

Firm Investment Decisions, Dividend Policy, And Director Stock Options

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ABSTRACT

Since risk plays a role in setting dividend policy and granting stock options to directors, the paper investigates the effect of director compensation structure on the riskiness of the firm's investment strategy by examining the firm's dividend payout policy. The results imply that stock options to outside directors increase the firm's appetite for risk and suggest that director stock options constitute a major incentive to changing corporate policies. The results also indicate that director stock options align the risk preferences of managers and directors. Finally, the results suggest that stock options do not motivate directors to act opportunistically in setting investment and payout policies.

Keywords: Investment Decisions; Dividend Policy; Stock Options; Agency Theory and Corporate Governance

1 INTRODUCTION

Previous research suggests that stock option compensation provides a motive to increase risk taking. Thus, top executives and directors who receive a significant amount of their pay in the form of stock options are likely to change investment policies of the firms they control. Fich and Shivdasani (2005) find a positive correlation between director stock option plans and market to book ratio and the cumulative abnormal return suggesting a relation between director compensation and the firm's investment plans. These arguments prompt the question whether the change in director compensation structure is affecting a fundamental change in the role of directors in the firm.

In this paper, we complement previous studies by providing further evidence on the effect of director option compensation on the advisory role of directors in financing and investment decisions. Indeed, the board assumes direct responsibility in various corporate decisions such as asset sales, takeover attempts, and payout policy.¹ Fama and Jensen (1983) emphasize the advisory role of outside directors while Bhagat and Black (2002) suggest that directors' experience and expertise affect firm performance. Empirically, Harford (2003) finds a relation between governance structure and takeover attempts and outcomes. John and Knyazeva (2006) and Jiraporn and Chintrakarn (2009) find a significant relation between various governance measures and payout policy. Thus, we conjecture that the recent development in director compensation structure might have an effect on the director's advisory role; in particular, a relation may exist between director stock option grants and the firm's financing and investment decisions.

To examine the advisory role of outside directors, I focus on corporate payout decisions. Certainly, not paying dividends or reducing dividends (in dividend-paying firms) may be a way to raise capital for potential investments. Hoberg and Prabhala (2009) find a significant relation between the propensity to pay dividend and risk. Jagannathan, Stephens and Weisbach (2000) find that dividend paying firms are less risky than non-paying firms. Smith and Watts (1992) point out a high correlation between financing and compensation activity. In fact, they posit that firms with high growth opportunities pay low dividends and high incentive-based management compensation. Their argument is supportive to the contracting hypothesis; i.e., dividend payout and compensation are internally determined by management and board negotiation and not price motivated. Further, Guay (1999) finds that stock option compensation improves the option holder's appetite for risk. Thus, since firm risk is a common factor affecting the distribution of internal funds and granting of director stock options, we examine whether granting stock

¹ See Delaware General Corporate Law § 141(c).

options to outside directors tend to reduce the level of distribution of internal funds in order to increase investments. I call this hypothesis the *risk enhancing hypothesis*.

We also examine whether stock options to outside directors motivate opportunistic behavior. Basically, do stock options for outside directors motivate self dealing? We argue that if directors act opportunistically then firm value would be affected. Lang and Litzenberger (1989) point out that executive stock options are unprotected against dividend and that executives reduce dividend to preserve the value of their options. We posit the same argument regarding outside directors. Finally, we check whether our results are robust to the inclusion of CEO stock options as a factor in determining payout and investment policy.

In summary, the research question presented in this paper is whether the cumulative effect of director stock options has bearing on the firm's financing and investment decisions. Realizing that such decisions are part of a long term strategy, we examine the change in the strategy over a five year period. Particularly, we investigate whether paying incentive compensation for directors over several periods until they establish an equity stake in the firm would eventually affect the company's long-term payout policy. We expect that a long term incentive compensation policy accompanies a reduction in total payout (i.e. decrease in dividend and repurchases). We also study whether the reduction in the total payout is a consequence of an increase in risk taking behavior (risk enhancing hypothesis). Further, the structural change in director compensation also necessitates probing the relation between outside directors and the CEO of the firm.

Using panel data over the period 1995-2006 we find that stock option compensation for outside directors provide incentives to increase the riskiness of the investment strategy. In particular, if stock options increase the convexity of the directors' utility function and subsequently their tolerance for risk, then dividends (low risk) should be lower in firms that have potential investments and even lower when director compensation contracts are rich in stock options. Consistent with the risk enhancing argument, we find that firms with high research and development expense and market to book ratio have even lower payout ratio when directors receive more stock options. We interpret these results to suggest that firms paying stock options to outside directors have greater appetite for risk that manifest in its financing and investment policies.

Second, I examine whether directors opportunistically reduce payout. If director stock options are inversely related to the distribution of dividends, then it may be that the reduction of cash disbursement is to promote personal interests- negative net present value projects. Another possibility is that directors may collude with management if stock options align the interest of both. We present evidence that firms that overinvest ($M/B < 1$) do not reduce the distribution of dividends when directors receive stock options, whereas value-maximizing firms ($M/B \geq 1$) do. This result supports the hypothesis that director stock options improve the efficacy of the board rather than promote opportunistic behavior. Finally, we enter CEO stock options in the analysis to ascertain that the results continue to hold.

The study contributes to the existing literature in several ways. First, the analysis provides support to the notion that stock options to outside directors motivate aggressive investment strategies. Second, the study highlights the point that stock options to outside directors and to executives may have the same effect on the firm's payout and investment policy. Third, the paper suggests that director stock options constitute a major incentive to changing corporate policies. Finally, the outcome implies that since incentive compensation alters financing, investment and governance plans within the firm, regulatory agencies should consider director compensation when issuing mandates and quotas on board composition.

2 LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Fama and Jensen (1983) argue that reputation is the main incentive for outside directors. Other researchers focus on board composition and ownership as underlying factors for enhancing board effectiveness. For example, Anderson, Mansi and Reeb (2004) find that independency of the board is negatively related to the cost of financing. Byrd and Hickman (1992) observe higher abnormal returns around announcement dates for bidding firms where the board constitutes more than 50% outsiders, suggesting that outside directors are involved in strategic investment decisions.

Compensation contracts are commonly used to align the interests of management and shareholders. Similarly, director compensation contracts have become more incentive-based in order to align the interests of directors (wealth and risk) and shareholders. However, because director pay is assumed to be small relative to CEO pay, previous literature devotes little attention to the relation between director compensation and effectiveness of the board. For example, Harford (2003) studies a sample of firms subject to hostile takeover attempts over the period 1988 and 1991 and concludes that financial benefits to outside directors is relatively small to affect board takeover decisions. However, Yermack (2004) argues that director compensation contracts have become a significant factor in affecting board decisions. Most importantly, the recent development in the structure of director compensation raises concerns whether stock options motivate directors to be more involved in firm operations.

The main question in this paper is whether stock options to outside directors affect the firm's investment and payout decisions. The argument is based on the assumption that compensation contracts are optimally designed to achieve two objectives: attract qualified directors and motivate them to fulfill their jobs. Therefore, the study uses the proportion of stock options (PSO) in director's total compensation to investigate whether structural differences in compensation contracts have effects on directors' diligence on the board.

2.1 Risk enhancing hypothesis

Rosen (1982) suggests that executive compensation is tied to firm value by firm size and the complexity of the job. Further, executive incentive compensation, specifically stock options, is thought to align executive wealth with that of shareholders and to align the risk preferences of shareholders and executives.² Indeed, corporate executives have most of their human capital invested in the firm and thus become risk-averse; whereas well-diversified shareholders (i.e. caring only about systematic risk) have interest in the firm taking on riskier projects (Jensen and Murphy, 1990; Guay, 1999). Therefore, firms with stock option rich compensation for outside directors will tend to retain higher levels of excess cash for future investments.

Dividends reduce cash reserves that are used for future investments. According to the pecking order hypothesis (Myers, 1984), internally generated funds are preferred to external financing and therefore firms expecting future investments will favor lower dividends. Supporting the pecking order, Fama and French (2002) document lower dividends for firms with abundant investment opportunities. Similarly, Gaver and Gaver (1993), using a multivariate measure of investment opportunity, provide evidence that growth firms distribute less dividends than non-growth firms. Recently, Fich and Shivdasani (2005) argue that firms adopting stock option plans for outside directors have higher market to book. In addition, Guay and Harford (2000) relate the use of dividends to the stability of firms' earnings, suggesting that dividend distribution depends on the availability of cash for future investments.³ I use the relation between dividends and research and development expense (R&D) and market to book (M/B) to proxy for investment planning because if potential investments (R&D) are anticipated then dividends are reduced and if earnings are expected (M/B) dividends may be distributed. As such, under the risk enhancing hypothesis firms may distribute even lower dividends when investments (or earnings) are anticipated because of the preference for investment (risky) over dividends (safe bets).

2.2 Opportunistic behavior

Fama and Jensen (1983) argue that outside directors are motivated by reputation concerns to fulfill their duties. However, if pursuing their own objectives promises higher financial rewards, outside directors may attempt to change the firm's strategies to serve their personal interests. This might take two forms: investments in suboptimal projects that benefit outside directors and/or collusion of directors and managers to extract perquisites. For example, Vafeas (1999) finds that the adoption of director stock option plans is associated with an increase in retirement plans for outside directors, which he interprets as opportunistic behavior. Brick, Palmon and Wald

² For a discussion of how stock options align risk preferences see Smith and Stulz (1985), and Guay (1999).

³ Seemingly counter arguments for the relation between dividends and investment opportunities are presented under the signaling hypothesis of dividends. The signaling hypothesis postulates a positive relation between dividends and future earnings. For theoretical presentation of this argument see Battacharya (1979) and see Benartzi, Michaely and Thaler (1997) for empirical evidence.

(2006), after examining the compensation of managers and directors, argue that the two groups collude with each other to promote their mutual interests rather than the interests of shareholders.

Thus, are director stock options a reflection of director influence? Are director stock options accompanied by opportunistic behavior by outside directors? In other words, influential directors may take on projects that increase their personal benefits even if they destroy firm wealth. Lang and Litzenberger (1989) argue that taking suboptimal investments to extract private benefits appears in firm value. Thus, I test whether stock option compensation for outside directors is associated with lower dividends in undervalued firms.

2.3 CEO effect

Although dividend payout decision is in the hands of directors (Delaware General Corporate Law article 104 (c)) CEOs are most influential in determining the firm's investment decisions that effectively relate to distribution of dividends. It is thus understandable that outside directors share with the CEO the decision to distribute dividends. Indeed, part of the indirect effect that stock options generate is the increase in the tendency of the option holder to take on more risk. CEOs and directors receiving stock options have incentives to increase firm investments and reduce dividends; assuming dividends are low-risk projects. In other words, similar to directors, CEOs might support lower dividends when the firm has abundant investment opportunities. Brick, Palmon and Wald (2006) argue that director and CEO compensation are positively related suggesting that the two entities collude to provide mutual benefits. Therefore, I hypothesize that firms granting stock options to their CEOs are expected to distribute even lower dividends when firms invest in R&D and have high market to book. In addition, we are interested to see whether the CEO's effect over shadows the effect of directors in the firm.

3 EMPIRICAL APPROACH

Our empirical approach comprises two parts: univariate and multivariate analysis. In the univariate analysis: first, we split the sample into dividend-paying and non-paying firms; then into low and high dividend-paying firms. Low and high dividend-paying firms are split by the median of dividend payout in dividend-paying firms. Second, we split the sample by the median of M/B and the median of R&D. Before we display our tests we introduce the attribute measures, the data and sample selection criteria, and the descriptive statistics.

3.1 Attribute measures

To conduct the empirical tests we used dividend payout as the dependent variable. Our aim is to examine the investment and payout policies in firms that follow different compensation structure for outside directors. Thus, director stock option compensation is used as the main independent variable to affect dividend payout. Other independent variables are used as proxies for dividend strategy and control variables. In addition, interaction variables are also used to reflect the extent of director involvement.

3.1.1 Dividends

Previous literature uses dividend yield (dividend over stock price) to examine the payout policy (e.g. Fenn and Liang, 2001). However, in this paper we use dividend to assets (Div2A) as a proxy for the payout policy. Fama and French (2002) point out that the ratio of dividend to assets may explain more about dividend policy than dividend to price ratio because the variation in the latter measure is due mostly to changes in the stock price. In some instances, we test the hypotheses using two other proxies: 1- the change in dividends over total assets by using the lagged variable as an independent variable and 2- payout ratio that is calculated as dividend over earnings before extra ordinary items. The latter measure suffers from high drop out of data for firms with zero or negative income. Other related variables used are stock repurchases over total assets (Repo2A) and the sum of dividends and repurchases over total assets (TP2A).

3.1.2 Director and CEO characteristics

The main hypothesis in this paper is whether stock option compensation for outside directors affects board decisions. The reason stock options for outside directors did not take considerable share in previous literature is because it is small relative to CEO stock options. However, studies by Vafeas (1999) and Yermack (2004) argue that the effect of these grants is significant if they occur over several years. Therefore, in this paper we use our compensation variables as five years cumulative. Specifically, we use two proxies for director incentive pay (Dir Inc); namely director proportion of stock options (Dir PSO) and director pay for performance (PyPerDir). Dir PSO is the sum of the value of stock options accumulated over five years as a fraction of total director compensation. PyPerDir is the natural logarithm of a dollar change in the five years cumulative stock option compensation for a one percentage change in stock price. Total director compensation is the sum of fixed salary, meeting fees, and total value of stock and stock option grants accumulated over five years. Similarly, for CEO incentive pay (CEO Inc), we use the same approach to calculate CEO proportion of stock options (CEO PSO) and CEO pay for performance (PyPerCEO). However, instead of accumulating stock options over five years we add stock grants with unexercised exercisable stock options. Since both director and CEO proportion of stock options are considered as incentives to induce risk taking, they are likely to be negatively related to dividend distribution.

In addition, the model controls for director stock ownership (Dir Own) and CEO stock ownership (CEO Own). Ownership variables are calculated as the number of stock held divided by total shares outstanding. Stock ownership is a factor in reducing agency problems in the firm because it aligns the interests of the option holder and shareholders (Jensen and Meckling, 1976). Furthermore, stock ownership is inversely related to dispersion of ownership and consequently negatively related to agency costs (Rozeff, 1982). In this view, CEO and director ownership are expected to be negatively related to dividends if dividends are agency control mechanisms. .

To incorporate the role of stock options as an agency control mechanism we include several governance variables in our multivariate tests. We include board structure variables: board size (Board) as logarithm of the number of directors on the board and proportion of outside directors on the board (Outsiders). Since dividend payout is a board decision, the power of outsiders on the board might affect the payout decision. We also include CEO entrenchment variables: CEO chair (CEOChair) is a dummy that equals one if the CEO also holds the title of chair of the board. Tenure is the number of years the CEO held his/her position. CEOs that also hold board chairs and CEOs with longer tenure are more likely to be entrenched and thus are less likely to advocate lower dividends. Hence, we expect CEO chair and tenure to be negatively related to dividend payout variables.

3.1.3 Firm characteristics

The regressions also include firm size, risk, return, leverage and industry and year dummies as control variables. Firm size (Size) is the natural logarithm of total assets. The larger the firm, the more predictable are its future prospects (low volatility of returns and cash flows) and the more access it has to the capital market. Therefore, we expect a positive relation between size and dividends.

Firm performance (Return) and risk (Risk) are also included as explanatory variables. Return is calculated as the previous year average monthly return. Return is a market measure and might suggest that riskier firms have higher returns and also pay low dividends. Market return, in fact, reflects the future potential of the firm so it is expected that return to be negatively related to the level of dividends while positively related to changes in dividend. Firm risk, measured as the standard deviation of monthly return over the year is included. Firms with high variability in performance tend to lower payout.

In addition, firms that hold high amount of cash are more likely to distribute dividends. Therefore, we include cash excess cash (XS cash) as a control variable. XS cash is calculated as operating income before depreciation less capital expenditure divided by total assets. This variable is expected to relate positively to dividend payout. Leverage, measured as long term debt divided by total assets, is also added as an explanatory variable. Debt contracts often include covenants restricting the distribution of dividends. The direction of the relation between leverage and dividends is expected to be negative. Finally, industry dummies at the two digit SIC code are added to all models.

3.1.4 Proxies for dividend strategy

Dividends can be part of an investment plan. Previous literature posits two arguments relating dividends to investments. The first, advocated by Myers (1984), assumes that external financing is costly and therefore firms with potential investments prefer retaining capital inside the firm rather than distributing it as dividends. The second argument is that dividend policy contains information about future investments. This argument is the basis for the signaling hypothesis which predicts that firms signal about potential investments (or earnings) by increasing dividends. To accommodate both arguments the model includes two proxies for investment opportunities: research and development expenses to total assets (R&D) and market to book (M/B). R&D is a forward looking variable since it signals the firm's potential to generate future investments. High R&D firms are firms with high investment opportunities and greater need for cash. We expect dividends to be negatively related to R&D. M/B is market capitalization plus the book value of long-term debt over the book value of total assets. Firms that have high market values may be able to promise consistent levels of future payout (Guay and Harford, 2000) or need to signal about these opportunities in order to raise more capital in the future (Pan, 2007). On the other hand, high M/B firms are considered growth firms; in other words, high M/B may reflect future opportunities and subsequently more need for capital and thus lower dividends. The direction of the relation between M/B and dividend payout is undetermined. Research and Development to assets (R&D) is also included in the regression.

3.1.5 Interaction variables

The involvement of directors in setting the dividend policy is addressed by including interaction variables between director's incentive compensation variables and the variables that proxy for dividend strategy (M/B and R&D). For example, since dividends are considered part of an investment plan, the interaction variables between director's incentive variables and the two proxies for future investments are included. However, in order to better interpret the results we transform M/B and R&D to indicator variables. We use MB as an indicator variable that equals 1 if M/B is high – above the median- and zero otherwise. RD is also an indicator variable that equals 1 if R&D is above the median and zero otherwise. The risk enhancing hypothesis suggests that director stock options increase directors' preference for investments over dividends. Hence, we expect a negative relation between the interaction variables of director's incentive variables and M/B and the same with the interaction variable of director incentive pay and R&D.

3.2 Data and sample

The study starts with all firms listed on the Investor Responsibility Research Center (IRRC) between the years 1996 and 2005. IRRC provides data on director ownership and board structure. Then this data is matched to Execucomp. Execucomp provides data on the S&P 500, the S&P MidCap 400 and the S&P SmallCap 600 firms. It contains data on CEO stock options, total compensation and stock ownership. It also reports director total compensation, which is composed of a fixed salary, meeting fees, and an equity part (stock and stock option grants). However, director stock option compensation is listed in units, not in dollar values. So, we calculate stock option values for outside directors using Black-Scholes option pricing model with all variables obtained from Execucomp. The sample is then matched with financial data from Compustat and market data from CRSP. Firms that belong to the utility and financial industries are excluded; so are firms with incomplete data. Since explanatory variables are one year lag data for dividend are used for the years 1997 to 2006. The final sample comprises about 10419 firm-years expanding 44 different industries.

3.3 Descriptive statistics

Table 1 contains summary statistics for selected variables. The average firm has total assets of about \$13 billion and M/B value of 1.99. It uses leverage of about 24% and shareholders earn a dividend yield of 1.33%. The average director receives \$170 thousand in total annual compensation, 49% of which is stock options accumulated over five years. This number is biased downward since distributing stock options to outside directors is a recent trend. The CEO of the average firm, however, earns \$4.8 million in total annual compensation. In addition, the typical CEO has 59% of total annual pay from stock options and in the money unexercised exercisable stock options. On average, the CEO owns about 2.26% of the firm's outstanding shares whereas the director owns about

1.13%. Further, 56% of firm years in the sample have non-zero dividends. It is obvious from the descriptive statistics that stock options constitute a large fraction of director compensation. The significance of this phenomenon is that it might affect the directors’ judgment on investment and payout policies.

Table 1
Summary Statistics

This table presents summary statistics for the variables over the period 1995 to 2006. The sample consists of all firms with data on COMPUSTAT, CRSP, IRR and EXECUCOMP. Firms in the utilities and financial industries (SIC 4900-4999 and 6000-6999) and firms with incomplete data are excluded. Dir PSO is the sum of the value of stock options accumulated over five years as a fraction of total director compensation. PyPerDir is the dollar change in total director compensation for a one percentage change in stock price. Total director compensation is the sum of fixed salary, meeting fees, and total value of stock and stock option grants accumulated over five years. CEO PSO and PyPerCEO are calculated similar to those of directors using unexercised exercisable stock options. Assets is the book value of total assets. M/B is the market capitalization plus the book value of long-term debt divided by the book value of the total assets. R&D is research and development expense as a percent of total assets. Leverage is the book value of long-term debt divided by the book value of total assets. XS Cash is operating income before depreciation less capital expenditure divided by book value of total assets. Ret and Risk are the mean and standard deviation of the monthly return over the year, respectively. Dir (CEO) Own is the number of shares outside directors (CEO) hold as a percent of total shares outstanding. CEOChair is a dummy that equals to one when the CEO holds the position of the chair of the board. Tenure is the number of years the CEO held the CEO position. Board is the number of directors on the board. Outsiders is the number of outside directors as a percent of the total directors on the board.

Panel A	Mean	Median	Std Dev	Min	Max
Dividend/Assets (%)	1.14	0.46	2.13	0.00	58.04
Dividend Yield (%)	1.33	0.72	2.11	0.00	68.97
Leverage (%)	23.61	22.77	18.49	0.00	177.52
M/B	1.99	1.50	1.67	0.28	78.56
R&D (%)	2.64	0.00	6.06	0.00	165.05
XS Cash (%)	2.43	3.79	14.44	-50.09	62.18
Assets (Millions)	13223.30	1713.96	63811.93	0.00	1494037.00
Ret (%)	1.14	1.10	3.62	-23.85	68.66
Risk (%)	11.87	0.98	7.34	0.86	274.22
Director Stock Options (000)	125.03	24.64	1185.69	0.00	115059.98
Director Compensation (000)	169.39	78.14	1194.78	0.00	115059.98
Dir PSO (%)	49.85	58.19	39.83	0.00	100.00
PyPerDir (000)	6.53	1.77	23.86	0.00	1329.12
CEO Stock Options (000)	2480.79	693.37	9952.11	0.00	600347.35
CEO Total Compensation (000)	4795.89	2365.05	11115.01	0.00	600347.35
CEO PSO (%)	59.78	68.12	30.98	0.00	100.00
PyPerCEO (000)	256.86	94.10	572.33	0.00	20293.41
Dir Own (%)	1.13	0.19	3.70	0.00	65.11
CEO Own (%)	2.26	0.30	6.48	0.00	29.55
Tenure	7.38	6.00	7.25	0.00	54.00
CEOChair (%)	62.14	100.00	48.51	0.00	100.00
Board	7.71	8.00	3.14	1.00	22.00
Outside Directors	5.05	5.00	2.73	0.00	17.00
Outsiders (%)	62.50	66.67	21.64	0.00	100.00
Firms that Paid Dividends (%)	56%				

I calculate the correlation matrix of independent variables (not tabulated). Overall, the correlations between the independent variables do not suggest a serious multicollinearity problem. As expected the correlation between Dir PSO and Div2A is negative. The correlation Div2A and M/B is positive which is supportive of the signaling hypothesis. The correlation between Div2A and R&D is negative supporting the argument that firms with greater investment opportunities pay lower dividend. For robustness, the regressions are re-estimated (not shown) excluding variables with high correlations.

4 EMPIRICAL RESULTS

To test the above hypotheses we employ a univariate approach and a regression approach. The univariate analysis examines the differences in means of sub-samples divided according to the level of dividend distribution. In the multiple regression a Tobit model is used to test the relation between dividends and director stock option compensation. A Tobit approach is appropriate because dividends are clustered at zero with about 56% of the sample having non-zero dividends.

4.1 Univariate analysis

Panel A in table 2 compares means of several variables for dividend-paying firms with non-paying firms. The results provide preliminary support to the argument that stock option compensation to outside directors is associated with the decision to distribute dividends. For example, Dir PSO in dividend-paying firms is significantly less than that of the non-paying firms. Further, CEO compensation in dividend-paying firms is less stock option-based than CEO compensation in non-paying firms. This may suggest that whether or not the company distributes dividend is a joint decision between directors and CEOs.

Table 2
Univariate Analysis for Dividend-paying Versus Non-Paying Firms and Low- Versus High- Dividend-paying Firms

This table compares the means of the variables between groups of dividend paying and non paying firm and high and low dividend paying firms. High and low paying firms are categorized according to the median of dividend to assets of dividend paying firms. All explanatory variables descriptions are similar to those in table 1. * indicates that the difference is significant at 5%.

	Panel A		Panel B	Median= 1.31
	Div2A =0	Div2A>0	Div2A<1.31	Div2A≥1.31
Dividend/Assets (%)	0.00	1.86*	0.63	3.09*
Leverage (%)	21.44	24.93*	26.06	23.81*
M/B	2.26	1.82*	1.47	2.17*
R&D	4.65	1.36*	0.99	1.73*
XS Cash (%)	-0.48	4.38*	0.69	6.00*
Assets (Millions)	2444.65	19793.68*	32597.72	6985.63*
Ret (%)	1.50	0.98*	1.14	0.82*
Risk (%)	15.06	9.20*	10.02	8.39*
Director Stock Options (000)	245.02	48.53*	54.36	42.71*
Director Compensation (000)	277.44	101.62*	104.84	98.40*
Dir PSO (%)	67.48	38.61*	41.31	35.91*
PyPerDir	11.39	3.45*	3.59	3.31
CEO Stock Options (000)	3244.91	1993.61*	2179.23	1807.94*
CEO Total Compensation (000)	4860.99	4754.43	5096.64	4411.58*
CEO PSO (%)	65.75	55.98*	59.05	52.91*
PyPerCEO	257.37	256.54	276.24	236.84*
Dir Own	1.15	1.12	1.05	1.19
CEO Own (%)	3.28	2.20*	2.41	2.00*
Tenure	7.88	7.07*	7.57	6.56*
CEOChair	57.80	64.90*	65.91	63.89
Board	6.50	8.49*	8.55	8.42
Outside Directors	4.00	5.72*	5.65	5.78
Outsiders (%)	58.23	65.22*	63.53	66.91*
N	4076	6393	3196	3197

Obvious in the data is the structural difference between firms that pay dividends and firms that do not.⁴Growth firms, high M/B and high R&D firms do not distribute dividends. In addition, firms that do not pay

⁴Though not reported in the tables, it is worth noting that in our sample the percentage of firms distributing dividends has decreased from 61% in 1999 to 54% in 2001.

dividends are often smaller, use less leverage and carry less cash. The difference in firm characteristics between dividend-paying and non-paying firms suggests that firms with growth potential are reluctant to pay dividends whereas established large firms are motivated by their excess cash and limited growth opportunities to pay dividends. Similar results are reported in Fama and French (2001).

Panel B in table 2 reports statistics for firms that pay high dividends versus firms that pay low dividends. Dir PSO in high dividend-paying firms is significantly lower than that in low dividend-paying firms. Similarly, CEO PSO is significantly different between the two groups. M/B and R&D are significantly greater in high dividend-paying firms which seem to contradict or original hypothesis. However, the difference in the M/B and R&D between dividend-paying and non-paying firms and that between high and low dividend-paying firms has two interpretations. On the one hand, low M/B may indicate overinvestment; whereby firms avoid dividends and invest in negative net present value projects.⁵ For instance, low M/B and high stock options to outside directors in low versus high dividend-paying firms supports the hypothesis that directors act opportunistically regarding the distribution of dividends. On the other hand, firms with high investment opportunities have high M/B and R&D and might need to signal this through dividend for future need of capital (Pan, 2007). Our risk enhancing hypothesis suggests that with more director stock options the firm will need less signaling and more risky investments. All other relations of other variables are consistent with previous research.

4.2 Regression analysis

Results from the previous section indicate that firms with different payout strategies differ in their compensation plans; further, firms with different growth potential differ in their dividend payout and compensation plans. However, the outcome may be the result of other factors affecting the relations. For example, firms in different industries may have different payout, investment and compensation policies. Similarly, firms with different financial characteristics may have different perspectives about distributing dividends. Therefore, to test the robustness of the previous results, we employ a multivariate approach incorporating many of the relevant variables. We start with establishing the linear relation between dividend payout and compensation and investment policies.

4.2.1 Director compensation and dividends

To capture the association between dividends and director incentive pay and between dividends and M/B and R&D, we use the following regression equation:

$$\begin{aligned} \text{Dividend Ratio} = & B_0 + B_1 (\text{Dir Inc}) + B_2 (M/B) + B_3 (R\&D) + B_4 (\text{Size}) + B_5 (\text{Leverage}) + B_6 (\text{XS Cash}) + B_7 \\ & (\text{Return}) + B_8 (\text{Risk}) + B_9 (\text{CEO Chair}) + B_{10} (\text{Tenure}) + B_{11} (\text{Board}) + B_{12} (\text{Outsiders}) + B_{13} (\text{CEO Own}) \\ & + B_{14} (\text{Dir Own}) + \text{SIC Dummies} + \text{Year Dummies} + e. \end{aligned} \quad (2)$$

Table 3 presents the results of the above Tobit regression model. We use variant measures of the dividend ratio; specifically, dividend to asset ratio (Div2A) in columns (2) and (3). We also add the lag of dividend to assets as explanatory variable to signify change in the dependent variable in columns (4) and (5); and dividend to earnings (payout) ratio in columns (6) and (7).⁶ Director incentive pay (Dir Inc) takes either of the two proxies: the five years accumulated director proportion of stock options (Dir PSO) or the pay for performance compensation of equity grants received in the recent five years (PyPerDir). Column (1) reports the direction of the relation expected between the explanatory variables and the dividend ratio. In all columns, there seem to be a negative and significant relation between dividend distribution and director incentive pay. For example, in column (2), the coefficient on Dir PSO is negative and significant at 1% suggesting that outside directors prefer lower dividends the higher the proportion of stock options in their compensation. Further, a one standard deviation increase in Dir PSO translates into a decrease of 84 basis points in dividends, which is equivalent to more than 73% of the average ratio of dividend to assets

⁵ Lang and Litzenberger (1989) argue that firms with Tobin's Q < 1 are overinvestors. According to Easterbrook (1984) and Jensen (1986), managers, who are overinvesting, avoid dividends because it subjects the firm to future scrutiny from the new issue market.

⁶ I also examine other proxies for payout like dividend yield and dividend to sales. The results of these regressions are not reported for brevity. Further, in all remaining tables I report results for dividend to assets.

(1.14%) over the sample period. The above result holds several interpretations. One interpretation is that firms that are short on cash restrict the distribution of dividends and simultaneously increase the non-cash (stock option) compensation for outside directors. Another interpretation is that firms with more stock option compensation to outside directors prefer taking on more investments than distributing dividends; the risk enhancing hypothesis. Finally, higher stock options for outside directors might reflect their power within the firm and retaining excess cash might be for personal benefits. These interpretations are not mutually exclusive; however, I examine each interpretation separately in order to reach the most likely interpretation.

Table 3
Tobit Regression with Industry Fixed Effect

This table presents a Tobit model of dividends on director incentive pay and other explanatory variables. The regression specification is similar to equation 2. The dependent variable is dividends to lagged total assets (columns 2 to 5) and dividends to earnings before extraordinary items (columns 6&7). For columns 6 & 7 the sample excludes observations with negative and zero earnings. All explanatory variables descriptions are similar to those in table 1. All regressions include industry and year dummies. p-values are in brackets.

Dependent	(1)	(2)	(3)	(4)	(5)	(6)	(7)
		Div2A		Div2A		Div2earn	
Lag Div2A	+	-	-	0.8979 (0.00)	0.8843 (0.00)	-	-
Dir PSO	-	-0.0165 (0.00)	-	-0.0038 (0.00)	-	-0.0191 (0.00)	-
PerPayDir	-	-	-0.0007 (0.00)	-	-0.0002 (0.00)	-	-0.0005 (0.00)
Size	+	0.0011 (0.00)	0.0018 (0.00)	0.0012 (0.00)	0.0014 (0.00)	0.0020 (0.00)	0.0027 (0.00)
M/B	?	0.0012 (0.00)	0.0026 (0.00)	-0.0002 (0.18)	0.0001 (0.78)	-0.0020 (0.00)	-0.0016 (0.00)
Leverage	-	-0.0173 (0.00)	-0.0184 (0.00)	-0.0072 (0.00)	-0.0078 (0.00)	-0.0078 (0.00)	-0.0086 (0.00)
XS Cash	+	0.0887 (0.00)	0.0808 (0.00)	0.0178 (0.00)	0.0181 (0.00)	0.0468 (0.00)	0.0474 (0.00)
R&D	-	-0.0992 (0.00)	-0.0860 (0.00)	-0.0475 (0.00)	-0.0416 (0.00)	-0.1280 (0.00)	-0.1187 (0.00)
Return	?	-0.0439 (0.00)	-0.0385 (0.00)	0.0141 (0.02)	0.0171 (0.01)	-0.0407 (0.00)	-0.0364 (0.00)
Risk	-	-0.3501 (0.00)	-0.3414 (0.00)	-0.1323 (0.00)	-0.1328 (0.00)	-0.3586 (0.00)	-0.3647 (0.00)
CEOChair	-	-0.0005 (0.44)	-0.0010 (0.16)	-0.0006 (0.15)	-0.0008 (0.08)	-0.0001 (0.88)	-0.0004 (0.60)
Tenure	-	-0.0001 (0.01)	-0.0001 (0.04)	-0.0002 (0.67)	-0.0001 (0.96)	-0.0002 (0.00)	-0.0001 (0.04)
Board	-	0.0074 (0.00)	0.0070 (0.00)	0.0021 (0.00)	0.0020 (0.00)	0.0038 (0.00)	0.0040 (0.00)
Outsiders	+	0.0058 (0.00)	0.0058 (0.00)	0.0026 (0.02)	0.0029 (0.01)	0.0112 (0.00)	0.0109 (0.00)
CEO Own	-	-0.0006 (0.00)	-0.0007 (0.00)	0.0001 (0.39)	0.0001 (0.65)	-0.0002 (0.41)	-0.0003 (0.18)
Dir Own	-	-0.0043 (0.68)	-0.0025 (0.81)	-0.0077 (0.20)	-0.0074 (0.23)	-0.0145 (0.21)	-0.0136 (0.25)

The coefficient on firm size is positive and significant in all columns consistent with the argument that large and well established firms have greater tendency to commit to paying dividends. The coefficient on leverage is also positive and significant. Since most leverage comes with protective covenant on the distribution of dividends the relation is consistent. The regressions in table 3 also include variables that proxy for dividend strategy. The coefficient on XS cash is positive and significant consistent with the excess cash hypothesis that firms with more

cash distribute more dividends. The coefficients on M/B in columns (1) and (2) are positive and significant in explaining the level of dividend to assets. In Columns (3) and (4) the coefficients on M/B are negative and significant in explaining the dividend payout. This result is consistent with the signaling effect whereby growth firms signal their future opportunities through dividends even though their level of income is pretty low. Consistent with or argument, coefficients on R&D are negative and significant in all columns. Coefficients on CEO tenure are negative and significant in level of payout suggesting that influential CEOs prefer lower dividends. As expected, firms with larger boards and boards with more outside directors increase and pay more dividends.

Overall, the results in table 3 support the argument that dividends are greatly affected by stock option plans to directors. In addition, the results show that dividend policies are linked to investment policies in the firm through their relation to M/B and R&D. However, these results do not imply much about the involvement of corporate directors in setting dividend policy. In other words, do directors implement different dividend plans when compensated with stock options?

4.2.2 Director stock options and the investment strategy

According to the pecking order hypothesis firms with abundant investment opportunities prefer financing from internally generated funds; therefore these firms are expected to reduce dividends. On the other hand, firms that anticipate consistent future earnings pay higher dividends (Guay and Harford, 2000). In table 4 columns 1 to 4 we include the interaction variable of M/B with director incentive pay (Dir Inc) and the interaction of R&D with Dir Inc. However, to better interpret the results of the interaction variables we create two dummy variables for M/B and R&D. MB and RD are dummies where each is equal 1 if M/B and R&D ratios above their means and zero otherwise. The coefficient on the interaction variable of Dir Inc and MB is negative and significant; so is the interaction variable of RD with Dir Inc. These results suggest that directors who receive stock options are less interested in distributing dividends even when higher earnings are anticipated. The preference for investments over dividends may emerge from their tendency to increase firm risk and value. The relation implied from the interaction variables of Dir Inc and the proxies for investment opportunities provides supporting evidence to the risk enhancing hypothesis and suggests that firms paying director's with more stock options are inclined towards riskier investment strategies.

In columns 5 to 8 of table 4, we add CEO incentive pay as an independent variable and run the same tests as those in table 3 including the interaction of CEO incentive and the proxies for dividend policy (M/B and R&D). In columns (5) to (8) the coefficients on the interaction variables between Dir Inc and M/B are mostly negative and significant; whereas the results between CEO Inc and M/B is only significant in column (5). Further, the interaction of Dir Inc and R&D is significant at 1% in columns (5) and (6) whereas the coefficients on the interaction variable of CEO Inc and R&D are not significant. These results suggest that firms with abundant investment opportunities are more likely to reduce dividends to take advantage of these opportunities when directors are motivated with equity stock options. Such outcome implies that directors are likely to support riskier investment plans that reflect in lower safe bets (dividends) and more investments. On the other hand, the results in columns 5 to 8 of table 4 regarding CEO effect on dividend distribution suggest that CEOs have relatively lower marginal effect on the firm's payout strategy than directors. Indeed, the payout strategy in rules and regulations (see Delaware law article 144) is directly associated with board decision.

Overall, the results in table 4 support the argument that outside directors are involved in setting dividend policy because it entails management and governance spillovers. However, observing the effect of directors in isolation from the effect of executives –specifically the CEO- provides an incomplete picture of the process of setting the dividend policy. Therefore, the following section examines the role of the CEO in the dividend distribution plan by including interaction variables of the CEO's PSO and the surrogates for dividend strategies. The simultaneous use of CEO and director interaction variables allows for the examination of the struggle of power between the two parties.

Table 4
Investment Hypothesis including CEO Inc

This table presents a Tobit model of dividends on director incentive pay, CEO incentive pay, interaction variables and other explanatory variables. The regression specification is similar to equation 2 with the addition of interaction variables of Dir Inc (and CEO Inc) with M/B and RD in columns 1 to 4 (Columns 5 to 8. MB (RD) is an indicator variables that equal 1 if M/B (RD) is high – above the median- and zero otherwise. The dependent variable is dividends to lagged total assets. All explanatory variables descriptions are similar to those in table 1. All regressions include industry and year dummies. p-values are in brackets.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Div2A								
Lag Div2A	-	-	0.8942 (0.00)	0.8818 (0.00)	-	0.8885 (0.00)	-	0.8782 (0.00)
Dir PSO	-0.0082 (0.00)	-	-0.0027 (0.02)	-	-0.0057 (0.00)	-0.0022 (0.06)	-	-
CEO PSO	-	-	-	-	-0.0129 (0.00)	-0.0022 (0.14)	-	-
PyPerDir	-	-0.0043 (0.00)	-	-0.0010 (0.00)	-	-	-0.0036 (0.00)	-0.0009 (0.00)
PyPerCEO	-	-	-	-	-	-	-0.0018 (0.00)	-0.0004 (0.00)
MB	0.0117 (0.00)	0.0098 (0.00)	0.0005 (0.48)	0.0011 (0.03)	0.0177 (0.00)	0.0014 (0.17)	0.0111 (0.00)	0.0014 (0.01)
RD	-0.0032 (0.01)	-0.0042 (0.00)	-0.0003 (0.67)	-0.0008 (0.22)	-0.0027 (0.13)	0.0008 (0.45)	-0.0039 (0.00)	-0.0007 (0.28)
Size	0.0009 (0.00)	0.0015 (0.00)	0.0011 (0.00)	0.0013 (0.00)	0.0012 (0.00)	0.0011 (0.00)	0.0022 (0.00)	0.0014 (0.00)
Leverage	-0.0142 (0.00)	-0.0161 (0.00)	-0.0055 (0.00)	-0.0064 (0.00)	-0.0123 (0.00)	-0.0053 (0.00)	-0.0148 (0.00)	-0.0061 (0.00)
XS Cash	0.0684 (0.00)	0.0694 (0.00)	0.0116 (0.00)	0.0126 (0.00)	0.0670 (0.00)	0.0115 (0.00)	0.0691 (0.00)	0.0128 (0.00)
Return	-0.0431 (0.00)	-0.0236 (0.02)	0.0124 (0.04)	0.0187 (0.00)	-0.0312 (0.00)	0.0146 (0.02)	-0.0132 (0.21)	0.0208 (0.00)
Risk	-0.3614 (0.00)	-0.3512 (0.00)	-0.1493 (0.00)	-0.1465 (0.00)	-0.3505 (0.00)	-0.1488 (0.00)	-0.3493 (0.00)	-0.1469 (0.00)
CEOChair	-0.0005 (0.48)	-0.0007 (0.35)	-0.0006 (0.15)	-0.0007 (0.12)	0.0001 (0.93)	-0.0005 (0.28)	-0.0001 (0.87)	-0.0005 (0.22)
Tenure	-0.0001 (0.01)	-0.0001 (0.04)	-0.0002 (0.71)	-0.0001 (0.87)	-0.0001 (0.01)	-0.0001 (0.72)	-0.0001 (0.05)	-0.0001 (0.87)
Board	0.0071 (0.00)	0.0070 (0.00)	0.0021 (0.00)	0.0020 (0.00)	0.0070 (0.00)	0.0021 (0.00)	0.0069 (0.00)	0.0020 (0.00)
Outsiders	0.0066 (0.00)	0.0071 (0.00)	0.0026 (0.02)	0.0029 (0.01)	0.0073 (0.00)	0.0027 (0.01)	0.0081 (0.00)	0.0031 (0.01)
CEO Own	-0.0006 (0.00)	-0.0007 (0.00)	0.0001 (0.34)	0.0001 (0.54)	-0.0009 (0.00)	-0.0007 (0.75)	-0.0008 (0.00)	-0.0006 (0.74)
Dir Own	-0.0043 (0.67)	-0.0026 (0.80)	-0.0065 (0.28)	-0.0068 (0.27)	-0.0075 (0.45)	-0.0071 (0.24)	-0.0054 (0.60)	-0.0074 (0.24)
Dir Inc * MB	-0.0114 (0.00)	-0.0003 (0.00)	-0.0002 (0.90)	-0.0001 (0.06)	-0.0122 (0.00)	-0.0006 (0.70)	-0.0003 (0.00)	-0.0001 (0.04)
Dir Inc * RD	-0.0082 (0.00)	-0.0002 (0.81)	-0.0040 (0.01)	-0.0011 (0.36)	-0.0080 (0.00)	-0.0037 (0.01)	-0.0002 (0.61)	-0.0006 (0.36)
CEO Inc * MB	-	-	-	-	-0.0088 (0.01)	-0.0008 (0.66)	-0.0016 (0.39)	-0.0009 (0.44)
CEO Inc * RD	-	-	-	-	-0.002 (0.96)	-0.0026 (0.17)	-0.0019 (0.30)	-0.0006 (0.95)

4.2.3 *Director Stock Options and Opportunistic Behavior*

An alternative interpretation for firms with director stock option compensation reducing the distribution of dividends from excess cash is that outside directors use excess cash for personal benefits. In other words, in collaboration with management directors prefer investing excess cash in pet projects. In order to test whether or not outside directors opportunistically reduce dividends, the sample is divided into two groups according to M/B; firms with M/B<1 and firms with M/B≥1. Lang and Litzenger (1989) use this approach to separate overinvesting firms (M/B<1) from firms that take value-maximizing investments (M/B≥1). Overinvesting firms take negative net present value projects that probably benefit management (and directors) but not shareholders. Estimations using equation (2) are obtained for both groups. Table 5 reports the results of the tests. The results show that the relation between excess cash and Dir PSO is significant only in the sample where M/B>1. This suggests that reduction in the distribution of dividends from excess cash when outside directors receive more stock options is associated with value-maximizing firms (M/B≥1). This outcome provides an evidence to reject the hypothesis that director stock options promote opportunistic behavior in favor of the hypothesis that director stock options improve monitoring.

Table 5
Opportunistic Behavior Hypothesis

This table presents a Tobit model of dividends on director incentive pay using two subsamples divided according to M/B. Columns 1 & 2 present results using equation 2 for the sample with M/B below the median. Columns 3 and 4 present results using equation 2 for the sample with M/B above the median All explanatory variables descriptions are similar to those in table 1. All regressions include industry and year dummies. p-values are in brackets. The sample and variable description are presented in table 1. p-values are in brackets.

	(1)	(2)	(3)	(4)
	M/B<1		M/B>1	
Dependent	Div2A			
Dir PSO	-0.0039 (0.19)	-	-0.0099 (0.00)	-
PerPayDir	-	-0.0016 (0.09)	-	-0.0045 (0.00)
MB	-0.0059 (0.19)	-0.0064 (0.05)	0.0110 (0.00)	0.0096 (0.00)
RD	-0.0060 (0.01)	-0.0068 (0.00)	-0.0024 (0.08)	-0.0030 (0.01)
Size	-0.0002 (0.71)	0.0002 (0.73)	0.0010 (0.00)	0.0017 (0.00)
Leverage	-0.0050 (0.31)	-0.0078 (0.12)	-0.0166 (0.00)	-0.0185 (0.00)
XS Cash	0.0331 (0.00)	0.0341 (0.00)	0.0643 (0.00)	0.0653 (0.00)
Return	0.0477 (0.00)	0.0545 (0.00)	-0.0580 (0.00)	-0.0371 (0.00)
Risk	-0.1603 (0.00)	-0.1545 (0.00)	-0.3837 (0.00)	-0.3715 (0.00)
CEOChair	-0.0017 (0.21)	-0.0014 (0.29)	-0.0003 (0.69)	-0.0005 (0.49)
Tenure	-0.0001 (0.27)	-0.0001 (0.26)	-0.0001 (0.01)	-0.0001 (0.06)
Board	0.0052 (0.00)	0.0053 (0.00)	0.0067 (0.00)	0.0066 (0.00)
Outsiders	0.0042 (0.21)	0.0038 (0.27)	0.0067 (0.00)	0.0073 (0.00)
CEO Own	-0.0006 (0.92)	0.0002 (0.66)	-0.0007 (0.00)	-0.0007 (0.00)
Dir Own	-0.0294 (0.28)	-0.0243 (0.37)	-0.0031 (0.76)	-0.0011 (0.91)
Dir Inc * MB	-0.0079 (0.39)	-0.0003 (0.58)	-0.0096 (0.00)	-0.0003 (0.00)
Dir Inc * RD	-0.0080 (0.13)	-0.0007 (0.18)	-0.0074 (0.00)	-0.006 (0.82)

5 CONCLUSION

This paper investigates the validity of the claim that stock options for outside directors improve board decision-making because it aligns the interests of shareholders and directors. In addition, it examines whether the increase in the convexity of director pay provides an incentive to act opportunistically. The tests are conducted with an eye on investment and payout policies.

The major finding of the paper is that stock options to outside directors are associated with greater appetite for risky investments. The inference from these findings is that director stock options provide a financial motive for outside directors to be more involved in decision making within the firm.

Particularly, the paper examines the effect of stock option compensation for outside directors on dividend and investment policies. The paper indicates that directors become more involved in corporate decisions when compensated with stock options. Specifically, director's stock options seem to encourage investment (risky) over dividends (safe) suggesting that firms follow a riskier investment strategy when stock option plans are adopted.

Since director compensation is relatively small relative to CEO compensation the paper also examines whether the observed effect on investments disappears when the effect of CEO stock options are incorporated. In essence, the paper investigates whether the effect of stock options to outside directors is over shadowed by the effect of CEO stock options. We find that stock option grants to CEOs do not alter the effect of director stock options on the investment policy. Finally, this paper sheds light on the drastic changes happening in the governance structure of the firm. It provides evidence that corporate directors are becoming more involved in decision making. Future research should be directed towards the substitution effect between financial and reputational concerns of corporate directors. Should director compensation plans discriminate directors who serve on investment committees from those who serve on other committees (e.g. auditing committees)? Is the distribution of power among the several players (directors, the CEO and the other executives) a developing trend in the financial market and how is this change affecting firm performance? These are few questions that this study raises.

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