Do Corporate Managers Skimp on Shareholders’ Dividends to Protect their Own Retirement Funds?

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ABSTRACT

We argue that managers with high pension holdings are less likely to adopt a high dividend policy that can risk their future pension payouts. Using a hand-collected actuarial pension dataset we show that (i) dividend payments are significantly lower when manager compensation relies more heavily on pension payouts; (ii) given a desirable payout policy, managers with large pension plans prefer the form of stock repurchases over cash dividend distributions; and (iii) the negative effect of pension on dividend is significantly weaker when pensions are protected in a pre-funding rabbi trust. We show further that this agency behavior reduces firm performance.

Keywords: Executive compensation; Dividend policy; Agency theory

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1. Introduction

Corporate managers are assumed to represent the interests of shareholders, and thus should take actions that maximize the value of equity. Yet, managers often have their own incentives that may not be perfectly aligned with shareholders' interests. These include reputation concerns (Narayanan (1985)), empire-building interests (Jensen’s (1986)), and risk-aversion due to undiversified wealth and human capital invested in the firm (Jensen and Meckling (1976); Treynor and Black (1976); Parrino, Poteshman, and Weisbach (2005)). There exist also compensation-based incentives: meeting short-term bonus targets (Waegelein (1988)), risk-taking incentives due to large stock-options holdings (Coles, Daniel, and Naveen (2006)), and lowering the likelihood of default that risks pension payouts (Sundaram and Yermack (2007)).

We investigate how compensation-based considerations, particularly the size of pension plans, affect the firm's current dividend policy. In general, the literature suggests that managers who are heavily compensated with debt-based instruments, such as pensions, tend to manage the firm more conservatively because they are exposed to default risk (Sundaram and Yermack (2007) and Cassell, Huang, Sanchez, and Stuart (2012)). While these studies focus on the default risk as a tool to protect future pension payouts, we analyze the cash-flow policy effects. We argue that managers with high pension holdings will be reluctant to adopt a high dividend policy because this essentially commits the firm to a constant or growing level of dividends for the foreseeable future. Managers know, and the literature confirms, that once a firm starts paying dividends, cutting or omitting those dividends will have negative consequences in terms of both the stock price and the reputation of the managers (see, e.g., Michaely, Thaler and Womack (1995)). Thus, managers may be hesitant to commit the firm to large cash distributions that might leave fewer funds available for future pension payouts. Instead managers can elect to either keep funds in the firm or distribute cash to shareholders in the form of stock buybacks. The benefits of these options are clear as they do not commit the firm to permanent future cash payouts.

To estimate the present value of pensions we manually collected data on pension plans for 272 of the largest firms listed on the U.S. stock exchanges over a ten-year period between 2000 and 2009. Instead of a CEO-only database used in previous studies, all firm executives (typically five per firm-year) are used to compute compensation leverage and inside debt ratios in this study. We consider two alternative ways to measure the importance of pensions. First is the present value of the manager’s pension divided by the sum of this present value and the values of stocks and stock-options held by the manager (this ratio is typically referred to as 'compensation leverage'). The second is the pension’s present value divided by the book value of the firm's total assets. The first measure is designed to capture the relative importance of pensions in the manager's compensation package, while the second captures the magnitude of the firm's inside debt. We also apply two measures for the level of dividends. First is the dividend yield defined as the annual dividend per share divided by the stock price at the end of the year. The second measure is the dividend payout ratio defined as dividends paid during a given year divided by the income available to shareholders in the same year.

The regression results support our theory: high levels of compensation leverage and inside debt are associated with consistently lower dividend yield and dividend payout ratio. This association remains significant when we examine the compensation of CEO-only and all top executives; moreover, the results are robust to the estimation procedure. We further show that the observed effect of executive pensions on dividend policy is not driven by endogeneity -- i.e., by the possibility that firms that typically maintain a lower level of dividends can direct more funds into pension plans.

The results above capture the effect of pension plans on the managers’ decision to pay dividends against all other possible uses of the firm’s cash, including re-investment or keeping funds in the company. We further explore the relationship between pension values and the form of cash payouts. That is, after deciding the optimal level of cash to distribute to shareholders, the manager must choose the form of the payout: cash dividend or stock repurchase. We predict that managers with higher future pension claims will prefer cash distributions in the form of a stock repurchase because it is perceived as a one-time payout, while dividends are viewed as a long-term commitment. We find that the main results hold when adjusting the dividend payments for net stock repurchases.

Another interesting finding of our research is related to the level of protection of the executives’ pensions. We examine the details of the individual pension contracts and find that a sizeable proportion of our sample firms (24%) offer pre-funded pensions via a rabbi trust. Funding a pension prior to the executive’s retirement appears to weaken the cash-preserving incentive of the manager because the risk of losing her pension is significantly neutralized. Alternatively stated, the negative effect of pension plans on dividend policy is significantly stronger when pensions are unfunded. This result confirms our hypothesis that managers consider the risk of their future pension payouts when setting dividend policy.

Last, we examine the costs associated with pension-dividend agency behavior. We argue that in making payout decisions, managers who have pension-based considerations will be less committed to maximizing firm value. Specifically, managers who are reluctant to initiate or increase dividend payments, because they want to protect their future pension payouts, will be more likely to direct the firm's funds into less-than-optimal investment channels. To test this proposition, we look at common proxies of operating performance (ROA, ROE, and ROI) in the subsequent years as a reflection of the quality of current investments. We find that when a change in dividend policy is associated with larger pension plans, it is more likely to reduce the firm's operating performance. This finding provides further support for the existence of the agency problem analyzed in this study.

Our paper contributes to the literature by highlighting an aspect of agency theory that has not been analyzed: saving shareholders’ dividends for managers’ retirement. Prior studies have shown that managers can deviate from value-maximizing corporate decisions in order to serve their own interests, such as reputation concern, empire-building incentives, and short-term compensation targets. Along this line, we find that managers who are entitled to high, and especially unprotected, pension payments typically prefer low cash dividend distributions to safeguard their future pensions.

The paper proceeds as follows. The next section reviews the related literature. Section 3 states our hypotheses. Section 4 describes the estimation procedures, Section 5 describes the data, Section 6 tests the hypotheses, Section 7 explores the costs of the agency behavior, and Section 8 concludes.

2. Related Literature

The theory on the separation of ownership and control for the modern corporation appears to have originated with Berle and Means (1932). This early analysis has evolved into the modern concept of agency theory as a result of the influential work of Jensen and Meckling (1976). The basic premise is that non-owner managers can adopt corporate decisions that serve their interests at the expense of the owners. Building on this concept, the theoretical literature has identified a variety of incentives that can lead managers to deviate from policies that maximize shareholder value.

For example, undiversified wealth and human capital invested in the firm may lead risk-averse managers to make sub-optimal decisions to reduce firm risk (See, e.g., Jensen and Meckling (1976), Treynor and Black (1976), and Parrino, Poteshman, and Weisbach (2005)). Another example is known as the empire-building hypothesis (See Jensen, 1986): executives of bigger firms appear to have more prestigious jobs. Thus, managers have a built in incentive to increase the size of their company to achieve more prestige in society; this incentive can lead to over-investment that, in turn, reduces shareholder value. Similarly, reputation considerations can lead managers to make decisions that yield short-term gains at the expense of the long-term interests of the shareholders (See Jensen and Meckling (1976), Fama (1980), Amihud and Lev (1981), Narayanan (1985), Eisenhardt (1989), Schliefer and Vishny (1990), Lane, Cannella, and Lubatkin (1998), and Reichelstein, 2000).

In addition to the managerial incentives discussed above, executives can deviate from an optimal policy if by doing so they can increase the value of their compensation package. For example, Guay (1999) and Coles, Daniel, and Naveen (2006) demonstrate that managers will prefer highly risky investments if the value of their compensation package, particularly stock-options holdings, is positively related to firm risk. Jensen’s (1986) empire-building hypothesis discussed above suggests that managers tend to engage in wasteful investments that increase firm size (e.g., takeovers and acquisitions) to enjoy the higher compensation that comes with managing a larger firm. Sundaram and Yermack (2007) show that managers holding large pensions tend to pursue strategies that reduce overall firm risk in order to lower the likelihood of default that risks pension payouts.

Agency theory has also been linked to a firm’s dividend policy.Since Black (1976), many researchers have tried to solve two aspects of the “dividend puzzle”: why do only some firms pay dividends, and what determines the level of payout? This literature is vast, so we omit discussions related to signaling, taxes, and behavioral arguments, and concentrate on aspects related to agency theory. Easterbrook (1984) suggests that persistent dividend payouts require managers to raise external funds more often, and thus managers are better monitored by the capital markets.Jensen (1986) argues that paying dividends reduces the firm's discretionary free cash flow that could otherwise be deployed by firm managers for their benefits. Rozeff (1982) develops a model showing that an optimal dividend payout ratio minimizes the sum of agency costs and transaction costs. Fluck (1998) and Myers (2000) present agency-theoretic models of dividend behavior where managers pay dividends in order to avoid disciplining actions by outside shareholders.

Other studies show that compensation considerations are present in the dividend policies chosen by managers. Lewellen, Loderer, and Martin (1987) provide evidence that the dividend payout ratio is positively related to the fraction of salary and bonus in the manager’s total compensation, and is negatively related to the fraction of equity-based compensation. Lambert, Lanen, and Larcker (1989) predict and find that the introduction of executive stock-option plans induces managers to reduce the dividend relative to the expected level. This is because the payment of dividend reduces the value of the options. White (1996) and Fenn and Liang (2001) also find a negative association between stock-options and dividends. And similarly, Brown, Liang, and Weisbenner (2007) find that firms with large executive stock ownership initiated or increased dividends in response to the 2003 dividend tax cut, while firms with large executive stock-option holdings did not do so.

As Lewellen *et al.* (1987) and Lambert *et al.* (1989), our study links executive compensation structure to dividend policy. We address an agency theory aspect that has not been explored in the literature: the effect of long-term executive compensation, particularly pension payouts, on the firm’s current dividend policy. Our paper is also related to the work of Sundaram and Yermack (2007) and Cassell *et al.* (2012). These studies show that managers prefer to keep default risk and equity risk low in order to protect their future pension payouts. Another related study is provided by Edmans and Liu (2011), who suggest that executive pensions can mitigate agency problems by incentivizing managers to preserve firm value in distress situations. Our study shows how large pension plans can generate agency behavior incentives, and demonstrates how managers may manipulate cash flow distributions to protect their pension.

3. Hypotheses

Manager compensation contains components that are more equity-like (stocks and stock-options) and components that are more debt-like (pension and deferred compensation). Thus high-levels of equity-based (debt-based) compensation, align managers’ interests with those of the shareholders (bondholders). One important conflict between shareholders and bondholders concerns the firm’s divided policy. When shareholders pay themselves dividends, the future claims of the bondholders become less secure (i.e., lower asset coverage); thus, bondholders have a natural aversion to dividends (see Smith and Warner (1979)).

We argue that the pension plan size provides a similar conflict of interests between managers and shareholders. A persistent distribution of the firm’s earnings to shareholders will lower the firm’s internal funds; but to secure future pension payouts, it would be in the best interest of managers to keep funds internally. This conflict of interest is even more significant, because the manager holds “inside debt” (Jensen and Meckling (1976)) and at the same time controls the firm’s dividend policy.

The decision to pay a dividend in a certain year has two important implications: First, the cash outflow reduces the level of funds available to the firm, and second the dividend payment signals an unwritten commitment that the firm will maintain at least the same level in the coming years. Managers know that reducing or omitting future dividends will have negative consequences such as a significant decline in stock price and damaging the reputation of the firm’s managers (see, e.g., Michaely, Thaler and Womack (1995)). The alternative options for using the firm’s cash flow – keeping funds in the firm, open market stock repurchase, or even reinvestment – do not signal a continuous payout commitment. We therefore expect a negative relationship between the level of pension-based compensation in the form of Supplemental Executive Retirement Plans (SERPs) and dividend payments. Our first hypothesis is

*H1: Firms with larger executive pension plans will pay lower dividends.*

Note that the first hypothesis captures the effect of pension plans on the managers’ decision to pay dividends against all other possible uses of the firm’s cash, including reinvestment or keeping funds in the company for future liquidity needs. Because the manager’s decision to pay dividends is driven also by a set of advantages/disadvantages of dividends versus other possible uses of the firm’s cash flows (e.g., available investments, tax effects), we focus next on the form of the payout. In particular, after deciding the optimal level of cash that should be distributed to shareholders, the manager can still choose a preferred form of the payout: cash dividend or stock repurchase. As discussed above, dividends are a long-term commitment, and changes to dividend policy can substantially alter the market perception of the firm. In contrast, stock repurchases are typically viewed as a one-time payout. We expect therefore that high pension-based compensation will result in lower level of dividends, relative to stock repurchases.

*H2: Firms with larger executive pension plans will pay lower dividends net of stock repurchases.*

The ultimate question for any manager is whether the firm will be willing and able to pay her pension entitlement upon retirement. To reduce anxiety related to the firm’s ability to pay future pension benefits, firms may choose to pre-fund the executive pension entitlements via a rabbi trust. Firms with pre-funded pensions (about 24% of our sample firms) may establish a rabbi trust to hold the pension assets of each executive. We argue that a funded pension plan reduces the manager’s cash-preserving incentives.

Bachelder (2002) reports that a firm choosing to fund a SERP for an executive has a number of regulatory hurdles to overcome. Rabbi trusts are instruments that were developed to help deferring the taxability of a corporation or individual, and are natural vehicles for funding SERPs. A company can transfer financial assets to a rabbi trust for the exclusive benefit of the executive under the condition that the assets remain liable to the company’s creditors in a default. Despite the absence of creditor protection, we argue that the presence of funded pension neutralizes the cash-preserving incentive. This is especially true given that most managers are entitled to an actuarial lump-sum pension value on reaching retirement age, thus leaving concerns related only to losing their pension in the years leading up to their retirement.[[1]](#footnote-1) Our third hypothesis is therefore:

*H3: The negative association between pension size and dividend payments will be weaker when pensions are pre-funded.*

4. Variable Estimation

We measure the level of a firm’s annual dividend payment by both the dividend yield (dividend paid during the year divided by share price at the end of the year) and the dividend payout ratio (dividend paid divided by available income). We measure the dividend net of stock repurchase by the dividend minus the difference between stock repurchase and stock issuance in the same year, scaled by book value of total assets at the end of the year. We adjust all measures to industry averages, as individual industries have substantially different demands and expectations for dividend policy (we provide details in Table 2).

We consider two measures of the extent of pension value. The first measure captures the relative importance of pensions in the manager's total compensation package. We divide the present value of the manager’s pension by the sum of this present value and the values of stocks and stock-options held by the manager. This ratio is typically referred to as 'compensation leverage'. The second measure captures the magnitude of the firm's inside debt; it is given by the present value of the pension divided by the book value of the firm's total assets. Both compensation leverage and inside debt measures are used at the CEO level and also for all top executives; all are adjusted to industry averages. We provide below a detail description of the compensation estimation procedures.

*4.1. Pension value*

Pensions, as defined here, refer to SERPs (Supplemental Executive Retirement Plans). SERPs allow executives to receive retirement benefits far greater than they would be normally entitled to under federal insurance guidelines. These pension benefits represent unfunded and unsecured debt claims against the firm, and in the event of insolvency, have equal standing with other unsecured creditors. Sundaram and Yermack (2007) explain the calculation of pension data in great detail. Using a database of 237 Fortune 500 CEO’s over a 7-year period (1996-2002), they demonstrate the significant role of pensions as a form of debt-based compensation. Our database extends Sundaram and Yermack’s sample by using hand-collected data for 272 firms drawn from the 700 largest companies by market capitalization over a 10-year period (2000-2009). Instead of a CEO-only database, we use data on all firm executives (typically five per firm-year). The resulting sample includes three additional years and approximately six times more firm-year data points than the original Sundaram and Yermack’s sample.

SEC statements, as a rule, require the summary compensation information for the CEO, CFO, and three other executives. Frequently, more than five executives have information available due to changes in management, or as a function of corporate reporting policy. The disclosure of pension valuation became significantly more transparent in 2006. Prior to July 2006, the SEC required that pension values be expressed in a tabled matrix of the form given in Table A1. There was no requirement to provide the actual present value of the benefit, but this value could be inferred and estimated by an investor using the procedure outlined in the next paragraphs. Firms with fiscal years on or after December 15, 2006 were required to adopt a new presentation that includes a formal computation of the present value of the pension benefit.

The sample period encompasses both systems; prior to 2006, hand-calculation was used; after 2006, present values were used where available. Since both calculations employed identical (or nearly identical) calculation methodologies, the sample years are considered directly comparable and contiguous. The established method for computing pension values is the actuarial present value method, detailed and explained in the two equations below. A guided example using ExxonMobil is provided in the Appendix to clarify the calculation procedure.

The present value of a pension annuity is expressed as:

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| --- | --- | --- |
|  |  | (1) |

where *X* is defined as the amount of the annual pension, *A* is the current age of the executive, *R* is the minimum retirement age to achieve full benefit, *K* is the final year of the pension, and *p(n)* is the probability that the executive will be alive in *n* years. Using the ‘Period Life Table’, an actuarial life table available from the Social Security administration, the mortality probabilities for an executive of age *A* can be projected. While it is hypothetically possible for an executive to receive a pension benefit indefinitely, the mortality projections of the Social Security administration end at 119 years, so *K* is for practical purposes set at 120 (Sundaram and Yermack (2007) assume the same value for *K*).

The discount rate, *d*, is defined as the annualized Moody’s Seasoned Aaa bond-rating for a given year, taken from the Federal Reserve Board’s H.15 release[[2]](#footnote-2). Sample firms maintaining pensions tend to be larger and older than average, and many have established a comparable bond rating. Furthermore, firms that volunteered to provide present value data on pensions prior to 2006 used the yield of either the 10-year Treasury bond or the Aaa-rated corporate bond for that year.

The most difficult portion of this calculation involves the computation of *X*, the annual pension benefit. Companies offering executive pensions will typically report defined pension annuities in the form of a generic table relating final average earnings with years of credit service. Final average earnings reflect the executives’ highest annual average salary and bonus over a specified number of years. In this study, we assume that the most recent years’ of executive compensation are also the highest.

We compute the annual pension benefit by:

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| --- | --- | --- |
|  | *Pension Benefit* = | (2) |

where refers to the cash salary and bonus compensation to each executive for year *t*, refers to the number of prior years whose compensation is averaged together, and *S* refers to the executives’ years of service. The years of service figure may relate to date of first hire, years of total work experience, or a number of methodologies employed by the firm. This information is provided with the pension plan table (see appendix). *M* refers to the multiplicative factor that describes the pension plan table, and is best interpreted as the amount (in percent) of pension benefit earned per year of service. For most firms, this figure is between 1.5 and 2.0% of average compensation per year of service. The net combination of equations (1) and (2) produces the actuarial present value for the executive pension for a given year.[[3]](#footnote-3)

*4.2. Stock and stock-option value*

The market value of common equity of a manager is estimated by the number of shares held by the manager multiplied by the share price. To estimate the value of the unexercised stock-options held by the manager we employ the procedure developed by Core and Guay (2002) (also used by Sundaram and Yermack (2007)). The options’ value is estimated by the Black and Scholes (1973) model, with the following inputs’ estimates.

The exercise price of the unexercised stock-options is measured in two steps. Using ExecuComp data we first compute the ratio of the realizable value of in-the-money exercisable options to the number of unexercised exercisable options; we then estimate the exercise price by subtracting this ratio from the firm’s stock price at the end of its fiscal year. Following Sundaram and Yermack (2007) the maturity of all outstanding stock-options is set to six years. Stock price volatility is measured by the standard deviation of the stock return in the previous 60 months. The dividend yield, taken over a three-year period, is estimated by the Fama and French (1988) procedure. The risk-free rate is set equal to the one-year T-bill yield.

*4.3. Compensation leverage and inside debt*

Given the values of pension, stocks, and stock-options of the individual manager, the compensation leverage of the CEO is given by her pension value divided by the sum of her pension value and her stock and stock-option values. The compensation leverage for all top executives is defined as:

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| --- | --- | --- |
|  |  | (3) |

where *J* represents the number of top managers (typically five) in each firm in each year. This measure of compensation leverage weighs the compensation leverage ratios of the firm’s top executive according to the value of their compensation components. The inside debt at the CEO level is given by the value of the CEO’s pension divided by the book value of total assets, and for all executives by the sum of the values of pensions of all top executives divided by total assets.

5. Data

To build our database we consider the 700 largest firms by US market capitalization as of December 31, 2009. Out of these firms, 300 offer executive pensions (42%), while 290 (41%) provide information that allows us to calculate pensions using the methodology in section 4.1. The sample size is slightly reduced when merging with data from CRSP and Compustat. The resulting dataset includes 272 firms and 8,955 executive-year data points, consisting of 2,114 CEO-years (23.6%) and 6,851 Non-CEO executive-years (76.4%) over the period 2000-2009.

Table 1 provides descriptive statistics of the main variables. The average actuarial pension value across all executive firm-years is $3.712 million, equating to roughly 28% of total executive annual compensation in any given period. The mean compensation leverage is 0.18 at the CEO level and 0.21 for all top executives. These ratios are slightly higher than the estimates reported in Sundaram and Yermack (2007). This small difference might reflect the substantial increase in compensation leverage ratios during the 2008 financial crisis; leverage ratios have doubled on average as a result of the decline in the values of executive stocks and stock-options. The mean dividend yield and dividend payout ratios of 0.022 and 0.329, respectively, are comparable to the values reported in prior studies.

Table 2 shows the dividend and pension variables for the 10 individual 2-digit SIC industries in our sample. Manufacturing firms dominated the overall sample with 130 (48%) firms, followed by 47 firms (17.3%) in the Financial Sector, 46 (16.9%) in the Utility sector, and 15 (5.5%) in the Mining sector. As expected, there is significant variation in the dividend policy across industries; for example, the mean dividend payout ratio varies from 0.13 (Construction) to 0.74 (Agriculture, Forestry, & Fishing). Similarly, the pension-based measures also vary considerably across industries; for example, the compensation leverage at the CEO level is 0.06 in the Agriculture, Forestry, & Fishing sector and 0.248 in the Transportation & Public Utilities sector. These differences provides a satisfactory basis for the use of industry-adjustment values of the dividend and pension variables in the empirical tests.

6. Empirical Test Results

*6.1 Hypothesis 1*

We begin our analysis by regressing a firm's dividend yield on the extent of pensions, as measured by compensation leverage and inside debt of the CEO only and for all top executives. All dividend and pension measures are adjusted to industry averages. We control for compensation components that can affect dividend payments incentives: salary and bonus and stock-options value, and for additional variables that are found in prior studies to affect dividend policy. These include size, book-to-market ratio, leverage ratio, prior year capital expenditures, cash flow from operations, distance-to-default (calculated via the Merton-KMV framework; see Crosbie and Bohn (2002)), firm age, past stock return, liquidity constraint (measured by a binary variable that equals 1 if a negative operating income was posted for that year), and tax loss (a binary variable that equals 1 if the firm reported a net tax loss carry forward during that firm-year). As the regressions rely on time-series firm-level data, we also control for year fixed effects, and use robust standard errors clustered by firm to correct for heteroskedasticity and serial correlation.

The regression results in Table 3 strongly support our hypothesis. All four models indicate that the extent of pension is associated with lower dividend payments. The results are especially strong when compensation leverage is used, for both CEO only (second column) and all top executives (fourth column); the *t*-statistics are -7.28 and -8.70), respectively. While not as strong, results are also significant for inside debt (*t*-statistics of -2.09 and -1.74). This difference may emphasize the importance of pensions in the manager's compensation package, which is captured by the compensation leverage. The results in the table thus provide a first indication that managers with large pension plans appear less likely to commit to high dividend distributions.

We recognize that the relation between pension size and dividend policy, observed in Table 3, could involve endogeneity bias. That is, firms that typically maintain a lower level of dividends have larger internal funds available, and therefore can direct more cash into executive pension plans. To address the endogeneity concern, we employ a two-stage least squares (2SLS) regression.

We use two instrumental variables that are uniquely associated with compensation leverage and inside debt, and not with dividend policy. The first is executive age, which tends to rise with pension size. We use the CEO’s age and the average age of all executives. The second is ‘M’, a multiplicative factor that describes the ratio of pension benefits earned per dollar of compensation. Firms with higher ‘M’ values allocate more money per dollar to pension benefits that those with low ‘M’ values. ‘M’ is the same for the CEO and all executive measures, as all executives in a firm are usually under the same executive pension plan. We confirm the validity of these instruments by applying a set of tests (Kleibergen and Paap (2006) *LM*-statistic, Hansen, Heaton, and Yaron (1996) *J*-Statistic, Cragg and Donald (1993) Wald *F*-statistic); and we find the instruments to be appropriate following the procedure outlined by Baum, Schaffer, and Stillman (2003).

Table 4 shows the results of the second-stage regression. The regression coefficients are generally consistent with our previous estimates. The effect of compensation leverage is statistically weaker than that observed in Table 3, but still significant (*t*-statistics of -3.53 and -4.40). Similarly, we find the effect of inside debt on dividend yield to be stronger with higher *t*-statistics of -3.12 and -3.99. These findings provide support for the proposition that there exists a negative relationship between pension values and dividend policy; furthermore the results in Table 4 suggest that the relationship is not driven by endogeneity.

We reexamine our hypothesis using the dividend payout ratio, instead of dividend yield, as the dependent variable. Although both dividend yield and dividend payout ratio represent a firm’s dividend policy, they may be driven by different considerations. That is, while the dividend yield is more likely to be driven by investors’ preferences, and represents a target level, the dividend payout ratio is more likely to reflect the availability of investment opportunities. Following prior studies (see e.g., Bhattacharyya, Mawani, and Morrill (2008)), we include in the dividend payout ratio regressions the amount of cash dividends declared during the year, the (log) income available to common shareholders, and the firm's market beta. Following Bhattacharyya *et* *al*. we also use a Tobit regression because it provides a better specification for the truncated distribution of the dividend payout ratio.[[4]](#footnote-4)

The results reported in Table 5 are consistent with those in Table 3; again we find a negative effect of executive pensions on the dividend payment ratio (*t*-statistics between -4.32 and -8.37). Yet while the regressions in table 3 are particularly strong when CEO only pension is used, Table 5 shows much smaller differences between the models that use the pension of the CEO only and those that use the pension of all top executives. As in Table 4, to account for potential endogeneity effects, we reexamine the results in Table 5 using a 2SLS model with the same instrumental variables. The results of the second-stage regression reported in Table 6 are somewhat weaker, yet are mostly significant.

The results are also meaningful in economic terms. A one standard deviation increase in the CEO’s compensation leverage reduces the industry-adjusted dividend yield by 0.13, and a one standard deviation increase in the CEO’s inside debt reduces the dividend yield by 0.06. These effects are significant given a mean dividend yield of 0.022 and standard deviation of 0.030. Similarly, these standard increases in the CEO’s compensation leverage and inside debt reduce the industry-adjusted dividend payout ratio by 0.58 and 0.15, respectively, compared to mean dividend payout ratio of 0.329 and standard deviation of 0.445. These effects are even more impressive when the compensation leverage and inside debt of all executives are used.

*6.2 Hypothesis 2*

The results of the previous section indicate that high levels of pension compensation lead managers to reduce dividend payments in general. Our second hypothesis focuses on the form of the payout to shareholders: dividends versus stock repurchases. That is, after the managers have decided how to allocate the firm’s cash between reinvestment and distributions to shareholders, the form of the payout will have important implications. This is because a dividend payment is viewed as a commitment to maintain a similar or rising level payout in the coming years, while a stock repurchase now does not imply a commitment to buy back stock in the future. To isolate the effect of pensions on the form of the payout we look at the effect of pension size on the difference between the dividend and net stock repurchases, scaled by firm assets.

Table 7 shows the regression results. Higher compensation leverage and inside debt have a significant negative effect on the dividend net of stock repurchases (*t*-statistics between -2.02 and -2.94). This suggests that managers who expect large pension payouts will prefer to distribute cash to shareholders via stock repurchases over dividends, as current repurchases do not “promise” similar payments in the following years. This result is consistent with our hypothesis. The 2SLS regressions in Table 8 show a similar effect: managers with high levels of compensation leverage prefer stock repurchases (*t*-statistics of -2.13 and -3.34). No similar effect, however, is found for the extent of inside debt.

*6.3 Hypothesis 3*

The association between pensions and dividends is consistent with our expectation that managers will try to avoid high dividend payments that might risk their future pension payouts. The identification of the pension plan funding status in our data provides a natural variable to further verify our hypothesis. If the theory holds, pre-funding executives’ pensions before retirement should neutralize the risk of losing future pension payouts and thus weaken the managerial incentive to keep internal funds in the company.

We divide our sample into firm-years in which pension plans are funded via a rabbi trust (24% of our sample), and firm-years with unfunded pension plans. We regress dividend yield and dividend payout ratio on the extent of pensions, separately for the funded and unfunded pension plans. The results in Table 9 show that when the CEO pension is funded, the effect of compensation leverage on dividend yield is weaker than when the pension are unfunded, but still significant (*t*-statistics of -3.62 and -7.46, respectively); the effect of CEO’s inside debt is completely eliminated when the pension is funded (*t*-statistic of 0.80). Similar differences, albeit less significant for inside debt, are found when pension plans of all executives are considered (Table 10). We find even stronger results when using the dividend payout ratio. The negative effect of pensions on dividends is not significant in all regressions and is even often reversed. For the pension of the CEO (Table 11), the unfunded pension sample shows a significant negative effect of both compensation leverage and inside debt on dividend (*t*-statistics of -9.80 and -3.70), while this effect is eliminated or even reversed for funded pensions (*t*-statistics of 2.02 and -0.07). Table 12 shows similar pattern for the pension of all top executives (*t*-statistics of -7.49 and -4.70 for unfunded pension, and *t*-statistics of 1.96 and -1.41 for funded pensions).

The results in Tables 9 thru 12 have important implications. First, the mitigating effect of pension funding on the pension-dividend relation provides direct support for the premise of our study. Managers prefer lower cash flow distributions when their pension payouts are not protected. Second, funding pensions via a rabbi trust reduces the risk that managers will pay less than optimal dividends, and thus can serve as an effective tool to mitigate this manager-owner agency problem. Yet we should note that some of the results show that the negative effect of executive pensions on dividends is not completely eliminated. A reasonable explanation might be that a rabbi trust offers no actual protection from firm bankruptcy risk; although under rabbi trusts the actual likelihood of executives not receiving their pension is quite low (due lump-sum provisions and the numerous contractual options provided to executives), creditors of a bankrupt firm can still go after the rabbi trusts’ assets. Nevertheless, to the best of our knowledge this is the first study to show that pension funding status affects corporate decisions.

*6.4 Robustness tests*

We examine the robustness of the pension effect on dividend policy to the estimation method. We replicate the regressions reported in Tables 3 and 5 using three alternative procedures. The first is to include firm-specific fixed effect with robust standard errors (referred to as ‘robust fixed effects’) to control for unobserved firm heterogeneity that could affect both dividend policy and pension size. The second is a Fama-MacBeth (1973) regression that controls for cross-sectional correlation. And third, as an alternative to clustered Rogers standard errors, we apply the Newey-West (1987) procedure modified to panel data to correct for heteroskedasticity and serial correlation.

Table 13 reports the robustness tests. The regressions results in Panel A are very similar to the results in table 3. The effect of compensation leverage on dividend yield is negative and significant under all three procedures (*t*-statistics between -5.31 and -7.92). The effect of inside debt on dividend yield is somewhat weaker, but mostly significant (*t*-statistics between -1.26 and -2.35). The regression results reported in Panel B indicate a negative effect of pensions on the dividend payout ratio, but are generally weaker than the results in Table 5, especially when the inside debt of the CEO is used. Overall, the results in Table 13 support the main findings of this study; the negative relationship between pensions and dividends payments holds regardless of the estimation procedure.

7. The Costs of the Agency Behavior

The evidence provided in the previous sections suggests that considerations of pension securitization are present in the firm's dividend policy. This means that managers are willing to deviate from optimal corporate decisions to serve their own interests. Due to their aversion to initiate or increase dividend payments, managers can direct the firm's funds into less-than-optimal investment channels. This agency behavior therefore is likely to have negative consequences for the performance of the firm in subsequent years, when the results of current investments are realized. We examine whether current low dividend payments -- that are driven by pension considerations, affect the future operating performance of the firm.

We consider three measures of a firm's performance: return on assets (ROA), defined by net income scaled by book value of total assets; return on equity (ROE), defined by net income scaled by book value of equity; and return on investment (ROI), defined by net income scaled by total investments. All three measures are taken in the subsequent year, and as averages of the subsequent two and three years; all measures are adjusted to industry averages (as are the dividend and pension variables). We regress these measures on the interaction between the dividend yield and the pension size measures (compensation leverage and inside debt) at the CEO level. Our arguments predict a positive coefficient of the interaction term. That is, when a decline in dividend payments is driven by the presence of large pension plans, it is more likely to reduce the firm's operating performance.

The regression results reported in table 14 show first a negative association between dividend yield and firm performance. This is expected because, ceteris paribus, managers will retain more earnings when they can invest in profitable projects. More importantly, the interaction term between dividend yield and compensation leverage is positive and significant, especially in the long-term regressions (the *t*-statistics for the three-year averages are 2.47, 4.58, and 3.73). Table 15 shows similar effect of inside debt on the relation between dividend and future performance. That is, when a reduction in dividend payment is associated with an increase in pension size, it will have a weaker effect on firm performance. This finding is consistent with our prediction; in the presence of large pension plans, managers may reduce dividends to cover future pension payouts, even in the absence of good investment opportunities.

8. Conclusions

We address a manager-owner agency aspect that has not been analyzed in the literature. We argue that managers with relatively high pension plans will have a personal and natural aversion to distribute profits to shareholders. Firms that pay dividends have an unwritten commitment to maintain similar payouts in the following years; such distributions increase the risk that the firm may not be able to meet future pension obligations to retired executives. We therefore expect that the extent of executive pension plans will lead to lower current dividend policy.

Using our hand-collected database on executive compensation, we find empirical support for our prediction. Consistent with agency theory, higher levels of executive pensions generate a more restrictive firm dividend policy. Particularly, we find that firms maintain a relatively low dividend yield and dividend payout ratio when the proportion of pension value in the executives’ compensation package is high, and when the pension value represents a high fraction of the firm assets.

The results also indicate that given a desirable level of payout to shareholders, the firm’s managers prefer cash distributions in the form of stock buyback over dividends in the presence of large pension plans. We find also that when pension plans are secured by pre-funded rabbi trusts, the negative effect of pension size on dividend payments is significantly weaker and often eliminated. Lastly, we explore the consequences of this pension-dividend agency behavior for future firm performance. We show that the presence of pension-based considerations in current payout policy results in a decline in the firm’s profitability. These findings suggest that pension plans and their funding status play a significant role in the manager-owner agency theory.

**Appendix A: An example of the pension value estimation procedure**

Using ExxonMobil as an example firm, we can establish how the pension computation is performed for each executive. In this case, Lee R. Raymond, the Chief Executive Officer of ExxonMobil in 2005, provides the example representation.

In Table A1, we have produced the same pension table disclosure available to investors of ExxonMobil in fiscal year 2005. While investors may reference annual reports to access these tables, they are presented more conveniently in Definitive 14A statements. The table records years of service in five-year increments on the horizontal axis, and final average earnings in $500,000 increments on the vertical axis. Final average earnings are defined as the average of the three highest years of salary and bonus awards in the ten years prior to retirement. We assume the most recent three years of Mr. Raymond’s compensation are his three highest years of compensation in the last ten years, yielding a three-year average of $6.582 million in earnings credited towards retirement.

For each executive firm-year, a sufficient historical salary and bonus level of each executive was computed. To begin the sample at 2000, firms requiring three years of historical compensation needed SEC data beginning in 1998, and for firms requiring five years, 1996 was the first year of hand-collection. For many executives, especially those requiring five or more years of averaged compensation to compute their earnings, historical data was unavailable for as much time as was needed. To compute average compensation for these executives, salaries and bonuses were ‘downwardly weighted’ to the oldest year. For example, if five years of data was required to average an executive’s compensation and four years were available, the most recent three years were waited equally and the most distant year double-weighted to generate a five-year proxy.

Mr. Raymond’s widely-available birth year of 1938 establishes his age at the end of 2005 at 66; for other executives, age information was obtained from 10-Ks (when available), and using a variety of other sources including old news articles, obituaries, and public records indexing services. Retirement age to achieve full benefit is 60.

The multiplicative factor *M* can be determined algebraically from Table A1: the addition of every $1,000,000 in final average earnings generates $480,000 of additional pension compensation for 30 years of service; this corresponds to 0.48 (48% of total average compensation) for 30 years, or 0.016 (1.6%) of final average earnings for each year of service. Raymond, as of 2005, has 42 years of service credit towards retirement.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Table A1** | | | | |
| **Pension Plan Disclosure for ExxonMobil Corp, FY 2004** | | | | |
| The pension benefit table is taken directly from the FY 2004 DEF-14A statement filed by ExxonMobil on April 13, 2005, p.21. | | | | |
|  | **Years of Credited Service at Normal Retirement** | | | |
| **Renumeration** | **30** | **35** | **40** | **45** |
| 500,000 | 240,000 | 280,000 | 320,000 | 360,000 |
| 1,000,000 | 480,000 | 560,000 | 640,000 | 720,000 |
| 1,500,000 | 720,000 | 840,000 | 960,000 | 1,080,000 |
| 2,000,000 | 960,000 | 1,120,000 | 1,280,000 | 1,440,000 |
| 2,500,000 | 1,200,000 | 1,400,000 | 1,600,000 | 1,800,000 |
| 3,000,000 | 1,440,000 | 1,680,000 | 1,920,000 | 2,160,000 |
| 4,000,000 | 1,920,000 | 2,240,000 | 2,560,000 | 2,880,000 |
| 6,000,000 | 2,880,000 | 3,360,000 | 3,840,000 | 4,320,000 |
| 8,000,000 | 3,840,000 | 4,480,000 | 5,120,000 | 5,760,000 |
| 10,000,000 | 4,800,000 | 5,600,000 | 6,400,000 | 7,200,000 |
| 12,000,000 | 5,760,000 | 6,720,000 | 7,680,000 | 8,640,000 |
| 14,000,000 | 6,720,000 | 7,840,000 | 8,960,000 | 10,080,000 |
| The Pension Plan Table section of the Definitive 14A provides the following information: *“*The qualified pension plan benefit is based on average annual salary over the highest paid consecutive 36-month period during the employee's last 10 years of employment.*”* | | | | |

For executives like Lee Raymond that are over the full-benefit retirement age, the annual calculated pension entitlement is based on the value if they retired this year. We can therefore assume that Raymond will work through his 66th year, at which point he will retire with 42 years of service. Following Equation (2), we can calculate his annual pension entitlement credited upon retirement as 0.016 x 42 x $6.582= $4.423 million. For executives that are under retirement age, we calculate their anticipated years of total services upon reaching retirement age; for ExxonMobil, this is at age 60.

To complete Equation (1), we require Raymond’s age, *A* (66); *R*, the company’s retirement age (60); *d*, the cost of long-term debt; and *P(n)*, the probability that Raymond will be alive and receiving pension disbursements n years into the future. The cost of long term debt, determined from the Federal Reserve Statistical Release H15 for Moody’s Aaa rated bonds was *d*=0.0563 for 2004. Using the statistical tables provided by the U.S. Social Security Administration, we can infer that Raymond has a 98.2% chance of being alive to receive a retirement payment at age 67, 96.2% chance of surviving until age 68, and so forth until age 120.[[5]](#footnote-5)

The summation of each year’s actuarial present value contribution establishes our present value of Raymond’s pension benefit at the end of 2004: $52.420 million.

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**Table 1: Descriptive statistics**

The table presents descriptive statistics on the sample firms. P25, P50, and P75 indicate the 25th, 50th, and 75th percentiles of each variable. Dividend yield is the annual dividend per share divided by the stock price at the end of the year. Dividend payout ratio is the dividend paid during a year divided by the income available to shareholders in the same year. Firm size (in log terms) is the end of year firm stock price multiplied by the number of shares outstanding (presented in billions of dollars). Book-to-market ratio is the book value of equity divided by market value of equity. Debt/equity is the book value of long-term debt divided by book value of equity. Capital expenditures and cash flow from operations are scaled by total assets. Income (in log terms) is the annual net income (in millions of dollars). Market beta is the monthly fundamental beta reported by Compustat. Cash dividend refers to the amount of cash dividends declared during the year (in millions of dollars). ROA (return on assets) is net income divided by book value of total assets. ROE (return on equity) is net income divided by book value of equity. ROI (return on investment) is net income divided by total investment. Distance-to-default is calculated via the Merton-KMV framework. Firm age refers to the age of the firm as reported in Compustat. Past stock return is the cumulative return during the past twelve months. Liquidity constraint is a binary variable equal to one if a negative operating income was posted for that year. Tax loss is a binary variable equal to one if the firm reported a net tax loss carry forward during that firm-year. Compensation leverage is the present value of the pension of the firm’s top managers divided by the present value of pension and the values of the stocks and stock-options held by the managers. Inside debt is the pension value divided by book value of total assets. Actuarial pension value is based on the estimation procedure outlined in Section 4.1 (in millions of dollars). Salary and bonus refer to the annual terms in a given year scaled by total assets. Stock-option refers to the value of the unexercised stock-options held by the manager (as estimated in Section 4.2), scaled by total assets. Executive age refers to the age of the executive during the particular firm-year; ‘M’ is a multiplier value roughly equivalent to the per-dollar percentage of pension contribution for each dollar earned. Data represent 272 firms over the period 2000-2009.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Firm-level variables | N | Mean | Std. dev. | 0.25 | Median | 0.75 |
| Dividend yield | 2,097 | 0.022 | 0.030 | 0.010 | 0.019 | 0.030 |
| Dividend payout ratio | 1,981 | 0.329 | 0.445 | 0.093 | 0.274 | 0.470 |
| log(size) | 2,098 | 4.185 | 0.692 | 3.721 | 4.193 | 4.557 |
| Book-to-market ratio | 1,976 | 0.331 | 1.182 | 0.160 | 0.247 | 0.395 |
| Debt/equity | 1,929 | 0.854 | 9.446 | 0.315 | 0.600 | 1.122 |
| Capital expenditures/assets | 2,016 | 0.064 | 1.801 | 0.012 | 0.041 | 0.116 |
| Cash flow from operations/assets | 1,817 | 0.097 | 0.065 | 0.052 | 0.093 | 0.134 |
| Log(income) | 2,098 | 6.573 | 1.268 | 5.842 | 6.529 | 7.289 |
| Market beta | 1,935 | 1.026 | 0.513 | 0.688 | 0.948 | 1.286 |
| Cash dividend | 2,098 | 489.9 | 1,056.0 | 57.1 | 182.5 | 471.0 |
| ROA | 1,900 | 0.056 | 0.062 | 0.020 | 0.050 | 0.087 |
| ROE | 1,900 | 0.122 | 0.543 | 0.093 | 0.150 | 0.221 |
| ROI | 1,900 | 0.089 | 1.254 | 0.050 | 0.089 | 0.146 |
| Distance-to-default | 2,097 | 2.534 | 1.251 | 1.640 | 2.320 | 3.226 |
| Firm age | 2,098 | 91.988 | 47.744 | 57.000 | 95.000 | 120.000 |
| Past stock return | 1,980 | 7.70% | 11.32% | -16.02% | 5.15% | 23.77% |
| Liquidity constraint (dummy) | 2,121 | 0.016 |  |  |  |  |
| Tax loss (dummy) | 2,121 | 0.756 |  |  |  |  |
| Executive compensation values |  |  |  |  |  |  |
| Compensation leverage, CEO | 2,104 | 0.184 | 0.042 | 0.129 | 0.181 | 0.271 |
| Compensation leverage, all executives | 1,929 | 0.207 | 0.182 | 0.066 | 0.164 | 0.295 |
| Inside debt, CEO (x1000) | 1,908 | 0.702 | 1.350 | 0.092 | 0.308 | 0.760 |
| Inside debt, all executives (x1000) | 1,908 | 1.468 | 3.182 | 0.215 | 0.689 | 1.623 |
| Actuarial pension value | 8,399 | 3.712 | 5.949 | 0.720 | 1.817 | 4.139 |
| Salary and bonus/assets | 8,708 | 0.926 | 2.726 | 0.064 | 0.232 | 0.691 |
| Stock-option value/assets | 8,708 | 0.342 | 1.007 | 0.017 | 0.079 | 0.301 |
| Executive age **(**instrumental variable**)** | 6,667 | 53.814 | 6.022 | 50.000 | 54.000 | 58.000 |
| M (instrumental variable**)** | 6,311 | 0.023 | 0.039 | 0.015 | 0.017 | 0.020 |

**Table 2: Dividend and pension by industry**

The table reports the averages of dividend yield, dividend payout ratio, compensation leverage, and inside debt, by two digit SIC industry codes.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Industry | SIC | N | % of Total | Dividend yield | Dividend  payout ratio | Compensation leverage | | Inside debt  (x1000) | | |
| CEO | All Execs | CEO | All Execs | |
|  |  |  |  |  |  |  |  |  | |  |
| Agriculture, Forestry, & Fishing | 01-09 | 1 | 0.37% | 0.007 | 0.742 | 0.060 | 0.092 | 0.264 | | 0.878 |
| Construction | 15-17 | 1 | 0.37% | 0.010 | 0.130 | 0.105 | 0.113 | 0.158 | | 0.287 |
| Finance, Insurance, and Real Estate | 60-67 | 47 | 17.28% | 0.010 | 0.390 | 0.156 | 0.153 | 0.149 | | 0.260 |
| Manufacturing | 20-39 | 130 | 47.79% | 0.020 | 0.286 | 0.196 | 0.217 | 0.926 | | 1.866 |
| Mining | 10-14 | 15 | 5.51% | 0.029 | 0.173 | 0.114 | 0.140 | 0.674 | | 1.470 |
| Nonclassifiable Establishments | 99 | 2 | 0.74% | 0.014 | 0.339 | 0.156 | 0.185 | 0.045 | | 0.116 |
| Retail Trade | 52-59 | 13 | 4.78% | 0.010 | 0.150 | 0.138 | 0.171 | 0.820 | | 2.299 |
| Services | 70-89 | 12 | 4.41% | 0.025 | 0.131 | 0.159 | 0.184 | 1.640 | | 3.654 |
| Transportation & Public Utilities | 40-49 | 46 | 16.91% | 0.006 | 0.464 | 0.248 | 0.271 | 0.321 | | 0.704 |
| Wholesale Trade | 50-51 | 5 | 1.84% | 0.018 | 0.152 | 0.127 | 0.142 | 0.550 | | 1.280 |
| Total firms |  | 272 | 100.00% |  |  |  |  |  | |  |

**Table 3: Regressions of firm dividend yield on compensation leverage and inside debt**

The table shows pooled OLS regressions of a firm’s dividend yield on compensation leverage, inside debt, and a set of control variables (as defined in Table 1). All dividend and pension measures in this table and all other tables are adjusted to industry averages. The sample represents data on 272 firms over the period 2000-2009. The table presents regression coefficients and *t*-statistics, based on standard errors adjusted for heteroskedasticity and autocorrelation following Rogers (1993), with year fixed effects. \*, \*\*, \*\*\* indicate significance at the 0.1, 0.05, and 0.01 levels, respectively.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Dependent variable: Dividend yield | | | | |
|  | CEO only | | | All executives | |
| Independent variable | Compensation leverage | Inside debt | | Compensation leverage | Inside debt |
|  |  | |  |  |  |
| Compensation leverage | -3.1244\*\*\* | |  | -3.2055\*\*\* |  |
|  | (-7.28) | |  | (-8.70) |  |
|  |  | |  |  |  |
| Inside debt |  | | -0.0492\* |  | -0.0466 |
|  |  | | (-2.09) |  | (-1.74) |
|  |  | |  |  |  |
| Salary and bonus/assets | 0.0011 | | 0.0073\*\*\* | 0.0005 | 0.0063\*\* |
|  | (1.47) | | (4.02) | (0.40) | (2.54) |
|  |  | |  |  |  |
| Stock-options/assets | 0.0143\* | | 0.0190\*\* | 0.0115 | 0.01701\*\* |
|  | (2.23) | | (2.72) | (1.70) | (2.48) |
|  |  | |  |  |  |
| Log(size) | 0.0592 | | 0.0703 | -0.1326 | -0.0444 |
|  | (0.01) | | (0.02) | (-0.79) | (-0.22) |
|  |  | |  |  |  |
| Book-to-market ratio | 0.0006 | | -0.0002 | -0.0001 | -0.0003 |
|  | (0.29) | | (-0.55) | (-0.03) | (-1.02) |
|  |  | |  |  |  |
| Debt/equity | -0.0224\*\*\* | | -0.0022\*\* | -0.2310 | -0.5281\*\* |
|  | (-4.23) | | (-2.51) | (-1.56) | (-2.88) |
|  |  | |  |  |  |
| Capital expenditures/assets | -0.0008\* | | -0.0006\* | -0.0005 | -0.0004 |
|  | (-1.89) | | (-1.84) | (-1.39) | (-1.65) |
|  |  | |  |  |  |
| Cash flow operations/assets | 0.0002\* | | 0.0007 | 0.0001 | -0.0009 |
|  | (1.87) | | (0.78) | (0.77) | (-0.07) |
|  |  | |  |  |  |
| Distance-to-default | -0.2635\*\*\* | | -0.2643\*\*\* | -0.2668\*\*\* | -0.2888\*\*\* |
|  | (-5.86) | | (-4.93) | (-8.00) | (-7.88) |
|  |  | |  |  |  |
| Firm age | -0.0021 | | -0.0027 | -0.0018\* | -0.0021\* |
|  | (-1.75) | | (-1.81) | (-2.07) | (-1.94) |
|  |  | |  |  |  |
| Past stock return | 0.5143\* | | 0.7136\* | 0.5696\*\*\* | 0.7694\*\*\* |
|  | (1.98) | | (1.92) | (3.81) | (4.00) |
|  |  | |  |  |  |
| Liquidity constraint | 0.8210\*\*\* | | -0.4531\*\* | 0.8040 | 0.2639 |
|  | (3.71) | | (3.05) | (1.79) | (0.51) |
|  |  | |  |  |  |
| Tax loss | 0.0201 | | 0.0006 | 0.1799\*\* | 0.2066\*\* |
|  | (0.53) | | (0.01) | (2.30) | (2.54) |
|  |  | |  |  |  |
|  |  | |  |  |  |
| R-Squared | 0.2168 | | 0.1284 | 0.2540 | 0.1649 |
| Observations | 1,611 | | 1,518 | 1,535 | 1,448 |
|  |  | |  |  |  |

**Table 4: 2SLS regressions of firm dividend yield on compensation leverage and inside debt**

The table replicates the results in Table 3 using a 2SLS procedure with two instrumental variables for the pension measures: executive age and the multiplier factor, ‘M’. \*, \*\*, \*\*\* indicate significance at the 0.1, 0.05, and 0.01 levels, respectively.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Dependent variable: Dividend yield | | | | |
|  | CEO only | | | All executives | |
| Independent variable | Compensation leverage | Inside debt | | Compensation leverage | Inside debt |
|  |  | |  |  |  |
| Compensation leverage | -3.3797\*\*\* | |  | -3.8465\*\*\* |  |
|  | (-3.53) | |  | (-4.40) |  |
|  |  | |  |  |  |
| Inside debt |  | | -0.3466\*\*\* |  | -1.1143\*\*\* |
|  |  | | (-3.12) |  | (-3.99) |
|  |  | |  |  |  |
| Salary and bonus/assets | -0.0019 | | 0.0146\*\*\* | -0.0472\*\*\* | 0.0367\*\* |
|  | (-1.31) | | (4.53) | (-2.80) | (2.20) |
|  |  | |  |  |  |
| Stock-options/assets | 0.0153\*\* | | 0.0285\* | 0.01536\*\* | 0.03314 |
|  | (2.07) | | (1.80) | (2.32) | (1.26) |
|  |  | |  |  |  |
| Log(size) | -0.1175 | | -0.1744 | -0.12082 | -0.3401\*\* |
|  | (-0.15) | | (-0.10) | (-0.51) | (-2.35) |
|  |  | |  |  |  |
| Book-to-market ratio | 0.0006 | | -0.0002 | -0.0001 | -0.0003 |
|  | (0.29) | | (-0.55) | (-0.03) | (-1.02) |
|  |  | |  |  |  |
| Debt/equity | -0.0329 | | -0.0466 | -0.22617 | -0.2784 |
|  | (-1.33) | | (-1.38) | (-0.97) | (-1.03) |
|  |  | |  |  |  |
| Capital expenditures/assets | -0.0006\* | | -0.0006\*\* | 0.0003 | -0.0006 |
|  | (-1.69) | | (-2.54) | (0.10) | (-0.23) |
|  |  | |  |  |  |
| Cash flow operations/assets | 0.0002\* | | -0.0004 | -0.0001 | -0.0002\* |
|  | (1.67) | | (-0.58) | (-0.48) | (-1.74) |
|  |  | |  |  |  |
| Distance-to-default | -0.2252\*\*\* | | -0.2068\*\* | -0.19753\*\*\* | -0.1746\*\*\* |
|  | (-3.96) | | (-2.36) | (-4.40) | (-2.73) |
|  |  | |  |  |  |
| Firm age | -0.0017 | | -0.0024 | -0.00226 | 0.0057 |
|  | (-0.45) | | (-0.91) | (-0.14) | (0.46) |
|  |  | |  |  |  |
| Past stock return | 0.6343\*\* | | 0.7797\* | 0.8471\*\*\* | 0.8021\*\*\* |
|  | (1.97) | | (1.67) | (3.67) | (4.35) |
|  |  | |  |  |  |
| Liquidity constraint | 0.9894\*\*\* | | 0.7886\*\*\* | 1.00457 | 0.2981 |
|  | (2.81) | | (3.47) | (1.41) | (0.40) |
|  |  | |  |  |  |
| Tax loss | -0.0035 | | -0.1408 | 0.13158 | -0.0656 |
|  | (-0.51) | | (-0.13) | (0.86) | (-0.62) |
|  |  | |  |  |  |
|  |  | |  |  |  |
| Instrumental variables | Executive age; M | | Executive age; M | Executive age; M | Executive age; M |
| Observations | 1,062 | | 1,062 | 995 | 991 |
|  |  | |  |  |  |

**Table 5: Regressions of firm dividend payout ratio on compensation leverage and inside debt**

The table shows pooled Tobit regressions of a firm’s dividend payout ratio on compensation leverage, inside debt, and a set of control variables (as defined in Table 1). The sample represents data on 272 firms over the period 2000-2009. The table presents regression coefficients and *t*-statistics, based on standard errors adjusted for heteroskedasticity and autocorrelation following Rogers (1993), with year fixed effects. \*, \*\*, \*\*\* indicate significance at the 0.1, 0.05, and 0.01 levels, respectively.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Dependent variable: Dividend payout ratio | | | | |
|  | CEO only | | | All executives | |
| Independent variable | Compensation leverage | Inside debt | | Compensation leverage | Inside debt |
|  |  | |  |  |  |
| Compensation leverage | -3.7420\*\*\* | |  | -2.3947\*\*\* |  |
|  | (-8.37) | |  | (-7.91) |  |
|  |  | |  |  |  |
| Inside debt |  | | -0.2878\*\*\* |  | -0.2804\*\*\* |
|  |  | | (-6.20) |  | (-4.32) |
|  |  | |  |  |  |
| Salary and bonus/assets | -0.0129\*\*\* | | -0.0058\* | -0.0027\* | -0.0026 |
|  | (-8.06) | | (-1.87) | (-1.75) | (-0.82) |
|  |  | |  |  |  |
| Stock-options/assets | 0.0254\*\*\* | | 0.0260\*\*\* | 0.0102 | 0.0222\*\* |
|  | (3.61) | | (3.77) | (1.52) | (2.37) |
|  |  | |  |  |  |
| Log(income) | -3.4808\*\*\* | | -3.4485\*\*\* | -3.0938\*\*\* | -3.1824\*\*\* |
|  | (-16.76) | | (-16.02) | (-16.83) | (-16.66) |
|  |  | |  |  |  |
| Cash dividend | 0.0007\*\*\* | | 0.0007\*\*\* | 0.0007\*\*\* | 0.0007\*\*\* |
|  | (5.05) | | (4.90) | (5.49) | (5.12) |
|  |  | |  |  |  |
| Log(size) | 4.2470\*\*\* | | 4.0052\*\*\* | 3.8689\*\*\* | 3.8129\*\*\* |
|  | (12.62) | | (10.22) | (13.16) | (11.83) |
|  |  | |  |  |  |
| Book-to-market ratio | 0.0002\*\*\* | | 0.0002\*\*\* | 0.0193\* | 0.0186\* |
|  | (-4.40) | | (-3.37) | (1.81) | (1.68) |
|  |  | |  |  |  |
| Debt/equity | -0.0010 | | -0.0016 | -0.0296\* | -0.0289\* |
|  | (-0.66) | | (-1.34) | (-1.82) | (-1.74) |
|  |  | |  |  |  |
| Capital expenditures/assets | 0.0001 | | 0.0002 | 0.0009 | 0.0008 |
|  | (1.64) | | (1.59) | (1.23) | (1.11) |
|  |  | |  |  |  |
| Cash flow operations/assets | 0.0004 | | 0.0005\* | 0.0003 | -0.0004 |
|  | (1.47) | | (1.71) | (1.39) | (1.64) |
|  |  | |  |  |  |
| Market beta | 0.4132 | | 0.4168 | -0.1553 | -0.2168 |
|  | (1.53) | | (1.62) | (-0.99) | (-1.36) |
|  |  | |  |  |  |
| Past stock return | -0.8916\*\* | | -0.7652\*\* | -0.0708\*\*\* | -0.0621\*\*\* |
|  | (-2.61) | | (-2.16) | (-5.29) | (-8.26) |
|  |  | |  |  |  |
|  |  | |  |  |  |
| Observations | 1,502 | | 1,430 | 1,644 | 1,544 |
|  |  | |  |  |  |

**Table 6: 2SLS regressions of firm dividend payout ratio on compensation leverage and inside debt**

The table replicates the results in Table 5 using a 2SLS procedure with two instrumental variables for the pension measures: executive age and the multiplier factor, ‘M’. \*, \*\*, \*\*\* indicate significance at the 0.1, 0.05, and 0.01 levels, respectively.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Dependent variable: Dividend payout ratio | | | | |
|  | CEO only | | | All executives | |
| Independent variable | Compensation leverage | Inside debt | | Compensation leverage | Inside debt |
|  |  | |  |  |  |
| Compensation leverage | -5.5174\*\*\* | |  | -7.1505 |  |
|  | (-3.24) | |  | (-1.08) |  |
|  |  | |  |  |  |
| Inside debt |  | | -0.5817\* |  | -0.4870 |
|  |  | | (-1.77) |  | (-1.18) |
|  |  | |  |  |  |
| Salary and bonus/assets | -0.2533\*\*\* | | -0.0538 | -0.0963 | 0.1003 |
|  | (-4.70) | | (0.97) | (-1.13) | (1.11) |
|  |  | |  |  |  |
| Stock-options/assets | 0.1209\*\*\* | | 0.1917 | -0.0436 | 0.1038 |
|  | (3.20) | | (1.21) | (-0.40) | (0.87) |
|  |  | |  |  |  |
| Log(income) | -7.1791\*\* | | -5.4134\*\* | -6.3727 | -5.3005 |
|  | (-2.48) | | (-2.42) | (-1.61) | (-1.56) |
|  |  | |  |  |  |
| Cash dividend | 0.0025\*\*\* | | 0.0016\* | 0.0033 | 0.0014 |
|  | (2.98) | | (1.73) | (1.34) | (1.43) |
|  |  | |  |  |  |
| Log(size) | 6.5197\* | | 2.7233\*\* | 0.8021\* | 3.8984\* |
|  | (1.79) | | (2.54) | (1.82) | (1.74) |
|  |  | |  |  |  |
| Book-to-market ratio | -0.0004\*\*\* | | 0.0002\*\* | -0.0001 | -0.0002 |
|  | (-3.68) | | (2.07) | (-0.24) | (-0.09) |
|  |  | |  |  |  |
| Debt/equity | -0.0638\*\* | | -0.2788\*\*\* | -0.0079 | -0.3295 |
|  | (-2.20) | | (-8.55) | (-0.32) | (-1.38) |
|  |  | |  |  |  |
| Capital expenditures/assets | 0.0007\*\* | | 0.0003\*\*\* | 0.0008 | 0.0002\*\* |
|  | (2.02) | | (9.19) | (1.25) | (2.19) |
|  |  | |  |  |  |
| Cash flow operations/assets | -0.0002 | | 0.0004 | -0.0003 | 0.0005 |
|  | (-1.45) | | (1.18) | (-0.81) | (0.86) |
|  |  | |  |  |  |
| Market beta | 0.7769\*\*\* | | 1.8321\*\* | -0.4702 | -0.2741 |
|  | (4.16) | | (2.26) | (0.63) | (-0.60) |
|  |  | |  |  |  |
| Past stock return | -4.3354\*\*\* | | -1.6092 | -0.3201 | -1.0830\*\* |
|  | (-3.77) | | (-1.53) | (-1.25) | (-2.46) |
|  |  | |  |  |  |
|  |  | |  |  |  |
| Instrument variables | Executive age; M | | Executive age; M | Executive age; M | Executive age; M |
| Observations | 913 | | 913 | 1,067 | 1,062 |
|  |  | |  |  |  |

**Table 7: Regressions of dividend net of stock repurchase on compensation leverage and inside debt**

The table shows pooled OLS regressions. The dependent variable is the dividend paid in a given year minus the difference between stock repurchase and stock issuance in that year. The independent variables are compensation leverage, inside debt, and a set of control variables (as defined in Table 1). The sample represents data on 272 firms over the period 2000-2009. The table presents regression coefficients and *t*-statistics, based on standard errors adjusted for heteroskedasticity and autocorrelation following Rogers (1993), with year fixed effects. \*, \*\*, \*\*\* indicate significance at the 0.1, 0.05, and 0.01 levels, respectively.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Dependent variable: [Dividends - (Repurchases – Issuances)]/Assets | | | | |
|  | CEO only | | | All executives | |
| Independent variable | Compensation leverage | Inside debt | | Compensation leverage | Inside debt |
|  |  | |  |  |  |
| Compensation leverage | 0.0449\* | |  | -0.2240\*\* |  |
|  | (-2.02) | |  | (-2.31) |  |
|  |  | |  |  |  |
| Inside debt |  | | -0.0960\*\* |  | -0.0825\*\* |
|  |  | | (-2.94) |  | (-2.34) |
|  |  | |  |  |  |
| Salary and bonus/assets | 0.0006 | | 0.0012\*\* | 0.0001\* | 0.0017\* |
|  | (1.51) | | (2.59) | (1.94) | (2.17) |
|  |  | |  |  |  |
| Stock-options/assets | -0.0150\*\*\* | | -0.0050\*\*\* | -0.0015\*\*\* | -0.0213\*\*\* |
|  | (-5.73) | | (-5.75) | (-5.89) | (-6.50) |
|  |  | |  |  |  |
| Log(size) | 0.0088 | | -0.0519 | 0.0065 | 0.0324 |
|  | (1.61) | | (-0.01) | (1.28) | (1.11) |
|  |  | |  |  |  |
| Book-to-market ratio | -0.0003 | | -0.0001 | -0.0008 | -0.0002 |
|  | (-0.16) | | (-0.38) | (-0.46) | (-0.96) |
|  |  | |  |  |  |
| Debt/equity | -0.0305 | | -0.0374 | -0.0019 | -0.0220 |
|  | (-1.43) | | (-1.05) | (-1.07) | (-1.20) |
|  |  | |  |  |  |
| Capital expenditures/assets | 0.0008 | | 0.0008\* | 0.0001 | 0.0007\*\* |
|  | (0.96) | | (2.07) | (1.51) | (2.68) |
|  |  | |  |  |  |
| Cash flow operations/assets | -0.0006\* | | -0.0009\*\* | -0.0006\*\*\* | -0.0003\*\*\* |
|  | (-2.21) | | (-2.98) | (-2.34) | (-3.41) |
|  |  | |  |  |  |
| Distance-to-default | -0.0038 | | -0.0246 | -0.0002 | 0.0099 |
|  | (-0.21) | | (0.92) | (-0.08) | (1.20) |
|  |  | |  |  |  |
| Firm age | 0.0004 | | 0.0001\* | 0.0001 | 0.0006\* |
|  | (0.08) | | (2.16) | (0.32) | (2.08) |
|  |  | |  |  |  |
| Past stock return | 0.1182 | | 0.0931 | 0.0906 | 0.0565 |
|  | (1.12) | | (0.65) | (0.96) | (1.04) |
|  |  | |  |  |  |
| Liquidity constraint | -0.1957\*\* | | 0.1240 | 0.1030 | 0.0803 |
|  | (-2.39) | | (0.86) | (1.41) | (1.65) |
|  |  | |  |  |  |
| Tax loss | 0.1702\*\*\* | | 0.2717\*\* | 0.1651\*\* | 0.1577\*\* |
|  | (3.01) | | (3.09) | (2.90) | (3.09) |
|  |  | |  |  |  |
|  |  | |  |  |  |
| R-Squared | 0.1370 | | 0.1464 | 0.1302 | 0.1542 |
| Observations | 1,193 | | 1,210 | 1,272 | 1,264 |
|  |  | |  |  |  |

**Table 8: 2SLS regressions of dividend net of stock repurchase on compensation leverage and inside debt**

The table replicates the results in Table 7 using a 2SLS procedure with two instrumental variables for the pension measures: executive age and the multiplier factor, ‘M’. \*, \*\*, \*\*\* indicate significance at the 0.1, 0.05, and 0.01 levels, respectively.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Dependent variable: [Dividends - (Repurchases – Issuances)]/Assets | | | | |
|  | CEO only | | | All executives | |
| Independent variable | Compensation leverage | Inside debt | | Compensation leverage | Inside debt |
|  |  | |  |  |  |
| Compensation leverage | -3.130\*\* | |  | -3.073\*\*\* |  |
|  | (-2.13) | |  | (-3.34) |  |
|  |  | |  |  |  |
| Inside debt |  | | 0.0136 |  | 0.0070 |
|  |  | | (0.97) |  | (0.58) |
|  |  | |  |  |  |
| Salary and bonus/assets | 0.0002\*\* | | -0.0001 | 0.0001 | -0.0017 |
|  | (2.38) | | (-0.56) | (0.37) | (-0.59) |
|  |  | |  |  |  |
| Stock-options/assets | -0.0015\*\* | | -0.0032\*\*\* | 0.0011 | -0.0016\*\*\* |
|  | (-2.08) | | (-3.14) | (0.11) | (-3.71) |
|  |  | |  |  |  |
| Log(size) | 0.0147\* | | 0.0144 | 0.0092\*\*\* | 0.0050\*\* |
|  | (1.78) | | (1.38) | (2.71) | (2.19) |
|  |  | |  |  |  |
| Book-to-market ratio | -0.0005\*\* | | -0.0001 | -0.0006 | -0.0007 |
|  | (-1.98) | | (-1.26) | (-1.61) | (-1.15) |
|  |  | |  |  |  |
| Debt/equity | -0.0607\*\*\* | | -0.0052\*\* | -0.0067\*\*\* | -0.0061\*\*\* |
|  | (-3.62) | | (-2.42) | (-4.16) | (-3.32) |
|  |  | |  |  |  |
| Capital expenditures/assets | 0.0001 | | 0.0001 | -0.0001 | 0.0001\*\* |
|  | (-0.88) | | (1.20) | (-0.95) | (2.08) |
|  |  | |  |  |  |
| Cash flow operations/assets | -0.0004\* | | -0.0008\*\* | 0.0009 | -0.0005\* |
|  | (-1.93) | | (-2.01) | (-0.32) | (-1.88) |
|  |  | |  |  |  |
| Distance-to-default | -0.0072\*\* | | 0.0017 | -0.0076\*\*\* | 0.0008 |
|  | (-1.96) | | (0.73) | (-3.78) | (0.66) |
|  |  | |  |  |  |
| Firm age | 0.0003 | | 0.0004 | -0.0001 | 0.0005 |
|  | (-0.90) | | (1.46) | (-1.17) | (1.61) |
|  |  | |  |  |  |
| Past stock return | 0.0296 | | 0.0183 | 0.0283\*\* | 0.0094\* |
|  | (1.36) | | (1.14) | (2.04) | (1.66) |
|  |  | |  |  |  |
| Liquidity constraint | 0.0348\*\* | | 0.0069 | 0.0283\*\*\* | 0.0010 |
|  | (2.06) | | (1.12) | (2.86) | (0.21) |
|  |  | |  |  |  |
| Tax loss | 0.0155\*\* | | 0.0127\*\*\* | 0.0103\*\*\* | 0.0077\*\*\* |
|  | (2.21) | | (2.64) | (3.79) | (3.31) |
|  |  | |  |  |  |
|  |  | |  |  |  |
| Instrument variables | Executive age; M | | Executive age; M | Executive age; M | Executive age; M |
| Observations | 901 | | 901 | 867 | 867 |
|  |  | |  |  |  |

**Table 9: Regressions of firm dividend yield by pension funding status at the CEO level**

The table shows pooled OLS regressions of a firm’s dividend yield on compensation leverage and inside debt at the CEO level, and a set of control variables (as defined in Table 1), separately for cases where the pensions are funded and unfunded by a rabbi trust. The sample represents data on 272 firms over the period 2000-2009. The table presents regression coefficients and *t*-statistics, based on standard errors adjusted for heteroskedasticity and autocorrelation following Rogers (1993), with year fixed effects. \*, \*\*, \*\*\* indicate significance at the 0.1, 0.05, and 0.01 levels, respectively.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Dependent variable: Dividend yield | | | | |
| Independent variable | Compensation leverage | | | Inside debt | |
|  | Funded pension | Unfunded pension | | Funded pension | Unfunded pension |
|  |  | |  |  |  |
| Compensation leverage | -2.0881\*\*\* | | -3.2801\*\*\* |  |  |
|  | (-3.62) | | (-7.46) |  |  |
|  |  | |  |  |  |
| Inside debt |  | |  | 0.0297 | -0.1234\*\*\* |
|  |  | |  | (0.80) | (-3.17) |
|  |  | |  |  |  |
| Salary and bonus/assets | 0.0040 | | 0.0003 | -0.0040 | 0.0081\*\* |
|  | (0.99) | | (0.10) | (0.96) | (2.33) |
|  |  | |  |  |  |
| Stock-options/assets | 0.0199\* | | 0.0110 | 0.0226\* | 0.0180 |
|  | (2.16) | | (1.41) | (2.18) | (1.64) |
|  |  | |  |  |  |
| Log(size) | -0.1631 | | -0.0689 | -0.2843 | -0.0642 |
|  | (-0.69) | | (-0.66) | (-1.03) | (-0.31) |
|  |  | |  |  |  |
| Book-to-market ratio | -0.0001 | | 0.0001 | -0.0007 | 0.0001 |
|  | (-0.58) | | (0.37) | (-0.23) | (1.18) |
|  |  | |  |  |  |
| Debt/equity | -0.0226 | | -0.0290\*\* | 0.0132 | -0.0339 |
|  | (-0.39) | | (-2.77) | (-0.03) | (-1.06) |
|  |  | |  |  |  |
| Capital expenditures/assets | -0.0006 | | -0.0010\* | -0.0006 | -0.0007 |
|  | -(0.14) | | (-1.98) | (-0.12) | (-1.57) |
|  |  | |  |  |  |
| Cash flow operations/assets | -0.0006 | | 0.0003 | -0.0003 | 0.0001 |
|  | (-0.04) | | (1.56) | (-0.66) | (0.79) |
|  |  | |  |  |  |
| Distance-to-default | -0.2976\*\*\* | | -0.2525\*\*\* | -0.3447\*\*\* | -0.2318\*\*\* |
|  | (-5.79) | | (-5.26) | (-7.94) | (-3.72) |
|  |  | |  |  |  |
| Firm age | -0.0084\*\*\* | | -0.0011 | -0.0087\*\*\* | -0.0015 |
|  | (-6.72) | | (-0.74) | (-6.74) | (-0.94) |
|  |  | |  |  |  |
| Past stock return | 0.0263 | | 0.6814\*\*\* | 0.2306 | 0.9183\*\*\* |
|  | (0.25) | | (5.80) | (1.29) | (4.97) |
|  |  | |  |  |  |
| Liquidity constraint | 0.7865\* | | 0.8296 | 1.089\*\* | 0.1987 |
|  | (1.90) | | (1.54) | (2.55) | (0.48) |
|  |  | |  |  |  |
| Tax loss | 0.3447\*\* | | -0.1442 | 0.4238\*\*\* | -0.2127 |
|  | (2.50) | | (-0.84) | (3.66) | (-1.16) |
|  |  | |  |  |  |
|  |  | |  |  |  |
| R-Squared | 0.2969 | | 0.2248 | 0.2983 | 0.1217 |
| Observations | 379 | | 1,225 | 354 | 1,157 |
|  |  | |  |  |  |

**Table 10: Regressions of firm dividend yield by pension funding status for all top executives**

The table shows pooled OLS regressions of a firm’s dividend yield on compensation leverage and inside debt for all executives, and a set of control variables (as defined in Table 1), separately for cases where the pensions are funded and unfunded by a rabbi trust. The sample represents data on 272 firms over the period 2000-2009. The table presents regression coefficients and *t*-statistics, based on standard errors adjusted for heteroskedasticity and autocorrelation following Rogers (1993), with year fixed effects. \*, \*\*, \*\*\* indicate significance at the 0.1, 0.05, and 0.01 levels, respectively.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Dependent variable: Dividend yield | | | | |
| Independent variable | Compensation leverage | | | Inside debt | |
|  | Funded pension | Unfunded pension | | Funded pension | Unfunded pension |
|  |  | |  |  |  |
| Compensation leverage | -2.3541\*\*\* | | -3.4898\*\*\* |  |  |
|  | (-3.74) | | (-8.37) |  |  |
|  |  | |  |  |  |
| Inside debt |  | |  | -0.1846 | -0.0720 |
|  |  | |  | (-1.04) | (-1.55) |
|  |  | |  |  |  |
| Salary and bonus/assets | 0.0012 | | -0.0006 | 0.0138 | 0.0070\* |
|  | (0.51) | | (-0.24) | (1.33) | (1.87) |
|  |  | |  |  |  |
| Stock-options/assets | 0.0956\*\*\* | | 0.0071 | 0.0987\*\*\* | 0.02026\* |
|  | (5.22) | | (0.90) | (7.01) | (1.45) |
|  |  | |  |  |  |
| Log(size) | -0.6540\* | | -0.0211 | 0.4936 | 0.00343 |
|  | (2.01) | | (0.11) | (1.54) | (0.84) |
|  |  | |  |  |  |
| Book-to-market ratio | 0.0006\*\*\* | | 0.0003 | -0.0008\*\*\* | 0.0002 |
|  | (-4.77) | | (0.05) | (-3.54) | (0.04) |
|  |  | |  |  |  |
| Debt/equity | 0.2191 | | -0.3491 | -0.2847 | -0.69642\*\* |
|  | (-0.93) | | (-1.63) | (-0.63) | (-2.71) |
|  |  | |  |  |  |
| Capital expenditures/assets | 0.0002 | | -0.0007 | 0.0001 | -0.0008\* |
|  | (1.41) | | (-1.37) | (1.64) | (-2.11) |
|  |  | |  |  |  |
| Cash flow operations/assets | 0.0001\*\* | | 0.0003\* | -0.0006\*\* | 0.0008 |
|  | (-2.67) | | (1.98) | (-2.79) | (1.15) |
|  |  | |  |  |  |
| Distance-to-default | -0.2331\*\*\* | | -0.2140\*\*\* | -0.2792\*\*\* | -0.20983\*\*\* |
|  | (-4.38) | | (-4.75) | (-4.58) | (-3.59) |
|  |  | |  |  |  |
| Firm age | -0.0013 | | -0.0001 | 0.0027 | -0.00155 |
|  | (0.47) | | (-1.03) | (0.94) | (-1.82) |
|  |  | |  |  |  |
| Past stock return | 0.0034 | | 0.7743\*\*\* | 0.2720 | 1.0630\*\*\* |
|  | (0.01) | | (4.80) | (0.75) | (5.56) |
|  |  | |  |  |  |
| Liquidity constraint | 0.1546 | | 0.8102 | 0.5787\*\* | 0.82177 |
|  | (0.94) | | (1.04) | (2.83) | (0.69) |
|  |  | |  |  |  |
| Tax loss | 0.3891 | | -0.0379 | 0.3341 | -0.0390 |
|  | (1.53) | | (-0.31) | (1.14) | (-0.31) |
|  |  | |  |  |  |
|  |  | |  |  |  |
| R-Squared | 0.3061 | | 0.2748 | 0.2695 | 0.1831 |
| Observations | 185 | | 887 | 177 | 828 |
|  |  | |  |  |  |

**Table 11: Regressions of firm dividend payout ratio by pension funding status at the CEO level**

The table shows pooled Tobit regressions of a firm’s dividend payout ratio on compensation leverage and inside debt at the CEO level, and a set of control variables (as defined in Table 1), separately for cases where the pensions are funded and unfunded by a rabbi trust. The sample represents data on 272 firms over the period 2000-2009. The table presents regression coefficients and *t*-statistics, based on standard errors adjusted for heteroskedasticity and autocorrelation following Rogers (1993), with year fixed effects. \*, \*\*, \*\*\* indicate significance at the 0.1, 0.05, and 0.01 levels, respectively.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | | Dependent variable: Dividend payout ratio | | | | |
| Independent variable | | Compensation leverage | | | Inside debt | |
|  | | Funded pension | Unfunded pension | | Funded pension | Unfunded pension |
|  | |  | |  |  |  |
| Compensation leverage | | 0.1626\*\* | | -6.1427\*\*\* |  |  |
|  | | (2.02) | | (-9.80) |  |  |
|  | |  | |  |  |  |
| Inside debt | |  | |  | -0.0013 | -0.8802\*\*\* |
|  | |  | |  | (-0.07) | (-3.70) |
|  | |  | |  |  |  |
| Salary and bonus/assets | | -0.0018\*\*\* | | -0.0219\*\*\* | -0.0021\*\*\* | -0.0050 |
|  | | (-4.19) | | (-7.11) | (-3.97) | (-0.10) |
|  | |  | |  |  |  |
| Stock-options/assets | | -0.0056\*\*\* | | 0.0641\*\*\* | -0.0062\*\*\* | 0.0969\*\*\* |
|  | | (-2.98) | | (3.86) | (-3.11) | (2.99) |
|  | |  | |  |  |  |
| Log(income) | | -0.1517\*\*\* | | -4.7780\*\*\* | -0.1696\*\*\* | -4.6329\*\*\* |
|  | | (-8.88) | | (-15.73) | (-9.58) | (-14.45) |
|  | |  | |  |  |  |
| Cash dividend | | 0.0001\*\*\* | | 0.0001\*\*\* | 0.0001\*\*\* | 0.0009\*\*\* |
|  | | (6.44) | | (4.03) | (6.07) | (3.84) |
|  | |  | |  |  |  |
| Log(size) | | 0.2761\*\*\* | | 5.3788\*\*\* | 0.3090\*\*\* | 4.7953\*\*\* |
|  | | (8.74) | | (10.12) | (6.87) | (8.20) |
|  | |  | |  |  |  |
| Book-to-market ratio | | -0.0004 | | -0.0005\*\* | -0.0003 | -0.0004 |
|  | | (-0.54) | | (-2.05) | (-0.39) | (-1.73) |
|  | |  | |  |  |  |
| Debt/equity | | -0.0123\*\*\* | | -0.0028 | -0.0077 | -0.0105 |
|  | | (-6.61) | | (-0.41) | (-1.36) | (-1.44) |
|  | |  | |  |  |  |
| Capital expenditures/assets | | 0.0001 | | 0.0001 | 0.0008 | 0.0001 |
|  | | (0.37) | | (0.79) | (1.06) | (0.84) |
|  | |  | |  |  |  |
| Cash flow operations/assets | | -0.0002\*\*\* | | 0.0005 | -0.0002\*\*\* | -0.0004 |
|  | | (-7.72) | | (0.99) | (-4.29) | (1.23) |
|  | |  | |  |  |  |
| Market beta | | -0.0888\*\* | | -0.2356 | -0.1251\*\*\* | 0.3106 |
|  | | (-2.30) | | (0.67) | (-2.72) | (0.90) |
|  | |  | |  |  |  |
| Past stock return | | -0.1259\*\*\* | | -1.2977\*\* | -0.1598\*\*\* | -1.0282 |
|  | | (-3.30) | | (-2.01) | (-3.24) | (-1.43) |
|  | |  | |  |  |  |
|  | |  | |  |  |  |
| Observations | | 317 | | 1,031 | 291 | 996 |
|  |  | |  |  |  |

**Table 12: Regressions of firm dividend payout ratio by pension funding status for all top executives**

The table shows pooled Tobit regressions of a firm’s dividend payout ratio on compensation leverage and inside debt for all executives, and a set of control variables (as defined in Table 1), separately for cases where the pensions are funded and unfunded by a rabbi trust. The sample represents data on 272 firms over the period 2000-2009. The table presents regression coefficients and *t*-statistics, based on standard errors adjusted for heteroskedasticity and autocorrelation following Rogers (1993), with year fixed effects. \*, \*\*, \*\*\* indicate significance at the 0.1, 0.05, and 0.01 levels, respectively.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | | Dependent variable: Dividend payout ratio | | | | |
| Independent variable | | Compensation leverage | | | Inside debt | |
|  | | Funded pension | Unfunded pension | | Funded pension | Unfunded pension |
|  | |  | |  |  |  |
| Compensation leverage | | 0.1599\* | | -3.3608\*\*\* |  |  |
|  | | (1.96) | | (-7.49) |  |  |
|  | |  | |  |  |  |
| Inside debt | |  | |  | -0.2495 | -0.1341\*\*\* |
|  | |  | |  | (-1.41) | (-4.70) |
|  | |  | |  |  |  |
| Salary and bonus/assets | | 0.0002\*\* | | -0.0031 | 0.0026 | -0.0026\*\*\* |
|  | | (2.34) | | (-1.41) | (0.30) | (-3.25) |
|  | |  | |  |  |  |
| Stock-options/assets | | -0.0042\*\*\* | | 0.0098 | 0.0696\*\* | 0.0075\*\*\* |
|  | | (-4.60) | | (1.10) | (2.52) | (3.73) |
|  | |  | |  |  |  |
| Log(income) | | -0.0405 | | -3.8623\*\*\* | -1.1169\*\*\* | -1.1797\*\*\* |
|  | | (-1.34) | | (-22.51) | (-8.75) | (-20.41) |
|  | |  | |  |  |  |
| Cash dividend | | 0.0001\*\*\* | | 0.0009\*\*\* | 0.0022\*\*\* | 0.0003\*\*\* |
|  | | (5.58) | | (4.33) | (3.80) | (4.24) |
|  | |  | |  |  |  |
| Log(size) | | 0.0949\* | | 4.6164\*\*\* | 1.6531\*\*\* | 1.4351\*\*\* |
|  | | (1.69) | | (10.68) | (8.23) | (9.49) |
|  | |  | |  |  |  |
| Book-to-market ratio | | -0.0063\*\* | | 0.0165 | 0.6773\*\* | 0.0041 |
|  | | (2.39) | | (1.46) | (2.43) | (1.22) |
|  | |  | |  |  |  |
| Debt/equity | | -0.0086\*\* | | -0.0273 | -1.0250\*\* | -0.0075 |
|  | | (-2.14) | | (-1.44) | (-2.42) | (-1.55) |
|  | |  | |  |  |  |
| Capital expenditures/assets | | 0.0001\* | | 0.0004 | 0.0009\*\* | 0.0005\*\* |
|  | | (1.85) | | (0.29) | (2.01) | (0.28) |
|  | |  | |  |  |  |
| Cash flow operations/assets | | -0.0002\*\*\* | | 0.0003 | 0.0001 | -0.0004 |
|  | | (-5.05) | | (0.02) | (0.38) | (1.30) |
|  | |  | |  |  |  |
| Market beta | | -0.1872\*\*\* | | 0.0001 | -1.9725 | 0.4143 |
|  | | (-8.15) | | (0.00) | (-1.56) | (0.30) |
|  | |  | |  |  |  |
| Past stock return | | -0.0633\*\* | | -0.0866\*\*\* | -1.8489 | -0.0376\*\*\* |
|  | | (-2.06) | | (-6.84) | (-0.96) | (-8.78) |
|  | |  | |  |  |  |
|  | |  | |  |  |  |
| Observations | | 379 | | 1,249 | 354 | 1,184 |
|  |  | |  |  |  |

**Table 13: Robustness tests**

The table replicates the regressions in Tables 3 and 5 using different estimation procedures. ‘Robust fixed effects’, which is a firm-specific fixed effects model with robust standard errors; Fama-MacBeth (1973) regressions with 6 annual cross-sections; and the same models with Newey-West standard errors. \*, \*\*, \*\*\* indicate significance at the 0.1, 0.05, and 0.01 levels, respectively.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Panel A. Robustness models for Table 3 | | | | | |
|  | Dependent variable: Dividend yield | | | | |
|  | CEO only | | All executives | | |
|  | Compensation leverage | Inside debt | Compensation leverage | | Inside debt |
|  |  |  |  |  | |
| Original results | -3.1244\*\*\* | -0.0492\* | -3.2055\*\*\* | -0.0466 | |
|  | (-7.28) | (-2.09) | (-8.70) | (-1.74) | |
|  |  |  |  |  | |
| Robust fixed effects | -1.306\*\*\* | -0.059\* | -1.269\*\*\* | -0.050\* | |
|  | (-5.67) | (-1.80) | (-5.31) | (-1.63) | |
|  |  |  |  |  | |
| Fama-MacBeth | -3.221\*\*\* | -0.067\*\* | -3.295\*\*\* | -0.062\* | |
|  | (-6.70) | (-2.35) | (-7.28) | (-2.20) | |
|  |  |  |  |  | |
| Newey-West | -3.124\*\*\* | -0.049 | -3.030\*\*\* | -0.047 | |
|  | (-7.35) | (-1.33) | (-7.92) | (-1.26) | |
|  |  |  |  |  | |
|  |  |  |  |  | |
| Panel B: Robustness models for Table 5 | | | | | |
|  | Dependent variable: Dividend payout ratio | | | | |
|  | CEO only | | All executives | | |
|  | Compensation leverage | Inside debt | Compensation leverage | Inside debt | |
|  |  |  |  |  | |
| Original results | -3.742\*\*\* | -0.2878\*\*\* | -2.3947 \*\*\* | -0.2804\*\*\* | |
|  | (-8.37) | (-6.20) | (-7.91) | (-4.32) | |
|  |  |  |  |  | |
| Robust fixed effects | -4.010\*\* | 0.333 | -2.585\*\* | -0.292\* | |
|  | (-2.02) | (0.69) | (-2.11) | (-1.76) | |
|  |  |  |  |  | |
| Fama-MacBeth | -1.8571 | -0.7815 | -0.839 | -0.267 | |
|  | (-1.01) | (-1.02) | (-1.02) | (-1.24) | |
|  |  |  |  |  | |
| Newey-West | -5.1330 | -0.5978 | -2.536 | -0.292 | |
|  | (-1.24) | (-1.16) | (-1.04) | (-1.04) | |
|  |  |  |  |  | |

**Table 14: Regressions of future firm performance on the interaction between dividend yield and CEO compensation leverage**

The table shows results of pooled OLS regressions. The depended variable is the firm’s performance measured by return on assets (ROA), return on equity (ROE), and return on investment (ROI). ROA is net income divided by book value of total assets; ROE is net income divided by book value of equity; ROI is net income divided by total investment. All three measures are taken in the subsequent year, and as averages of the subsequent two and three years, and all are adjusted to industry averages. The independent variables are industry-adjusted CEO compensation leverage, industry-adjusted dividend yield, an interaction term between these variables, and a set of control variables defined in Table 1. The sample represents data on 272 firms over the period 2000-2009. The table presents regression coefficients and *t*-statistics, based on standard errors adjusted for heteroskedasticity and autocorrelation following Rogers (1993), with year fixed effects. \*, \*\*, \*\*\* indicate significance at the 0.1, 0.05, and 0.01 levels, respectively.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Year 1 | | | | | Years 1-2 | | | | | Years 1-3 | | | | | |
|  | ROA | ROE | | ROI | | ROA | | ROE | ROI | | ROA | | ROE | ROI | |
|  |  |  | |  | |  | |  |  | |  | |  |  | |
| Comp. leverage | -0.0089 | -0.0493 | -0.0123 | | -0.0018 | | -0.0506 | | -0.0012 | -0.0009 | | -0.0119 | | | 0.0019 |
|  | (-1.14) | (-1.29) | (-0.77) | | (-0.24) | | (-1.17) | | (-0.08) | (-0.13) | | (-0.26) | | | (0.13) |
|  |  |  |  | |  | |  | |  |  | |  | | |  |
| Dividend yield | -0.139 | -1.279\*\* | -0.131 | | -0.0964 | | -1.825\* | | -0.0856 | -0.0967 | | -1.410\*\* | | | -0.0986 |
|  | (-1.48) | (-2.48) | (-0.88) | | (-1.06) | | (-2.17) | | (-0.65) | (-1.38) | | (-2.59) | | | (-1.04) |
|  |  |  |  | |  | |  | |  |  | |  | | |  |
| Comp. leverage\* | 0.843 | 3.974\*\* | 3.107\*\* | | 1.123\* | | 6.550\*\* | | 3.542\*\* | 1.279\*\* | | 6.656\*\*\* | | | 3.884\*\*\* |
| Dividend yield | (1.49) | (2.47) | (3.35) | | (1.97) | | (3.13) | | (3.33) | (2.47) | | (4.58) | | | (3.73) |
|  |  |  |  | |  | |  | |  |  | |  | | |  |
| Salary and | -0.0001 | -0.0002 | -0.0001 | | -0.0001 | | -0.0001 | | -0.0001 | -0.0001 | | -0.0001 | | | 0.0001 |
| Bonus/assets | (-0.56) | (-0.66) | (-0.56) | | (-0.51) | | (-0.55) | | (-0.40) | (-0.05) | | (-0.06) | | | (-0.09) |
|  |  |  |  | |  | |  | |  |  | |  | | |  |
| Stock-options/ | 0.0006\* | 0.0017\* | 0.0010\*\* | | 0.0006\*\* | | 0.0023\*\*\* | | 0.0010\*\* | 0.0005\*\*\* | | 0.0020\*\*\* | | | 0.0009\*\*\* |
| assets | (2.08) | (2.14) | (2.32) | | (3.20) | | (3.91) | | (3.35) | (4.68) | | (4.42) | | | (4.01) |
|  |  |  |  | |  | |  | |  |  | |  | | |  |
| Log(size) | -0.0114\*\*\* | -0.0137 | -0.0039 | | -0.0114\*\*\* | | -0.0173 | | -0.0053 | -0.0123\*\*\* | | -0.0177 | | | -0.007 |
|  | (-3.77) | (-0.77) | (-0.57) | | (-4.74) | | (-1.04) | | (-0.86) | (-7.10) | | (-1.25) | | | (-1.41) |
|  |  |  |  | |  | |  | |  |  | |  | | |  |
| Book-to-market | 0.0001 | -0.0002 | 0.0006\*\* | | -0.0003 | | -0.0003 | | 0.0003 | -0.0001 | | -0.0001 | | | 0.0001 |
| Ratio | (1.03) | (-0.38) | (2.52) | | (-0.48) | | (-0.97) | | (1.39) | (-1.75) | | (-1.48) | | | (0.56) |
|  |  |  |  | |  | |  | |  |  | |  | | |  |
| Debt/equity | 0.0001 | 0.0072\*\* | -0.0004 | | 0.0004 | | 0.0074\*\* | | -0.0005 | 0.0001 | | 0.0036 | | | -0.0004 |
|  | (0.40) | (2.65) | (-0.51) | | (0.16) | | (3.35) | | (-0.85) | (0.30) | | (1.42) | | | (-0.50) |
|  |  |  |  | |  | |  | |  |  | |  | | |  |
| Capital exp./ | -0.130\*\* | -0.650\*\*\* | -0.302\*\*\* | | -0.0994\* | | -0.472\* | | -0.245\*\* | -0.125\*\*\* | | -0.502\*\* | | | -0.285\*\*\* |
| assets | (-2.44) | (-4.20) | (-3.55) | | (-2.06) | | (-1.99) | | (-2.85) | (-3.51) | | (-3.01) | | | (-4.40) |
|  |  |  |  | |  | |  | |  |  | |  | | |  |
| Cash flow oper./ | 0.409\*\*\* | 0.901\*\*\* | 0.618\*\*\* | | 0.373\*\*\* | | 0.631\*\* | | 0.553\*\*\* | 0.374\*\*\* | | 0.659\*\*\* | | | 0.559\*\*\* |
| assets | (17.02) | (11.13) | (16.97) | | (11.00) | | (2.64) | | (10.27) | (13.75) | | (4.15) | | | (12.45) |
|  |  |  |  | |  | |  | |  |  | |  | | |  |
| Distance-to- | 0.0032 | 0.0092 | 0.0036 | | 0.0041\* | | 0.0162\* | | 0.0055 | 0.0041\* | | 0.0134\* | | | 0.0055 |
| default | (1.53) | (1.14) | (0.93) | | (2.06) | | (2.02) | | (1.50) | (2.62) | | (2.00) | | | (1.84) |
|  |  |  |  | |  | |  | |  |  | |  | | |  |
| Firm age | 0.0001 | 0.0002 | 0.0001\*\* | | 0.0001 | | 0.0001 | | 0.0001\* | 0.0001 | | 0.0001 | | | 0.0001\* |
|  | (0.68) | (1.46) | (2.52) | | (0.49) | | (1.22) | | (2.10) | (0.76) | | (1.40) | | | (2.05) |
|  |  |  |  | |  | |  | |  |  | |  | | |  |
| Past stock return | 0.0044\*\* | 0.0162 | 0.0091\* | | 0.0040\* | | 0.0182 | | 0.0076\* | 0.0025 | | 0.0123 | | | 0.0049 |
|  | (2.47) | (1.81) | (2.00) | | (2.17) | | (1.54) | | (1.98) | (1.68) | | (1.38) | | | (1.44) |
|  |  |  |  | |  | |  | |  |  | |  | | |  |
| Liquidity | -0.0146 | -0.0096 | -0.0179 | | -0.0057 | | -0.0019 | | -0.009 | -0.0054 | | -0.0126 | | | -0.006 |
| constraint | (-0.95) | (-0.15) | (-0.73) | | (-0.44) | | (-0.05) | | (-0.48) | (-0.45) | | (-0.36) | | | (-0.36) |
|  |  |  |  | |  | |  | |  |  | |  | | |  |
| Tax loss | -0.0084\*\*\* | -0.0046 | -0.0101\* | | -0.0089\*\*\* | | -0.0136 | | -1.007\*\*\* | -0.0083\*\*\* | | -0.0105 | | | -0.0097\*\*\* |
|  | (-3.52) | (-0.48) | (-2.30) | | (-4.67) | | (-1.52) | | (-4.06) | (-5.92) | | (-1.82) | | | (-4.64) |
|  |  |  |  | |  | |  | |  |  | |  | | |  |
|  |  |  |  | |  | |  | |  |  | |  | | |  |
| R-squared | 0.3186 | 0.1209 | 0.2386 | | 0.3776 | | 0.1298 | | 0.2754 | 0.4357 | | 0.1577 | | | 0.3149 |
| Observations | 1,425 | 1,425 | 1,425 | | 1,420 | | 1,420 | | 1,420 | 1,410 | | 1,410 | | | 1,410 |
|  |  |  |  | |  | |  | |  |  | |  | | |  |
|  |  |  | |  | |  | |  |  | |  | |  |  | |

**Table 15: 2SLS regressions of future firm performance on the interaction between dividend yield and CEO inside debt**

The table shows results of pooled OLS regressions. The depended variable is the firm’s performance measured by return on assets (ROA), return on equity (ROE), and return on investment (ROI). ROA is net income divided by book value of total assets; ROE is net income divided by book value of equity; ROI is net income divided by total investment. All three measures are taken in the subsequent year, and as averages of the subsequent two and three years, and all are adjusted to industry averages. The independent variables are industry-adjusted CEO inside debt, industry-adjusted dividend yield, an interaction term between these variables, and a set of control variables defined in Table 1. The sample represents data on 272 firms over the period 2000-2009. The table presents regression coefficients and *t*-statistics, based on standard errors adjusted for heteroskedasticity and autocorrelation following Rogers (1993), with year fixed effects. \*, \*\*, \*\*\* indicate significance at the 0.1, 0.05, and 0.01 levels, respectively.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Year 1 | | | Years 1-2 | | | Years 1-3 | | |
|  | ROA | ROE | ROI | ROA | ROE | ROI | ROA | ROE | ROI |
|  |  |  |  |  |  |  |  |  |  |
| Inside debt | 0.0021 | 0.0085\*\* | 0.0047\*\* | 0.0024\*\*\* | 0.0107\*\* | 0.0049\*\* | 0.0011\*\* | 0.0081\*\*\* | 0.0035\*\*\* |
|  | (1.69) | (2.48) | (2.36) | (3.82) | (3.11) | (3.05) | (2.72) | (3.48) | (4.41) |
|  |  |  |  |  |  |  |  |  |  |
| Dividend yield | -0.0284 | -0.786 | 0.0474 | -0.0363 | -1.311 | 0.0191 | -0.0508 | -1.147\* | -0.0039 |
|  | (-0.27) | (-1.52) | (0.31) | (-0.36) | (-1.58) | (0.12) | (-0.59) | (-2.17) | (-0.03) |
|  |  |  |  |  |  |  |  |  |  |
| Inside debt\* | 0.278\*\* | 1.167\* | 0.692\*\*\* | 0.351\* | 2.144\* | 0.816\*\* | 0.268\*\* | 1.671\*\* | 0.742\*\*\* |
| Dividend yield | (2.54) | (1.85) | (3.92) | (2.30) | (1.97) | (3.18) | (2.37) | (2.40) | (4.08) |
|  |  |  |  |  |  |  |  |  |  |
| Salary and | -0.0002 | -0.0005 | -0.0003 | -0.0002 | -0.0004 | -0.0002 | -0.0001 | -0.0003 | -0.0001 |
| Bonus/assets | (-0.76) | (-1.13) | (-1.01) | (-0.87) | (-1.70) | (-1.08) | (-0.43) | (-1.69) | (-0.74) |
|  |  |  |  |  |  |  |  |  |  |
| Stock-options/ | 0.0007 | 0.0019\* | 0.0011\* | 0.0007\*\* | 0.0025\*\*\* | 0.0010\*\* | 0.0005\*\* | 0.0020\*\*\* | 0.0008\*\* |
| assets | (1.66) | (2.00) | (1.93) | (2.35) | (3.93) | (2.71) | (2.90) | (4.33) | (3.04) |
|  |  |  |  |  |  |  |  |  |  |
| Log(size) | -0.0108\*\* | -0.0098 | -0.0022 | -0.0112\*\*\* | -0.0153 | -0.0042 | -0.0128\*\*\* | -0.0172 | -0.0069 |
|  | (-3.20) | (-0.50) | (-0.27) | (-4.55) | (-0.85) | (-0.61) | (-7.51) | (-1.14) | (-1.25) |
|  |  |  |  |  |  |  |  |  |  |
| Book-to-market | 0.0001 | 0.0007 | 0.0007\*\*\* | -0.0006 | -0.0002 | 0.0004 | -0.0002\* | -0.0004 | 0.0002 |
| ratio | (-1.09) | (0.16) | (4.00) | (-0.60) | (-0.43) | (1.38) | (-1.91) | (-1.05) | (0.64) |
|  |  |  |  |  |  |  |  |  |  |
| Debt/equity | 0.0001 | 0.0063 | -0.0003 | -0.0001 | 0.0081\*\* | -0.0005 | 0.0001 | 0.0036 | -0.0003 |
|  | (0.11) | (1.36) | (-0.39) | (-0.13) | (2.52) | (-0.67) | (0.14) | (1.10) | (-0.28) |
|  |  |  |  |  |  |  |  |  |  |
| Capital exp./ | -0.127\*\* | -0.623\*\*\* | -0.294\*\*\* | -0.0976\*\* | -0.441\* | -0.239\*\* | -0.120\*\*\* | -0.470\*\* | -0.277\*\*\* |
| assets | (-2.94) | (-4.06) | (-4.01) | (-2.36) | (-1.92) | (-3.15) | (-3.67) | (-2.81) | (-4.64) |
|  |  |  |  |  |  |  |  |  |  |
| Cash flow oper./ | 0.405\*\*\* | 0.933\*\*\* | 0.625\*\*\* | 0.362\*\*\* | 0.617\*\* | 0.549\*\*\* | 0.363\*\*\* | 0.648\*\*\* | 0.554\*\*\* |
| assets | (14.78) | (10.61) | (14.57) | (9.77) | (2.46) | (9.35) | (11.82) | (3.90) | (11.04) |
|  |  |  |  |  |  |  |  |  |  |
| Distance-to- | 0.0033 | 0.0087 | 0.0041 | 0.0038 | 0.0151 | 0.0053 | 0.0041\*\* | 0.0132\* | 0.0058\* |
| default | (1.60) | (1.03) | (1.07) | (1.85) | (1.84) | (1.44) | (2.57) | (2.00) | (2.01) |
|  |  |  |  |  |  |  |  |  |  |
| Firm age | 0.0002 | 0.0002 | 0.0001\*\* | 0.0002 | 0.0002 | 0.0001\*\* | 0.0002 | 0.0002 | 0.0001\*\* |
|  | (0.96) | (1.66) | (3.07) | (0.79) | (1.41) | (2.38) | (1.16) | (1.81) | (2.41) |
|  |  |  |  |  |  |  |  |  |  |
| Past stock return | 0.0044\*\* | 0.0165 | 0.0087\* | 0.0043\* | 0.0195 | 0.0076\* | 0.0031\* | 0.015 | 0.0053 |
|  | (2.39) | (1.78) | (1.99) | (2.15) | (1.57) | (1.95) | (1.90) | (1.54) | (1.58) |
|  |  |  |  |  |  |  |  |  |  |
| Liquidity | -0.0149 | -0.0094 | -0.0182 | -0.0061 | -0.0054 | -0.0096 | -0.0058 | -0.014 | -0.0063 |
| constraint | (-0.89) | (-0.14) | (-0.72) | (-0.45) | (-0.14) | (-0.52) | (-0.48) | (-0.41) | (-0.37) |
|  |  |  |  |  |  |  |  |  |  |
| Tax loss | -0.0083\*\*\* | -0.0045 | -0.0119\*\* | -0.0092\*\*\* | -0.0164 | -0.0132\*\*\* | -0.0088\*\*\* | -0.0145\*\* | -0.0127\*\*\* |
|  | (-3.57) | (-0.47) | (-2.65) | (-5.59) | (-1.70) | (-5.72) | (-7.84) | (-2.44) | (-7.38) |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
| R-Squared | 0.3159 | 0.1384 | 0.2423 | 0.3773 | 0.1427 | 0.2811 | 0.4379 | 0.1704 | 0.3205 |
| Observations | 1,342 | 1,342 | 1,342 | 1,338 | 1,338 | 1,338 | 1,329 | 1,329 | 1,329 |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |

1. The lump-sum option is used by roughly 69% of our sample firms. This option offers executives the ability to cash out the actuarial value of their pension entitlement upon retirement rather than in annual installments. Managers who have this option may be less concerned with long-range firm viability, as they can ‘cash out’ at retirement. While not reported here, we test how the presence of lump sum payment affects dividend payments. Managers offer mildly lower dividend yields when the lump sum payment is unavailable. [↑](#footnote-ref-1)
2. Information is taken directly from the FRB archive of historical interest rate data, available at <http://www.federalreserve.gov/releases/h15/data.htm> [↑](#footnote-ref-2)
3. Some firms will deduct anticipated social security benefits from the annual pension award; since these are far smaller than the annual benefits entitled to most executives, no deduction is made here. [↑](#footnote-ref-3)
4. The pseudo R-square for Tobit regressions is not very informative and is thus not reported. [↑](#footnote-ref-4)
5. The odds of Lee Raymond surviving even to age 111 are so minimal, that no additional present value is added beyond this age. Thus, the age 120 truncation is appropriate based on current longevity estimates. [↑](#footnote-ref-5)