specifications of a dividend increase, greater share ownership leads to a larger amount of dividends. A change in the composition of

[22] In fact, we cannot reject at the 5% significance level that jointly, across all the variables, the probability of ($\Delta DIV > 0$ & PAY/AS $\downarrow$) and ($\Delta DIV > 0$ & PAY/AS $\uparrow$) are the same.

executive holdings variable from the 25th to 75th percentile (i.e., from 11.4 to 53.6) is associated with an expected increase in the dividend-to-asset ratio of 0.09 percentage points. Keeping in mind the dividend initiation rate is about 7 percent, this would suggest, conditional on actually initiating a dividend, such a change in the composition of executive holdings would boost the size of the dividend-to-asset ratio by just over one percentage point (i.e., 0.09/0.07). At the same time, greater share ownership does not lead to greater total payouts, consistent with our results from tables 9 and 10. These results suggest that firms with executive-ownership-induced dividend initiations in response to the 2003 tax cut often engaged in dividend substitution (i.e., often did not boost total payouts to shareholders as a result of the new dividend program).

The findings in tables 9 to11 add to the studies that support substitution between dividends and share repurchases. Grullon and Michaely (2002) find higher share repurchases by firms whose dividend increases are less than what would be predicted by a model of firm-level dividend changes, and Dittmar (2000) has similar findings based on an aggregate-level analysis. Our study, which benefits from the exogenous change in the tax rate on dividends, indicates that shareholder taxes are a factor in the choice of share repurchases versus dividends and that when the tax rates are more closely aligned, firms exhibit some substitutability between the two.

One of the stated goals of the 2003 dividend tax cut was to reduce the tax-induced distortion to retain earnings by lowering the cost of paying out dividends. While we find in table 11 that firms with lower growth opportunities and higher cash on hand did initiate dividends in response to the tax cut, they did not increase total payouts. Thus, if over-investment or a desire to boost total cash payouts to shareholders was a concern, reducing the tax rates on dividends relative to capital gains did not seem to solve the problem, instead resulting in payout substitution, at least for many firms. Thus, paradoxically, the increase in dividends coupled with

no increase in total payouts for suggests that the dividend tax cut may have actually increased the overall tax burden for the typical individual shareholder.

6. Evidence from the Market Reaction to the Dividend Tax Cut Announcement

We have shown that a firm's ownership structure and the composition of its' executive holdings influenced the change in payout policy following the dividend tax cut. This raises the possibility that, to the extent that the financial markets anticipated this possibility, one might expect a differential market response to the dividend tax cut. Here, we explore the differential stock price response to the announcement that the Bush Administration was going to push for a dividend tax cut, incorporating not only past payout policy, but also the composition of top management's holdings. We are particularly interested in whether the market anticipated that, for some firms, the tax cut would lead to a substitution of dividends for tax-advantaged share repurchases, and thus on net a likely higher average tax burden on total distributions (at least for individual shareholders).

As with any event study, the power of the test depends on how accurately one can identify the actual date on which the value-relevant information was released to the financial markets. While an ideal event study has a very well defined event window, for legislative events the release of information is often spread out over a long legislative process, including, at minimum, an initial announcement of intent, committee hearings and votes, and votes by each house of Congress prior to final Presidential approval. Despite the difficulties, there is a long history of research examining the effect of legislative events on stock prices.[23] The legislative process surrounding the 2003 dividend tax cut includes the possible release of information on

[23] Some examples include the effect of the 1986 tax reform act (Cutler 1988), financial services deregulation (James, 1983; Cornett and Tehranian, 1990), regulation of the market for corporate takeovers (Schumann 1988), and the passage of the Terrorism Risk Insurance Act (Brown, Cummins, Lewis, and Wei 2004).

multiple dates. For purposes of this section, we focus on three event windows, each consisting of five trading days (a +/-2 day window around each event).[24] The first event window, January 3 to January 9, is centered around President Bush's January 7 speech to the Economic Club of Chicago, which marked the first "official" pronouncement from the White House that the President would be seeking a substantial reduction in dividend tax rates.[25] Our second event window spans the five trading days from February 27 through March 4. This period marks the introduction of and first hearings on a dividend tax cut proposal in Congress (HR-2 was introduced in the House of Representatives February 27 and the first hearings were March 4). The final event window, May 21 to May 28, is centered around the final approval of the conference version of the dividend tax cut by both the House and the Senate on May 23.[26] Thus, these three event windows, combined spanning 15 trading days, are meant to capture the market reaction to the announcement of the tax cut proposal by the White House, the introduction of the bill in Congress, and the final passage of the tax cut in the House and Senate.

Overall, the broad stock market gained 5.8 percent over these three event windows. Consistent with this market movement, Poterba (2004) estimates that higher after-tax returns for individuals as a result of the dividend tax cut would have raised aggregate stock valuations by about six percent. However, his estimate assumes a constant dividend policy and ignores the possibility of substitution of dividends for tax-advantaged share repurchases. For purposes of our analysis, however, we are less interested in the overall market response than in whether that response *differed* across firms in a manner consistent with our findings that executive holdings

[24] Auerbach and Hassett (2004) undertake an extremely careful analysis of news events between December 2002 and the May 2003 passage of the dividend tax cut, and identify a number of possible dates that value-relevant information was released. We are grateful to Kevin Hassett for providing us with their list of event dates so that we could confirm our own analysis.

[25] Included in this first event window is January 6, the date White House press secretary Ari Fleischer alluded to the forthcoming announcement of a dividend tax cut proposal during his daily briefing.

[26] The House vote was 231-200, while the vote in the Senate was 51-50 with Vice President Cheney casting the deciding vote.

and firm ownership matter for how a firm responds to the dividend tax cut. In table 12, we focus attention on the cross-section of individual stock returns on this date and how they relate to payout policy, shareholder composition, executive holdings composition, and their interactions.

The average stock return for our sample of firms, compounded over the three event windows, is 5.8 percent (median of 4.4 percent), right in line with the overall market. Because a standard OLS regression of returns will be sensitive to outliers (some sample firms had extreme performance over these 15 days as returns varied from a high of 81.3 percent to a low of –51.2), we also estimate a robust regression and a median regression as well.

Given that the dividend tax cut applied only to individual investors, we have three predictions for the stock price reaction of firms to the dividend tax cut. First, firms with higher individual ownership should have higher returns because it is individual owners who gain from a reduction in dividend tax rates. Thus, the coefficient on individual ownership should be positive. Second, returns should be even higher for those firms with high individual ownership that also historically paid more dividends. This implies that the coefficient on the interaction of individual ownership and the prior year dividends-to-asset ratio should be positive. This simply reflects the fact that, holding payout policy constant, the dividend tax cut is more valuable for firms with higher levels of dividends.

Third, to the extent that the markets anticipated that many of the firms that initiated or increased dividends were more likely to reduce share repurchases (less likely to boost total payouts) in 2003 than in prior years, thus possibly increasing the overall tax burden for the typical individual shareholder,[27] we would expect a negative coefficient on the interaction of the

[27] As mentioned earlier, the 2003 tax change also reduced the statutory long-term capital gains tax rate from 20 to 15 percent, the same as the new top marginal rate on dividends. Repurchases still are tax-preferred because the tax is deferred until the capital gains are realized at the time the shares are sold (and may go untaxed through basis step-up at death), though the preference shrunk substantially with the dividend tax cut.

level of individual ownership and the composition of executive holdings. The intuition is as follows: if a firm has a high level of individual ownership, which leads shareholders to care more about dividend taxes, and also has a high level of executive ownership, which is more likely to lead to dividend substitution (and thus possibly increase overall individual tax burdens), then relative to other firms there should be a negative stock price reaction. In a sense, this interaction of the executive holdings variable with the share of individual ownership provides a way of quantifying the potential agency issues between management and shareholders. For example, if the tax cut is enough to induce executives with a lot of wealth tied up in company stock to boost or initiate dividend payments, even though the non-executive individual shareholders with far less concentrated portfolios still prefer receipt of capital gains via earnings retention or stock buybacks to dividends even after the tax cut, this would be indicative of agency issues. Thus, the more negative is the coefficient on this interaction term, the greater the agency costs.

We find evidence in support of all three of these hypotheses. The top panel of table 12 focuses on results based on the compounded raw returns over the three event windows (15 trading days). As the OLS regressions are sensitive to the extreme returns that accrued to some firms over the period, we focus attention on the robust regression and median regression results. Consistent with the first hypothesis, firms with a higher share of individual ownership increased more in value as a result of the tax cut news. A movement across the interquartile range of individual share ownership represents roughly a change of about 25 percentage points. Thus, relative to a firm with individual ownership at the 25th percentile, a firm with individual ownership at the 75th percentile had a 1.4 percentage point higher stock return (median difference is 0.25*4.4 = 1.1 percent).

Consistent with the second hypothesis, we find that the interaction of a firm's dividend-to-asset ratio in 2002 with the individual investors' share of ownership is also positive and significant. It indicates that for a firm with a dividend yield of two percent, a firm at top quartile of individual ownership had an additional 1.0 percentage point higher return (207.2*0.02*0.25) than a comparable firm at the bottom quartile of individual ownership (with a median difference of 1.8 percent). These results are consistent with the findings of Perez-Gonzalez (2003) who finds that dividend valuation increased when dividends were less tax disadvantaged, but only for firms with large individual shareholders.

We also find evidence supportive of our third hypothesis. Specifically, the coefficient on the interaction of the composition of executive holdings (i.e., the ratio of the number of shares held by the executives to the sum of the number of shares and options held by the executives) with the individual ownership share is significant and negative. Specifically, we find that for firms totally owned by institutions, the composition of executives' stock-related holdings does not influence how the market reacted to the tax cut. However, firms owned largely by individuals where the executives held many shares but few options actually *declined* in value. This is consistent with the view that the markets anticipated the potential agency conflicts between executives and other individual shareholders.

We also separately estimate the market response to the news of the dividend tax cut for those firms that did not pay dividends in 2002. Consistent with our third hypothesis, we again find that firms owned largely by individuals where the executives held a lot of shares but few options actually *declined* in value, with a larger effect than that measured for the full sample.

In the bottom panel of table 12, we estimate specifications using excess returns. To calculate the excess returns over the 15 days, we subtract from the compounded raw returns over

the three event windows the appropriate Fama-French (1992) benchmark returns, compounded over these three event windows, formed according to two size and three book-to-market groupings.[28] Across the sample, the average excess return is 0.2 percent, with a median of –1.3 percent. In short, we confirm all of the raw-return specification results when we instead examine a stock's excess returns (while the point estimates are nearly identical, the standard error of the estimates generally rises somewhat).

These results are suggestive of potential agency problems within some of the firms. Ex post, we found that firms whose executives had large ownership shares were more apt to increase or initiate dividends, often by at least partial substitution with share repurchases. For firms with no history of dividend payments, initiating a dividend automatically increases the total tax burden to individual investors as retained earnings and share repurchases distribute capital gains, which are likely taxed less heavily than dividends even after the tax cut since the gains are taxed on a realization basis. Thus, at least in part, the market seems to have capitalized the likely payout-policy response by firms based on the incentives provided by executives' holdings.

7. Summary and Conclusions

The 2003 tax cut provided a unique laboratory to test how a substantial reduction in the individual dividend tax rate, both nominally and relative to the tax on capital gains, influences corporate payout policy. This paper provides evidence that the composition of top executive company stock holdings can have an important influence on a firm's choice of payouts. Specifically, we find that the division of an executive's holdings between stock and stock options has a substantial impact on the likelihood a firm either increased or initiated dividends in

[28] We use the six daily benchmarks because the 100 Fama-French portfolios based on size and book-to-market deciles are not available with daily frequency. The returns on these six benchmark portfolios are obtained from Kenneth French's website: `http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/Data_Library`.

response to the reduction in the tax-cost of paying dividends. While the 2003 tax reform reduced the cost of paying dividends from $0.35 to $0.15 per dollar of dividends paid on a share of stock held by an individual investor, the dividend tax rate on stock options, which are rarely dividend-protected, essentially remained at 100%. Further, executives who are non-diversified with large company stock ownership may place additional value on dividends for liquidity reasons, stemming from the fact that they may face explicit/contractual restrictions or implicit restrictions (e.g., insider sales may be viewed as a negative signal by the market) on their ability to sell shares of stock.

Controlling for a rich set of covariates, we find that relative to a firm whose executives only held stock options, a firm whose executives only held stock was 20 percentage points more likely to have increased dividends in 2003 after the change in taxes. We further show that more than one-half of the unanticipated uptick in the fraction of firms increasing and initiating dividends in 2003 can be explained by the composition of executive stock-based holdings. Our work also indicates that shareholder taxes are a factor in the choice of share repurchases versus dividends and that when tax rates are more closely aligned, firms exhibit some substitutability between the two. We also provide evidence that the markets may have at least partially anticipated these effects, leading to differential stock price responses to key events leading up to the passage of the tax cut. Unlike past studies in this area that typically identified their results off of cross-sectional correlations, the unexpected and exogenous change in the relative after-tax value of dividends and repurchases allows us to directly address the usual criticism that a cross-sectional relation between executive holdings and payout policy may simply reflect unobservable characteristics, such as managerial quality or corporate governance, that generate both option compensation and low dividends.

This paper raises a particularly interesting avenue for future research. The main finding of this paper is that personal financial incentives for executives clearly matter for firm payout behavior. While the statutory rates for dividends and long-term capital gains were equalized in 2003, the effective capital gains tax rate was still likely much lower since gains are not taxed until they are realized. Thus, the increase in dividends coupled with no increase in total payouts at many firms where the executives had large ownership stakes (with most of their stock-related holdings in shares as opposed to options) suggests that the dividend tax cut may have actually increased the overall tax burden for the typical individual shareholder.

This finding is certainly consistent with a standard agency theory perspective that, rather than operating the firm solely in the best interests of shareholders who may still prefer share repurchases to dividends even after the tax cut, managers are inclined to also incorporate their own financial incentives in corporate decisions. The results in this paper suggest there may be an agency problem between management and outside shareholders that should be considered when structuring management compensation contracts. To the extent that options have been granted in the past to discourage managers from paying tax-disadvantaged dividends, the reduction in the dividend tax rate could also lead to less use of options in executive compensation packages. The relation between firm actions (e.g., payout policy, capital structure, investment decisions, etc.) and the incentives provided by executive holdings to undertake these actions, and whether the compensation package is structured a priori by the firm to encourage these reactions by managers remains an interesting area for further research.

References

Almeida, H., M. Campello, and M. Weisbach, 2004, "The Cash Flow Sensitivity of Cash," *Journal of Finance* 59, 1777-1804.

Auerbach, A., and K. Hassett, 2004, "The Effects of the 2003 Dividend Tax Cut on Stock Prices: An Event Study," unpublished working paper.

Baker, G., and B. Hall, 2004, "CEO Incentives and Firm Size," *Journal of Labor Economics* (forthcoming).

Bettis, C., Bizjak, J., and M. Lemmon, 2001, "Managerial Ownership, Incentive Contracting, and the Use of Zero-Cost Collars and Equity Swaps by Corporate Insiders," *Journal of Financial and Quantitative Analysis* 36 (3), 345-370.

Blouin, J. L., J. S. Raedy, and D. Shackelford, "Did Dividends Increase After the 2003 Reduction in Dividend Tax Rates?," NBER Working Paper 10301.

Boyle, G. W., and G. A. Guthrie, 2003, "Investment, Uncertainty and Liquidity," *Journal of Finance* 58, 2143-2166.

Brav, A., J. Graham, C. Harvey and R. Michaely, 2004, "Payout Policy in the 21st Century," *Journal of Financial Economics*, forthcoming.

Brown, J. R., J. D. Cummins, C. Lewis, and R. Wei, 2004, "An Empirical Analysis of the Economic Impact of Federal Terrorism Reinsurance," *The Journal of Monetary Economics* 51, 861-898.

Chetty, R., and E. Saez, 2004, "Do Dividend Payments Respond to Taxes? Preliminary Evidence from the 2003 Dividend Tax Cut," NBER Working Paper 10572.

Core, J., and W. Guay, 1999, "The Use of Equity Grants to Manage Optimal Equity Incentive Levels," *Journal of Accounting and Economics* 28, 151-184.

Cornett, M. M, and H. Tehranian, 1990, "An Examination of the Impact of the Garn-St. Germain Depository Institutions Act of 1982 on Commercial Banks and Savings and Loans," *Journal of Finance* 45, 95-111.

Cutler, D. M., 1988, "Tax Reform and the Stock Market" An Asset Price Approach," *American Economic Review* 78, 1107-1117.

DeAngelo, H ., L. DeAngelo and D. Skinner, 2000, "Special Dividends and the Evolution of Dividend Signalling," *Journal of Financial Economics* 57, 309-354.

Dittmar, A., 2004, "Why do Firms Repurchase Stock," *Journal of Business* 73, 321-356.

Fama, E., and K. French, 1992, "The Cross Section of Expected Returns," *Journal of Finance* 47, 427-465.

Fama, E., and K. French, 2001, "Disappearing Dividends: Changing Firm Characteristics of Lower Propensity to Pay?," *Journal of Financial Economics* 60, 3-44.

Fenn, G., and N. Liang, 2001, "Corporate Payout Policy and Managerial Stock Incentives," *Journal of Financial Economics* 60, 45-72.

Gillan, S., and L. T. Starks, 1998, "A Survey of Shareholder Activitism Motivation and Empirical Evidences," *Contemporary Finance Digest* 2 (3), 10-34.

Gompers, P. A., J. L. Ishii and A. Metrick, 2003, "Corporate Governance and Equity Prices," *The Quarterly Journal of Economics* 118(1), 107-155.

Grullon, G., and R. Michaely, 2002, "Dividends, Share Repurchases, and the Substitution Hypothesis," *Journal of Finance* 57, 1649-1684.

Hall, B. J., and J. B. Liebman, 1998, "Are CEOs Really Paid Like Bureaucrats?," *Quarterly Journal of Economics* 113, 653-691.

Jagannathan, M., C. Stephens, and M. Weisbach, 2000, "Financial Flexibility and the Choice Between Dividends and Share Repurchases," *Journal of Financial Economics* 57, 355-384.

James, C., 1983, "An Analysis of Intra-Industry Differences in the Effect of Regulation: The Case of Deposit Rate Ceilings," *Journal of Monetary Economics* 12, 417-432.

Jensen, M. C., 1986, "Agency Costs of Free Cash Flow, Corporate Finance, and Takeovers," *American Economic Review* 76 (2), 323-329.

Jolls, C., 1998, "Stock Repurchases and Incentive Compensation," NBER Working Paper 6467.

Julio, B., and D. Ikenberry, 2004, "Reappearing Dividends," forthcoming in *Journal of Applied Corporate Finance*, Working Paper, University of Illinois.

Kahle, K., 2002, "When a Buyback isn't a Buyback: Open-market Repurchases and Employee Options," *Journal of Financial Economics* 63, 235-261.

Lambert, R., W. Lannen and D. Larcker, 1989, "Executive Stock Option Plans and Corporate Dividend Policy," *Journal of Financial Quantitative Analysis* 24 409-425.

Lintner, J., 1956, "Distributions of Incomes of Corporations Among Dividends, Retained Earnings, and Taxes," *American Economic Review*, 46, 96-114.

Murphy, Kevin, 1999, Executive Compensation, " In Ashenfelter, O., Card, D., (Eds.), Handbook of Labor Economics, Vol. 3B, North Holland, Amsterdam.

Mutual Fund Fact Book, 43rd edition, 2003, Investment Company Institute, Washington, DC.

Nan, N., J. Wang, and G. Zang, 2004, "The Impact of Dividend Tax Cut and Managerial Stock Holdings on Firm's Dividend Policy," Working Paper, Lubin School of Business, Pace University.

Perez-Gonzalez, F., 2003, "Large Shareholders and Dividends: Evidence from U.S. Tax Reforms," Columbia University working paper.

Poterba, J., 2004, "Taxation and Corporate Payout Policy," NBER *Working Paper* 10321.

Schumann, L., 1988, "State Regulation of Takeovers and Shareholder Wealth: The Case of New York's 1985 Takeover Statutes," *RAND Journal of Economics* 19, 557-567.

Shefrin, H. M., and M. Statman, 1984, "Explaining Investor Preference for Cash Dividends," *Journal of Financial Economics* 13, 253–282.

Weisbenner, S., 2000, "Corporate Share Repurchases in the Mid-1990s: What Role Do Stock Options Play?" Working Paper, University of Illinois at Urbana-Champaign.

Table 1: Summary Statistics of Payout Policy, S&P 1500 Sample, 2003

The table provides summary statistics of payout policy and changes in payout policy during 2003 for the 1741 firms in Execucomp (roughly the S&P 1500). A dividend increase is defined as an increase in dividends per share (adjusted for stock splits). An increase in the dividend increase represents that a firm's change in dividends per share in 2003 exceeded the change in 2002. All variables are measured in percent.

	Mean	Median	$25^{th} – 75^{th}$ %
Payout Policy (Changes in 2003)			
Probability Increase Dividends	30.8	0.0	0 .0 – 100
Probability Initiate Dividends	6.8	0.0	0.0 – 0.0
Probability Dividend-Payer Increases Dividends	57.2	100	0.0 – 100
Probability Dividend-Payer Increases the Increase in Dividends	44.3	0.0	0.0 – 100
Payout Policy (2003)			
Pay Any Dividends?	50.0	0	0.0 – 100
Repurchase Shares?	54.2	100	0.0 – 100
Any Payouts?	73.3	100	0.0 – 100
Dividend Yield	0.9	0.0	0.0 – 1.6
Share Repurchase Yield	1.2	0.0	0.0 – 1.5
Total Payout Yield	2.2	1.3	0.0 – 3.2

Table 2: Summary Statistics for Stock and Option Holdings and Firm Characteristics, S&P 1500 Sample, 2003

The table provides summary statistics, as of the end of 2002, regarding stock and option holdings of top executives and firm financial characteristics for the 1741 firms in Execucomp (roughly the S&P 1500). Unless stated otherwise, variables are measured in percent.

	Mean	Median	$25^{th} – 75^{th}$ %
Stock and Option Holdings (end of 2002)			
Percent of Shares Held by Top Five Executives	3.8	0.8	0.3 – 3.2
Value of Stock Held by Top Executives ($M)	142.1	11.7	3.3 – 40.0
Options Held by Top Five Executives Normalized by Shares Outstanding (in %)	3.2	2.6	1.3 – 4.4
Ratio of # of Shares held by Top Executives Normalized by # of Shares & Options They Hold	34.8	25.5	11.4 – 53.6
Percent of Shares Held By Individuals Directly (excluding Top Executives)	27.0	23.6	13.5 – 37.5
Options Held by Employees (excluding Top Exec.) Normalized by Shares Outstanding (in %)	7.7	6.6	3.9 – 9.9
Percent of Shares Held by Mutual Funds	25.7	25.6	18.7 – 32.4
Percent of Shares Held by non-MF Institutions	43.4	44.7	36.3 – 51.6
Firm Characteristics (end of 2002)			
Market-to-Book Ratio	1.6	1.3	1.1 – 1.8
Free Cash Flow / Assets	6.3	7.1	2.5 – 11.9
Cash on Hand / Assets	14.9	7.2	2.3 – 21.9
Debt / Assets	24.0	22.4	6.1 – 36.0
Five-Year Stock Return	-1.9	0.8	-10.0 – 9.3
Monthly Volatility (past 24 months)	14.4	11.9	8.6 – 18.0

Table 3: Increase in Value of Dividends Received by Top Executives, 2003

The table provides summary statistics for the dollar value of the increase in dividends per share (adjusted for stock splits) received by the top five executives and the CEO during 2003, based on stock holdings measured at the end of 2002 in Execucomp.

	Mean	Median	$25^{th} – 75^{th}$ %
Sample of All Firms that Increased Dividends in 2003			
Increase in Dividend $ Received by Top Five Executives (thousands)	790	47	13 – 233
Increase in Dividend $ Received by CEO (thousands)	445	20	5 – 108
Sample of Firms that Initiate Dividends in 2003			
Dividend $ Received by Top Five Executives (thousands)	4,098	281	51 – 902
Dividend $ Received by CEO (thousands)	1,887	140	20 – 779
Sample of Dividend Payers in 2002 that Increased Dividends in 2003			
Increase in Dividend $ Received by Top Five Executives (thousands)	363	38	12 – 194
Increase in Dividend $ Received by CEO (thousands)	259	14	4 – 81

Companies with Largest Increase in Dividends to Top Executives in 2003 ($ millions)

Company	Increase in Dividends to Top 5 Executives	Increase in Dividends to CEO	Paid Dividends Before?
Microsoft	138.1	37.7	No
Adtran	28.2	28.2	No
Best Buy	22.1	0.7	No
Kinder Morgan	19.3	19.2	Yes
MBNA	13.4	12.5	Yes
Viacom	13.0	12.5	No
Nike	12.6	12.6	Yes
Citigroup	10.6	9.1	Yes

Table 4: Regression of Likelihood of Dividend Increase (in percent) on Executive Stock Holdings and Firm Characteristics, 2003

The table presents linear regressions of whether a firm increases dividends in 2003. A dividend increase is defined as a rise in dividends per share (adjusted for stock splits). Throughout the tables, the dependent variable is measured in percentage points, while the explanatory variables are expressed as raw ratios (i.e., not in percentage points), unless stated otherwise. Thus, the dependent variable in this table takes on values of either 0 (did not increase dividends) or 100 (did increase dividends). The likelihood of a dividend increase is related to the top five executive holdings (stock and options) as well as the firm's market-to-book ratio, free cash flow-to-assets (where free cash flow is defined as operating income before depreciation minus capital expenditures), cash on hand-to-assets, debt-to-assets (where debt is long-term debt), past five-year stock return, monthly stock volatility (based on the past 24 months), log of market value, and firm age indicator variables (1-5, 6-10, 11-15, 16-20, and 21 or more years), and industry indicator variables at the 3-digit SIC level. The top five executive stock and option variables are obtained from Execucomp, the firm financial characteristics are obtained from Compustat, and the past five-year stock return and monthly stock volatility are obtained from CRSP. The standard errors, given in parentheses, account for heteroskedasticity (i.e., robust standard errors).

Table 4: Regression of Likelihood of Dividend Increase (in percent) on Executive Stock Holdings and Firm Characteristics, 2003 (continued)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Fraction of Shares Held by Top Five Executives	48.8 ** (15.5)	48.1 ** (17.6)		48.9 ** (17.6)			10.1 (20.2)	
(Fraction of Shares Held by Top Five Executives) * (Five-year return > 0)							77.0 * (32.1)	
Log ($ value of Shares Held by Top Five Executives)			2.9 ** (0.7)			0.7 (1.3)		
Options Held by Top Five Executives Normalized by Shares Outstanding				-122 * (54)			-131 * (62)	
(Options Held by Top Five Executives Normalized by Shares Outstanding) * (Five-year return > 0)							28.8 (70.4)	
Ratio of # of Shares held by Top Executives Normalized by # of Shares & Options Held by Top Executives					19.6 ** (4.5)	16.0 * (7.9)		-1.2 (5.7)
(Ratio of # of Shares held by Top Executives Normalized by # of Shares & Options Held by Top Executives) * (Five-year return > 0)								36.5 ** (7.2)
Market-to-Book Ratio	-1.0 (1.5)	0.3 (1.8)	0.3 (1.8)	0.0 (1.8)	-0.0 (1.8)	-0.0 (1.8)	-0.3 (1.8)	-0.9 (1.8)
Free Cash Flow / Assets	15.1 (11.0)	2.8 (11.0)	1.1 (11.0)	2.8 (10.9)	2.0 (10.9)	1.5 (10.9)	4.0 (10.6)	8.2 (10.7)
Cash on Hand / Assets	-8.0 (7.0)	-1.2 (8.5)	0.3 (8.5)	0.6 (8.6)	0.7 (8.5)	0.8 (8.5)	1.0 (8.6)	1.5 (8.4)
Debt / Assets	-6.1 (5.5)	-14.7 * (7.3)	-15.1 * (7.2)	-14.3 (7.5)	-14.2 * (7.3)	-14.5 * (7.4)	-13.5 (7.5)	-13.7 (7.3)
Past Five-Year Stock Return	10.4 (7.3)	8.9 (8.5)	4.8 (8.5)	12.7 (8.5)	8.5 (8.4)	7.7 (8.5)	4.2 (10.6)	-16.7 (9.0)
Monthly Stock Volatility	-176 ** (17)	-146 ** (20)	-149 ** (20)	-146 ** (20)	-147 ** (20)	-148 ** (20)	-147 ** (20)	-134 ** (20)
Log (Market Value)	5.2 ** (0.8)	4.9 ** (0.9)	2.8 ** (1.0)	3.8 ** (1.1)	4.9 ** (0.9)	4.4 ** (1.3)	3.7 ** (1.1)	5.0 ** (0.9)
Firm Age and Industry Effects?	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	0.197	0.382	0.386	0.388	0.390	0.390	0.392	0.406
Number of Observations	1,359	1,359	1,359	1,352	1,352	1,352	1,352	1,352

** and * denote significance at the 1 percent and 5 percent levels, respectively.

Table 5: Regression of Dividend Initiation and Likelihood of Increase for Dividend-Payers (in percent), 2003

The table presents linear regressions of whether a firm increases dividends in 2003. The analysis is done separately for all firms, firms that did not pay dividends in 2002 (and thus for whom a dividend increase represents an initiation), and firms that paid dividends in 2002. A dividend increase is defined as a rise in dividends per share (adjusted for stock splits). An increase in the dividend increase represents that a firm's change in dividends per share in 2003 exceeded the change in 2002. Throughout the tables, the dependent variable is measured in percentage points, while the explanatory variables are expressed as raw ratios (i.e., not in percentage points), unless stated otherwise. Thus, the dependent variable in this table takes on values of either 0 (did not increase dividends) or 100 (did increase dividends). Only the coefficients on the executive holding variables are reported. Other variables included in the regression, but not reported, are the market-to-book ratio, free cash flow-to-assets, cash on hand-to-assets, debt-to-assets, past five-year stock return, monthly stock volatility, log of market value, and firm age and industry indicator variables. The standard errors, given in parentheses, account for heteroskedasticity (i.e., robust standard errors).

	Likelihood of Dividend Increase									*Likelihood of INCREASE in Dividend Increase*		
	All Firms			**2002 Div=0**			**2002 Div>0**			**2002 Div>0**		
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**	**(11)**	**(12)**
Fraction of Shares Held by Top Five Executives	48.1**	48.9**		37.6*	35.8*		77.4*	85.2**		129.8**	134.4**	
	(17.6)	(17.6)		(17.7)	(17.9)		(33.3)	(33.2)		(28.4)	(28.2)	
Options Held by Top Five Executives Normalized by Shares Outstanding		-122.0*			-99.5*			-51.4			-62.8	
		(53.8)			(42.7)			(138.2)			(122.5)	
Ratio of # of Shares held by Top Five Executives Normalized by # of Shares & Options Held by Top Five Executives			19.6**			12.9**			21.0**			17.1*
			(4.5)			(4.4)			(8.3)			(8.8)
Other variables?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	0.382	0.388	0.390	0.395	0.403	0.399	0.441	0.445	0.444	0.368	0.369	0.350
Number of Observations	1,359	1,352	1,352	687	685	685	672	667	667	672	667	667

** and * denote significance at the 1 percent and 5 percent levels, respectively.

Table 6: Regression of Dividend Increase (All Firms, in percent), Comparison of 2003 with Earlier Years

The table presents linear regressions of whether a firm increases dividends in the 2002-2003 (left panel) and the 1993-2003 period (right panel). The regression is estimated across the pooled sample, with an indicator variable for 2003 interacted with all the explanatory variables (interaction terms shown in bold) to test whether the effect of a variable on the likelihood of a dividend increase is different in 2003 relative to earlier years (i.e., 2002 or the period 1993-2002). Thus, for any given variable, the sum of the baseline effect and the interaction term with year 2003 will yield (within rounding error) the coefficient from the 2003 dividend increase regression displayed in table 4 , column (2). A dividend increase is defined as a rise in dividends per share (adjusted for stock splits). Throughout the tables, the dependent variable is measured in percentage points, while the explanatory variables are expressed as raw ratios (i.e., not in percentage points), unless stated otherwise. Thus, the dependent variable in this table takes on values of either 0 (did not increase dividends) or 100 (did increase dividends). The regressions also include firm age and industry indicator variables, also interacted with the year 2003 variable, as well as year effects. The standard errors, given in parentheses, take into account heteroskedasticity and correlation across observations of the same firm over time.

	2002-2003 Sample Pooled		*1993-2003 Sample Pooled*	
	2002	**2003 relative to 2002**	1993-2002	**2003 relative to 1993-2002**
Fraction of Shares Held by Top Five Executives	-1.3	**49.4****	3.3	**44.8****
	(12.7)	**(17.4)**	(9.1)	**(16.4)**
Market-to-Book Ratio	0.1	**0.2**	-0.6	**0.9**
	(0.8)	**(1.6)**	(0.5)	**(1.7)**
Free Cash Flow / Assets	6.3	**-3.5**	21.6**	**-18.7**
	(9.7)	**(10.9)**	(7.6)	**(10.5)**
Cash on Hand / Assets	-12.3	**11.1**	-14.4**	**13.2**
	(7.3)	**(8.4)**	(5.3)	**(8.1)**
Debt / Assets	-9.9	**-4.8**	-25.1**	**10.4**
	(6.8)	**(6.7)**	(4.4)	**(6.8)**
Past Five-Year Return	12.9*	**-4.0**	13.5**	**-4.7**
	(6.5)	**(7.9)**	(3.6)	**(8.0)**
Monthly Stock Volatility	-76.9**	**-69.0****	-99.9**	**-46.0***
	(19.6)	**(23.8)**	(13.2)	**(20.2)**
Log (Market Value)	3.3**	**1.6**	5.4**	**-0.5**
	(0.9)	**(0.9)**	(0.6)	**(0.9)**
Adjusted R^2	0.380		0.345	
Number of Observations	2,661		12,523	

** and * denote significance at the 1 percent and 5 percent levels, respectively.

Table 7: Relation Between Likelihood of Dividend Increase (in percent) and Holdings of Various Shareholders, Comparison of 2003 with Earlier Years

The table presents linear regressions of whether a firm increases dividends in 2003 (left column) and the difference in the 2003 coefficient relative to that estimated for the period 1993-2002 (right column) for four different specifications. The difference in the coefficient from 2003 relative to the 1993-2002 period is obtained from a regression estimated across the pooled 1993-2003 sample, with an indicator variable for 2003 interacted with all the explanatory variables. The coefficient reported in bold is the interaction of that variable with the year 2003 indicator. A dividend increase is defined as a rise in dividends per share (adjusted for stock splits). Throughout the tables, the dependent variable is measured in percentage points, while the explanatory variables are expressed as raw ratios (i.e., not in percentage points), unless stated otherwise. Thus, the dependent variable in this table takes on values of either 0 (did not increase dividends) or 100 (did increase dividends). Only the coefficients on the executive holdings and share ownership of other groups are reported. Other variables included in the regression, but not reported, are the market-to-book ratio, free cash flow-to-assets, cash on hand-to-assets, debt-to-assets, past five-year stock return, monthly stock volatility, log of market value, and firm age and industry indicator variables. The fourth specification adds the fraction of shares held by individuals directly (outside of the top executives) and by non-mutual fund institutions. Thus, in this case, the omitted category is the fraction of shares held by mutual funds. The institutional ownership data is obtained from CDA Spectrum. Individual ownership is defined as the fraction of shares that remains after accounting for executive and institutional ownership. The standard errors, given in parentheses, take into account heteroskedasticity and correlation across observations of the same firm over time.

	2003	**2003 relative to 1993-2002**	2003	**2003 relative to 1993-2002**	2003	**2003 relative to 1993-2002**	2003	**2003 relative to 1993-2002**
Ratio of # of Shares held by Top Five Executives Normalized by # of Shares & Options Held by Top Five Executives	19.6 ** (4.5)	**8.6** * **(4.1)**						
Fraction of Shares Held by Top Five Executives			48.1 ** (17.6)	**44.8** ** **(16.4)**	48.9 ** (17.6)	**47.2** ** **(16.3)**	97.2 ** (23.6)	**55.8** ** **(22.8)**
Options Held by Top Five Executives Normalized by Shares Outstanding					-122.0 * (53.8)	**-18.2** **(49.5)**	-181.5 ** (57.1)	**-87.2** **(55.2)**
Fraction of Shares Held By Individuals Directly (excluding Top Executives)							58.0 ** (15.9)	**6.0** **(15.4)**
Fraction of Shares Held by Non-Mutual Fund Institutions							70.0 ** (21.8)	**14.7** **(21.1)**
Other Variables?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	0.390	0.349	0.382	0.345	0.388	0.347	0.399	0.355
Number of Observations	1,352	12,495	1,359	12,523	1,352	12,495	1,245	12,082

** and * denote significance at the 1 percent and 5 percent levels, respectively.

Table 8: Regression of Dividend Initiation and Likelihood of Increase for Dividend-Payers (in percent), Comparison of 2003 with Earlier Years

The table presents linear regressions of whether a firm increases dividends in the 2002-2003 (left panel) and the 1993-2003 period (right panel). The analysis is done separately for firms that did not pay dividends in the prior year (and thus for whom a dividend increase represents an initiation), and firms that paid dividends in the prior year. The regression is estimated across the pooled sample, with an indicator variable for 2003 interacted with all the explanatory variables (interaction terms shown in bold) to test whether the effect of a variable on the likelihood of a dividend increase is different in 2003 relative to earlier years (i.e., 2002 or the period 1993-2002). Thus, for any given variable, the sum of the baseline effect and the interaction term with year 2003 will yield (within rounding error) the coefficient from the comparable 2003 dividend increase regression displayed in table 5. For each sample, regressions are estimated over two periods (2002-2003 or 1993-2003) and across two specifications (one with the fraction of executive ownership as an explanatory variable and one with the composition of executive holdings). A dividend increase is defined as a rise in dividends per share (adjusted for stock splits). An increase in the dividend increase represents that a firm's change in dividends per share exceeded the change during the prior year. The regressions also include firm age and industry indicator variables, also interacted with the year 2003 variable, as well as year effects. The standard errors, given in parentheses, take into account heteroskedasticity and correlation across observations of the same firm over time.

	2002-2003 Sample Pooled		*1993-2002 Sample Pooled*	
	2002	2003 relative to 2002	1993-2002	2003 relative to 1993-2002
Likelihood of Dividend Initiation				
Fraction of Shares Held by Top Five Executives	-3.2 (5.7)	40.8 * (18.3)	6.3 (4.7)	31.3 * (15.7)
Ratio of # of Shares held by Top Five Executives Normalized by # of Shares & Options Held by Top Five Executives	1.0 (2.1)	11.9 ** (4.8)	-0.4 (0.9)	13.2 ** (4.1)
Likelihood of Dividend Increase for Dividend-Payer				
Fraction of Shares Held by Top Five Executives	24.9 (31.4)	52.5 (37.9)	10.8 (11.7)	66.6 * (28.5)
Ratio of # of Shares held by Top Five Executives Normalized by # of Shares & Options Held by Top Five Executives	10.3 (7.9)	10.8 (8.4)	14.1 ** (3.2)	6.9 (7.0)
Likelihood of Increase in Dividend Increase for Div. Payer				
Fraction of Shares Held by Top Five Executives	12.7 (32.4)	117.1 ** (41.2)	11.3 (9.1)	118.5 ** (25.5)
Ratio of # of Shares held by Top Five Executives Normalized by # of Shares & Options Held by Top Five Executives	5.7 (8.4)	11.4 (11.8)	2.7 (2.2)	14.4 (7.8)

** and * denote significance at the 1 percent and 5 percent levels, respectively.

Table 9: Payout Substitution? Change in Share Repurchases and Total Payouts for Dividend-Increasing Firms

The table summarizes payout policy for firms that increase dividends, previous non-dividend payers that initiate dividends, and dividend payers that increase dividends.

S&P 1500 Firms (Execucomp), Likelihood of Payout Policy in percentage points

	Repurchased Shares Last Year?			Decrease Repurchases given Repurchased Last Year (i.e., RP/ASSET ↓)?			Increase Total Payouts (i.e., PAY/ASSET ↑)?		
Sample	1993-2002	2002	*2003*	1993-2002	2002	*2003*	1993-2002	2002	*2003*
Firm Increases Dividends (All Firms)	65	**71**	*67*	**55**	60	*64*	56	53	*52*
Firm Initiates Dividends	**38**	54	*68*	**56**	57	*78*	**89**	**92**	*66*
Firm Increases Dividends (Dividend Payer)	66	**72**	*66*	**55**	61	*62*	**55**	52	*49*

Payout Policy the Year of the Dividend Initiation (in percentage points)

	Dividend / Assets				Change in (Share Repurchase / Assets)				Change in (Total Payouts / Assets)			
	Mean	25th %	Median	75th %	Mean	25th %	Median	75th %	Mean	25th %	Median	75th %
1993-2002 Dividend Initiators	3.1	**0.2**	0.6	1.3	**1.4**	**0.0**	**0.0**	0.3	**4.5**	**0.2**	0.7	2.8
2003 Dividend Initiators	2.2	0.4	0.8	1.5	-1.6	-3.2	-0.1	0.2	0.6	-1.5	0.4	1.8

Bold indicates statistic in earlier period (i.e., 2002 or 1993-2002) is different from comparable 2003 statistic at the 5% level.

Table 10: Determinants of Initiation of Dividends and Total Payouts in 2003 for Firms that did not Pay Dividends in 2002

This table presents estimates from a multinomial logit model of the joint likelihood of two actions—initiation of dividends and the change in total payouts, which is the sum of dividends and share repurchases. These two actions lead to six possible outcomes: no dividends or a dividend initiation, and a decrease, no change, or increase in total payouts. Since there are no firms that initiate dividends and have no change in total payouts, that leaves five possible combinations of dividend and total payout changes. The multinomial logit model estimates how various firm characteristics affect the likelihood a firm adopts a certain dividend and payout choice, and the coefficients for that choice represent how an increase in the covariates affect the likelihood of the firm adopting that particular payout policy relative to the omitted base case, which we define as a dividend initiation and increased total payouts (as listed in the far right column of the table). The relative probability of outcome i relative to the base case is $e^{\beta X_i}$. Regressions also include indicator variables for the age of the firm. The standard errors, given in parentheses, account for heteroskedasticity (i.e., robust standard errors).

	Multinomial Logit Model of Payout Decisions *Dividend Initiations and Changes in Total Payouts Normalized by Assets (PAY/AS)*				
	ΔDIV = 0 PAY/AS ↓	ΔDIV = 0 ΔPAY = 0	ΔDIV = 0 PAY/AS ↑	ΔDIV > 0 PAY/AS ↓	ΔDIV > 0 PAY/AS ↑
Ratio of # of Shares held by Top Five Executives Normalized by # of Shares & Options Held by Top Five Executives	-2.4** (0.7)	-2.1** (0.7)	-2.7** (0.7)	-1.2 (0.9)	Base case
Market-to-Book Ratio	0.6 (0.3)	0.9** (0.3)	0.7* (0.3)	0.3 (0.4)	Base case
Free Cash Flow / Assets	-8.4** (3.2)	-14.1** (3.2)	-8.1** (3.2)	-5.3 (3.9)	Base case
Cash on Hand / Assets	-1.7 (1.1)	-3.0** (1.1)	-2.1 (1.1)	1.0 (1.2)	Base case
Debt / Assets	0.8 (1.4)	1.9 (1.4)	-0.0 (1.4)	2.8 (1.7)	Base case
Past Five-Year Return	3.0* (1.4)	2.3 (1.5)	2.5 (1.4)	3.4 (1.8)	Base case
Monthly Stock Volatility	5.7 (4.9)	9.9* (4.8)	4.2 (4.9)	-11.6 (7.0)	Base case
Log (Market Value)	-0.5** (0.2)	-0.6** (0.2)	-0.4** (0.2)	-0.3 (0.2)	Base case
Constant	5.1** (1.6)	5.4** (1.6)	5.1** (1.6)	2.2 (1.9)	Base case
p-value of test that likelihood of payout outcome is equal to that of (ΔDIV > 0 & PAY/AS ↑) jointly across all variables	0.001**	0.000**	0.000**	0.069	
Pseudo R^2			0.115		
Number of Obs.			577		

** and * denote significance at the 1 percent and 5 percent levels, respectively.

Table 11: Amount of Increase in Dividends & Total Payouts in 2003 for Firms that Did Not Pay Dividends in 2002 (Marginal Effect from Tobit Model reported)

The table presents Tobit model estimates for both the increase in dividends (which is equivalent to the amount of the dividend initiation by definition for this sample of firms) and the increase (if any) in total payouts. Rather than reporting the underlying coefficients from the Tobit model, we instead report marginal effects evaluated at the sample means of the covariates. Regressions also include indicator variables for the age of the firm. Standard errors are given in parentheses.

	Tobit Model of Increase in Dividends/Assets and Total Payouts/Assets (Marginal Effect Evaluated at Sample Means Reported, in percentage points)	
	Increase in Div / Assets in 2003	Max (Change in Total Payout/Assets, 0)
Ratio of # of Shares held by Top Executives Normalized by # of Shares & Options Held by Top Executives	0.21**	-0.15
	(0.06)	(0.36)
Market-to-Book Ratio	-0.09**	-0.07
	(0.03)	(0.16)
Free Cash Flow / Assets	1.15**	4.38**
	(0.27)	(1.33)
Cash on Hand / Assets	0.40**	0.91
	(0.10)	(0.66)
Debt / Assets	-0.01	-2.20**
	(0.10)	(0.64)
Past Five-Year Return	-0.26*	-0.95
	(0.13)	(0.71)
Monthly Stock Volatility	-1.10**	-3.61*
	(0.34)	(1.78)
Log (Market Value)	0.04**	0.21*
	(0.01)	(0.09)
Pseudo R^2	0.116	0.030
Number of Observations	683	577

** and * denote significance at the 1 percent and 5 percent levels, respectively.

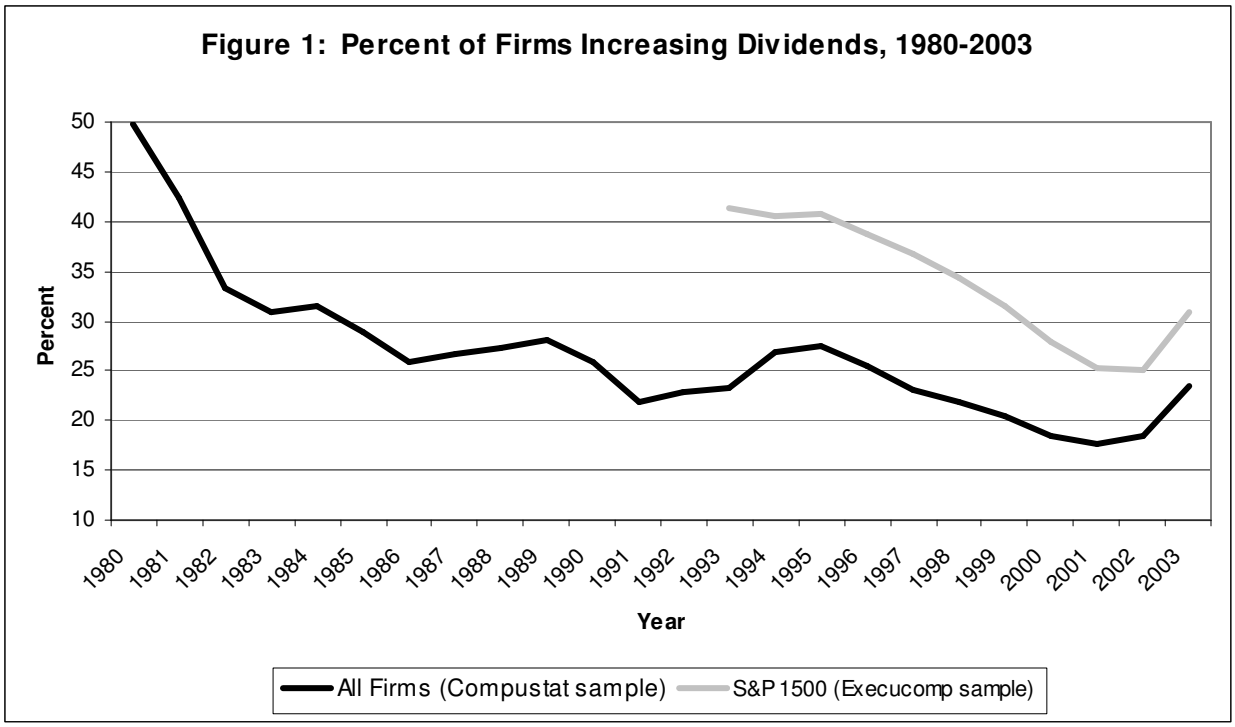
Table 12: Cumulative Stock Return over Announcement of Dividend Tax Cut Proposal by White House, Introduction of Bill in Congress, and Final Package of Tax Cut—Relation with Dividend Payout Policy in 2002, Individual Ownership, and the Composition of Executive Holdings (returns in percentage points)

The table reports regressions of the compounded stock returns over the three event windows (15 trading days) surrounding the proposal and passage of the 2003 dividend tax cut upon the composition of executive holdings (i.e., the number of shares of stock held divided by the total number of shares of stock and options held), the share of individual ownership in the firm, and prior firm dividend policy. We focus on three event windows, each consisting of five trading days (a +/-2 day window around each event). The first event window, January 3 to January 9, is centered around President Bush's January 7 speech to the Economic Club of Chicago, which marked the first "official" pronouncement from the White House that the President would be seeking a substantial reduction in dividend tax rates. Our second event window spans the five trading day February 27 through March 4. This period marks the introduction of and first hearings on a dividend tax cut proposal in Congress (HR-2 was introduced in the House of Representatives February 27 and the first hearings were March 4). The final event window, May 21 to May 28, is centered around the final approval of the conference version of the dividend tax cut by both the House and the Senate on May 23. Thus, in aggregate, these three event windows spanning 15 trading days are meant to capture the market reaction to the announcement of the tax cut proposal by the White House, the introduction of the bill in Congress, and the final passage of the tax cut in the House and Senate. As the OLS regressions are sensitive to the extreme returns that accrued to some firms over the period, we also report robust regression and median regression results. The top panel reports results using raw returns, while the bottom panel reports results using excess returns. To calculate the excess returns over the 15 days, we subtract from the compounded raw returns over the three event windows the appropriate Fama-French (1992) benchmark returns, compounded over these three event windows, formed according to two size and three book-to-market groupings. All returns are expressed in percentage points. Standard errors are given in parentheses.

Table 12: Cumulative Stock Return over Announcement of Dividend Tax Cut Proposal by White House, Introduction of Bill in Congress, and Final Package of Tax Cut—Relation with Dividend Payout Policy in 2002, Individual Ownership, and the Composition of Executive Holdings (returns in percentage points), continued

	Dependent Variable = Raw Return Over the Three Five-Day Windows					
	All Firms			*Firms that Did Not Pay Dividends in 2002*		
	OLS	Robust	Median	OLS	Robust	Median
Composition of Executive Holdings	-1.4 (1.7)	1.4 (1.4)	1.0 (1.3)	-1.6 (2.6)	1.7 (2.5)	3.3 (2.4)
Individual Investors' Share of Ownership	3.6 (3.6)	5.7** (2.0)	4.4* (1.9)	3.2 (5.3)	5.8 (3.5)	10.6** (3.3)
Composition of Executive Holdings * Individual Share	-2.6 (6.0)	-11.0** (4.5)	-8.0* (4.1)	-2.1 (10.9)	-18.0* (8.7)	-26.0** (8.2)
Dividend/Asset 2002	-110.6** (43.2)	-101.4** (39.6)	-161.0** (36.3)			
Dividend/Asset * Individual Share	140.1 (128.5)	207.2 (111.6)	355.1** (102.6)			
Constant	5.8** (1.0)	3.6** (0.6)	4.0** (0.6)	6.7** (1.3)	4.9** (1.0)	3.8** (1.0)
Adjusted / Pseudo R^2	0.011	NA	0.010	0.003	NA	0.006
Number of observations	1,477	1,477	1,477	701	701	701
	Dependent Variable = Excess Return Relative to Fama-French Portfolio Formed on Basis of Size and Book-to-Market Ratio Over the Three Five-Day Windows Centered Around Proposal and Passage of Tax Cut					
	All Firms			*Firms that Did Not Pay Dividends in 2002*		
	OLS	Robust	Median	OLS	Robust	Median
Composition of Executive Holdings	-1.5 (1.7)	1.4 (1.4)	1.0 (1.6)	-2.0 (2.6)	1.3 (2.5)	3.8 (2.5)
Individual Investors' Share of Ownership	3.3 (3.6)	5.5** (2.0)	4.1 (2.2)	3.0 (5.3)	5.5 (3.5)	10.1** (3.6)
Composition of Executive Holdings * Individual Share	-1.5 (6.0)	-10.4* (4.5)	-7.9 (5.0)	-0.7 (10.9)	-16.5* (8.4)	-26.6** (8.8)
Dividend/Asset 2002	-113.6** (43.4)	-103.6** (39.2)	-148.2** (44.2)			
Dividend/Asset * Individual Share	137.1 (129.3)	206.3 (110.6)	312.8** (124.6)			
Constant	0.3 (1.0)	-2.0** (0.6)	-1.6* (0.7)	1.2 (1.3)	-0.5 (1.0)	-1.7 (1.1)
Adjusted/ Pseudo R^2	0.012	NA	0.009	0.004	NA	0.006
Number of observations	1,477	1,477	1,477	701	701	701

** and * denote significance at the 1 percent and 5 percent levels, respectively.



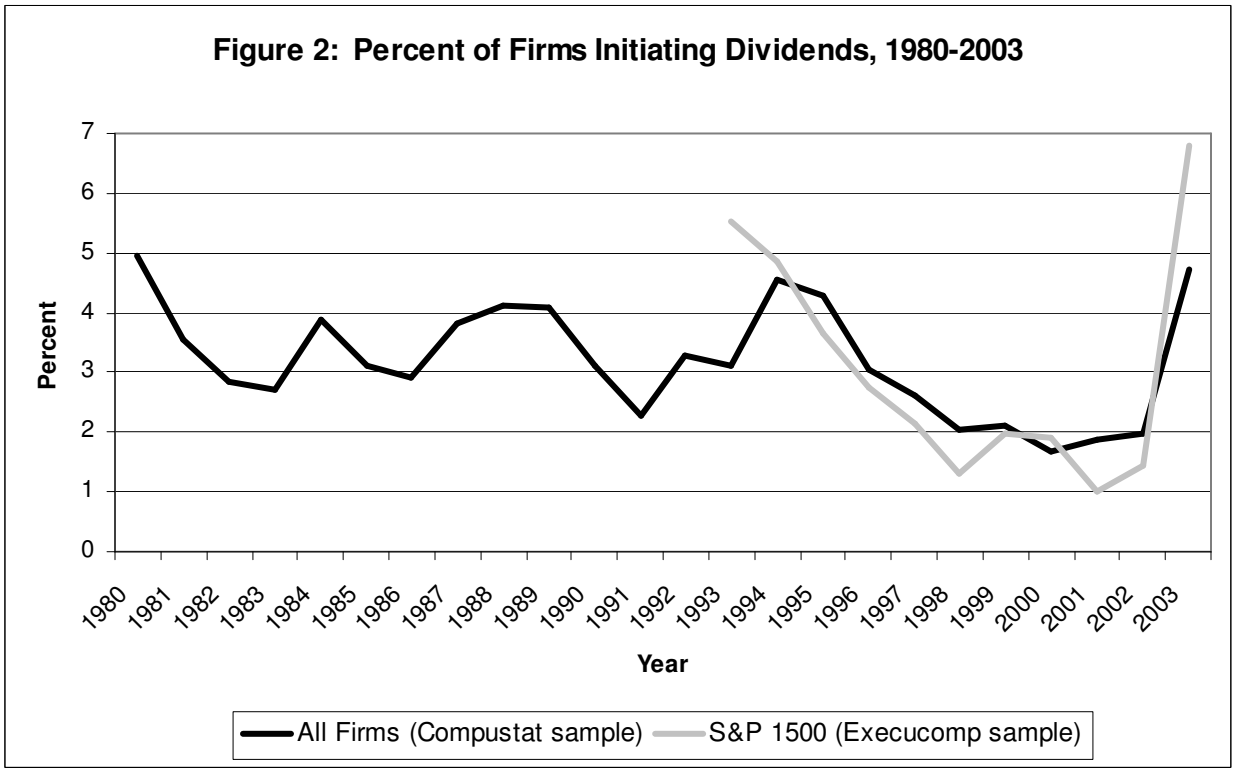
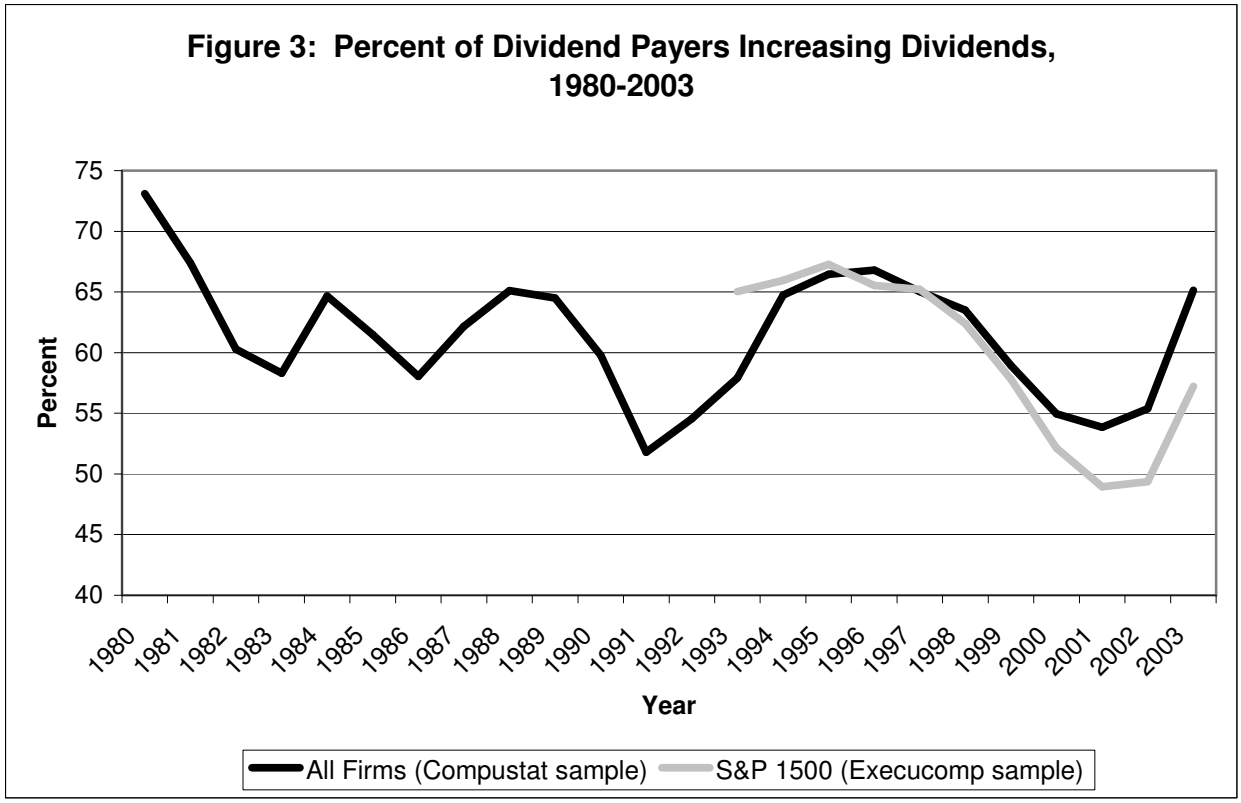


Figure 1 illustrates the percent of firms increasing dividends per share (adjusted for stock splits) from 1980-2003 for the full sample of firms in Compustat and from 1993-2003 for the subsample of firms in Execucomp (roughly the S&P 1500). Figure 2 illustrates the percent of prior non-dividend payers that initiate dividends in a given year.



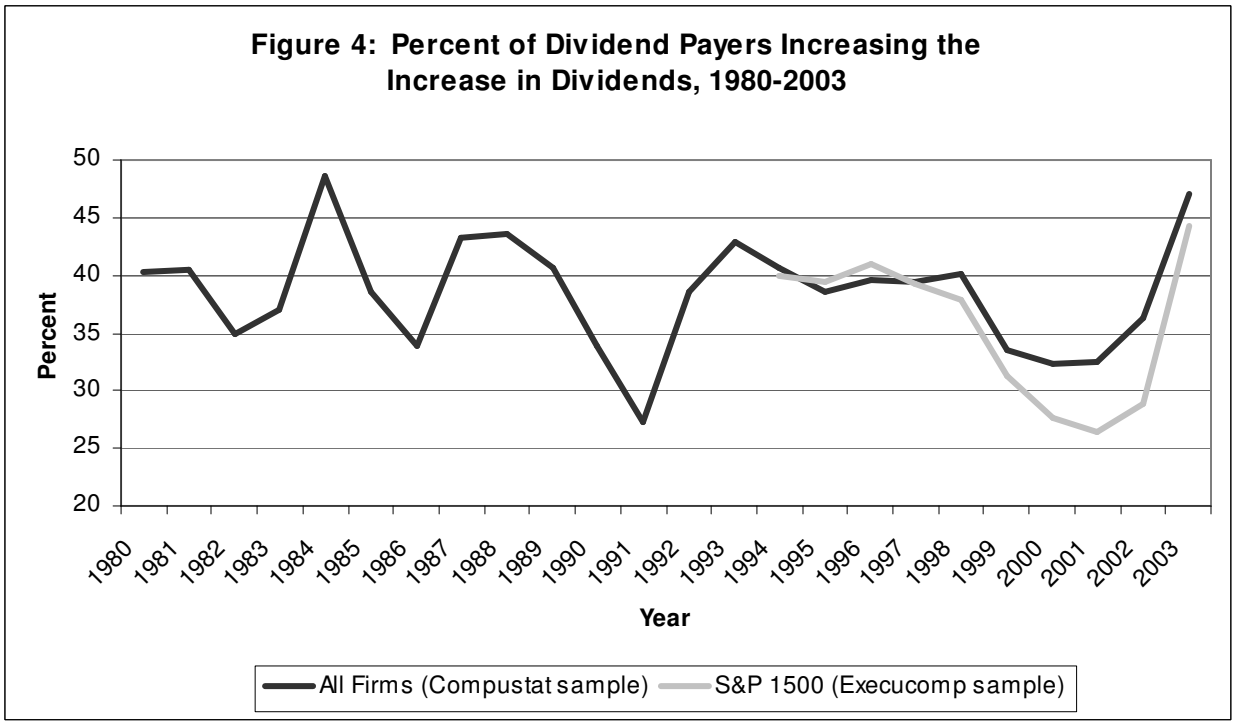
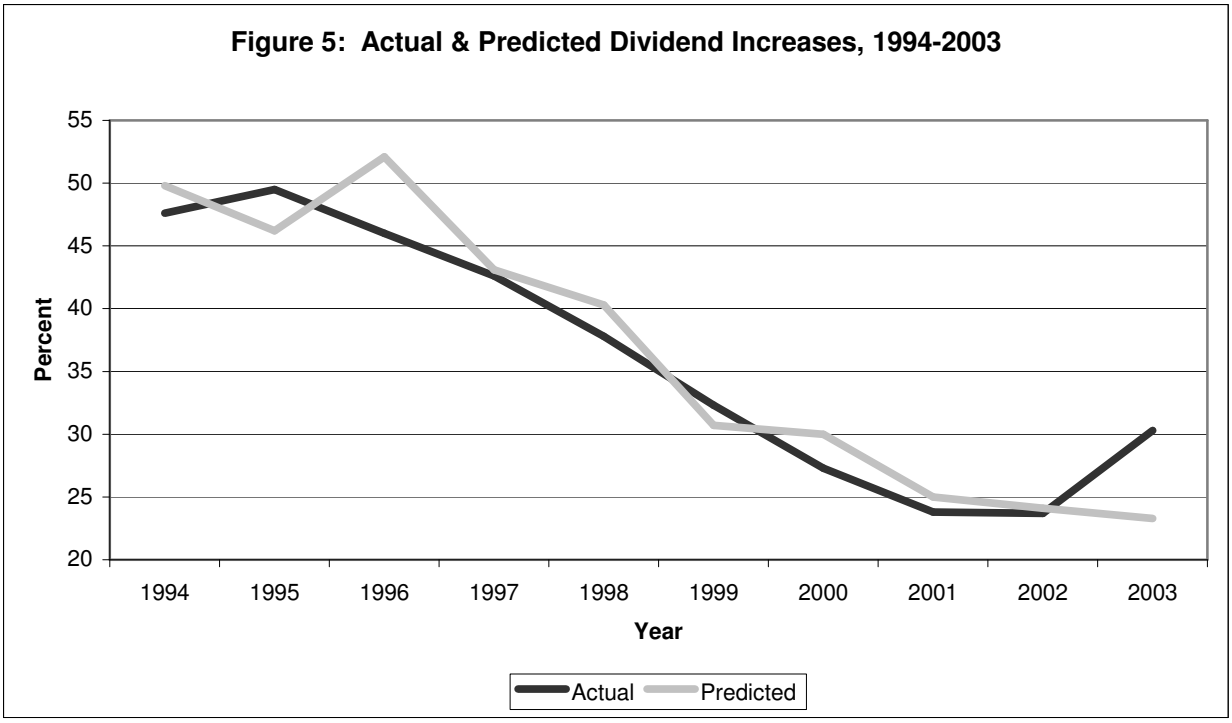
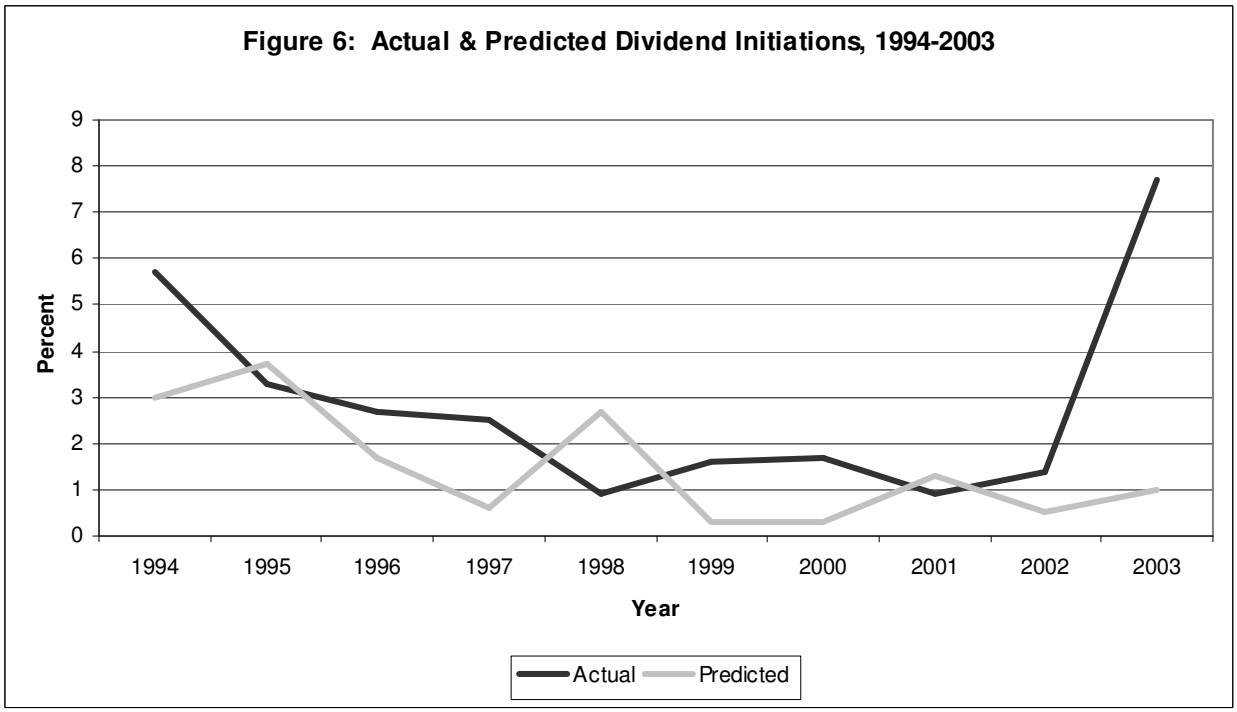
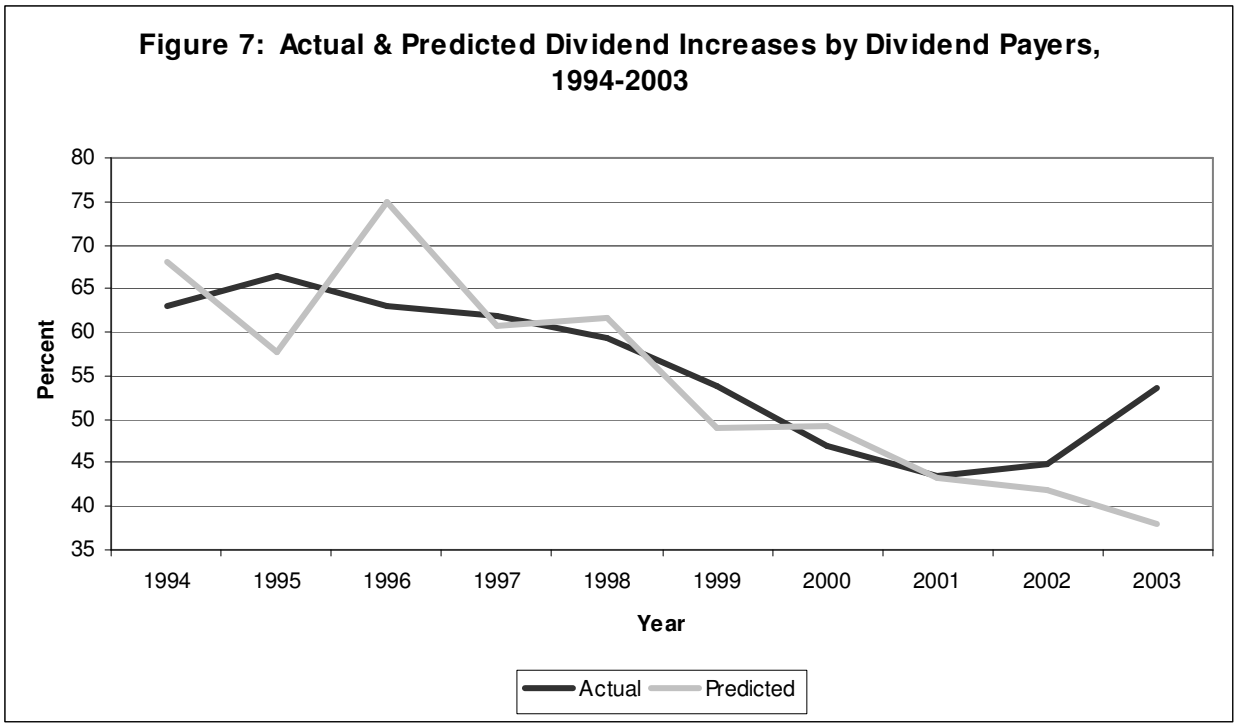


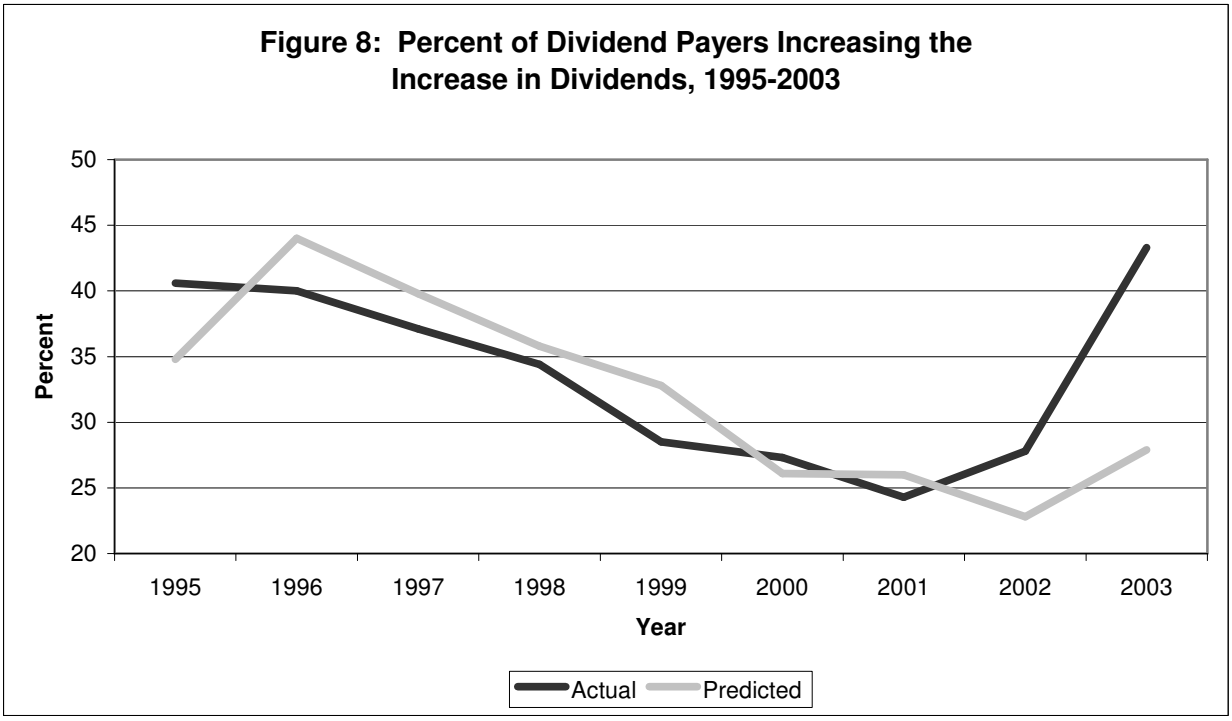
Figure 3 illustrates the percent of dividend-paying firms that increase dividends per share (adjusted for stock splits) from 1980-2003 for the full sample of firms in Compustat and from 1993-2003 for the subsample of firms in Execucomp (roughly the S&P 1500). Figure 4 illustrates the percent of dividend-paying firms that increase the increase in dividends-per share (i.e., the change in dividends per share is greater than that over the past year).





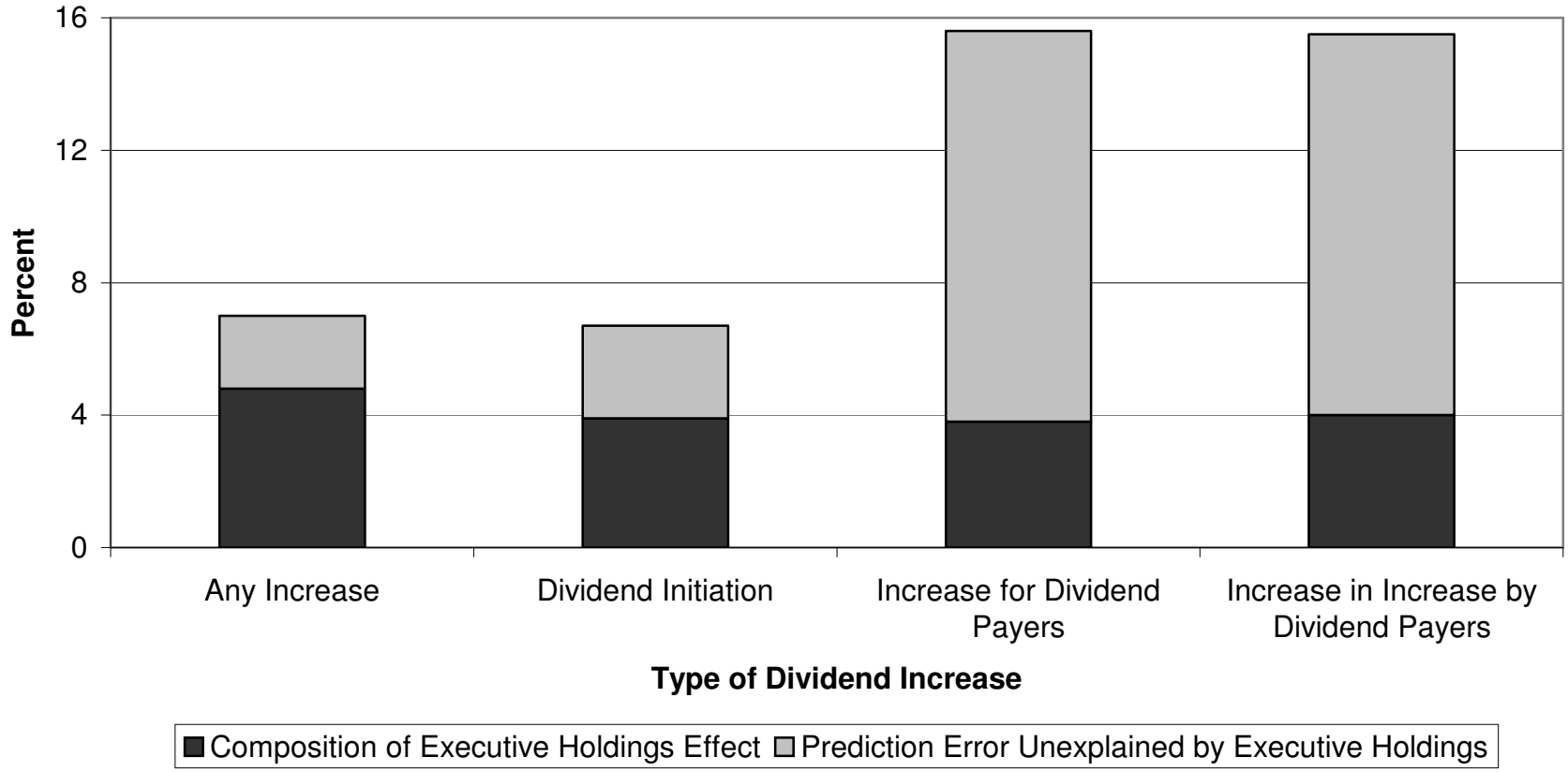
We graph the actual (black line) and predicted (gray line) likelihood of a dividend increase (figure 5) and, among those firms that did not pay dividends in the prior year, a dividend initiation (figure 6). For each year from 1993 to 2002, we estimate a regression for each of these two measures, and calculate predicted levels by applying year t-1 regression coefficients to year t covariates (which include the composition of executive holdings, market-to-book ratio, free cash flow-to-assets, cash on hand-to-assets, debt-to-assets, past five-year stock return, monthly stock volatility, log of market value, and firm age and industry indicator variables). Given Execucomp data limitations, we can estimate our earliest dividend increase regression in 1993, and thus can make our first prediction in 1994.





We graph the actual (black line) and predicted (gray line) likelihood of a dividend increase for previous dividend-payers (figure 7) and the proportion of previous dividend payers that increased their increase in dividends per share (figure 8). For each year from 1993 to 2002, we estimate a regression for each of these two measures, and calculate predicted levels by applying year t-1 regression coefficients to year t covariates (which include the composition of executive holdings, market-to-book ratio, free cash flow-to-assets, cash on hand-to-assets, debt-to-assets, past five-year stock return, monthly stock volatility, log of market value, and firm age and industry indicator variables).

Figure 9: Explaining Average Prediction Error for Dividend Increases in 2003



In figure 9, we decompose the 2003 prediction error for various types of dividend increases into the component due to the composition of executive holdings (i.e., the number of shares of stock held divided by the total number of shares of stock and options held) and that attributable to other factors. This decomposition highlights the importance of executive holdings in explaining dividend increases in 2003. The prediction error represents the difference between the level of actual dividend increases in 2003 and the predicted level using 2002 regression coefficients (i.e., the difference in 2003 between the black and gray lines in figures 5 to 8). The component of the prediction error attributable to the composition of top five executive stock and option holdings represents the difference in the effect of the composition variable upon the likelihood a dividend increase in 2003 relative to 2002 multiplied by the average of the composition variable at the end of 2002.