

**Executive Stock-Based Compensation and Firms' Cash Payout:  
The Role of Shareholders' Tax-Related Payout Preferences**

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## **Executive Stock-Based Compensation and Firms' Cash Payout: The Role of Shareholders' Tax-Related Payout Preferences**

**Abstract.** This study investigates the extent to which the structure of executive stock-based compensation helps to align managers' cash payout choices with shareholders' tax-related payout preferences. Specifically, shareholders' preferences between dividends, which are taxed as ordinary income, and share repurchases, which can result in gains taxed as long-term capital gains, can depend on the relative magnitudes of their tax consequences. Similarly, stock options, which are not dividend-protected, can induce self-interested executives to favor repurchases over dividends as a form of payout. In contrast, compensation in the form of restricted stock, which is dividend-protected, is more likely to induce the use of dividends. To test our hypothesis that the structure of executive stock-based compensation aligns managers' payout choices with shareholders' payout preferences, we investigate whether exogenous changes in shareholders' tax-related payout preferences following the recent dividend tax rate reduction result in predictable shifts in executive stock-based compensation and in managers' payout choices. Consistent with our predictions, we find that, for firms with a greater percentage ownership by individual investors, firms with stronger shareholder rights, and firms with lower financial reporting costs associated with substituting restricted stock for stock options, there is a significantly positive relation between changes in grants of restricted stock and changes in dividends. The findings for changes in grants of stock options are consistent with, albeit somewhat weaker than, the findings for restricted stock. Our investigation of the role of shareholders' tax-related payout preferences in the design of executive stock-based compensation extends the prior literature that has largely focused on the role of incentive contracts in inducing managerial effort, risk taking, and retention.

# **Executive Stock-Based Compensation and Firms' Cash Payout: The Role of Shareholders' Tax-Related Payout Preferences**

## **1. Introduction**

This study investigates the role of shareholders' cash payout preferences in the design of executive compensation. Specifically, we examine the relation between stock-based compensation and managers' payout choices in the context of shareholders' tax-related payout preferences. Because stock options typically are not dividend-protected and, therefore, their value decreases with the payment of dividends, it has been argued in prior research that stock option compensation induces managers to favor repurchases over dividends as a form of payout. However, prior research does not explore the underlying rationale for shareholders to design incentive contracts that induce managerial self-interested payout choices. Our objective is to investigate the extent to which the structure of executive stock-based compensation helps to align managers' payout choices with shareholders' tax-related payout preferences.

Shareholders likely have a preference for a form of payout that minimizes their income taxes, all else equal. Thus, differences between the tax rates on ordinary income and long-term capital gains can affect individual investors' preferences between cash dividends, which are taxed as ordinary income, and share repurchases, which can result in gains taxed as long-term capital gains. Similarly, the structure of executive stock-based compensation can induce self-interested executives to favor the form of payout that increases their compensation. Specifically, stock options, which generally are not dividend-protected, can induce executives to favor repurchases over dividends. In contrast, restricted stock is dividend-protected; executives receive dividends on restricted stock and do not refund them even if they fail to achieve the performance criteria. Thus, compensation in the form of restricted stock is more likely than

compensation in the form of stock options to induce executives to favor dividends as a form of payout.<sup>1</sup>

Accordingly, we hypothesize that the structure of executive stock-based compensation, particularly the use of restricted stock and stock options, helps to align managers' cash payout choices with the underlying preferences of shareholders seeking to minimize their taxes. To test this hypothesis, we investigate the effects of an exogenous shift in shareholders' tax-related payout preferences on the interaction between changes in stock-based compensation and in firms' payouts. To the extent that shareholders' payout preferences, executive stock-based compensation, and managers' payout choices are in equilibrium, we predict that an exogenous shock to shareholders' tax-related payout preferences would lead to a shift in the structure of executive stock-based compensation and, consequently, to a shift in managers' payout choices.

Until recently, tax rates on long-term capital gains have been substantially lower than those on ordinary income. As a result, many shareholders who were taxed as individuals favored share repurchases, which resulted in long-term capital gains, over dividends, which are taxed as ordinary income. Hence, the use of stock options in executive compensation was consistent with inducing executives to favor repurchases over dividends, enabling individual investors to minimize their income taxes. However, the recent enactment of the Jobs and Growth Tax Relief Reconciliation Act of 2003 has reduced the personal tax rate on dividend income from 38.1 percent to 15 percent, the same rate as the new tax rate on long-term capital gains. This dividend tax rate reduction has likely changed shareholders' tax-related payout preferences. Therefore, we predict that following the dividend tax rate reduction, there will be an increased (decreased)

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<sup>1</sup> Although one could, in principal, design stock options with dividend protection, empirical evidence indicates that such cases are rare (see, e.g., Murphy, 1999). Under U.S. GAAP, conditioning the exercise price on dividend payments can trigger the "variable" accounting treatment, which can result in an expense in net income. Conversely, prior to 2006, firms were not required to expense "fixed" exercise price options.

use of restricted stock (stock options) in executive compensation, and a corresponding increase in the use of dividends in firms' payouts.<sup>2</sup> Because tax rate differences between dividend income and long-term capital gains only affect shareholders who are taxed as individuals, our primary hypothesis is that the association between changes in stock-based compensation and in firms' payouts following the shift in shareholders' tax-related payout preferences will be more pronounced for firms with a greater percentage of equity ownership by individual investors.

We also examine whether the concurrent changes to stock-based compensation and payout choices are more pronounced for firms for lower costs associated with modifying their compensation structure. Specifically, we predict that the relation between changes to stock-based compensation and payout choices is more pronounced for firms with stronger shareholders' rights and for firms that were already voluntarily expensing the cost of their employee stock options before the tax rate cut. With respect to firms with stronger shareholders' rights, we predict that such shareholders can more effectively alter the form of executive compensation from non-dividend-protected stock options to dividend-protected restricted stock, enabling them to extract the tax-related benefits.<sup>3</sup> With respect to option expense recognition

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<sup>2</sup> Stock-based compensation plans are designed primarily to induce a desired level of managerial effort and risk taking (see, e.g., Core and Guay, 1999, and Rajgopal and Shevlin, 2002). Thus, we do not claim that shareholders' tax-related payout preferences are the primary drive in the design of executive compensation plans. However, although stock options and restricted stock have different payoff functions, theory suggests that they can be used as substitutes in inducing a desired managerial action (see, e.g., Feltham and Wu, 2001). We presume that firms attempt to maintain some pre-determined level of equity compensation, and, therefore, when the level of stock option compensation is reduced, it will be substituted at least partially by restricted stock. However, if a shift from stock options to restricted stock following the dividend tax rate reduction undermines some underlying incentive attributes of the compensation plan, shareholders might find the increased agency cost undesirable, and, consequently, we will not find evidence consistent with our prediction.

<sup>3</sup> Although the board of directors has the authority to set payout policies, the decision on the timing, magnitude, and form of payout is typically delegated to top management. Nonetheless, one cannot rule out the possibility that in response to the change in shareholders' payout preferences, the boards of some companies "enforce" a new payout policy without adjusting the structure of executive stock-based compensation. Such boards could also offer executives other rewards to "compensate" them for the effects of the increased dividends on the value of their compensation. For example, Huston and Kinney (2007) finds that some firms appear to implicitly dividend-protect CEO options through increased cash compensation. To the extent that such cases are prevalent, we might not find evidence consistent with our primary hypothesis.

firms, to the extent that the expense recognition makes the financial reporting costs of stock options more similar to those of restricted stock, we predict that shareholders and managers of such firms are more inclined to shift to restricted stock as a form of stock-based compensation following the shift in shareholders' tax-related payout preferences.

Consistent with our predictions, we find predictable changes in the structure of executive stock-based compensation and in managers' payout choices following the dividend tax rate reduction. Specifically, for firms with a greater percentage ownership by individual investors, for firms with stronger shareholder rights, and for firms that recognize stock option expense in net income, there is a significantly positive relation between changes in dividends and changes in grants of restricted stock to the firm's CEO. Our findings for changes in grants of stock options are consistent with, albeit somewhat weaker with than, our findings for changes in grants of restricted stock; we find a significantly negative relation between dividend changes and changes in stock option grants for expense recognition firms. Taken together, our findings are consistent with shareholders' tax-related payout preferences influencing the structure of executive stock-based compensation, helping to align managers' and shareholders' payout preferences.

Results from additional analyses reveal corroborating inferences. First, we find that the positive relation between changes in grants of restricted stock and changes in dividends is particularly pronounced when the value of executives' option holding is less sensitive to dividend changes, and when the dividend increase has a positive net effect on executives' wealth. Second, we find that for firms with zero payouts, shifts in shareholders' tax-related payout preferences have a weaker effect on the relation between changes in dividends and changes in stock-based compensation, indicating that these firms' decision to not pay any cash to shareholders in the pre-Act period more likely is attributable to other underlying economic

factors. Third, we find identical inferences when we extend the window over which dividend changes are measured. Finally, we find that the changes in the structure of stock-based compensation following the shift in shareholders' payout preferences are associated with a substitution of dividends for repurchases.

Our paper makes several contributions to the literature. First, and most importantly, we hypothesize and document the role of shareholders' payout preferences in the design of management incentive contracts. Although prior research has documented that managers make payout choices that increase the value of their compensation, our findings cast a different light on this managerial self-interested behavior as a phenomenon that both shareholders and managers anticipate in configuring the form as well as the level of incentive compensation. Also, our investigation of the role of shareholders' tax-related payout preferences in the design of executive stock-based compensation contributes to prior literature that has largely focused on the role of incentive contracts in inducing managerial effort, risk taking, and retention.

Second, we contribute to the corporate governance literature by providing evidence that stronger governance mechanisms, particularly those that strengthen shareholders' rights, enable shareholders to rearrange the incentives provided to executives, thereby extracting a larger share of the gains associated with recent tax rate reforms. Finally, we contribute to the literature on the accounting for stock options by providing evidence that expense recognition in place of footnote disclosure enhances the prospect of aligning managers' payout choices with the underlying shareholders' tax-related payout preferences.

The paper is organized as follows. Section 2 discusses the motivation and outlines the research questions. Section 3 describes the sample and data. Section 4 outlines the research design, and section 5 reports the primary findings and additional tests. Section 6 concludes.

## 2. Motivation and Research Questions

A large body of research on firms' cash payouts examines the effects of free-cash flow, asymmetric information, signaling, shareholders' taxation, and other factors on payout policies (see, e.g., Lintner, 1956; Miller and Modigliani, 1961; Miller and Scholes, 1978; Asquith and Mullins, 1983; Bagwell and Shoven, 1989; Allen and Michaely, 1995). More recent studies on firms' payout policies document a significant shift in payout choices over the past two decades. In particular, the evidence suggests that dividend payout ratios and the number of dividend-paying firms have declined (see, e.g., Fama and French, 2001), and that share repurchases have become a preferred method of payout for many firms (see, e.g., Grullon and Michaely, 2002).<sup>4</sup>

Several recent studies have linked the increased substitution of repurchases for dividends to the increased reliance on stock options as a form of executive compensation. In particular, because most stock options are not dividend-protected and, consequently, their expected value decreases with the payment of dividends, it has been argued that stock option compensation induces managers to reduce the level of dividends in their firms' payouts. In particular, prior research documents that when managers have more stock option compensation they tend to use dividends to a lesser extent (Lambert, Larcker, and Larcker, 1989; Jolls, 1998; Fenn and Liang, 2001; Kahle, 2002). More recently, Chetty and Saez (2005) and Brown, Liang, and Weisbenner (2007) complement this cross-sectional evidence by documenting a negative association between

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<sup>4</sup> For example, the total amount of share repurchases for COMPUSTAT firms increased from \$8.7 billion in 1980 to \$199.7 billion in 2003, or, on a per firm basis, an increase from \$1.47 to 33.1 million per firm. In contrast, the total amount of cash dividends (including special dividends) paid by these firms has increased from \$78 billion (\$12.5 million per firm) to \$371.8 billion (\$59.6 million per firm). Moreover, the increase in the total amount of dividends reflects increasing concentration in the supply of dividends; more than half the aggregated dividends are attributable to the top 25 dividend-paying firms (see, DeAngelo, DeAngelo, and Skinner, 2004). The trend has reversed somewhat starting in 2000 (see Ikenberry and Julio, 2004, for evidence and potential explanations for the recent "reappearance" of dividends).

executive stock option holdings and the likelihood of a dividend increase following the 2003 dividend tax rate reduction.

However, an implicit assumption underlying this prior literature is that executive compensation is exogenously determined. In particular, the prior literature does not consider the possibility that the structure of executive stock-based compensation is set optimally by shareholders desiring a particular form of payout. Our objective is to assess the underlying rationale for shareholders to design incentive contracts that induce managers to make payout choices that increase the value of their stock-based compensation. Specifically, we consider the interaction between shareholders' tax-related payout preferences and the use of two forms of stock-based compensation, stock options and restricted stock. Unlike stock options, restricted stock is dividend-protected and is therefore more likely to induce executives to use dividends as a form of payout. We investigate whether shareholders' tax-related payout preferences affect the extent to which stock options and restricted stock are used in executive compensation, inducing managers to make payout choices that are aligned with the underlying preferences of shareholders seeking to minimize their taxes.

Our focus on shareholders' tax-related payout preferences draws from the extensive literature on the association between dividend taxation and payout policies. For example, using the time-series variation in economy-wide dividend payments, Poterba (2004) investigates the relationship between the relative tax burden on dividends and capital gains and the portion of corporate earnings that is distributed as dividends. Using a similar time-series approach, Perez-Gonzalez (2003) finds that dividend payouts increased (decreased) in years when dividend income was less (more) tax-disadvantaged relative to capital gains, but only for firms whose large shareholders were affected by these tax changes, i.e., individual investors. Using an event-

based approach, Blouin, Raedy and Shackelford (2004), Chetty and Saez (2005) and Brown et al. (2007) investigate whether changes in firms' dividends following the dividend tax rate cut are associated with the underlying tax-related preferences of their shareholders. Thus, to the extent that firms' dividend policies are affected by shareholders' tax-related payout preferences, our objective is to examine whether the structure of management incentive contracts helps to align payout choices with the underlying preferences of shareholders.<sup>5</sup>

Until recently, tax rates on long-term capital gains have been lower than those on ordinary income.<sup>6</sup> As a result, many individual investors favored share repurchases over dividends as form of cash payout. Hence, the use of stock options in executive compensation was consistent with aligning managers' and shareholders' payout preferences. However, the enactment of the Jobs and Growth Tax Relief Reconciliation Act of 2003 has cut the personal tax rate on dividend income from 38.1 percent to 15 percent, and has reduced the top rate on long-term capital gains from 20 percent to 15 percent.<sup>7</sup>

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<sup>5</sup> Another related stream of literature focuses on dividend "clienteles" effects. Under the dividend clientele models, firms that pay higher (lower) dividends attract investors who like (dislike) dividend income (see, e.g., Miller and Modigliani, 1961, and Allen, Bernardo and Welch, 2000). Such clientele effects could arise from tax considerations as well as from non-tax considerations such as information asymmetry, investment preferences, and monitoring. The empirical evidence on tax-related clientele effects is somewhat mixed. For example, Dhaliwal, Erickson, and Trezevant (1999) document that after dividend initiations, firms' institutional holding changes according to their tax preferences, with an increase in ownership by tax-exempt, tax-deferred and corporate investors. Furthermore, Desai and Jin (2007) employ heterogeneity in institutional shareholder tax characteristics and document dividend clientele effects within institution investors. Similarly, Graham and Kumar (2005) provide evidence consistent with a tax-induced dividend clientele effect within retail investors. For example, retail investor stock holdings indicate a preference for dividend income that decreases with the retail investor marginal tax rates. In contrast, Barclay, Holderness, and Sheehan (2003) find no evidence that dividends change systematically following the substitution of a new large blockholder with different tax status. Moreover, Brav, Graham, Harvey, and Michaely (2005) provide survey evidence that financial executives view taxes only as a second-order payout policy concern. Furthermore, many respondents in their survey argue that they do not use payout policy as a tool in an attempt to alter the proportion of institutions among their investors.

<sup>6</sup> This relation holds for most of the history of the income tax. The only prior period where the tax rates on ordinary income and long-term capital gains have been the same is between 1986-1991 (Burman and Kobes, 2004).

<sup>7</sup> The Act was signed into law in May 2003, and was made retroactive to January 1, 2003. The plans for a dividend tax cut were first announced by President Bush during a speech to the Economic Club of Chicago in January 2003. Recent event studies (e.g., Auerbach and Hassett, 2004) indicate that there was very little information about the dividend tax cut prior to the January 2003 announcement. Moreover, the Act did not undertake major tax policy

From a pure tax standpoint, it can be argued that although the tax rate on dividend income now equals the top rate on long-term capital gains, dividends continue to be taxed disadvantageously compared to long-term capital gains (see Blouin et al., 2004, for a discussion). However, the fact that many firms have been paying dividends even during periods of higher tax burdens suggests that firms' dividend choices are also influenced by non-tax factors and that repurchases are not a perfect substitution for dividends. For example, prior studies suggest that the signaling effects of a dividend increase are greater than those of a share repurchase (see, e.g., Guay and Harford, 2000; Jagannathan, Stephens, and Weisbach, 2000). The notion that the dividend tax rate reduction would lead to increased dividends is based on an underlying assumption that dividend taxes constraint dividend payouts. Hence, when dividends become less tax-disadvantaged relative to repurchases, firms' dividend target levels are expected to go up.<sup>8</sup>

To the extent that shareholders' payout preferences, executive stock-based compensation, and firms' payout policies are in equilibrium, we predict that the exogenous shock to shareholders' tax-related payout preferences would lead to a new equilibrium in terms of the executive compensation and payout choices. Specifically, we predict that, following the reduction in the tax rate on dividend income, there will be an increased (decreased) use of restricted stock (stock options) in executive compensation, thereby realigning the incentives of executives with shareholders' new tax-related preferences for more dividends. Our primary hypothesis is that the shifts in stock-based compensation are associated with increased dividends,

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changes other than the dividend tax rate reduction. Thus, it appears to represent a largely unanticipated and exogenous change to shareholders' tax-related payout preferences.

<sup>8</sup> As further discussed by Blouin et al. (2004), there are a number of factors that could have adversely affected firms' inclination to increase dividends following the dividend tax rate cut (e.g., the concern that the tax rate cut is not permanent, the effects of Alternative Minimum Tax, and more). Nonetheless, Blouin et al. (2004) and Hsich and Wang (2004) document a significant increase in the number of dividend-paying firms following the enactment of the Act. Blouin et al. (2004) further document an increase in regular and special dividends, and a decline in

and that this association is more pronounced for firms with a greater percentage ownership by shareholders who are taxed as individual investors, the only shareholder group that can benefit from the dividend tax rate reduction.

We also examine whether the concurrent changes to stock-based compensation and payout choices are more pronounced for firms for lower costs associated with modifying their compensation structures. Specifically, we predict that the relation between changes to stock-based compensation and payout choices is more pronounced for firms with corporate governance structures that provide shareholders with stronger rights and for firms that voluntarily recognize their stock options as an expense in net income. With respect to shareholders' rights, we presume that following the change to their payout preferences, shareholders with stronger rights can more effectively alter the form of executive compensation from non-dividend-protected stock options to dividend-protected restricted stock, enabling them to extract the tax-related benefits associated with the changes in payouts.

With respect to the option expense recognition, we predict that shareholders and managers of firms that already voluntarily expense stock options before the tax rate cut are more inclined to shift to restricted stock as a form of stock-based compensation following the change to shareholders' tax-related payout preferences.<sup>9</sup> Many capital market observers argue that the dominance of stock options over restricted stock as a form of stock-based compensation is

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repurchases. These studies, however, do not investigate the role of stock-based compensation in aligning shareholders' and managers' payout preferences, which is the focus of our study.

<sup>9</sup> Beginning in the summer of 2002, several hundred companies have begun to voluntarily expense the cost of their employee stock options. For evidence related to the determinants and consequences of option expense recognition decisions, see Aboody, Barth, and Kasznik (2004b). We identify firms that decided to expense their stock options prior to the enactment of the Act in 2003 to ensure that the expensing decision is unrelated to the shift in shareholders' tax-related payout preferences. However, we cannot rule out the possibility that some firms adopted the expense recognition in 2002 with the anticipation of also substituting restricted stock for stock options in 2003.

largely attributable to the preferential accounting treatment of stock options.<sup>10</sup> To the extent that firms with lower levels of reported earnings face higher implicit and explicit costs due to their earnings-based contracts (Watts and Zimmerman, 1986), firms that do not recognize the cost of their stock options as an expense in net income may have an incentive to favor stock options over other forms of compensation, including restricted stock, in their compensation plans.<sup>11</sup> In contrast, for expense recognition firms, the financial reporting costs of using stock options in compensation plans are more similar to those of using restricted stock, and, therefore, these firms likely are more inclined to substitute dividend-protected restricted stock for non-dividend-protected stock options in executive compensation plans.

### **3. Sample and Descriptive Statistics**

Our primary tests investigate the relation between changes in the use of restricted stock and stock options in executive compensation and changes in firms' cash payouts following the dividend tax rate reduction. These tests require that sample firms have complete executive compensation and cash payout data for fiscal years 2002 and 2003. We collect data on executive stock options and restricted stock from the Standard & Poor's ExecuComp database.

ExecuComp provides detailed executive compensation data for firms in the S&P 500, S&P 400 MidCap, and S&P 600 SmallCap indices. Our analyses focus on CEO compensation because we presume CEOs have considerable influence over their firms' payout choices. Using the COMPUSTAT Merged Annual Industrials, Full Coverage and Primary-Supplementary-Tertiary

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<sup>10</sup> Specifically, unlike for all other forms of compensation, including restricted stock, during our sample period accounting rules have allowed firms to disclose the cost of their stock options rather than recognize it as an expense in net income (APB No. 25 [1973] and SFAS No. 123 [1995]). In December 2004, the FASB issued SFAS 123(R), requiring all companies to expense the fair value of their employee stock options beginning in 2006.

files, we collect data on cash payout for these firms. In particular, our measure of dividends is based on all cash dividends paid during the year (data item # 21), and our measure of share repurchases is based on the dollar amount of repurchased stock, as reported in the statement of cash flows (data item # 115).<sup>12</sup>

We also require proxies for the heterogeneity in shareholders' tax-related payout preferences and for the extent of shareholder rights. Our proxy for shareholders' tax-related payout preferences is the percentage ownership of common stock by individual investors. Unlike for institutional investors, for individual investors dividend income prior to the 2003 tax rate reduction was tax-disadvantaged relative to long-term capital gains. Consistent with the prior literature (see, e.g., Dhaliwal, Erickson, and Trezevant, 1999; Dhaliwal and Li, 2005), we measure percentage ownership by individuals as one minus the percentage institutional holding, based on the CDA/Spectrum Institutional (13-F) holdings database.<sup>13</sup> Our measure of shareholders' rights is based on the index ("G-Score") compiled by the Investor Responsibility Research Center (IRRC), which comprises 23 corporate governance provisions that measure shareholder rights (see Gompers, Ishii, and Metrick, 2003).

After incorporating all these data requirements, we identify 948 firms with complete executive compensation and firms' payout data for fiscal years 2002 and 2003. We exclude 303 firms with zero cash payout in 2002 (i.e., firms that did not pay any dividends and did not

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<sup>11</sup> For evidence on whether the preferential accounting treatment of stock options affect their use in compensation plans, see, e.g., Matsunaga (1995), Core and Guay (1999), Bryan, Hwang, and Lilien (2000), Aboody, Barth, and Kasznik (2004a), and Carter, Lynch, and Tuna (2007).

<sup>12</sup> We include both regular and special dividends; our findings are robust to excluding special dividends.

<sup>13</sup> Institutional investors include corporate investors, pension funds, brokerage firms, and financial institutions. We compute the firm-specific percentage institutional holding as the total number of shares held by institutional investors divided by the total number of shares outstanding. As noted in the prior literature, the aggregate level of institutional ownership is an imperfect measure of heterogeneity in tax-related payout preferences because some institutional investors, particularly mutual funds, indirectly hold equity for fully taxable individual investors (see, e.g., Dhaliwal and Li, 2005). However, to the extent that the proportion of such institutions among all institutional investors is small (see, e.g., Gompers and Metrick, 2001), this should not pose a serious problem in our analyses.

repurchase their stock) from the sample that is used in our primary tests.<sup>14</sup> Thus, our final sample is comprised of 645 firms.<sup>15</sup> In testing the effects of financial reporting costs on the substitution of restricted stock for stock options, we use the Bear Stearns Equity Research report to identify firms that have announced their intention to recognize the cost of stock options as an expense in net income. Of the 645 sample firms, we identify 91 that have adopted option expense recognition prior to the 2003 dividend tax rate cut.

Table 1 presents industry frequency distribution for our final sample and reveals that sample firms' industry membership percentage is fairly similar to the COMPUSTAT population percentage, although our sample includes more (less) utilities (Business Services) firms than what would be expected based on the COMPUSTAT population. Table 2 presents univariate descriptive statistics for the cash payout and stock-based compensation variables, along with additional firm characteristics. Regarding firms' cash payouts, consistent with our prediction, we find that the mean (median) cash dividends as a percentage of equity market value increased from 1.69% (1.28%) in 2002 to 2.56% (1.44%) in 2003; untabulated tests indicate the *p*-value for the mean (median) increase is 0.039 (0.001).<sup>16</sup> We also find that the mean (median) repurchases as a percentage of equity market value decreased from 1.75% (0.63%) in 2002 to 1.09% (0.56%)

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<sup>14</sup> We exclude firms that do not have any cash payout in 2002 because we do not expect that shareholders' tax-related preferences play a considerable role in these firms' decision to not pay dividends. The fact that these firms also did not distribute cash through share repurchases suggests that their decision to not pay dividends in 2002 more likely is attributable to some other underlying economic factors (e.g., cash flow constraints, growth opportunities, etc.). Thus, to the extent that tax considerations do not seem to impose a binding constraint on these firms' dividend payout choices in 2002, we expect that the dividend tax cut in 2003 would have a weaker effect on executive stock-based compensation and on dividend choices for these firms. We investigate this conjecture in the sensitivity analyses reported below.

<sup>15</sup> As a sensitivity test, we excluded from the sample only firms with zero cash payout in both 2002 and 2003. This alternative selection criterion resulted in an increase in sample size of 29 firms (i.e., from 645 to 674), suggesting that the vast majority of the no-payout firms in 2002 also had no payout in 2003. Our inferences from the empirical tests using the expanded sample of 674 firms are identical to those based on the primary sample of 645 firms.

<sup>16</sup> Untabulated statistics also indicate that the number of dividend paying firms in our sample has increased from 499 in 2002 to 504 in 2003. Thus, the increase in dividend payments among sample firms is attributable primarily to increased dividends among dividend paying firms rather than to dividend initiations by non dividend payers.

in 2003;  $p$ -value for the mean (median) decrease is 0.058 (0.296). Consistent with a substitution of dividends for repurchases following the dividend tax rate reduction, the mean ratio of dividends to total cash payout (i.e., dividends plus repurchases) has increased from 54.25% in 2002 to 55.63% in 2003 ( $p$ -value 0.060), while the median has increased from 56.36% in 2002 to 61.61% in 2003 ( $p$ -value 0.002).

Relating to CEO stock-based compensation, we document significant changes that are consistent with our predictions. Specifically, the mean (median) value of stock option grants as a percentage of equity market value has decreased from 0.09% (0.04%) in 2002 to 0.06% (0.03%) in 2003; an untabulated test indicates that the  $p$ -value for the mean (median) decrease is 0.001 (0.001). The mean (median) value of restricted stock grants as a percentage of equity market value has increased from 0.02% (0.00%) in 2002 to 0.03% (0.00%) in 2003; an untabulated test indicates that the  $p$ -value for the mean (median) increase is 0.002 (0.001). Moreover, untabulated statistics reveal that the number of sample firms that use restricted stock in CEO compensation has increased from 404 in 2002 to 439 in 2003, whereas the number of firms that grant stock options to their CEOs has decreased from 522 in 2002 to 484 in 2003. Taken together, these findings reveal that, consistent with our prediction, there is an increased (decreased) reliance on restricted stock (stock options) in executive stock-based compensation following the dividend tax rate reduction. However, the testing of our predictions is based on the interaction of changes in the use of restricted stock and stock options in executive compensation with changes in shareholders' tax-related payout preferences. Hence, our primary inferences are based on the multivariate analyses detailed in the next section.

#### 4. Research Design

Our primary hypothesis is that shareholders' tax-related payout preferences affect the use of stock options and restricted stock in executive compensation, inducing managers to make payout choices that are aligned with the underlying preferences of shareholders. To test this hypothesis we investigate the effects of the exogenous change in shareholders' tax-related payout preferences following the 2003 dividend tax rate reduction. We predict that there will be an increased (decreased) use of restricted stock (stock options) in executive compensation, realigning managers' payout choices with individual investors' preferences for more dividends. We test these predictions using the following specification:

$$\begin{aligned} \Delta DIVIDENDS = & \sum_{I=1}^{26} \beta_{0I} INDUSTRY_I + \beta_1 INDIVIDUAL * \Delta RSTKGR + \beta_2 INDIVIDUAL * \Delta OPTGR \\ & + \beta_3 SHRRIGHTS * \Delta RSTKGR + \beta_4 SHRRIGHTS * \Delta OPTGR \\ & + \beta_5 EXPENSE * \Delta RSTKGR + \beta_6 EXPENSE * \Delta OPTGR \\ & + \beta_7 \Delta RSTKGR + \beta_8 \Delta OPTGR + \beta_9 INDIVIDUAL + \beta_{10} SHRRIGHTS + \beta_{11} EXPENSE \\ & + \beta_{12} SIZE + \beta_{13} MB + \beta_{14} RET + \beta_{15} ROA + \beta_{16} SHROWN + \beta_{17} LTD \\ & + \beta_{18} CAPEXP + \beta_{19} WC + \beta_{20} CFO + \beta_{21} LAG(\Delta DIV) + \beta_{22} AGE + \varepsilon_1 \end{aligned} \quad (1)$$

The dependent variable,  $\Delta DIVIDENDS$ , is the difference between the total dollar amount of dividends in 2003 and the total dollar amount of dividends in 2002, deflated by market value of equity at the beginning of 2002. Our stock-based compensation variables,  $\Delta RSTKGR$  and  $\Delta OPTGR$ , are the changes between 2003 and 2002 in the use of restricted stock and stock options in executive compensation. Specifically,  $\Delta RSTKGR$  is the difference between the value of CEO restricted stock grants in 2003 and the value of restricted stock grants in 2002, deflated by market value of equity at the beginning of 2002. Similarly,  $\Delta OPTGR$  is the difference between the value of CEO stock option grants in 2003 and the value of stock option grants in

2002, deflated by market value of equity at the beginning of 2002.<sup>17</sup> We base our inferences on the interactions of  $\Delta OPTGR$  and  $\Delta RSTKGR$  with our proxies for shareholders' tax-related payout preferences,  $INDIVIDUAL$ , the extent of shareholders' rights,  $SHRIGHTS$ , and the financial reporting costs associated with substituting restricted stock for stock options,  $EXPENSE$ .

Specifically,  $INDIVIDUAL$  is the percentage ownership of common stock by individual investors. Because the reduction in the tax rate on dividend income only benefits shareholders who are taxed as individual investors, we predict that changes in the structure of stock-based compensation and in managers' payout choices are more pronounced for firms with a greater percentage ownership by individual investors. Thus, we predict that the coefficient estimate on the interactive term  $INDIVIDUAL * \Delta RSTKGR$  ( $INDIVIDUAL * \Delta OPTGR$ ) is positive (negative). The focus on the interaction between changes in shareholders' tax-related payout preferences and changes in the use of restricted stock and stock options in executive compensation mitigates the possibility that the association between the shifts in compensation and in payout choices is attributable to non tax-related factors.<sup>18</sup>

$SHRIGHTS$  is an indicator variable taking the value of one for firms in the first quartile of the distribution of the index compiled by the IRRC (i.e., firms with the strongest shareholder rights), and zero otherwise. We transform the IRRC index to an indicator variable to mitigate the effect of measurement error associated with a simple count of shareholder right provisions. We predict that changes in the structure of stock-based compensation and in managers' payout choices are more pronounced for firms with corporate governance mechanisms that provide

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<sup>17</sup> Our inferences are robust to using total assets in lieu of market value of equity as a deflator in the calculation of  $\Delta DIVIDENDS$ ,  $\Delta RSTKGR$ , and  $\Delta OPTGR$ .

<sup>18</sup> Specifically, if firms increased dividends and also increased (decreased) the use of restricted stock (stock options) in executive compensation for reasons other than the change to shareholders' tax-related payout preferences, this effect would be captured by the non-interactive variables  $\Delta RSTKGR$  and  $\Delta OPTGR$ .

shareholders with stronger rights. We presume that such shareholders can more effectively alter the form of executive stock-based compensation from non-dividend-protected stock options to dividend-protected restricted stock, enabling them to extract the tax-related benefits associated with changes in firms' payouts. Thus, we predict that the coefficient estimate on the interactive term  $SHRIGHTS * \Delta RSTKGR$  ( $SHRIGHTS * \Delta OPTGR$ ) is positive (negative).

*EXPENSE* is an indicator variable taking the value of one for the 91 sample firms that recognized stock option expense prior to 2003, and zero for all other firms. Firms that do not recognize stock option expense may have an incentive to favor stock options over other forms of compensation, including restricted stock, for compensation purposes. In contrast, for expense recognition firms, the financial reporting costs associated with substituting restricted stock for stock options likely are lower. Thus, we predict that shareholders and managers of expense recognition firms would be more inclined to shift to restricted stock as a form of compensation following the shift in shareholders' tax-related payout preferences. Specifically, we predict that the coefficient estimate on the interactive term  $EXPENSE * \Delta RSTKGR$  ( $EXPENSE * \Delta OPTGR$ ) is positive (negative).

Our estimation equation also controls for firm size, growth opportunities, performance, liquidity, cash flows, maturity, historical dividend growth, and CEO stock ownership, which have been suggested in the prior literature as being associated with firms' dividend policies. Specifically, our control variables comprise *SIZE* (the logarithm of market value of equity at year end), *MB* (the ratio of market value of equity to book value of equity), *RET* (lagged annual stock return), *ROA* (net income deflated by total assets), *SHROWN* (number of shares held by the CEO at year-end deflated by shares outstanding), *LTD* (long-term debt deflated by market value of equity at year end), *CAPEXP* (capital expenditures deflated by market value of equity), *WC*

(working capital deflated by market value of equity), *CFO* (cash flow from operations deflated by market value of equity), *LAG[ΔDIV]* (difference between dividends paid in 2002 and in 2001, deflated by market value of equity at the beginning of 2001), and *AGE* (number of years in which the company is publicly traded).<sup>19</sup> To control for potential industry variation with respect to firms' payouts we also include controls for industry effects. Specifically, based on the industry classification reported in Table 1, *INDUSRY<sub>t</sub>* equals one for firms in industry *I*, and zero otherwise. We estimate Eq. (1) using a robust regression.<sup>20</sup>

Our investigation of the effects of shareholders' tax-related payout preferences on the structure of executive compensation and managers' payout choices is based on the premise that stock-based compensation induces self-interested executives to favor the particular form of payout that increases the value of their compensation. Thus, our first step is to empirically validate the link between managers' payout choices and the use of restricted stock and stock options in executive compensation. To the extent that executives make payout choices that increase the value of their compensation, we predict that the use of dividends in firms' payouts increases (decreases) with the use of restricted stock (stock options) in executive compensation. To test this prediction, we regress *DIVIDENDS*, the total dollar amount of dividends paid during the year deflated by equity market value, on *RSTSTOCK*, the value of restricted stock held by the CEO at year-end deflated by equity market value, *OPTIONS*, the number of stock options held

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<sup>19</sup> Unless otherwise noted, the control variables are measured using data for fiscal year 2002.

<sup>20</sup> The robust regression estimation procedure begins by calculating Cook's D statistic and excluding observations with  $D > 1$ . Then, the regression is re-estimated, weights for each observation are calculated based on absolute residuals – Huber weights and biweights – and the estimation is repeated iteratively using the weighted observations until convergence in the maximum change in weights is achieved (Berk, 1990). Our significance tests are based on standard errors calculated using the pseudo values approach described in Street, Carroll, and Ruppert (1988), after adjusting them to be heteroskedasticity-consistent (White, 1980). Our inferences are unaffected by using ordinary least squares estimation.

by the CEO at year-end deflated by shares outstanding, and our set of control variables.<sup>21</sup> Based on the evidence in the prior literature, we predict a negative relation between *DIVIDENDS* and *OPTIONS*. To the extent that compensation in the form of restricted stock is more likely to induce managers to pay dividends, we predict a positive relation between *DIVIDENDS* and *RSTSTOCK*. We estimate this specification based on a sample of 10,281 firm-year observations between 1993 and 2003, consisting of the 2,225 firms with a positive cash payout (i.e., with dividends and/or repurchases) and with data on CEO compensation from ExecuComp.<sup>22</sup>

Untabulated findings from this specification are consistent with our predictions. Specifically, the coefficient estimate on *RSTSTOCK* is 0.031 (t-statistic 2.31) and the coefficient estimate on *OPTIONS* is -0.097 (t-statistic -16.52).<sup>23</sup> The negative coefficient estimate on *OPTIONS* is consistent with the evidence in the prior literature. More importantly, the positive coefficient estimate on *RSTSTOCK* is consistent with our prediction that restricted stock is more likely to induce executives to use dividends as a form of payout. Although there is evidence in the prior literature consistent with a negative relation between executive stock option holding and firms' dividends, we are unaware of similar evidence for restricted stock. The comparison of these two forms of stock-based compensation enables us to more directly link managers' payout choices to the structure of their compensation and to control for some of the underlying economic determinants of stock-based compensation.

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<sup>21</sup> The prior literature (see, e.g., Fenn and Liang, 2001; Kahle, 2002) focuses on the number of CEO option holding at year-end. Thus, for the purpose of comparison with these prior studies, we base this test on year-end holdings of restricted stock and stock options. Moreover, unlike for holding of restricted stock and for new grants of stock options and restricted stock, firms do not disclose in their proxy statements the value of executive option holding. Hence, for the purpose of this test, we focus on the number of option holding at year-end and not their value.

<sup>22</sup> The objective of this test is to establish the cross-sectional relation between managers' payout choices and the use of restricted stock and stock options in executive compensation. Thus, for the purpose of this test and to increase the generalizability of the findings, we employ a longer time period than that used in our primary tests.

<sup>23</sup> The findings are robust to measuring *DIVIDENDS* as the ratio of cash dividends to total cash payouts (i.e., dividends plus repurchases). Specifically, the coefficient estimate on *RSTSTOCK* is 2.393 (t-statistic 3.57) and the coefficient estimate on *OPTIONS* is -5.273 (t-statistic -19.55).

## 5. Empirical Findings

### 5.1. Primary Findings

Table 3 presents summary statistics from estimating Eq. (1). Relating to restricted stock grants, the interactive terms *INDIVIDUAL\*ΔRSTKGR* and *SHRIGHTS \*ΔRSTKGR* are significantly positively associated with dividend changes (coefficient estimates 0.856 and 0.621; t-statistics 3.48 and 6.72).<sup>24</sup> These findings are consistent with our prediction that the relation between changes in dividends and changes in restricted stock grants is more pronounced for firms with greater changes in shareholders' tax-related payout preferences and for firms with stronger shareholders rights. The coefficient on *EXPENSE\*ΔRSTKGR* is not significant (coefficient estimate -0.024; t-statistic -0.21).

Relating to stock option grants, the coefficient estimates on *INDIVIDUAL\*ΔOPTGR* and *SHRIGHTS \*ΔOPTGR* are not statistically significant (coefficient estimates -0.055 and 0.014; t-statistics -0.67 and 0.27), whereas the coefficient on *EXPENSE\*ΔOPTGR* is significantly negative (coefficient estimate -0.728; t-statistic -7.68). We interpret the negative coefficient on *EXPENSE\*ΔOPTGR* as evidence consistent with the notion that the contemporaneous relation between the decrease in stock option grants and the increase in dividends is more pronounced for firms that were already voluntarily expensing the cost of their employee stock options.

In untabulated tests we examine alternative measures of changes in dividends between 2002 and 2003. In particular, we measure *ΔDIVIDENDS* as the difference between the ratio of dividends to the firm's total cash payout (i.e., dividends plus repurchases) in 2003 and the ratio

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<sup>24</sup> In sensitivity analyses we interact *INDIVIDUAL* and *SHRIGHTS*. Untabulated findings reveal that the coefficient estimate on *INDIVIDUAL\*SHRIGHTS\*ΔRSTKGR* is significantly positive (t-statistic 2.16), indicating that the increase in dividends following the tax rate reduction is more strongly related to the increase in the use of restricted stock for firms with a greater percentage ownership by individual investors and with stronger shareholders' rights.

of dividends to total payout in 2002. We use this measure to assess whether the increase in dividends following the dividend tax rate reduction reflects a substitution of dividends for repurchases. Overall, our inferences from this specification are consistent with those obtained from the estimation reported in Table 3. Specifically, relating to changes in restricted stock grants, consistent with our predictions, all the interactive terms, *INDIVIDUAL\* $\Delta$ RSTKGR*, *SHRIGHTS\* $\Delta$ RSTKGR*, and *EXPENSE\* $\Delta$ RSTKGR* are significantly positively associated with changes in the ratio of dividends to total payout (coefficient estimates 14.133, 24.780, and 51.797, respectively; t-statistics 1.99, 5.57, and 19.63, respectively). Relating to changes in stock option grants, the coefficient estimates on *INDIVIDUAL\* $\Delta$ OPTGR* and *SHRIGHTS\* $\Delta$ OPTGR* are not statistically significant (coefficient estimates  $-2.009$  and  $1.621$ ; t-statistics  $-0.80$  and  $0.93$ ), whereas the coefficient estimate on *EXPENSE\* $\Delta$ OPTGR* is significantly negative (coefficient estimate  $-10.558$ ; t-statistic  $-3.30$ ).

In addition, we also estimated Eq. (1) after excluding *INDIVIDUAL*, *SHRIGHTS*, and *EXPENSE*, along with their interactive terms. The untabulated estimation results reveal that the coefficient estimates on changes in grants of restricted stock and stock options,  *$\Delta$ RSTKGR* and  *$\Delta$ OPTGR*, are statistically insignificant (coefficient estimates  $-0.002$  and  $0.010$ ; t-statistics  $-0.06$  and  $1.10$ ). This result indicates that our primary finding of a relation between changes in firms' payouts and changes in executive compensation plans is significant only in the context of changes to shareholders' tax-related payout preferences. This mitigates the possibility that our findings are attributable to a more general increase in the use of dividends and in the grants of restricted stock in 2003 that are unrelated to the effect we investigate.

Overall, our findings indicate that for firms with a greater percentage ownership by individual investors, with stronger shareholder rights, and with lower financial reporting costs

associated with substituting restricted stock for stock options, the increase in dividends following the tax rate reduction is more strongly related to a contemporaneous increase in the use of restricted stock in executive compensation. Our findings for the relation between changes in dividends and changes in stock option grants are weaker than those for restricted stock. Taken together, our findings indicate that changes in shareholders' tax-related payout preferences are associated with changes in executive compensation, which, in turn, induce an increased use of dividends in firms' payouts.

## 5.2. Additional Analyses and Robustness Tests

### 5.2.1. Two-Stage Least Squared Approach

Our tests above provide evidence that changes in firms' dividends following the shift in shareholders' tax-related payout preferences are associated with changes in grants of restricted stock. Consistent with prediction, we find that this relation is more pronounced for firms with a greater percentage ownership by individual investors, with stronger shareholder rights, and with lower financial reporting costs. To further investigate this relation, we estimate a Two-Stage Least Squared model. In the first-stage regression we estimate the following equation:

$$\Delta RSTKGR = \gamma_0 + \gamma_1 \Delta OPTGR + \gamma_2 INDIVIDUAL + \gamma_3 SHRIGHTS + \gamma_4 EXPENSE + \varepsilon_{2a} \quad (2a)$$

The explanatory variables in (2a) are as defined above.<sup>25</sup> In the second-stage regression, we include the predicted value from (2a),  $\Delta RSTKGR\_PRED$ , and estimate the following equation:

$$\begin{aligned} \Delta DIVIDENDS = & \sum_{I=1}^{26} \lambda_{0I} INDUSTRY_I + \lambda_1 \Delta RSTKGR\_PRED \\ & + \lambda_2 SIZE + \lambda_3 MB + \lambda_4 RET + \lambda_5 ROA + \lambda_6 SHROWN + \lambda_7 LTD \\ & + \lambda_8 CAPEXP + \lambda_9 WC + \lambda_{10} CFO + \lambda_{11} LAG(\Delta DIV) + \lambda_{12} AGE + \varepsilon_{2b} \end{aligned} \quad (2b)$$

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<sup>25</sup> Our inferences are robust to the removal of  $\Delta OPTGR$  from Eq. (2a) and the inclusion of the industry indicators.

Table 4 presents summary statistics from estimating Eqs. (2a) and (2b). Panel A reports the findings from the first-stage regression. Consistent with our prediction, the percentage ownership by individual investors, *INDIVIDUAL*, is significantly positively associated with changes in grants of restricted stock following the dividend tax rate reduction (coefficient estimate 0.001; t-statistic 2.22). The coefficient estimates on the extent of shareholder rights, *SHRIGHTS*, and financial reporting costs, *EXPENSE*, are statistically indistinguishable from zero. These findings suggest that changes in shareholders' tax-related payout preferences seem to be driving the increased use of restricted stock in executive compensation. Moreover, findings from the second-stage regression reported in Panel B reveal that, consistent with our prediction, the predicted value from the first-stage regression, *ARSTKGR\_PRED*, is significantly positively associated with changes in dividends (coefficient estimate 0.420; t-statistic 3.49). This finding corroborates our inferences that shareholders' tax-related payout preferences influence firms' dividends through the structure of executive stock-based compensation.

We also consider the possibility that the changes in dividends and in the use of restricted stock are endogenously determined. Specifically, we run a simultaneous equations model with *ADIVIDENDS* and *ARSTKGR* being the endogenous variables. Untabulated estimation results indicate that, in the second stage regression, the coefficient estimate on *ARSTKGR\_PRED* in the *ADIVIDENDS* model is significantly positive (coefficient estimate 0.839; t-statistic 2.61). In contrast, the coefficient estimate on *ADIVIDENDS\_PRED* in the *ARSTKGR* model is not statistically significant (coefficient estimate 0.002; t-statistic 0.17). Taken together, these findings are consistent with our inferences that the increase in dividends associated with the change in shareholders' tax-related payout preferences is induced primarily by the increased grants of restricted stock.

### 5.2.2. Sensitivity of the Value of Option Holdings to Dividend Changes

Our primary analyses focus on the relation between changes in dividends and changes in grants of restricted stock and stock options following the reduction in the tax rate on dividend income. However, this approach does not take into consideration the potential incentive effects of the current holding of stock options due to grants made in prior years. Such holdings could affect the extent to which new grants of restricted stock and stock options would align managers' payout choices with shareholders' new tax-related payout preferences. We predict that the positive (negative) relation between changes in dividends and changes in grants of restricted stock (stock options) is more pronounced when the value of the CEO's option holding is less sensitive to an increase in dividends.

To measure the sensitivity of the value of CEO option holding to an increase in dividends, we first collect all layers of option holding from Form 8 filings for fiscal year 2002. Form 8 reports the number of options held by top executives at year-end, their exercise prices, and expiration dates.<sup>26</sup> We then calculate the value of each CEO stock option using the Black-Scholes (1973) model (modified to account for dividends following Merton, 1973) with the following inputs: share price as of December 31, 2002, exercise price, expected life to expiration, historical stock price volatility measured over the most recent period similar to expected option life, historical dividend yield for the most recent year, and the average yield on zero coupon Treasury Bills. Each calculated option value is then multiplied by the number of options outstanding for that option layer, resulting in total value of CEO option holding as of December 31, 2002 for 575 firms with all necessary data. For each firm, we next compute the percentage

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<sup>26</sup> We collect Form 8 filings from Thomson Financial. We do not have Form 8 for 108 sample firms. Thus, for these firms we examine the sequence of options granted and exercised between 1996 and 2002 and use these amounts to construct a measure of option holding at the end of fiscal year 2002.

change in the value of CEO option holding if the firm's dividend yield over the option life is higher by 1%. This measure indicates the extent to which the value of CEO option holding is sensitive to an increase in dividends.<sup>27</sup>

To test our prediction, we estimate the following equation:

$$\begin{aligned}
\Delta DIVIDENDS = & \sum_{I=1}^{26} \theta_{0I} INDUSTRY_I \\
& + \theta_1 INDIVIDUAL * \Delta RSTKGR * SENSITIVITY + \theta_2 INDIVIDUAL * \Delta OPTGR * SENSITIVITY \\
& + \theta_3 SHRIGHTS * \Delta RSTKGR * SENSITIVITY + \theta_4 SHRIGHTS * \Delta OPTGR * SENSITIVITY \\
& + \theta_5 EXPENSE * \Delta RSTKGR * SENSITIVITY + \theta_6 EXPENSE * \Delta OPTGR * SENSITIVITY \\
& + \theta_7 INDIVIDUAL * \Delta RSTKGR + \theta_8 INDIVIDUAL * \Delta OPTGR \\
& + \theta_9 SHRIGHTS * \Delta RSTKGR + \theta_{10} SHRIGHTS * \Delta OPTGR \\
& + \theta_{11} EXPENSE * \Delta RSTKGR + \theta_{12} EXPENSE * \Delta OPTGR \\
& + \theta_{13} \Delta RSTKGR + \theta_{14} \Delta OPTGR + \theta_{15} INDIVIDUAL + \theta_{16} SHRIGHTS + \theta_{17} EXPENSE \\
& + \theta_{18} SIZE + \theta_{19} MB + \theta_{20} RET + \theta_{21} ROA + \theta_{22} SHROWN + \theta_{23} SENSITIVITY + \theta_{24} LTD \\
& + \theta_{25} CAPEXP + \theta_{26} WC + \theta_{27} CFO + \theta_{28} LAG(\Delta DIV) + \theta_{29} AGE + \varepsilon_3
\end{aligned} \tag{3}$$

*SENSITIVITY* is an indicator variable equal to one (zero) when the sensitivity of the value of the CEO option holding is below (above) the sample median. All other experimental variables are as defined above.

Table 5 presents summary statistics from estimating Eq. (3). The coefficient estimates on all interactive terms associated with  $\Delta RSTKGR * SENSITIVITY$  are significant positive, as predicted. Specifically, the coefficient estimate for  $INDIVIDUAL * \Delta RSTKGR * SENSITIVITY$  is 0.499 (t-statistic 2.21), the coefficient estimate for  $SHRIGHTS * \Delta RSTKGR * SENSITIVITY$  is 0.449 (t-statistic 2.98), and the coefficient estimate for  $EXPENSE * \Delta RSTKGR * SENSITIVITY$  is 2.561 (t-statistic 3.01). These findings indicate that when the value of CEO option holding is less adversely affected by an increase in dividends, there is a more pronounced relation between

<sup>27</sup> We exclude from this analysis 70 firms for which we could not estimate the sensitivity measure due to data limitations.

new grants of restricted stock and dividend increases for firms with a greater percentage ownership by individual investors, firms with stronger shareholder rights, and firms with option expense recognition. Thus, the effectiveness of using new grants of restricted stock to align executives' payout choices with shareholders' new tax-related payout preferences can be affected to a great extent by the executives' current holding of stock options.

We next measure the monetary impact on firms' CEOs of increasing dividends following the reduction in the tax rate on dividend income. Specifically, for each firm, we compute the net effect of the change in dividends between 2002 and 2003 on the value of the CEO's holdings of stock options and restricted stock at the end of 2003 (which already reflects grants made in 2003). Whereas dividend increases have a negative effect on the value of option holding, they have a positive monetary effect related to holdings of restricted stock, which, unlike stock options, are dividend protected. Untabulated statistics indicate that dividend changes between 2002 and 2003 had a positive net effect on CEO wealth for about 73% of our sample firms.<sup>28</sup>

We use this measure of wealth effect to further examine whether the positive (negative) relation between changes in dividends and changes in grants of restricted stock (stock options) is more pronounced when the CEO's wealth is positively affected by an increase in dividends. Specifically, we estimate a model similar to Eq. (3) using *CEO\_BENEFIT* in lieu of *SENSITIVITY*. *CEO\_BENEFIT* is an indicator variable taking the value of one (zero) when the net wealth effect to the CEO from a dividend increase is positive (negative). Untabulated findings corroborate our inferences from Table 5. Specifically, all the interactive terms related to  $\Delta RSTKGR * CEO\_BENEFIT$  are significantly positively associated with changes in dividends

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<sup>28</sup> The average estimated one-year benefit to CEOs' of sample firms from dividend changes in 2003 is \$80,529 (the standard deviation is \$837,122 and the intra-quartile range is \$0-\$691,624). However, to the extent that dividend changes in 2003 are "permanent", the total benefit is likely to be much higher.

(coefficient estimates for *INDIVIDUAL\*ΔRSTKGR\*CEO\_BENEFIT*, *SHRIGHTS\*ΔRSTKGR\*CEO\_BENEFIT*, and *EXPENSE\*ΔRSTKGR\*CEO\_BENEFIT* are 0.347, 0.579 and 18.090, respectively; t-statistics 1.80, 3.44 and 5.79). As in Table 5, the interactive terms associated with *ΔOPTGR\*CEO\_BENEFIT* are insignificant. Overall, these findings indicate that the effectiveness of using new grants of restricted stock to align executives' payout choices with shareholders' new tax-related payout preferences increases with the monetary gain to top executives.

### 5.2.3. Incorporating Firms with Zero Cash Payout

Our primary sample comprises 645 firms with a positive cash payout in fiscal year 2002. We excluded 303 firms with zero payouts in 2002 (i.e., firms that did not pay any dividends and did not repurchase their stock) from our primary tests because we expect that tax considerations are less likely to play an important role in these firms' dividend payout choices. The fact that these firms did not distribute cash through either dividends or share repurchases in 2002 suggest that their decision to not pay dividends in 2002 is more likely attributable to non-tax considerations. We therefore expect that changes in shareholders' tax-related payout preferences following the dividend tax rate cut would have a weaker effect on executive stock-based compensation and managers' dividend choices for these firms.

To examine this conjecture, we re-estimate Eq. (1) after also incorporating the 303 firms with zero cash payout. Table 6 presents summary statistics from this estimation. Consistent with our conjecture, most of the interactive terms are insignificantly associated with changes in dividends; the t-statistics for the coefficient estimates on *INDIVIDUAL\*ΔRSTKGR* and *INDIVIDUAL\*ΔOPTGR* are -0.38 and -0.17, and the t-statistics for the coefficient estimates on *SHRIGHTS\*ΔRSTKGR* and *SHRIGHTS\*ΔOPTGR* are 0.22 and -1.35. These findings are

consistent with the notion that shareholders' tax-related payout preferences have a weaker effect on the relation between executive stock-based compensation and dividend choices for firms with zero payouts. However, the coefficient estimate for  $EXPENSE*ARSTKGR$  is significantly positive (t-statistic 19.07) and the coefficient estimate for  $EXPENSE*\Delta OPTGR$  is significantly negative (t-statistic -26.01). The significant coefficients on the interactive terms associated with  $EXPENSE$  are consistent with our prediction that shareholders and managers of firms that already voluntarily expense stock options before the tax rate cut are more inclined to substitute restricted stock for stock options following the shift to shareholders' tax-related payout preferences. However, an alternative interpretation is that some of the firms that have adopted option expense recognition in 2002 have done so with the anticipation of substituting restricted stock for stock options in 2003 (see Carter et al., 2007).

#### 5.2.4. Alternative Time Periods

Our primary tests above are based on a comparison of the amounts of dividends paid in 2003 and 2002. This approach is based on the notion that, although the reduction in the tax rate on dividend income was signed into law only in May 2003, it appeared likely throughout the first few months of 2003 that this tax change would indeed be implemented. Moreover, the tax rate reduction was applied retroactively to the beginning of January 2003. Nonetheless, as an alternative specification, we measure  $\Delta DIVIDENDS$  as the difference between the total dollar amount of dividends in 2004 (rather than in 2003 as in our primary analyses) and the total dollar amount of dividends in 2002, deflated by market value of equity at the beginning of 2002.<sup>29</sup> This

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<sup>29</sup> We also considered the 12 month period between July 1, 2003 and June 30, 2004 as an alternative post-Act period, and compared the dividends paid during that period to those paid during the 12 month period between January 1, 2002 and December 31, 2002. In this specification, the dividend amounts are retrieved from CRSP and exclude special dividends. Our inferences are robust to using this alternative specification.

alternative specification also helps to mitigate the concern that our tests lack power to the extent that firms are slow to adjust their dividend policy in response to the 2003 dividend tax rate cut.

Table 7 presents summary statistics from estimating Eq. (1) using this alternative specification of  $\Delta DIVIDENDS$ . Relating to changes in restricted stock, the interactive terms  $INDIVIDUAL * \Delta RSTKGR$  and  $SHRIGHTS * \Delta RSTKGR$  are significantly positively associated with changes in dividends (t-statistics 3.29 and 6.37, respectively). The coefficient estimate for  $EXPENSE * \Delta RSTKGR$  is positive, but statistically insignificant (t-statistic 1.17). Relating to changes in stock option grants, the coefficient estimates on  $INDIVIDUAL * \Delta OPTGR$  and  $SHRIGHTS * \Delta OPTGR$  are not statistically significant (t-statistics  $-0.21$  and  $-0.56$ ), whereas the coefficient estimate on  $EXPENSE * \Delta OPTGR$  is significantly negative (t-statistic  $-6.10$ ).

As an additional sensitivity test, we also investigate whether our primary findings of a relation between changes in dividends and changes in stock-based compensation are indeed attributable to the shift in shareholders' tax-related payout preferences. To do that, we estimate Eq. (1) using data taken from a time period which precedes the tax rate reduction on dividend income. Specifically, for all sample firms with available data, we compute the change in dividends,  $\Delta DIVIDENDS$ , and changes in grants of restricted stock and stock options,  $\Delta RSTKGR$  and  $\Delta OPTGR$ , using data for fiscal years 2001 and 2000. All other experimental variables are based on data for fiscal year 2001.

Untabulated findings provide evidence consistent with our inferences. Specifically, none of the coefficient estimates on the interactive terms is statistically significant at conventional levels, indicating that the relation between the increased use of dividends in firms' payouts and the increased (decreased) use of restricted stock (stock options) in executive compensation

during our sample period is attributable to the exogenous change in shareholders' tax-related payout preferences following the dividend tax rate cut.

### 5.2.5. Changes in Share Repurchases

Evidence in the prior literature indicates that stock option compensation induces managers to substitute repurchases for dividends (Jolls, 1998; Fenn and Liang, 2001; Kahle, 2002). Thus, we next investigate whether the increase in dividends that is associated with the increased use of restricted stock and the decreased use of stock options reflects a substitution of dividends for repurchases. To do that, we estimate the following equation:

$$\begin{aligned}
 \Delta REPURCHASES = & \sum_{I=1}^{26} \beta_{0I} INDUSTRY_I + \beta_1 INDIVIDUAL * \Delta RSTKGR + \beta_2 INDIVIDUAL * \Delta OPTGR \\
 & + \beta_3 SHRRIGHTS * \Delta RSTKGR + \beta_4 SHRRIGHTS * \Delta OPTGR \\
 & + \beta_5 EXPENSE * \Delta RSTKGR + \beta_6 EXPENSE * \Delta OPTGR \\
 & + \beta_7 \Delta RSTKGR + \beta_8 \Delta OPTGR + \beta_9 INDIVIDUAL + \beta_{10} SHRRIGHTS + \beta_{11} EXPENSE \\
 & + \beta_{12} SIZE + \beta_{13} MB + \beta_{14} RET + \beta_{15} ROA + \beta_{16} SHROWN + \beta_{17} LTD \\
 & + \beta_{18} CAPEXP + \beta_{19} WC + \beta_{20} CFO + \beta_{21} LAG(\Delta REP) + \beta_{22} AGE + \varepsilon_4
 \end{aligned} \tag{4}$$

The dependent variable,  $\Delta REPURCHASES$ , is the difference between the total dollar amount of share repurchases in 2003 and the total amount of repurchases in 2002, deflated by market value of equity at the beginning of 2002.<sup>30</sup>

Table 8 presents summary statistics from estimating Eq. (4). Overall, our inferences from this estimation are consistent with the notion that the shifts in the structure of stock-based compensation are associated with a substitution of dividends for repurchases. Specifically, relating to changes in grants of restricted stock, consistent with our prediction,

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<sup>30</sup> We include in Eq. (4) the one-year lagged change in share repurchases as a control variable. Specifically,  $LAG(\Delta REP)$  is measured as the difference between the total dollar amounts of repurchases in 2002 and in 2001, deflated by market value of equity at the beginning of 2001.

*SHRIGHTS*\* $\Delta$ *RSTKGR* and *EXPENSE*\* $\Delta$ *RSTKGR* are significantly negatively associated with changes in repurchases (t-statistics  $-4.61$  and  $-3.99$ ). These findings indicate that, for firms with stronger shareholder rights and with lower financial reporting costs associated with substituting restricted stock for stock options, the decrease in repurchases following the dividend tax rate cut is more strongly related to the increased use of restricted stock. The coefficient estimate on *INDIVIDUAL*\* $\Delta$ *RSTKGR* is negative, as predicted, but not significantly so (t-statistic  $-1.09$ ). Furthermore, relating to changes in grants of stock options, the coefficient estimate on *INDIVIDUAL*\* $\Delta$ *OPTGR* is significantly positive, as predicted (t-statistic  $2.21$ ). The coefficient estimates on *SHRIGHTS*\* $\Delta$ *OPTGR* and *EXPENSE*\* $\Delta$ *OPTGR* are positive, as predicted, but not significantly so (t-statistics  $0.30$  and  $0.84$ ). Overall, these findings suggest that the shift in shareholders' tax-related payout preferences had some effect on share repurchases, consistent with a substitution of dividends for repurchases.

## **6. Summary and Conclusions**

We investigate the relation between the structure of executive stock-based compensation and firms' cash payouts in the context of shareholders' tax-related payout preferences. We find that the recent reduction in the personal tax rate on dividend income is associated with changes in the structure of executive compensation which help to realign the payout incentives of executives with shareholders' new tax-related payout preferences. In particular, we find that, for firms with a greater percentage ownership by individual investors, with stronger shareholders' rights, and with lower financial reporting costs, the increased use of dividends is more strongly related to an increase in the use of dividend-protected restricted stock, and, to a lesser extent, to a decrease in the use of non-dividend-protected stock options in executive compensation.

Our findings suggest that the increase in dividends following the change in shareholders' tax-related payout preferences is induced primarily by the increased grants of restricted stock. We interpret this finding as evidence that changes in the use of restricted stock align the cash payout preferences of top executives with the tax-related payout preferences of shareholders to a greater extent than do changes in the use of stock options. Thus, altering the structure of executive compensation by reducing the level of stock option grants in and of itself might not lead to an increased use of dividends in firms' payouts.

Overall, our findings provide evidence consistent with our hypothesis that the structure of executive stock-based compensation, particularly the choice between stock options and restricted stock, helps to align managers' cash payout choices with the underlying preferences of shareholders seeking to minimize their taxes. To our knowledge, our study is the first to provide evidence on the role of shareholders' payout preferences in the design of executive compensation plans, contributing to the understanding of the determinants of management incentive contracts.

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*Table 1: Industry classification for sample of 645 firms with executive compensation and cash payout data for fiscal years 2002 and 2003.*

Industry	Sample Firms		Compustat
	N	%	%
Agriculture, Mining	28	4.3	4.8
Construction	12	1.9	0.8
Food, Tobacco	20	3.1	1.8
Textile, Apparel	12	1.9	1.0
Lumber, Furniture	9	1.4	0.8
Paper	15	2.3	0.7
Printing	18	2.8	0.9
Chemicals	56	8.7	7.9
Rubber, Plastics	15	2.3	1.5
Metal	25	3.9	1.8
Machinery	39	6.1	4.9
Electrical Equipment	40	6.2	6.6
Transportation Equipment	21	3.3	1.8
Transportation Services	16	2.5	2.2
Communications	10	1.6	3.4
Utilities	58	9.0	4.3
Durables – Wholesale	9	1.4	1.9
Nondurables - Wholesale	9	1.4	1.1
Retail	17	2.6	0.9
Eating and Drinking	14	2.2	1.3
Misc. Retail	12	1.9	1.6
Banks	60	9.3	12.5
Insurance Services	48	7.4	3.0
Lodging	8	1.2	0.7
Business Services	52	8.1	12.2
Other	22	3.2	8.4
Total	645	100.0	100.0

Table 2: Univariate descriptive statistics for sample of 645 firms with executive compensation and cash payout data for fiscal years 2002 and 2003.

	Mean	Median	Std dev.
<b>Payouts in 2002 (as a % of market value)</b>			
Cash dividends	1.69%	1.28%	1.73%
Share repurchases	1.75%	0.63%	3.05%
Total cash payout (dividends and repurchases)	3.44%	2.76%	3.30%
Dividends as a % of total payout	54.25%	56.36%	41.26%
<b>Payouts in 2003 (as a % of market value)</b>			
Cash dividends	2.56%	1.44%	1.67%
Share repurchases	1.09%	0.56%	2.23%
Total cash payout (dividends and repurchases)	3.31%	2.00%	1.82%
Dividends as a % of total payout	55.63%	61.61%	41.50%
<b>CEO compensation in 2002 (as a % of market value)</b>			
Stock option grant values	0.09%	0.04%	0.18%
Restricted stock grant values	0.02%	0.00%	0.08%
<b>CEO compensation in 2003 (as a % of market value)</b>			
Stock option grant values	0.06%	0.03%	0.11%
Restricted stock grant values	0.03%	0.00%	0.11%
<b>Firm characteristics</b>			
Market value of equity (in \$ billion)	11.69	2.41	33.95
Market-to-book ratio	3.08	2.22	3.28
Lagged annual stock return (in %)	35.23	28.49	39.71
Return-on-assets	0.04	0.04	0.08
CEO stock ownership (% of shares outstanding)	1.79	0.25	4.86
Individual investor ownership (% shares outstanding)	38.01	37.55	17.61
Shareholder rights index	8.69	9.00	2.82
Stock option expense recognition	0.14	0.00	0.34
Long-term debt (deflated by market value)	0.46	0.22	0.72
Capital Expenditures (deflated by market value)	0.07	0.04	0.10
Working capital (deflated by market value)	0.22	0.13	0.32
Cash from operations (deflated by market value)	0.17	0.12	0.35
Lagged dividend change (deflated by market value)	0.02	0.01	0.02
Firm's age (in years)	24.33	24.00	13.34

Cash dividends are based on the total dollar amount of dividends paid on common stock during the year (COMPUSTAT data item # 21). Share repurchases are based on the total dollar amount of repurchased stock during the year, as reported in the statement of cash flows (COMPUSTAT data item # 115). The total dollar value of stock option grants to the firm's CEO are based on the values computed by ExecuComp. The total dollar value of grants of restricted stock are disclosed in firms' proxy statements and compiled by ExecuComp.

Individual investor ownership percentage is measured as one minus the percentage institutional holding reported on the CDA/Spectrum Institutional (13-F) holding database. The shareholder rights index is compiled by the Investor Responsibility Research Center (IRRC), based on 23 corporate governance provisions that measure shareholders' rights. Stock option expense recognition firms are the firms that recognize the cost of stock options as an expense in net income. These firms have announced their intention to recognize stock option expense prior to the enactment of the Act in 2003, based on the Bear Stearns Equity Research report.

Table 3: The association between changes in dividends and changes in grants of restricted stock and stock options to the firm's CEO following the 2003 dividend tax rate reduction. Sample of 645 firms with executive compensation and cash payout data for fiscal years 2002 and 2003. Summary statistics from a robust regression of the following equation:

$$\begin{aligned} \Delta DIVIDENDS = & \sum_{I=1}^{26} \beta_{0I} INDUSTRY_I + \beta_1 INDIVIDUAL * \Delta RSTKGR + \beta_2 INDIVIDUAL * \Delta OPTGR \\ & + \beta_3 SHRIGHTS * \Delta RSTKGR + \beta_4 SHRIGHTS * \Delta OPTGR \\ & + \beta_5 EXPENSE * \Delta RSTKGR + \beta_6 EXPENSE * \Delta OPTGR \\ & + \beta_7 \Delta RSTKGR + \beta_8 \Delta OPTGR + \beta_9 INDIVIDUAL + \beta_{10} SHRIGHTS + \beta_{11} EXPENSE \\ & + \beta_{12} SIZE + \beta_{13} MB + \beta_{14} RET + \beta_{15} ROA + \beta_{16} SHROWN + \beta_{17} LTD \\ & + \beta_{18} CAPEXP + \beta_{19} WC + \beta_{20} CFO + \beta_{21} LAG(\Delta DIV) + \beta_{22} AGE + \varepsilon_1 \end{aligned}$$

Variable	Pred. Sign	Coefficient Estimate	t-statistic
<i>INDIVIDUAL * ΔRSTKGR</i>	+	0.856	3.48
<i>INDIVIDUAL * ΔOPTGR</i>	-	-0.055	-0.67
<i>SHRIGHTS * ΔRSTKGR</i>	+	0.621	6.72
<i>SHRIGHTS * ΔOPTGR</i>	-	0.014	0.27
<i>EXPENSE * ΔRSTKGR</i>	+	-0.024	-0.21
<i>EXPENSE * ΔOPTGR</i>	-	-0.728	-7.68
<i>ΔRSTKGR</i>		-0.254	-3.48
<i>ΔOPTGR</i>		0.069	1.51
<i>INDIVIDUAL</i>		0.001	1.10
<i>SHRIGHTS</i>		-0.001	-2.55
<i>EXPENSE</i>		0.001	0.71
<i>SIZE</i>		0.001	2.52
<i>MB</i>		0.001	0.78
<i>RET</i>		-0.001	-0.77
<i>ROA</i>		0.001	1.46
<i>SHROWN</i>		0.001	1.98
<i>LTD</i>		0.001	3.76
<i>CAPEXP</i>		-0.001	-0.71
<i>WC</i>		-0.001	-1.16
<i>CFO</i>		0.001	2.76
<i>LAG(ΔDIV)</i>		0.095	7.35
<i>AGE</i>		0.001	2.59
<i>N</i>		645	
<i>Pseudo R<sup>2</sup></i>		0.508	

The dependent variable,  $\Delta DIVIDENDS$ , is the difference between the total amount of dividends paid in 2003 and the total amount paid in 2002, deflated by market value of equity at the beginning of 2002.

$\Delta RSTKGR$  is the dollar value of restricted stock grants to the firm's CEO in 2003 minus the dollar value of restricted stock grants in 2002, deflated by market value of equity at the beginning of 2002.  $\Delta OPTGR$  is the Black-Scholes value of stock option grants to the firm's CEO in 2003 minus the Black-Scholes value of stock option grants in 2002, deflated by market value of equity at the beginning of 2002.

$INDIVIDUAL$  is a proxy for the percentage ownership of individual investors, measured as one minus the percentage institutional holding reported on the CDA/Spectrum Institutional (13-F) holding database.  $SHRIGHTS$  is an indicator variable taking the value of one for firms in the first quartile of the distribution of the index compiled by the Investor Responsibility Research Center (IRRC), based on 23 corporate governance provisions that measure shareholders' rights, and zero otherwise.  $EXPENSE$  is an indicator variable taking the value of one for firms that recognize the cost of their stock options as an expense in net income prior to 2003, and zero otherwise.

$SIZE$  is the logarithm of market value of equity at fiscal year end.  $MB$  is the ratio of market value of equity to book value of equity at fiscal year-end.  $RET$  is lagged annual stock return.  $ROA$  is net income deflated by total assets.  $SHROWN$  is the number of shares held by the CEO at fiscal year-end, deflated by number of shares outstanding.  $LTD$  is long-term debt,  $CAPEXP$  is annual capital expenditures,  $WC$  is working capital (defined as current assets minus current liabilities), and  $CFO$  is cash from operations;  $LTD$ ,  $CAPEXP$ ,  $WC$ , and  $CFO$  are deflated by market value of equity at the beginning of 2002.  $LAG(\Delta DIV)$  is the lagged change in dividends, defined as the difference between the total amount of dividends paid in 2002 and the total amount paid in 2001, deflated by market value of equity at the beginning of 2001.  $AGE$  is company's age as measured by the number of years in which the company is publicly traded.  $INDUSTRY_I$  is an indicator that equals one for firms in industry  $I$ , and zero otherwise.  $INDUSTRY$  is based on the 26 industry classifications reported in Table 1. Industry-specific intercepts are untabulated.

Table 4: A two-stage least squared estimation of the association between changes in dividends and changes in grants of restricted stock to firms' CEOs following the 2003 dividend tax rate reduction.

Panel A: First stage regression:

$$\Delta RSTKGR = \gamma_0 + \gamma_1 \Delta OPTGR + \gamma_2 INDIVIDUAL + \gamma_3 SHRIGHTS + \gamma_4 EXPENSE + \varepsilon_{2a}$$

Variable	Pred. Sign	Coefficient Estimate	t-statistic
<i>Intercept</i>		-0.001	-0.91
<i>ΔOPTGR</i>	-	0.002	0.21
<i>INDIVIDUAL</i>	+	0.001	2.22
<i>SHRIGHTS</i>	+	-0.001	-0.15
<i>EXPENSE</i>	+	-0.001	-0.04
<i>N</i>		645	
<i>Adjusted R<sup>2</sup></i>		0.01	

Panel B: Second stage regression:

$$\begin{aligned} \Delta DIVIDENDS = & \sum_{I=1}^{26} \lambda_{0I} INDUSTRY_I + \lambda_1 \Delta RSTKGR\_PRED \\ & + \lambda_2 SIZE + \lambda_3 MB + \lambda_4 RET + \lambda_5 ROA + \lambda_6 SHROWN + \lambda_7 LTD \\ & + \lambda_8 CAPEXP + \lambda_9 WC + \lambda_{10} CFO + \lambda_{11} LAG(\Delta DIV) + \lambda_{12} AGE + \varepsilon_{2b} \end{aligned}$$

Variable	Pred. Sign	Coefficient Estimate	t-statistic
<i>Δ RSTKGR_PRED</i>	+	0.420	3.49
<i>SIZE</i>		0.001	2.73
<i>MB</i>		0.001	0.45
<i>RET</i>		-0.001	-0.31
<i>ROA</i>		0.001	1.05
<i>SHROWN</i>		0.001	0.91
<i>LTD</i>		0.001	4.93
<i>CAPEXP</i>		-0.001	-1.66
<i>WC</i>		-0.001	-0.79
<i>CFO</i>		0.001	4.00
<i>LAG(ΔDIV)</i>		0.074	8.24
<i>AGE</i>		0.001	3.33
<i>N</i>		645	
<i>Pseudo R<sup>2</sup></i>		0.429	

$\Delta RSTKGR$  is the dollar value of restricted stock grants to the firm's CEO in 2003 minus the dollar value of restricted stock grants in 2002, deflated by market value of equity at the beginning of 2002.  $\Delta OPTGR$  is the Black-Scholes value of stock option grants to the firm's CEO in 2003 minus the Black-Scholes value of stock option grants in 2002, deflated by market value of equity at the beginning of 2002.  $\Delta RSTKGR\_PRED$  is the predicted value from the first-stage regression.

$\Delta DIVIDENDS$  is the difference between the total amount of dividends paid in 2003 and the total amount paid in 2002, deflated by market value of equity at the beginning of 2002.

$INDIVIDUAL$  is a proxy for the percentage ownership of individual investors, measured as one minus the percentage institutional holding reported on the CDA/Spectrum Institutional (13-F) holding database.  $SHRIGHTS$  is an indicator variable taking the value of one for firms in the first quartile of the distribution of the index compiled by the Investor Responsibility Research Center (IRRC), based on 23 corporate governance provisions that measure shareholders' rights, and zero otherwise.  $EXPENSE$  is an indicator variable taking the value of one for firms that recognize the cost of their stock options as an expense in net income prior to 2003, and zero otherwise.

$SIZE$  is the logarithm of market value of equity at fiscal year end.  $MB$  is the ratio of market value of equity to book value of equity at fiscal year-end.  $RET$  is lagged annual stock return.  $ROA$  is net income deflated by total assets.  $SHROWN$  is the number of shares held by the CEO at fiscal year-end, deflated by number of shares outstanding.  $LTD$  is long-term debt,  $CAPEXP$  is annual capital expenditures,  $WC$  is working capital (defined as current assets minus current liabilities), and  $CFO$  is cash from operations;  $LTD$ ,  $CAPEXP$ ,  $WC$ , and  $CFO$  are deflated by market value of equity at the beginning of 2002.  $LAG(\Delta DIV)$  is the lagged change in dividends, defined as the difference between the total amount of dividends paid in 2002 and the total amount paid in 2001, deflated by market value of equity at the beginning of 2001.  $AGE$  is company's age as measured by the number of years in which the company is publicly traded.  $INDUSTRY_I$  is an indicator that equals one for firms in industry  $I$ , and zero otherwise.  $INDUSTRY$  is based on the 26 industry classifications reported in Table 1. Industry-specific intercepts are untabulated.

Table 5: The effect of the sensitivity of the value of CEO option holding to an increase in dividends on the association between changes in dividends and changes in grants of restricted stock and stock options following the 2003 dividend tax rate reduction.

Variable	Pred. Sign	Coeff. Est.	t-stat
<i>INDIVIDUAL*ΔRSTKGR*SENSITIVITY</i>	+	0.499	2.21
<i>INDIVIDUAL*ΔOPTGR*SENSITIVITY</i>	-	-0.036	-0.70
<i>SHRIGHTS*ΔRSTKGR*SENSITIVITY</i>	+	0.449	2.98
<i>SHRIGHTS*ΔOPTGR*SENSITIVITY</i>	-	0.001	0.02
<i>EXPENSE*ΔRSTKGR*SENSITIVITY</i>	+	2.561	3.01
<i>EXPENSE*ΔOPTGR*SENSITIVITY</i>	-	-0.148	-0.56
<i>INDIVIDUAL*ΔRSTKGR</i>		0.786	4.68
<i>INDIVIDUAL*ΔOPTGR</i>		0.024	0.24
<i>SHRIGHTS*ΔRSTKGR</i>		0.093	0.88
<i>SHRIGHTS*ΔOPTGR</i>		0.076	2.08
<i>EXPENSE*ΔRSTKGR</i>		-3.505	-4.19
<i>EXPENSE*ΔOPTGR</i>		-1.370	-6.90
<i>ΔRSTKGR</i>		-0.286	-4.56
<i>ΔOPTGR</i>		-0.006	-0.10
<i>INDIVIDUAL</i>		0.001	1.46
<i>SHRIGHTS</i>		-0.001	-0.08
<i>EXPENSE</i>		0.001	2.71
<i>SIZE</i>		0.001	1.74
<i>MB</i>		0.001	0.46
<i>RET</i>		0.001	0.07
<i>ROA</i>		0.001	1.98
<i>SHROWN</i>		0.001	0.52
<i>SENSITIVITY</i>		-0.001	-0.92
<i>LTD</i>		-0.001	-0.56
<i>CAPEXP</i>		-0.001	-1.23
<i>WC</i>		-0.001	-0.33
<i>CFO</i>		0.002	4.83
<i>LAG(ΔDIV)</i>		0.057	4.56
<i>AGE</i>		0.001	3.74
<i>N</i>		575	
<i>Pseudo R<sup>2</sup></i>		0.63	

Summary statistics from a robust regression of the following equation:

$$\begin{aligned}
 \Delta DIVIDENDS = & \sum_{I=1}^{26} \theta_{0I} INDUSTRY_I \\
 & + \theta_1 INDIVIDUAL * \Delta RSTKGR * SENSITIVITY + \theta_2 INDIVIDUAL * \Delta OPTGR * SENSITIVITY \\
 & + \theta_3 SHRIGHTS * \Delta RSTKGR * SENSITIVITY + \theta_4 SHRIGHTS * \Delta OPTGR * SENSITIVITY \\
 & + \theta_5 EXPENSE * \Delta RSTKGR * SENSITIVITY + \theta_6 EXPENSE * \Delta OPTGR * SENSITIVITY \\
 & + \theta_7 INDIVIDUAL * \Delta RSTKGR + \theta_8 INDIVIDUAL * \Delta OPTGR \\
 & + \theta_9 SHRIGHTS * \Delta RSTKGR + \theta_{10} SHRIGHTS * \Delta OPTGR \\
 & + \theta_{11} EXPENSE * \Delta RSTKGR + \theta_{12} EXPENSE * \Delta OPTGR \\
 & + \theta_{13} \Delta RSTKGR + \theta_{14} \Delta OPTGR + \theta_{15} INDIVIDUAL + \theta_{16} SHRIGHTS + \theta_{17} EXPENSE \\
 & + \theta_{18} SIZE + \theta_{19} MB + \theta_{20} RET + \theta_{21} ROA + \theta_{22} SHROWN + \theta_{23} SENSITIVITY + \theta_{24} LTD \\
 & + \theta_{25} CAPEXP + \theta_{26} WC + \theta_{27} CFO + \theta_{28} LAG(\Delta DIV) + \theta_{29} AGE + \varepsilon_3
 \end{aligned}$$

The dependent variable,  $\Delta DIVIDENDS$ , is the difference between the total amount of dividends paid in 2003 and the total amount paid in 2002, deflated by market value of equity at the beginning of 2002.

$\Delta RSTKGR$  is the dollar value of restricted stock grants to the firm's CEO in 2003 minus the dollar value of restricted stock grants in 2002, deflated by market value of equity at the beginning of 2002.  $\Delta OPTGR$  is the Black-Scholes value of stock option grants to the firm's CEO in 2003 minus the Black-Scholes value of stock option grants in 2002, deflated by market value of equity at the beginning of 2002.

$SENSITIVITY$  is an indicator variable equal to one (zero) when the sensitivity of the value of the CEO option holding to a 1% increase in dividend yield is below (above) the sample median. The value of option holdings is calculated using the Black-Scholes model (modified to account for dividend payouts following Merton, 1973) with the following inputs: share price as of December 31, 2002, exercise price, expected life to expiration, historical stock price volatility measured over the most recent period similar to expected option life, historical dividend yield for the most recent year, and the average yield on zero coupon Treasury Bills. Each calculated option value is then multiplied by the number of options outstanding for that option layer, resulting in total value of CEO options outstanding as of December 31, 2002.

$INDIVIDUAL$  is a proxy for the percentage ownership of individual investors, measured as one minus the percentage institutional holding reported on the CDA/Spectrum Institutional (13-F) holding database.  $SHRIGHTS$  is an indicator variable taking the value of one for firms in the first quartile of the distribution of the index compiled by the Investor Responsibility Research Center (IRRC), based on 23 corporate governance provisions that measure shareholders' rights, and zero otherwise.  $EXPENSE$  is an indicator variable taking the value of one for firms that recognize the cost of their stock options as an expense in net income prior to 2003, and zero otherwise.

$SIZE$  is the logarithm of market value of equity at fiscal year end.  $MB$  is the ratio of market value of equity to book value of equity at fiscal year-end.  $RET$  is lagged annual stock return.

*ROA* is net income deflated by total assets. *SHROWN* is the number of shares held by the CEO at fiscal year-end, deflated by number of shares outstanding. *LTD* is long-term debt, *CAPEXP* is annual capital expenditures, *WC* is working capital (defined as current assets minus current liabilities), and *CFO* is cash from operations; *LTD*, *CAPEXP*, *WC*, and *CFO* are deflated by market value of equity at the beginning of 2002. *LAG( $\Delta$ DIV)* is the lagged change in dividends, defined as the difference between the total amount of dividends paid in 2002 and the total amount paid in 2001, deflated by market value of equity at the beginning of 2001. *AGE* is company's age as measured by the number of years in which the company is publicly traded. *INDUSTRY<sub>I</sub>* is an indicator that equals one for firms in industry *I*, and zero otherwise. *INDUSTRY* is based on the 26 industry classifications reported in Table 1. Industry-specific intercepts are untabulated.

Table 6: The effects of incorporating firms with zero cash payout. Estimation results based on the sample of 645 firms with positive cash payout plus a group of 303 firms with zero payouts in 2002.

Variable	Pred. Sign	Coefficient Estimate	t-statistic
<i>INDIVIDUAL</i> * $\Delta$ <i>RSTKGR</i>	+	-0.017	-0.38
<i>INDIVIDUAL</i> * $\Delta$ <i>OPTGR</i>	-	-0.001	-0.17
<i>SHRIGHTS</i> * $\Delta$ <i>RSTKGR</i>	+	0.016	0.22
<i>SHRIGHTS</i> * $\Delta$ <i>OPTGR</i>	-	-0.004	-1.35
<i>EXPENSE</i> * $\Delta$ <i>RSTKGR</i>	+	0.315	19.07
<i>EXPENSE</i> * $\Delta$ <i>OPTGR</i>	-	-0.540	-26.01
$\Delta$ <i>RSTKGR</i>		0.013	1.15
$\Delta$ <i>OPTGR</i>		0.011	0.32
<i>INDIVIDUAL</i>		0.001	2.63
<i>SHRIGHTS</i>		0.001	0.59
<i>EXPENSE</i>		0.001	6.34
<i>SIZE</i>		0.001	4.08
<i>MB</i>		0.001	1.57
<i>RET</i>		-0.001	-2.51
<i>ROA</i>		0.001	1.56
<i>SHROWN</i>		-0.001	-1.68
<i>LTD</i>		-0.001	-4.59
<i>CAPEXP</i>		0.001	2.41
<i>WC</i>		0.001	0.86
<i>CFO</i>		0.001	2.67
<i>LAG</i> ( $\Delta$ <i>DIV</i> )		0.074	3.43
<i>AGE</i>		0.001	6.52
<i>N</i>		948	
Pseudo $R^2$		0.741	

Summary statistics from a robust regression estimation of the following equation:

$$\begin{aligned} \Delta DIVIDENDS = & \sum_{I=1}^{26} \beta_{0I} INDUSTRY_I + \beta_1 INDIVIDUAL * \Delta RSTKGR + \beta_2 INDIVIDUAL * \Delta OPTGR \\ & + \beta_3 SHRIGHTS * \Delta RSTKGR + \beta_4 SHRIGHTS * \Delta OPTGR \\ & + \beta_5 EXPENSE * \Delta RSTKGR + \beta_6 EXPENSE * \Delta OPTGR \\ & + \beta_7 \Delta RSTKGR + \beta_8 \Delta OPTGR + \beta_9 INDIVIDUAL + \beta_{10} SHRIGHTS + \beta_{11} EXPENSE \\ & + \beta_{12} SIZE + \beta_{13} MB + \beta_{14} RET + \beta_{15} ROA + \beta_{16} SHROWN + \beta_{17} LTD \\ & + \beta_{18} CAPEXP + \beta_{19} WC + \beta_{20} CFO + \beta_{21} LAG(\Delta DIV) + \beta_{22} AGE + \varepsilon_1 \end{aligned}$$

The dependent variable,  $\Delta DIVIDENDS$ , is the difference between the total amount of dividends paid in 2003 and the total amount paid in 2002, deflated by market value of equity at the beginning of 2002.

$\Delta RSTKGR$  is the dollar value of restricted stock grants to the firm's CEO in 2003 minus the dollar value of restricted stock grants in 2002, deflated by market value of equity at the beginning of 2002.  $\Delta OPTGR$  is the Black-Scholes value of stock option grants to the firm's CEO in 2003 minus the Black-Scholes value of stock option grants in 2002, deflated by market value of equity at the beginning of 2002.

$INDIVIDUAL$  is a proxy for the percentage ownership of individual investors, measured as one minus the percentage institutional holding reported on the CDA/Spectrum Institutional (13-F) holding database.  $SHRIGHTS$  is an indicator variable taking the value of one for firms in the first quartile of the distribution of the index compiled by the Investor Responsibility Research Center (IRRC), based on 23 corporate governance provisions that measure shareholders' rights, and zero otherwise.  $EXPENSE$  is an indicator variable taking the value of one for firms that recognize the cost of their stock options as an expense in net income prior to 2003, and zero otherwise.

$SIZE$  is the logarithm of market value of equity at fiscal year end.  $MB$  is the ratio of market value of equity to book value of equity at fiscal year-end.  $RET$  is lagged annual stock return.  $ROA$  is net income deflated by total assets.  $SHROWN$  is the number of shares held by the CEO at fiscal year-end, deflated by number of shares outstanding.  $LTD$  is long-term debt,  $CAPEXP$  is annual capital expenditures,  $WC$  is working capital (defined as current assets minus current liabilities), and  $CFO$  is cash from operations;  $LTD$ ,  $CAPEXP$ ,  $WC$ , and  $CFO$  are deflated by market value of equity at the beginning of 2002.  $LAG(\Delta DIV)$  is the lagged change in dividends, defined as the difference between the total amount of dividends paid in 2002 and the total amount paid in 2001, deflated by market value of equity at the beginning of 2001.  $AGE$  is company's age as measured by the number of years in which the company is publicly traded.  $INDUSTRY_I$  is an indicator that equals one for firms in industry  $I$ , and zero otherwise.  $INDUSTRY$  is based on the 26 industry classifications reported in Table 1. Industry-specific intercepts are untabulated.

*Table 7: The association between changes in dividends and changes in grants of restricted stock and stock options to firms' CEOs following the 2003 dividend tax rate reduction. Sample of 645 firms with executive compensation and cash payout data for fiscal years 2002 and 2004.*

Variable	Pred. Sign	Coefficient Estimate	t-statistic
<i>INDIVIDUAL*<math>\Delta</math>RSTKGR</i>	+	2.046	3.29
<i>INDIVIDUAL*<math>\Delta</math>OPTGR</i>	-	-0.037	-0.21
<i>SHRIGHTS*<math>\Delta</math>RSTKGR</i>	+	1.861	6.37
<i>SHRIGHTS*<math>\Delta</math>OPTGR</i>	-	-0.111	-0.56
<i>EXPENSE*<math>\Delta</math>RSTKGR</i>	+	0.375	1.17
<i>EXPENSE*<math>\Delta</math>OPTGR</i>	-	-1.412	-6.10
<i><math>\Delta</math>RSTKGR</i>		-0.890	-5.26
<i><math>\Delta</math>OPTGR</i>		0.171	1.23
<i>INDIVIDUAL</i>		0.001	0.51
<i>SHRIGHTS</i>		-0.001	-2.96
<i>EXPENSE</i>		0.001	0.61
<i>SIZE</i>		0.001	2.24
<i>MB</i>		0.001	1.30
<i>RET</i>		-0.001	-2.08
<i>ROA</i>		0.004	2.67
<i>SHROWN</i>		0.009	3.86
<i>LTD</i>		0.002	5.53
<i>CAPEXP</i>		-0.003	-0.47
<i>WC</i>		-0.001	-1.88
<i>CFO</i>		0.002	2.65
<i>LAG(<math>\Delta</math>DIV)</i>		0.290	8.07
<i>AGE</i>		-0.001	-0.20
<i>N</i>		645	
<i>Pseudo R<sup>2</sup></i>		0.435	

Summary statistics from a robust regression of the following equation:

$$\begin{aligned} \Delta DIVIDENDS = & \sum_{I=1}^{26} \beta_{0I} INDUSTRY_I + \beta_1 INDIVIDUAL * \Delta RSTKGR + \beta_2 INDIVIDUAL * \Delta OPTGR \\ & + \beta_3 SHRRIGHTS * \Delta RSTKGR + \beta_4 SHRRIGHTS * \Delta OPTGR \\ & + \beta_5 EXPENSE * \Delta RSTKGR + \beta_6 EXPENSE * \Delta OPTGR \\ & + \beta_7 \Delta RSTKGR + \beta_8 \Delta OPTGR + \beta_9 INDIVIDUAL + \beta_{10} SHRRIGHTS + \beta_{11} EXPENSE \\ & + \beta_{12} SIZE + \beta_{13} MB + \beta_{14} RET + \beta_{15} ROA + \beta_{16} SHROWN + \beta_{17} LTD \\ & + \beta_{18} CAPEXP + \beta_{19} WC + \beta_{20} CFO + \beta_{21} LAG(\Delta DIV) + \beta_{22} AGE + \varepsilon_1 \end{aligned}$$

The dependent variable,  $\Delta DIVIDENDS$ , is the difference between the total amount of dividends paid in 2004 and the total amount of dividends paid in 2002, deflated by market value of equity at the beginning of 2002.

$\Delta RSTKGR$  is the dollar value of restricted stock grants to the firm's CEO in 2003 minus the dollar value of restricted stock grants in 2002, deflated by market value of equity at the beginning of 2002.  $\Delta OPTGR$  is the Black-Scholes value of stock option grants to the firm's CEO in 2003 minus the Black-Scholes value of stock option grants in 2002, deflated by market value of equity at the beginning of 2002.

$INDIVIDUAL$  is a proxy for the percentage ownership of individual investors, measured as one minus the percentage institutional holding reported on the CDA/Spectrum Institutional (13-F) holding database.  $SHRRIGHTS$  is an indicator variable taking the value of one for firms in the first quartile of the distribution of the index compiled by the Investor Responsibility Research Center (IRRC), based on 23 corporate governance provisions that measure shareholders' rights, and zero otherwise.  $EXPENSE$  is an indicator variable taking the value of one for firms that recognize the cost of their stock options as an expense in net income prior to 2003, and zero otherwise.

$SIZE$  is the logarithm of market value of equity at fiscal year end.  $MB$  is the ratio of market value of equity to book value of equity at fiscal year-end.  $RET$  is lagged annual stock return.  $ROA$  is net income deflated by total assets.  $SHROWN$  is the number of shares held by the CEO at fiscal year-end, deflated by number of shares outstanding.  $LTD$  is long-term debt,  $CAPEXP$  is annual capital expenditures,  $WC$  is working capital (defined as current assets minus current liabilities), and  $CFO$  is cash from operations;  $LTD$ ,  $CAPEXP$ ,  $WC$ , and  $CFO$  are deflated by market value of equity at the beginning of 2002.  $LAG(\Delta DIV)$  is the lagged change in dividends, defined as the difference between the total amount of dividends paid in 2002 and the total amount paid in 2001, deflated by market value of equity at the beginning of 2001.  $AGE$  is company's age as measured by the number of years in which the company is publicly traded.  $INDUSTRY_I$  is an indicator that equals one for firms in industry  $I$ , and zero otherwise.  $INDUSTRY$  is based on the 26 industry classifications reported in Table 1. Industry-specific intercepts are untabulated.

*Table 8: The association between changes in share repurchases and changes in grants of restricted stock and stock options to firms' CEOs following the 2003 dividend tax rate reduction. Sample of 645 firms with executive compensation and cash payout data for fiscal years 2002 and 2003.*

Variable	Pred. Sign	Coefficient Estimate	t-statistic
<i>INDIVIDUAL*ΔRSTKGR</i>	-	-1.346	-1.09
<i>INDIVIDUAL*ΔOPTGR</i>	+	2.427	2.21
<i>SHRIGHTS*ΔRSTKGR</i>	-	-3.177	-4.61
<i>SHRIGHTS*ΔOPTGR</i>	+	0.209	0.30
<i>EXPENSE*ΔRSTKGR</i>	-	-4.575	-3.99
<i>EXPENSE*ΔOPTGR</i>	+	0.257	0.84
<i>ΔRSTKGR</i>		0.192	0.34
<i>ΔOPTGR</i>		1.284	1.36
<i>INDIVIDUAL</i>		-0.003	-0.94
<i>SHRIGHTS</i>		0.002	1.68
<i>EXPENSE</i>		-0.002	-1.63
<i>SIZE</i>		-0.001	-0.51
<i>MB</i>		-0.001	-0.92
<i>RET</i>		-0.001	-1.65
<i>ROA</i>		0.014	2.89
<i>SHROWN</i>		-0.003	-0.30
<i>LTD</i>		0.001	0.31
<i>CAPEXP</i>		-0.004	-0.68
<i>WC</i>		0.001	0.78
<i>CFO</i>		0.001	0.51
<i>LAG(ΔREP)</i>		-0.167	-5.63
<i>AGE</i>		0.001	0.29
<i>N</i>		645	
<i>Pseudo R<sup>2</sup></i>		0.301	

Summary statistics from a robust regression of the following equation:

$$\begin{aligned} \Delta REPURCHASES = & \sum_{I=1}^{26} \beta_{0I} INDUSTRY_I + \beta_1 INDIVIDUAL * \Delta RSTKGR + \beta_2 INDIVIDUAL * \Delta OPTGR \\ & + \beta_3 SHRIGHTS * \Delta RSTKGR + \beta_4 SHRIGHTS * \Delta OPTGR \\ & + \beta_5 EXPENSE * \Delta RSTKGR + \beta_6 EXPENSE * \Delta OPTGR \\ & + \beta_7 \Delta RSTKGR + \beta_8 \Delta OPTGR + \beta_9 INDIVIDUAL + \beta_{10} SHRIGHTS + \beta_{11} EXPENSE \\ & + \beta_{12} SIZE + \beta_{13} MB + \beta_{14} RET + \beta_{15} ROA + \beta_{16} SHROWN + \beta_{17} LTD \\ & + \beta_{18} CAPEXP + \beta_{19} WC + \beta_{20} CFO + \beta_{21} LAG(\Delta REP) + \beta_{22} AGE + \varepsilon_4 \end{aligned}$$

The dependent variable,  $\Delta REPURCHASES$ , is the net dollar amount of share repurchases in 2003 less the amount of repurchases in 2002, deflated by market value of equity at the beginning of fiscal year 2002.

$\Delta RSTKGR$  is the dollar value of restricted stock grants to the firm's CEO in 2003 minus the dollar value of restricted stock grants in 2002, deflated by market value of equity at the beginning of 2002.  $\Delta OPTGR$  is the Black-Scholes value of stock option grants to the firm's CEO in 2003 minus the Black-Scholes value of stock option grants in 2002, deflated by market value of equity at the beginning of 2002.

$INDIVIDUAL$  is a proxy for the percentage ownership of individual investors, measured as one minus the percentage institutional holding reported on the CDA/Spectrum Institutional (13-F) holding database.  $SHRIGHTS$  is an indicator variable taking the value of one for firms in the first quartile of the distribution of the index compiled by the Investor Responsibility Research Center (IRRC), based on 23 corporate governance provisions that measure shareholders' rights, and zero otherwise.  $EXPENSE$  is an indicator variable taking the value of one for firms that recognize the cost of their stock options as an expense in net income prior to 2003, and zero otherwise.

$SIZE$  is the logarithm of market value of equity at fiscal year end.  $MB$  is the ratio of market value of equity to book value of equity at fiscal year-end.  $RET$  is lagged annual stock return.  $ROA$  is net income deflated by total assets.  $SHROWN$  is the number of shares held by the CEO at fiscal year-end, deflated by number of shares outstanding.  $LTD$  is long-term debt,  $CAPEXP$  is annual capital expenditures,  $WC$  is working capital (defined as current assets minus current liabilities), and  $CFO$  is cash from operations;  $LTD$ ,  $CAPEXP$ ,  $WC$ , and  $CFO$  are deflated by market value of equity at the beginning of 2002.  $LAG(\Delta REP)$  is the lagged change in share repurchases, defined as the difference between share repurchases in 2002 and in 2001, deflated by market value of equity at the beginning of 2001.  $AGE$  is company's age as measured by the number of years in which the company is publicly traded.  $INDUSTRY_I$  is an indicator that equals one for firms in industry  $I$ , and zero otherwise.  $INDUSTRY$  is based on the 26 industry classifications reported in Table 1. Industry-specific intercepts are untabulated.