Stock Options and Total Payout

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Abstract

In this paper, we examine how stock option usage affects total corporate payout. Using fixed-effects panel data estimators on various samples of *Execucomp* firms from 1993 to 2005, we find the higher the executive stock options, the lower the total payout, *ceteris paribus*. We also find some evidence that firms increase payouts through repurchases in order to offset EPS dilution that occurs due to usage of executive and non-executive stock options. However, incentives from not having dividend protection for options appear to dominate that of anti-dilution, resulting in lower total payout for firms with higher options usage.

JEL Classifications: G30, G32, G35, J33, M52.

Key Words: Dividends, payout, executive compensation, incentives, stock options, share repurchases, issuances, earnings dilution.

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I. Introduction

Executive compensation contracts are often designed using stock options to better align the interests of managers with those of shareholders. While option-based compensation has been shown to increase pay-for-performance sensitivity (see Murphy (1999) and Core et al. (2005) for comprehensive surveys), stock option awards are often criticized for providing managers a tool to extract rents from shareholders (e.g., Yermack (1995), (1997), Bebchuk and Fried (2004), Bertrand and Mullainathan (2001), and Dittman and Maug (2007)). Fenn and Liang (2001) report that firms with more executive stock options have lower dividend payouts that are only partly offset by repurchases. While not the focus of their paper, their findings suggests that executive stock option usage can lower total payout and thereby potentially exacerbate the free cash flow problem. A thorough examination of this issue and other potentially adverse consequences related to the use of stock option incentives is timely given the large increase in the use of stock option incentives in U.S. firms (e.g., Hall and Liebman (1998), and Ofek and Yermack (2000)).

We provide the first comprehensive examination on how stock option incentives affect total payout. The use of options can influence corporate payout in multiple ways; for example, lack of dividend protection for options provides a disincentive to pay dividends, while stock repurchases could increase the value of unexercised options or alternatively be used to offset potential EPS dilution (Weisbenner (2000), Fenn and Liang (2001), and Kahle (2002)). Kahle (2002) examined how options affect the dividend/repurchase choice, but not how options affect total payout. Meanwhile, Fenn and Liang (2001) examined how managerial stock-based

compensation affects corporate payout, but ignored payout potentially designed to offset EPS dilution. Weisbenner (2000) examined corporate payout and used total outstanding options as a proxy for the dilutive effect of options usage on EPS, even though only in-the-money stock options are dilutive according to SFAS No. 128 accounting rules. We examine the influence of stock option usage on total payout using a better proxy for the EPS dilution effect. Our proxy is the annual percentage change in diluted shares outstanding adjusted for repurchases during the year. This proxy allows us to separate the effects of the lack of dividend protection for options and anti-dilution incentives on total payout, and thus shed light on the net effect of stock option usage on total payout.

We also examine a measure of payout that nets out cash inflows received by the firm from shareholders and option holders (e.g. funds from seasoned equity offerings and exercise proceeds) since this is a potentially better measure of net payout to shareholders in aggregate (Allen and Michaely (2003), and Boudoukh et al. (2007)). Earlier papers examining the influence of stock options on payout do not conduct tests that net out such inflows from total payout.

Our use of fixed-effects panel data estimators provides more robust empirical evidence and represents a methodological improvement over the cross-sectional analyses of Fenn and Liang (2001) and Weisbenner (2000). Standard cross-sectional analysis cannot rule out the possibility of an omitted firm-specific effect driving the results. For example, management quality or corporate governance could influence both payout policy and stock option usage, explaining their observed correlation. Using fixed-effects panel data estimators alleviates this omitted variables problem, among other benefits (see Section IV.A. for details). Finally, we examine the effects of lack of dividend protection for options and anti-dilution incentives on total

payout for different sub-samples of *Execucomp* firms to determine the types of firms where these effects are most pronounced.

Our empirical findings are as follows. Using fixed-effects panel data estimators for the complete sample and the sub-sample of consistent dividend paying *Execucomp* firms over the 1993-2005 time period, we find that firms with higher executive stock options have lower total payouts. For the consistent dividend paying sub-sample, we also find evidence of an anti-dilution effect where firms increase repurchases to offset EPS dilution resulting from the usage of stock options. However, the use of stock options with a fixed exercise price and no dividend protection results in overall lower total payout because repurchases (anti-dilutive or not) do not fully offset the lower dividends. The economic significance of this result becomes larger when we use an alternative measure of payout that nets out cash inflows received by the firm from seasoned equity offerings and option exercise proceeds. Specifically, we show that a one standard deviation increase in option ownership results in a 29 basis point reduction in net payout for the median firm in the full sample, and a 37 basis point decrease in net payout for the median firm in the consistent dividend paying sample. Overall, our findings highlight a potentially unintended consequence of stock option usage due to certain characteristics of stock option awards (no dividend protection and fixed exercise price), namely that it appears to create incentives to lower payout to shareholders which may worsen the free cash flow problem.

The remaining part of the paper is organized as follows. Motivation and discussion of how managerial stock-based incentives can interact with capital structure to impact payout policy are presented in the next section. Section III provides details of our data sources, variable definition, and construction. The methodology, sample selection, and empirical results are presented in Section IV followed by conclusions in Section V.

II. Motivation

If stock options are not dividend protected, dividend payments will reduce the value of the options due to their effect on the stock price. Firms that rely heavily on the use of stock options without dividend protection create a disincentive to pay dividends since a manager with fixed exercise price (i.e. the exercise price is fixed at the time of the option award and is not adjusted over time) options derives no wealth benefit from their payment (Lambert et al. (1989)). Unlike the adverse effect of dividend payments on option value, option holders will not suffer adverse consequences from stock repurchases and may even derive some benefit. Since a repurchase payout is accompanied by a reduction in shares outstanding, there is an increase in the fraction of the firm underlying each share so repurchases do not have an adverse effect on stock price. Since Murphy (1999) finds that most option incentive programs are not dividend protected, their widespread use potentially alters the payout policies of firms especially those that use significant stock option incentives. While it is unlikely that managers will cut dividends due to potential adverse signaling and the resulting stock price decrease (e.g., Guay and Harford (2000)), they may substitute repurchases for future dividend increases since this could potentially increase the value of their stock options. In addition, some papers have argued that firms use repurchases as a way to offset EPS dilution that results from stock option usage (Weisbenner (2000), Kahle (2002), Bens et al. (2003), and Hribar et al. (2006)). Even though managers' motives may be to avoid EPS dilution and not to disgorge free cash flow, managers at firms with stock options may choose to repurchase shares thus offsetting the decreasing (or non-increasing) dividend payout.[1]

[1] Fama and French (2001) suggest that repurchases are often complements to dividends for dividend paying firms while Grullon and Michaely (2002) suggest that firms have been substituting repurchases for dividends.

Option holders may prefer greater retention of earnings due to the fixed exercise price of options. Greater earnings retention increases the capital employed in the firm and thereby supports higher future earnings growth and higher future stock prices, potentially making options more in the money. Jensen and Murphy (2004) highlight a similar point that typical executive stock options with fixed exercise prices effectively communicate to managers that the cost of equity capital to the company net of the dividend yield is zero and therefore encourages the waste of capital. For firms that use options, it is thus not clear whether decreasing (or non-increasing) dividends will result in higher stock repurchases or greater earnings retention. Using cross-sectional analysis, Fenn and Liang (2001) find that firms with more managerial stock options have lower dividend payout which is only partly offset by repurchases, while Weisbenner (2000) finds that the larger the executives' holding of stock options, the more likely the firm is to retain more earnings and curtail cash distributions. The empirical evidence so far suggests that greater usage of executive stock options results in lower total payout which may worsen the free cash flow problem (Jensen (1986)). This potentially adverse consequence of using fixed exercise price stock options with no dividend protection has received relatively less attention in the finance literature.[2]

We next provide insights on how stock-based incentives can impact payout policy and the free cash problem, specifically with respect to capital structure choices. First we consider payout policy in a levered firm with available free cash, using a manager who maximizes his wealth and is compensated with stock and options. We ignore managerial risk aversion, tax

[2] Warren Buffett noted this potential problem as far back as 1985. See 1985 Berkshire Hathaway Inc. Chairman's letter to shareholders, http://www.berkshirehathaway.com/letters/1985.html. It is interesting to note that Berkshire Hathaway does not use stock options and neither does it pay dividends or repurchase shares. It appears that Berkshire's payout policy is not being driven by option considerations but rather by growth opportunities.

effects, signaling, EPS anti-dilution and empire building incentives to focus on the relationship between payout policy, stock-based incentives of managers, and capital structure. The first-best payout policy occurs when the marginal return on internal reinvestment is equal to that of outside opportunities (whether payout takes the form of cash dividends or share repurchases is irrelevant). If the manager's wealth composition differs from that of the firm (across the three asset classes of debt, equity and employee stock options), he has an incentive to deviate from the first-best payout policy.

This may be illustrated through the choice of using the marginal dollar to either pay cash dividends or reinvest in the firm. A cash dividend is fully captured by stockholders, to the exclusion of debt and option holders. Reinvestment generates expected cash flow in the future, which is partially captured by each of these three ownership classes. A manager owning only stock will lean toward higher dividends (underinvestment) relative to the first-best payout policy,[3] while a manager owning only options will prefer no dividends (overinvestment).[4]

Next consider the use of the marginal dollar to either repurchase shares or reinvest in the firm. A share repurchase is captured by both stockholders and option holders (as explained below) to the exclusion of debt holders. A manager owning only stock will prefer dividends to repurchases.

In contrast to cash dividends, repurchases offers something for option holders: shares outstanding decrease, giving options a claim on a larger fraction of the firm. For a manager whose wealth is tied closely to options, share repurchases are more attractive than cash

[3] Managerial risk aversion and empire building considerations can generate incentives for a manager owning only stock to retain free cash flow. In the former case, he prefers investing in low-risk real assets.

[4] Similarly, signaling benefits may generate incentives for a manager owning only options to pay dividends.

dividends. However, depending on the amount of leverage employed by the firm, the manager could find reinvesting in the firm the best choice of all.

Since options are an upside claim on corporate wealth, option holders receive value from reinvestment only when the real assets (that is, the underlying operations) perform relatively well, *ex post*; thus, the manager holding only options is concerned only about the upside outcomes of firm wealth. If the upside potential is more attractive for the stock than for real assets, then a manager holding options leans toward higher repurchases (underinvestment); if the upside potential of real assets is more attractive, then he leans toward lower repurchases (overinvestment). The reason that stock and real assets can offer different upside potential is the capital structure mix. The presence of debt increases the upside potential of stock, due to the magnification effect of leverage. However, the presence of employee stock options decreases the upside potential of stock since their exercise, in the upside outcomes of firm wealth, leads to equity dilution. Stated alternatively, options effectively "cream-skim" the equity claim in the upside outcomes of firm wealth. The preferred payout policy for an option-owning manager thus depends upon the firm's relative mix of debt and options. At one extreme, no leverage leads to lower share repurchases and corporate overinvestment. At the other extreme, a heavily levered firm leads to higher share purchases and corporate underinvestment.

In summary, the manager owning mostly stock prefers dividends to repurchases, encouraging underinvestment. The manager owning mostly options prefers repurchases to dividends also encouraging underinvestment but only if the firm's leverage is high, otherwise when leverage is low, the manager will prefer overinvestment. The choice between dividends, repurchases, and reinvestment is influenced by the level of leverage and the relative portions of the managers' wealth in stock and options.

III. Data Sources, Sample Selection and Variable Construction

A. Data Sources and Sample Selection

The sample is constructed by aggregating individual executive-level data from *Execucomp* to form firm-level annual data from 1993 to 2005 and merging with *Compusat.*[5] Firms in financial services and regulated industries such as banks and insurance companies (SIC 6000-6999) and utilities (SIC 4813 and 4900-4999) are excluded since their payout policies may be influenced by regulatory factors (e.g., Smith and Watts (1992), and Fenn and Liang (2001)). The sample period begins in 1993 because *Execucomp's* coverage starts in 1992 and we use one-year lagged stock-based incentive measures.

We examined the circumstances surrounding all firm-year payouts exceeding 25% of market value to ensure they are valid observations reflecting normal payouts and not events such as leveraged recapitalizations, targeted repurchases, or liquidations. This eliminated 151 firm-year observations resulting in a full sample consisting of 2,067 firms and 15,551 firm-years.

B. Variable Construction

1. Payout Variables

Payout to shareholders consists of either dividends or stock repurchases. In our empirical analyses, we define payout as the sum of dividends plus stock repurchases to examine whether changes in dividend payout due to stock option incentives are accompanied by increased repurchases or increased earnings retention. We scale all payout variables using market value of equity [*Compustat* item 199 x *Compustat* item 25] as in Fenn and Liang (2001) and Kahle

[5] *Execucomp* covers firms currently included in the S&P 500, S&P Midcap 400, and S&P Smallcap 600 indices and some firms that are currently not in the indices but were in one of the indices in the past.

(2002). Dividend payout is measured as total dividends divided by market value of equity [*Compustat* item 21 / (*Compustat* item 199 x *Compustat* item 25)]. Stock repurchases is calculated as common and preferred stock repurchases adjusted for any decreases in preferred stock divided by market value of equity [(*Compustat* item 115 + MIN(0, *Compustat* item 56_t – *Compustat* item 56_{t-1})) / (*Compustat* item 199 x *Compustat* item 25)]. We follow Stephens and Weisbach (1998), Fenn and Liang (2001) and Grullon and Michaely (2002) in using this measure of repurchase since we are interested in the repurchases of common equity only.[6]

2. Managerial Stock-based Incentive Variables

Managerial stock-based incentives consist mainly of stock and options. Option incentives are computed as the sum of unexercised exercisable options and unexercised unexercisable options divided by total shares outstanding from *Execucomp*. Stock incentives are calculated as shares owned (excluding options) divided by total shares outstanding. To measure the managerial stock-based incentive variables for each firm, we follow Fenn and Liang (2001) and Kahle (2002) in summing the stock-based incentives of all executives reported for a firm by *Execucomp* since they are all likely to influence payout policy. The above variables capture managerial option and stock ownership at the end of the fiscal year. Since dividends and repurchases are flow variables that occur during the fiscal year, we use one-year lagged values of managerial option and stock incentives to measure the influence of managerial stock-based incentives on payouts in any given year.[7]

[6] Banyi et al. (2007) also find that this measure is the most accurate measure of actual repurchases.

[7] Efendi, Srivastava and Swanson (2007) use a similar measure of executive stock-based incentives.

3. Anti-dilution Incentive Variable

The anti-dilution hypothesis predicts that managers repurchase shares to avoid dilution caused by the usage of stock options. We create a variable to capture payouts potentially driven by anti-dilution incentives by calculating the annual percentage change in total diluted shares outstanding assuming there were no repurchases during the year. This is done by adding back the number of repurchased shares to the total diluted shares outstanding to calculate the annual percentage increase in total diluted shares outstanding if no repurchases occurred.[8] This proxy should capture the potential dilution of EPS that the manager faces in the absence of repurchases. If anti-dilution incentives are present, we expect a positive relation between this proxy for dilution and repurchases, and therefore payout. The diluted shares outstanding (*Compustat* item 171) is calculated based on the SFAS No. 128 and is mandatory for all firms after Dec 15, 1997.[9] SFAS No. 128 rule for calculating diluted shares outstanding uses the FASB treasury stock method. Stock options become dilutive only when they are in-the-money. Each in-the-money unexercised option counts for 1 – X/P shares where X is the exercise price and P is the stock price. Our proxy is designed to capture the increase in the diluted number of shares outstanding only when options become dilutive.

[8] We make necessary adjustments for stock-splits using *Compustat's* adjustment factor.

[9] To avoid significant reduction in sample size in specifications using our dilution proxy, when *Compustat* item 171 is missing, we use *Compustat* item 54 (Common shares used to calculate basic EPS) and when that is also missing, we use *Compustat* item 25 (Common shares outstanding). We note that the results obtained are similar to those obtained using only *Compustat* item 171.

4. Other Firm Characteristics

Prior research has examined the effects of firm size, free cash flow, volatility, asset characteristics, investment opportunities, debt levels, and industry on payout policies. We use similar controls in our study to isolate the effect of stock-based incentives on corporate payout. Firm size, measured as the natural logarithm of total assets [*Compustat* item 6] is used as a proxy for external financing costs (Fenn and Liang (2002), Smith and Watts (1992), and Opler and Titman (1993)). If external financing costs are lower for larger firms, we expect absolute payouts to be positively related to size. It is not clear however whether payout variables scaled by market value will be positively related to firm size. The levels and predictability of free cash flow are likely to be important determinants of payout to shareholders (Jagannathan et al. (2000)). To proxy for the level of free cash flow, we use earnings before interest, taxes, depreciation, and amortization (EBITDA) less capital expenditures divided by total assets, [(*Compustat* item 13 – *Compustat* item 30) / *Compustat* item 6].[10] We expect a positive relationship between free cash flow and payout, ceteris paribus. Firms that have more predictable cash flows and are less risky enable managers to make higher commitments on payout. We compute the annualized volatility of returns using CRSP monthly returns over the 60 months prior to the current fiscal year start date, requiring a minimum of 12 monthly returns, as a proxy for firm risk. We expect a negative relationship between volatility measure and payout. To proxy for the variability of funds we calculate the ratio of tangible assets to total assets by subtracting intangibles from total assets and dividing by total assets [(*Compustat* item 6 – *Compustat* item 33) / *Compustat* item 6]. Firms with greater amounts of tangible assets also

[10] Alternative proxies such as EBITDA divided by total assets and EBITDA less capital expenditures and interest divided by total assets yield similar results.

have better access to debt financing. We expect a non-negative relationship between the ratio of tangible assets to total assets and payouts.

We use two proxies for investment opportunities. The market-to-book ratio is calculated by adding total assets and market value of equity, subtracting book value of equity, then dividing by total assets [(*Compustat* item 6 + (*Compustat* item 199 x *Compustat* item 25) – *Compustat* item 60) / *Compustat* item 6]. Sales growth is the 5-year least squares annual growth in sales from *Execucomp* (SALE5LS). We expect firms with greater investment opportunities to have less free cash flow and lower payouts (Fenn and Liang (2002), Smith and Watts (1992), and Opler and Titman (1993)).

To measure the effects of leverage on corporate payout, we calculate the debt ratio as the sum of long term debt and debt in current liabilities scaled by total assets [(*Compustat* item 9 + *Compustat* item 34) / *Compustat* item 6]. If debt usage is an alternate method of paying out free cash flow, we expect a negative relationship between payout and debt usage. However, firms that can bear significant levels of debt are also likely to be those that are profitable and have stable cash flows which may result in them having high payouts as well. Finally, we control for time trends using year dummy variables. Controls for industry and differential income tax treatment of dividends and capital gains (repurchases) are not included since the fixed-effects estimator with year dummies effectively controls for these effects.

IV. Methodology and Empirical Results

A. Methodology

We use fixed-effects panel data estimators to examine the relationship between stock option incentives and payout. The panel data estimator is used because a criticism of pooled

cross-sectional analysis is that it cannot rule out that an omitted firm-specific effect is driving the results. For example, omitted factors such as management skill or corporate governance could influence both payout policy and the use of stock options explaining any correlation between the two. A fixed-effects panel data model is therefore a better estimation technique for the empirical question being examined (Chi (2005), Himmelberg et al. (1999), and Zhou (2001)). It controls for unobservable firm heterogeneity that does not vary (or varies little) over time and significantly alleviates the endogeneity problem associated with omitted variables. A fixed-effects model also exploits within-firm variation (time-series variation) with the coefficient estimates of the explanatory variables measuring a time-series relationship with corporate payout (dependent variable) rather than a cross-sectional one.

Using payout as the dependent variable, we run a fixed-effects Tobit panel data model censored at zero since there are a number of observations where firm payout is zero (Fenn and Liang (2001), and Weisbenner (2000)). Until recently, the fixed-effects Tobit panel data estimator was considered problematic. The "incidental parameters problem" was a concern since the maximum likelihood estimator (MLE) in nonlinear panel data models with fixed-effects is thought to be biased and inconsistent when T, the length of the panel, is small and fixed. Greene (2004) used Monte Carlo simulation to examine the behavior of the MLE of the fixed-effects Tobit model to test the extent of this bias and found the estimators' slope coefficient is unaffected by the "incidental parameters problem" although there may be some bias in the estimated standard errors. This bias, however, appears mild for T=5 and greater. We expect little bias using the fixed-effects Tobit model since our sample period runs from 1993 to 2005 (T=13).

We examine the effect of stock option incentives on payout in three different samples of firms: (1) the full sample; (2) a sub-sample of consistent dividend paying firms (firms that always pay dividends when on *Execucomp*); and (3) a sub-sample of non-dividend paying firms (firms that never paid dividends during the study period), to explore the types of firms where the relationship is more pronounced. The sample of consistent dividend paying firms is the primary focus of our analysis since these are the firms most likely to be affected by the disincentive of option-owning managers to pay dividends, potentially altering firms' payout policies and exacerbating the free cash flow problem.

B. Descriptive Statistics

The frequency of payout by year for the three samples is reported in Table 1. Consistent with prior literature (Fama and French (2001), Grullon and Michaely (2002), and Hu and Kumar (2004)), the number and percentage of firms paying dividends decreased over the 1993-2005 time period while the number and percentage of firms using repurchases increased.

[*Insert Table 1 here*]

Executive stock option grants comprise only a fraction of the total employee option grants. Using *Execucomp*, we estimate the ratio of total executive stock option grants to total employee option grants using grant level data. We perform this analysis to gauge the extent of executive stock option usage relative to total employee stock options. Using the median estimated values, total executive option grants comprise approximately 25-30% of total employee option grants from 1993 to 2005. This relatively small proportion of executive to total employee option grants emphasizes the importance of taking into account non-executive stock

options when evaluating the dilutive effect of option usage. Our proxy for anti-dilution incentives takes into account the dilutive effect of total employee stock options.

Figure 1 plots the median values of total payout (repurchases plus dividends) and dividends for both the full sample and the consistent dividend-paying sample from 1993 to 2005. There is a declining trend in dividend payout while the total payout displays considerable fluctuation reflecting the volatility of repurchase activity.

[*Insert Figure 1 here*]

In Table 2, we report descriptive statistics for different payout variables, managerial stock-based incentive variables, anti-dilution incentive variables, and control variables used in the subsequent regression analysis. Panels A, B and C report summary statistics for the full sample, consistent dividend paying firms, and non-dividend paying firms, respectively. For the full sample, the median payout is 1.22% of market value. The median option and stock holdings of executives are 2.26% and 1.11% of the total shares outstanding. The median payout for the consistent dividend paying firms is 2.70% of market value and the median option and stock holdings of their executives are 1.33% and 0.73% of the total shares outstanding. This contrasts with the non-dividend paying firms with median total payout of 0% and median option and stock holdings of their executives of 3.45% and 1.57% of total shares outstanding.

[*Insert Table 2 here*]

C. Panel Data Regression Analysis using Payout

We use a fixed-effects Tobit panel data model for estimating the determinants of payout scaled by market value. The model specification estimated is given below:

$$Payout_{it} = \alpha_i + \beta' O_{it-1} + \delta' P_{it} + \gamma' S_{it-1} + \lambda' L_{it} + \phi' Y_t + \upsilon_i + \varepsilon_{it}$$

O is the total number of options owned by executives scaled by total shares outstanding, *P* is the percentage change in diluted shares outstanding adjusted for shares repurchased, *S* is the total number of shares owned by executives scaled by total shares outstanding, *L* is a vector of control variables previously shown to affect payout that includes market-to-book asset ratio, free cash flow scaled by total assets, the natural logarithm of total assets, total debt ratio, the ratio of tangible assets to total assets, the prior 60-month annualized volatility of monthly stock returns, and the 5-year least squares annual growth rate of sales. *Y* is a vector of year dummies, υ is the unobservable firm specific effect and ε denotes the remainder error term. Controls for industry and tax effects are not included since the fixed-effects estimator with year dummies effectively accounts for their effects by sweeping them out.

In Table 3, we report the marginal effects computed at the means of the explanatory variables, obtained using the fixed-effect Tobit panel data estimator. As reported in the second column of Table 3, for the full sample, the marginal effect of -0.0527 for the ratio of options owned to shares outstanding is significant at the 1%. This result is also economically significant. Consistent with Fenn and Liang's (2001) cross-sectional result, we find that a one standard deviation increase in option ownership is associated with a 20 basis point decrease in total payout. We note that a 20 basis point reduction in payout ratio translates into about a 16% reduction in payout for the median firm (median total payout for the full sample is 1.22%). The marginal effect of -0.0299 for the stock ownership variable is also statistically significant at the 1% level with a one standard deviation increase resulting in a decrease in total payout of 33 basis points. The marginal effect on the proxy for anti-dilution incentives (% change in diluted shares) is 0.0022 but is statistically insignificant. In the full sample, payout appears to be driven by the

lack of dividend protection for options and not by the desire to avoid EPS dilution caused by stock option usage, resulting in lower payout for firms with higher option usage.

[*Insert Table 3 here*]

Most of the control variables in the model specifications have expected signs. The coefficient on the market-to-book ratio, a measure of investment opportunities, is negative and significant at the 1% level suggesting that firms with greater investment opportunities have lower payouts. Similarly, the coefficients for the 5-year growth in sales and 60-month volatility of returns are negative and significant at the 1% level suggesting that faster growing and riskier firms payout less. The coefficients on the proxies for size (log total assets), ability to pay (free cash flow), and asset tangibility are positive and significant indicating that larger firms, firms with higher free cash flows, and firms with greater fixed assets payout more.

Firms with greater growth opportunities such as technology firms use larger amounts of stock options, have lower free cash flows, and make little or no payouts. To isolate the possible influence of these firms on the results, we repeat our analysis on two distinct sub-samples of firms. We report in column three of Table 3, for the consistent dividend paying sample, the marginal effects computed at the means of the explanatory variables obtained using the fixed-effect Tobit panel data estimator. Consistent with the results for the full sample, the marginal effects of the option and stock incentive variables are negative and significant at the 1% level. In terms of economic significance, a one standard deviation increase in the option and stock incentive variables is associated with a 19 and 21 basis point decrease in payout, respectively. The marginal effect of 0.0240 on the proxy for the anti-dilution incentives for stock repurchases (% change in diluted shares) is now significant at the 1% level and represents a 19 basis point increase in payout for a one standard deviation increase in % change in diluted shares. Most of

the marginal effects of the control variables for the consistent dividend paying sample are similar in sign, magnitude, and significance to the results for the full sample.

To examine whether the effect from lack of dividend protection for options dominates the anti-dilution incentive effect, we need to estimate how much a one standard deviation change in option ownership translates into a corresponding increase in percentage change in diluted shares. We estimate conservatively that a one standard deviation increase in option ownership will translate into an equal increase in percentage change in diluted shares. This is a conservative measure since not all options are typically in-the-money and only in-the-money options are reflected in diluted shares outstanding. Increases in the use of options will therefore translate into less than a one-for-one increase in percentage change in diluted shares. A one standard deviation (2.05%) increase in managerial stock option ownership is associated with a 19 basis point decrease in payout while an increase in percent change in diluted shares of the same amount is associated with a 5 basis point increase in payout. The effect from lack of dividend protection for options appears to dominate the anti-dilution incentive effect. The net decrease in total payout of 14 basis points translates into a 5.11% reduction in payout for the median firm, suggesting that the net effect while not large appears to be economically significant. For firms that consistently pays dividends and thus are likely to have higher free cash flow, the higher the stock option incentives, the lower the total payout, *ceteris paribus*, confirming our earlier results. The negative effect of stock option incentives on total payout highlights a potentially unintended consequence of non-dividend protected, fixed exercise price stock option incentives; namely that it creates incentives to lower total payout and may exacerbate the free cash flow problem.

In the last column of Table 3, we examine the sub-sample of non-dividend paying firms over the sample period. As shown in the univariate statistics in Table 2, these firms have lower

free cash flows, higher investment opportunities (market-to-book ratio), and use higher levels of incentive stock options. While the signs of the marginal effects obtained for the non-dividend paying sample are similar to those using the full sample and consistent dividend paying sub-sample, they are no longer significant at the 10% level. It appears the model specification does not adequately explain variation in payout for non-dividend paying firms; however, it must be noted that this may be due to lack of variation in payout since more than half of all firm-years for this sample have no payout.

D. Panel Data Regression Analysis using Net Payout

To this point we have examined only payout to shareholders in the form of dividends and share repurchases and ignored any inflows from equity offerings or potential proceeds from the exercise of stock options. Allen and Michaely (2003), Boudoukh et al. (2007) and Ditmar and Ditmar (2007) suggest that payout adjusted for inflows is a better measure of payout to shareholders in the aggregate. Firms in any given year may pay dividends, engage in repurchases, and issue equity. Under such a scenario, payout adjusted for inflows would better represent cash returned to shareholders. We now repeat our analysis using a measure of net payout that accounts for these inflows.

We must slightly alter our model specification when considering net payouts. Using net payout, the percentage change in diluted shares outstanding loses the ability to proxy for anti-dilution incentives due to a mechanical relationship between diluted shares and net payout. For example, when a firm engages in new equity issuance, the number of shares outstanding and the diluted shares outstanding simultaneously increase causing a corresponding increase in the anti-dilution proxy. However, since new equity issuances are subtracted from payout to form the new

dependent variable, it creates a mechanical inverse relationship between net payout and the anti-dilution proxy. Recall in the previous regressions that when payout is constrained to be non-negative, the predicted sign for the anti-dilution proxy is positive if firms pursue a strategy of repurchasing shares to offset EPS dilution. Any large issuances could therefore "swamp" the intended predicted effect of the previously used anti-dilution proxy.[11]

To mitigate this mechanical effect we construct a new proxy of the dilution effect that uses the number of executive options exercised during the year to estimate the total number of employee options exercised. The new anti-dilution proxy is calculated by dividing the total number of executive options exercised in the year (*Execucomp* SOPTEXSH) by the ratio of executive stock options to total employee stock options granted during the year (*Execucomp* PCTOTOPT). The calculation of this proxy assumes that employees mimic the exercising patterns of executives and the ratio of executive-to-employee options exercised is similar to the executive-to-employee option grant ratio. We scale this by the number of shares outstanding to create our new anti-dilution proxy.

Descriptive statistics of net payout (dividends plus repurchases minus issuances, scaled by market value of equity), issuances (*Compustat* item 108) scaled by market value of equity, and the alternate anti-dilution proxy, options exercised scaled by shares outstanding, are reported for the three samples in Table 2. The results of fixed-effects panel data regressions are reported in Table 4 in lieu of Tobit regressions since the dependent variable is no longer censored. These results are similar to regressions in Table 3 which uses payout as the dependent variable. The

[11] In unreported regressions using this anti-dilution proxy, its coefficient becomes negative and significant and in sensitivity analysis appears to be driven by firm-year observations when large issuances occurred. The coefficients of most other variables are similar to the previous results, with the option ownership variable now having a larger negative and significant coefficient (-0.07 for the full sample and -0.18 for the consistent dividend payers sample).

coefficients on the managerial stock incentives are negative, significant, and larger in magnitude across all three samples suggesting any type of stock incentives creates a disincentive to payout cash flow. Option ownership provides a stronger disincentive than share ownership. The coefficient estimates of the proxy for anti-dilution incentives (options exercised/shares outstanding) are close to zero and not significant except for the non-dividend paying sample where it has a sign that is opposite to the predicted sign. Using net payout as dependent variable, we find no evidence of payout driven by anti-dilution incentives. The significant coefficient for the anti-dilution proxy in the non-dividend paying sample is likely driven by greater use of issuances in these firms since more than half of all firm-years for this sample have no payout. Most control variables have their predicted signs and are similar to those obtained using total payout as the dependent variable.

[*Insert Table 4 here*]

For the full sample, a one standard deviation increase in option ownership results in a 29 basis point reduction in net payout. This 29 basis point reduction in net payout translates into a 49% reduction for the median firm. For the consistent dividend-paying firms, a one standard deviation increase in managerial stock option ownership is associated with a 37 basis point decrease in net payout which translates into a 16% reduction for the median firm. The economic impact of stock option usage with net payout as dependent variable is greater across all samples than when using payout as dependent variable, indicating that after netting payouts by inflows from shareholders and option holders, the disincentive created by option usage to make payouts becomes more pronounced. The negative effect of stock option incentives on net payout highlights a potentially unintended consequence of non-dividend protected, fixed exercise price

stock option incentives; namely that it creates incentives to lower net payout and may exacerbate the free cash flow problem.

As a final robustness test, we adjust net payout for repurchase and issuance activity motivated by anti-dilution incentives *assuming* they are present. Using a method consistent with SFAS No. 128, we reduce the value of common stock repurchases by the net value realized from all employee options exercised. The *adjusted net payout* is calculated by subtracting an estimate the total net value realized from the exercise of all employee stock options, computed as the net value realized from the exercise of executive stock options (*Execucomp* SOPTEXER) divided by the ratio of executive stock options to total employee stock options granted (*Execucomp* PCTOTOPT), from the value of common stock repurchased. If total net value realized from the exercise of all employee stock options exceeds the value of common stock repurchased, we reduce the value of common stock issuances by the residual amount. As with our payout and net payout variables, we scale *adjusted net payout* by the market value of equity. The *adjusted net payout* effectively eliminates the effect of the anti-dilution motive on net payout to better explore alternative motives. The descriptive statistics for this variable is reported in Table 2. In unreported results, the coefficients are similar in sign and magnitude to those reported using *net payout* as the dependent variable in Table 4. This suggests that the dominant effect of option usage on payout is due to the lack of dividend protection and not anti-dilution incentives.

E. Dividend Protected Options

The disincentives created by executive stock options could be mitigated by allowing the strike price to adjust with payments of dividends. Payment of dividends would then not have an adverse effect on the wealth of option owning managers so firms that use dividend-protected

options may pay higher dividends. In a sample of dividend paying firms in Finland, Liljeblom and Pasternack (2006) find, for the 41% of firms in their sample that have dividend protected options, a significantly positive relationship between dividend distributions and usage of options.

Very few U.S. firms use dividend protected options. Murphy (1999) found only 7 of 618 large companies that use dividend protected options in 1992. Likewise Weisbenner (2000) found only 2 out of 799 large firms using dividend protected options in 1994. To examine whether the usage of dividend protected options has changed over time, we searched all 10-K statements over the period 1992-2005 for the term "dividend protected" and variations thereof. We found only one firm that explicitly mentions the use of a dividend protected option plan. The use of dividend protected option plans remains extremely rare. This phenomenon may be explained by the fact that dividend protected options are considered variable-plan options the cost of which is required to be recognized on the income statement as compensation expense. On the other hand, fixed-plan options granted at-the-money or out-of-the money do not result in a compensation expense. With the recent introduction of FAS 123(R) requiring mandatory option expensing for financial statements with financial year beginning after June 15, 2005, this disadvantage of using dividend protected options has been eliminated and may promote the use of such options in the future. Greater use of such options could dramatically affect payout policies of firms and eliminate the disincentive to pay dividends for option-owning managers.

V. Conclusion

This paper examines whether increasing stock option usage results in decreasing total payout and potential worsening of the free cash flow problem. The incentive of managers who own non-dividend protected options is to lower (or not increase) dividend payout. Whether

increased repurchases or increased earnings retention (reinvestment) occurs in the face of declining dividend payout is an empirical question which this paper attempts to answer. From the managers' perspective, either repurchases or retention may be attractive.

We provide insights on how managerial stock-based incentives can impact payout policy and the free cash problem, specifically in its interaction with capital structure. Using fixed-effects panel data estimators on various samples of *Execucomp* firms over the 1993-2005 time period, we find that firms with higher executive stock options have lower total payouts. For consistent dividend payers, we also find evidence that suggests that firms increase payouts through repurchases to offset EPS dilution that occurs due to usage of executive and non-executive stock options. However, the managerial incentive appears to dominate the anti-dilution incentive, resulting in lower total payout for firms with higher usage of options. This result is robust to the use a measure of payout that nets out cash inflows received by the firm from shareholders and option holders (e.g. funds from seasoned equity offerings and exercise proceeds). Specifically, we show that a one standard deviation increase in option ownership results in a 29 basis point reduction in net payout for the median firm in the full sample, and a 37 basis point decrease in net payout for the median firm in the consistent dividend paying sample.

Overall, the use of fixed exercise price stock options with no dividend protection appears to result in lower payout since repurchases (anti-dilutive or not) do not offset the decreased dividends. This finding highlights a potentially unintended consequence of stock option usage, namely that it appears to create incentives to lower payout which may worsen the free cash flow problem.

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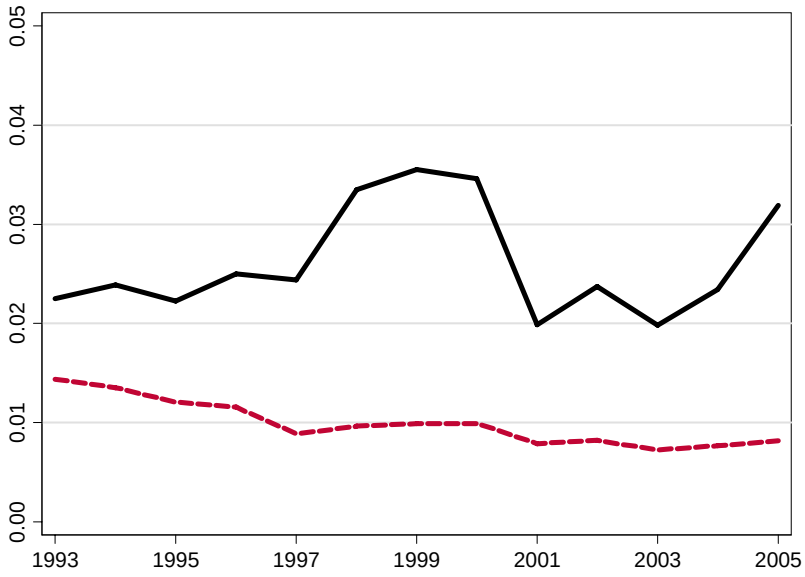
All Firms



Consistent Dividend Paying Firms

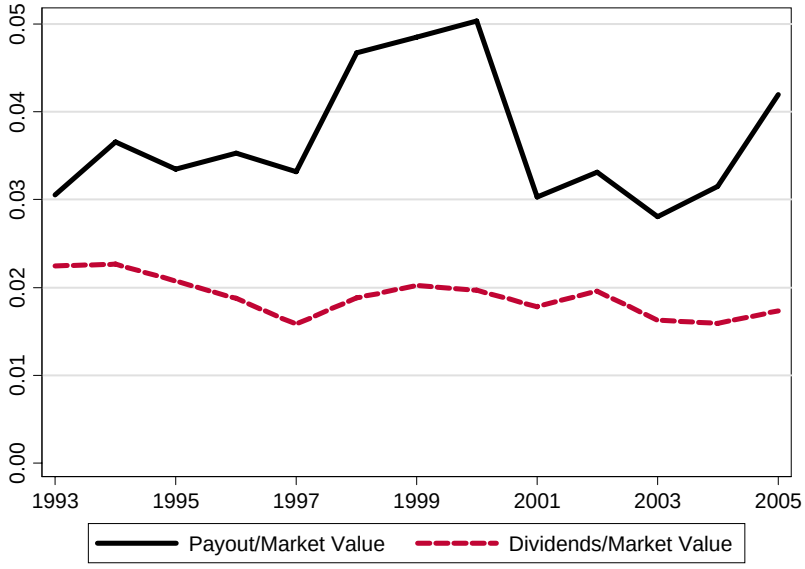


FIGURE 1: Median Total Payout and Dividend Payout from 1993 to 2005

Plots of median total payout (dividends plus common stock repurchases) and median dividends scaled by market value of equity from 1993 to 2005. The top chart uses data for the full sample representing 15,551 firm-years and the bottom chart uses data for consistent dividend paying firms representing 6,088 firm-years.

TABLE 1: Frequency of Payouts

Frequency of payouts by type and year for all firms in the sample (*Full sample*), firms that always paid dividends when on *Execucomp* (*Consistent Dividend Payers*) and firms that never paid dividends when on *Execucomp (Non-Dividend Payers*) from 1993 to 2005.

	Full Sample				Consistent Dividend Payers				Non-Dividend Firms			
Year	**N**	**Payout**	**Dividends**	**Repur-chases**	**N**	**Payout**	**Dividends**	**Repur-chases**	**N**	**Payout**	**Dividends**	**Repur-chases**
1993	877	635	561	323	447	447	447	203	248	56	-	56
1994	1,151	796	697	440	548	548	548	277	353	73	-	73
1995	1,188	824	704	490	545	545	545	294	374	89	-	89
1996	1,220	864	699	571	544	544	544	330	395	121	-	121
1997	1,265	890	688	628	528	528	528	337	431	147	-	147
1998	1,191	861	590	681	455	455	455	334	447	191	-	191
1999	1,234	868	563	693	446	446	446	313	491	209	-	209
2000	1,135	799	510	662	404	404	404	314	454	187	-	187
2001	1,132	741	479	552	388	388	388	244	467	170	-	170
2002	1,302	866	531	627	454	454	454	252	530	222	-	222
2003	1,322	870	559	624	452	452	452	251	547	215	-	215
2004	1,342	895	622	639	462	462	462	262	560	214	-	214
2005	1,192	848	570	671	415	415	415	278	495	224	-	224
Total	15,551	10,757	7,773	7,601	6,088	6,088	6,088	3,689	5,792	2,118	-	2,118

TABLE 2: Descriptive Statistics

The sample statistics computed over the 1993-2005 time period for the full sample, consistent dividend payers (firms that always paid dividends when on *Execucomp*) and non-dividend payers (firms that never paid dividends when on *Execucomp*) are presented below. Sample statistics for the full sample, consistent dividend payers and zero dividend payers are presented in Panels A, B and C respectively. *Payout* is dividends plus repurchases divided by market value of equity. *Net payout* is calculated as dividends plus repurchases less issuances, scaled by market value of equity. *Adjusted net payout* is also calculated as dividends plus repurchases less issuances, scaled by market value of equity, after first adjusting repurchases and then issuances for option exercise requirements. *Dividends/market value* is dividends divided by market value. *Repurchases/market value* is repurchases divided by market value. Issuances/market value is issuances divided by market value. *Options owned$_{t-1}$/shares $_{t-1}$* and *Shares owned$_{t-1}$/shares$_{t-1}$* are one-year lagged values of the managerial option and stock holdings divided by total shares outstanding. *% change in diluted shares$_{t-1,t}$* is the annual percentage change in total diluted shares outstanding in the absence of repurchases. *Options exercised/shares* is an estimate of total options exercised divided by total shares outstanding. *Market-to-book assets ratio* is total assets minus book value of equity plus market value of equity divided by total assets. *Free cash flow/total assets* measures free cash flow as operating income before depreciation minus capital expenditures divided by total assets. *Log total assets* is the natural logarithm of total assets. *Tangible assets/total assets* is total assets minus intangible assets divided by total assets. *Total debt/total assets* is the sum of long term debt and debt due in one year divided by total assets. *5-year sales growth* is the five-year least square annual growth rate of sales. *60-month return volatility* is the annualized volatility of prior 60-month returns. P5, P25, P75 and P95 are the 5th, 25th, 75th and 95th percentiles respectively.

Panel A: Full Sample

Variable	N	Mean	P5	P25	Median	P75	P95	Std Dev
Payout	15,551	0.0245	0.0000	0.0000	0.0122	0.0345	0.0895	0.0376
Net payout	15,551	0.0087	-0.0658	-0.0048	0.0058	0.0290	0.0814	0.0625
Adjusted net payout	15,551	0.0089	-0.0613	-0.0030	0.0051	0.0279	0.0791	0.0612
Issuances/market value	15,551	0.0158	0.0000	0.0013	0.0048	0.0109	0.0734	0.0479
Dividends/market value	15,551	0.0093	0.0000	0.0000	0.0000	0.0153	0.0358	0.0175
Repurchases/market value	15,551	0.0152	0.0000	0.0000	0.0000	0.0171	0.0767	0.0325
Options owned$_{t-1}$/shares$_{t-1}$	15,551	0.0300	0.0021	0.0105	0.0226	0.0403	0.0815	0.0374
% change diluted shares$_{t-1,t}$	15,551	0.0490	-0.0250	0.0032	0.0174	0.0521	0.2369	0.1075
Options exercised/shares	15,551	0.0061	0.0000	0.0000	0.0007	0.0039	0.0213	0.1797
Shares owned$_{t-1}$/shares$_{t-1}$	15,551	0.0516	0.0005	0.0032	0.0111	0.0477	0.2605	0.1089
Market-to-book assets ratio	15,551	2.1784	0.9382	1.2485	1.6538	2.4122	5.1254	1.9661
Free cash flow/total assets	15,551	0.0735	-0.1104	0.0351	0.0837	0.1318	0.2300	0.1527
Log total assets	15,551	20.7748	18.5303	19.6852	20.6079	21.7203	23.5255	1.5301
Tangible assets/total assets	15,551	0.8793	0.5444	0.8118	0.9442	1.0000	1.0000	0.1561
Total debt/total assets	15,551	0.2186	0.0000	0.0546	0.2034	0.3300	0.5282	0.1932
5-year sales growth	15,551	0.1654	-0.0731	0.0324	0.1015	0.2140	0.5706	0.3248
60-month return volatility	15,551	0.4506	0.2106	0.3031	0.4005	0.5499	0.8550	0.2048

TABLE 2 (continued)

Panel B: Consistent Dividend Payers

Variable	N	Mean	P5	P25	Median	P75	P95	Std Dev
Payout	6,088	0.0360	0.0044	0.0142	0.0270	0.0457	0.0968	0.0356
Net payout	6,088	0.0280	-0.0052	0.0089	0.0228	0.0410	0.0904	0.0422
Adjusted net payout	6,088	0.0276	-0.0035	0.0088	0.0224	0.0403	0.0889	0.0417
Issuances/market value	6,088	0.0081	0.0000	0.0005	0.0031	0.0074	0.0235	0.0232
Dividends/market value	6,088	0.0190	0.0027	0.0090	0.0163	0.0254	0.0440	0.0157
Repurchases/market value	6,088	0.0171	0.0000	0.0000	0.0030	0.0219	0.0751	0.0315
Options owned$_{t-1}$/shares$_{t-1}$	6,088	0.0185	0.0011	0.0058	0.0133	0.0249	0.0529	0.0205
% change diluted shares$_{t-1,t}$	6,088	0.0272	-0.0232	0.0015	0.0100	0.0275	0.1314	0.0784
Options exercised/shares	6,088	0.0064	0.0000	0.0000	0.0005	0.0023	0.0122	0.2865
Shares owned$_{t-1}$/shares$_{t-1}$	6,088	0.0410	0.0006	0.0024	0.0073	0.0293	0.2296	0.0875
Market-to-book assets ratio	6,088	1.9648	1.0093	1.2800	1.6141	2.1898	4.1336	1.1995
Free cash flow/total assets	6,088	0.1016	-0.0172	0.0596	0.0978	0.1411	0.2278	0.0848
Log total assets	6,088	21.4479	19.1675	20.3282	21.3183	22.4657	24.0681	1.5320
Tangible assets/total assets	6,088	0.8745	0.5549	0.7993	0.9336	1.0000	1.0000	0.1517
Total debt/total assets	6,088	0.2320	0.0000	0.1286	0.2323	0.3295	0.4716	0.1445
5-year sales growth	6,088	0.0862	-0.0459	0.0250	0.0698	0.1306	0.2695	0.1082
60-month return volatility	6,088	0.3198	0.1902	0.2432	0.3035	0.3721	0.5124	0.1036

Panel C: Non-Dividend Payers

Variable	N	Mean	P5	P25	Median	P75	P95	Std Dev
Payout	5,792	0.0128	0.0000	0.0000	0.0000	0.0075	0.0740	0.0329
Net payout	5,792	-0.0120	-0.1204	-0.0127	-0.0042	0.0000	0.0610	0.0732
Adjusted net payout	5,792	-0.0110	-0.1163	-0.0101	-0.0024	0.0000	0.0576	0.0716
Issuances/market value	5,792	0.0247	0.0000	0.0031	0.0076	0.0168	0.1221	0.0648
Dividends/market value	5,792	-	-	-	-	-	-	-
Repurchases/market value	5,792	0.0128	0.0000	0.0000	0.0000	0.0075	0.0740	0.0329
Options owned$_{t-1}$/shares$_{t-1}$	5,792	0.0418	0.0068	0.0206	0.0345	0.0543	0.0970	0.0391
% change diluted shares$_{t-1,t}$	5,792	0.0707	-0.0270	0.0076	0.0314	0.0911	0.3113	0.1249
Options exercised/shares	5,792	0.0066	0.0000	0.0000	0.0013	0.0063	0.0293	0.0182
Shares owned$_{t-1}$/shares$_{t-1}$	5,792	0.0557	0.0005	0.0044	0.0157	0.0573	0.2605	0.1238
Market-to-book assets ratio	5,792	2.5102	0.9079	1.2703	1.7812	2.7956	6.3629	2.7149
Free cash flow/total assets	5,792	0.0378	-0.2201	-0.0034	0.0641	0.1193	0.2299	0.2140
Log total assets	5,792	20.0741	18.1399	19.2252	20.0114	20.8316	22.3290	1.2802
Tangible assets/total assets	5,792	0.8823	0.5218	0.8207	0.9631	1.0000	1.0000	0.1643
Total debt/total assets	5,792	0.1978	0.0000	0.0071	0.1425	0.3210	0.5783	0.2309
5-year sales growth	5,792	0.2562	-0.0960	0.0605	0.1744	0.3318	0.8352	0.4454
60-month return volatility	5,792	0.5876	0.3057	0.4307	0.5490	0.7048	1.0001	0.2174

TABLE 3: Determinants of Payout

Table 3 reports marginal effects computed at the means for a fixed-effects Tobit panel data regression with *Payout* as dependent variable, estimated for the full sample, consistent dividend payers (firms that always paid dividends when on *Execucomp*) and non-dividend payers (firms that never paid dividends when on *Execucomp*) over the 1993-2005 period. *Payout* is defined as dividends plus repurchases divided by market value of equity. *Options owned$_{t-1}$/shares$_{t-1}$* and *Shares owned$_{t-1}$/shares$_{t-1}$* are values of the managerial option and stock holdings divided by total shares outstanding as of the end of the previous year. *% change in diluted shares$_{t-1,t}$* is the annual percentage change in total diluted shares outstanding in the absence of repurchases. *Market-to-book ratio* is total assets minus book value of equity plus market value of equity divided by total assets. *Free cash flow/total assets* measures free cash flow as operating income before depreciation minus capital expenditures divided by total assets. *Log total assets* is the natural logarithm of total assets. *Total debt/total assets* is the sum of long term debt and debt due in one year divided by total assets. *Tangible assets/total assets* is total assets minus intangible assets divided by total assets. *60-month return volatility* is the annualized volatility of prior 60-month returns. *5-year sales growth* is the five-year least square annual growth rate of sales. Year dummies are included but not reported. P-values are reported in parentheses. *, ** and *** denote significance at the 10%, 5%, and 1% levels, respectively.

	Full Sample	**Consistent Dividend Payers**	**Non-Dividend Payers**
Options owned$_{t-1}$/shares$_{t-1}$	-0.0527***	-0.0913***	-0.0331
	(0.008)	(0.010)	(0.372)
% change diluted shares$_{t-1,t}$	0.0022	0.0240***	-0.0046
	(0.432)	(0.001)	(0.476)
Shares owned $_{t-1}$/shares $_{t-1}$	-0.0299***	-0.0234**	-0.0267
	(0.006)	(0.026)	(0.367)
Market-to-book ratio	-0.0060***	-0.0082***	-0.0041
	(0.002)	(0.000)	(0.362)
Free cash flow/total assets	0.0341***	0.0591***	0.0171
	(0.004)	(0.000)	(0.366)
Log total assets	0.0029*	-0.0055***	0.0033
	(0.092)	(0.000)	(0.490)
Total debt/total assets	-0.0050	0.0160**	-0.0114
	(0.120)	(0.011)	(0.395)
Tangible assets/total assets	0.0108*	0.0158**	0.0106
	(0.070)	(0.034)	(0.462)
60-month return volatility	-0.0468***	-0.0437***	-0.0243
	(0.002)	(0.000)	(0.350)
5-year sales growth	-0.0129***	-0.0363***	-0.0057
	(0.007)	(0.001)	(0.423)
Year dummies	Included	Included	Included
Number of Observations	15,551	6,088	5,792
Log Likelihood	18,867.77	13,378.88	2,374.28

TABLE 4: Determinants of Net Payout

Table 4 reports coefficients of a fixed-effects panel data regression with *Net payout* as dependent variable, estimated for the full sample, consistent dividend payers (firms that always paid dividends when on *Execucomp*) and non-dividend payers (firms that never paid dividends when on *Execucomp*) over the 1993-2005 period. *Net payout* is calculated as dividends plus repurchases less issuances, scaled by market value of equity. *Options owned$_{t-1}$/shares$_{t-1}$* and *Shares owned$_{t-1}$/shares$_{t-1}$* are values of the managerial option and stock holdings divided by total shares outstanding as of the end of the previous year. *Options exercised/shares* is the estimated number of options exercised divided by total shares outstanding. *Market-to-book ratio* is total assets minus book value of equity plus market value of equity divided by total assets. *Free cash flow/total assets* measures free cash flow as operating income before depreciation minus capital expenditures divided by total assets. *Log total assets* is the natural logarithm of total assets. *Total debt/total assets* is the sum of long term debt and debt due in one year divided by total assets. *Tangible assets/total assets* is total assets minus intangible assets divided by total assets. *60-month return volatility* is the annualized volatility of prior 60-month returns. *5-year sales growth* is the five-year least square annual growth rate of sales. Year dummies are included but not reported. P-values are reported in parentheses. *, ** and *** denote significance at the 10%, 5%, and 1% levels, respectively.

	Full Sample	**Consistent Dividend Payers**	**Non-Dividend Payers**
Options owned$_{t-1}$/shares$_{t-1}$	-0.0765***	-0.1802***	-0.1000***
	(0.000)	(0.000)	(0.002)
Options exercised/shares	-0.0009	0.0003	-0.1316**
	(0.717)	(0.843)	(0.019)
Shares owned $_{t-1}$/shares $_{t-1}$	-0.0401***	-0.0448***	-0.0342**
	(0.000)	(0.001)	(0.011)
Market-to-book ratio	-0.0014***	-0.0092***	-0.0003
	(0.000)	(0.000)	(0.478)
Free cash flow/total assets	0.0377***	0.0776***	0.0385***
	(0.000)	(0.000)	(0.000)
Log total assets	0.0018	-0.0074***	0.0036
	(0.170)	(0.000)	(0.135)
Total debt/total assets	0.0261***	0.0233***	0.0330***
	(0.000)	(0.001)	(0.000)
Tangible assets/total assets	0.0114*	0.0240***	-0.0001
	(0.071)	(0.001)	(0.997)
60-month return volatility	-0.0248***	-0.0375***	-0.0177*
	(0.000)	(0.001)	(0.085)
5-year sales growth	-0.0060***	-0.0339***	0.0016
	(0.006)	(0.000)	(0.618)
Year dummies	Included	Included	Included
Number of Observations	15,551	6,088	5,792
Model F-Statistic	17.02	22.38	6.74
Prob > F	0.0000	0.0000	0.0000