Long-term cash incentives and performance shares awards in executives' compensation

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ABSTRACT

The concerns over traditional options have motivated a growing number of firms to grant long-term performance awards in executives' compensation. This paper provides insights into two types of performance-based long-term compensation-- performance shares and long-term cash incentives. Specifically, this paper examines the determinants of awards grant, the choice of performance measure, the use of RPE, and the length of performance horizon in these awards. The results show that firms with poor past performance are more likely to grant these two awards to executives. Firms with new CEOs tend to grant long-term cash awards, but not performance shares to executives. For performance shares, the choice of performance measure is related with the informativeness of performance measures and business complexity. RPE use in performance shares and long-term cash awards is better explained by the choice of performance measure than by common shock, a key variable suggested by the theory and prior literature. Moreover, for firms that grant performance shares, the length of performance horizon has a strong association with the choice of performance measures, but this association is muted for firms which grant long-term cash incentives grants to executives.

Keywords: executives' compensation, long-term cash incentives, performance shares, performance measure, relative performance evaluation, performance horizon

INTRODUCTION

The grant of long-term performance awards as executives' compensation has been fast growing in the past few years due to the concerns that traditional time-vested equity compensation cannot provide sufficient incentives to executives (F. W. Cook 2006; Gerakos et al. 2007; Kuang and Qin 2009; Bettis et al. 2010).[1] In an executive's long-term compensation, performance awards can be performance-vested shares (hereafter, p-v shares) or long-term cash incentives (hereafter, LT cash); the former is dominated by stocks and the latter is primarily paid in cash.[2] One common feature between p-v shares and LT cash is that the vesting is based on the achievement of long-term performance benchmark, and failure to meet the benchmark results in forfeiture of awards. Despite of the importance of incentive compensation and the unequivocal shift of compensation practice, the lack of adequate disclosure prior to 2006 has hindered our understanding of these two types of compensation. The enhanced disclosure in proxy statements required by SEC, effective in 2006, makes it possible to have further analysis on the contractual features of executives' performance award compensation.

In order to understand how firms design these two forms of executives' compensation--p-v shares and LT cash--, this paper examines the determinants of award grants and the choice of performance measures, relative performance evaluation (RPE), and performance horizon in these performance awards. A thorough investigation of these two types of performance awards is warranted for several reasons. First, the majority of prior research examines annual bonus (e.g., Lambert and Larcker 1987; Ittner et al. 1997; Core et al. 2003; Matĕjka et al. 2009). While bonus serves to reward managers' short-term performance, p-v shares and LT cash are predominantly used to induce managerial incentives over long term performance. Given the distinctive objectives and nature of p-v shares and LT cash, it remains unclear whether inferences drawn from annual bonus can be transplanted to p-v shares and LT cash. Second, empirical studies on the use and design of p-v shares and LT cash in the U.S. and their differences are limited because of the lack of disclosure before 2006. Even though p-v shares and LT cash both focus on companies' long-term performance, their distinctive payment forms (i.e. stocks vs. cash) should be related with the design of contracts and provide different incentives for executives. The improvement of transparency in the disclosure of executives' compensation allows this paper to fill this gap.

From the proxy statements of S&P 500 industrial firms between 2006 and 2008, the following contractual features of p-v shares and LT cash awards are hand collected: the choice of performance measures, the use of RPE, and the length of performance horizon. This sample period witnesses a decrease in the use of time-based options and an increase in the frequency of p-v shares grants.

The findings are summarized as follows. First, firms with poor past performance are more likely to grant p-v shares and LT cash awards to executives so that managers are motivated

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[1] According to F.W. Cook's 2006 report, "these performance awards have been the fastest growing long-term incentive grant type with 12 percent of the Top 250 companies beginning to grant these types of awards either during the latest fiscal year or next year."

[2] In this paper, performance shares and performance-vested stocks are synonymous; long-term cash incentives are also known as performance units. The definition of performance shares and long-term cash incentives follow F.W. Cook (2008): "Performance shares consist of stock-denominated shares, which are earned based on performance over a predefined performance period. Performance units are grants of cash or dollar-denominated units which are earned based on performance against predetermined objectives over a pre-defined performance period and may be paid out in cash or stock."

to improve long-term performance. Second, firms with new CEOs are more likely to include LT cash, but not p-v shares, in executives' compensation. Although Bettis et al. (2010) find that firms tend to grant p-v shares to new CEOs in a randomly-selected sample in 1995-2001, this paper shows that their result does not hold for S&P 500 industrial firms during 2006-2008 when p-v shares grow popularity. Granting LT cash, instead of p-v shares, to the CEO allows a company to promote CEO fit and scrutinize a new CEO's competence without giving too many stocks away to sacrifice existing shareholders if the firm later realizes that the new CEO is a mismatch for the company.

The analysis on the other contractual features (i.e. the choice of performance measures, RPE use, and performance horizon) indicates that the design of LT cash awards is closer to p-v shares awards than to short-term bonus. One explanation is that p-v shares and LT cash both aim to solicit executives' efforts to improve companies' long term performance. The use of market measure is more frequent in p-v shares and LT cash awards than in bonus, but the result is opposite for the use of non-financial measures.[3] The result shows that firms with more complicated business environment and lower volatility of market returns relative to accounting earnings are more likely to choose market returns as a performance measure for p-v shares.

Unlike bonus which mostly relies on an absolute standard which evaluates executives' performance against internal targets, about one third of firms which granted p-v shares and LT cash to executives use a RPE standard that compares company performance against industry peers or market index. For both p-v shares and LT cash, RPE use is more correlated with the choice of market measure than with common shock, a key variable indicated by the theory and prior literature (Holmstrom 1982; Gong et al. 2011).

Last, the findings indicate that performance horizon of p-v shares is longer for firms with market performance measure, firms with good performance in the past, firms with less institutional holding, and firms whose CEOs also chairs the board of directors. This finding rejects the rent extraction hypothesis that managers have incentives to shorten performance horizon. The analysis of performance horizon is not significant for LT cash awards.

This paper contributes to the extant literature in executives' compensation in several ways. First, this paper documents the similarities and differences between two performance awards --p-v shares and LT cash. While performance awards have been fast growing in the U.S., the nature and adoption of these performance-based long-term awards have not been fully investigated due to the lack of disclosure prior to 2006. Based on a hand-collected data from the enhanced disclosure in proxy statements since 2006, this paper provides insights into the use and design of these awards. Second, this paper provides evidence on the design and use of p-v shares and LT cash since 2006 and reports some results that are different from prior literature which examines the design of performance-vested equity compensation in earlier years (e.g. Bettis et al. 2010). Third, this paper shows that the design of LT cash is very different from short-term bonus. Although both contracts reward executives in cash and the vesting is based on the achievement of performance targets, LT cash awards is intended to motivate managers to improve long-term performance and bonus is designed to improve short-term performance. This paper indicates that their distinctive objectives are reflected in the design of contracts.

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[3] 29.36% (27.75%) of the sample choose stock returns as a performance measure in p-v shares (LT cash), but only 4.13% of firms do so for cash bonus. The frequency of non-financial measures usage is 25.08% for bonus contracts, but it drops to 5% for p-v shares and LT cash.

The rest of the paper is organized as follows. Section 2 reviews relevant literature and develops hypotheses. The sample and data are described in section 3. Section 4 discusses the empirical findings, and section 5 concludes.

I.   LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Grants of Performance-Vested Awards

Under traditional stock option awards, the vesting is simply conditional upon the passage of time. Opponents argue that managers can obtain windfall gains when the stock price merely mirrors competitors or follows market trends. Such concern has caused a growing number of firms to adopt performance-vested awards. In contrast with traditional stock options, performance-vested awards link vesting not only to the elapse of time, but also to the achievement of financial targets. The use of performance-vested awards has been evidenced in U.K. firms (e.g. Kuang and Qin 2009, and Carter, Ittner, and Zechman 2007) and U.S. firms (Gerakos et al. 2007 and Bettis et al. 2010).

The first hypothesis predicts that performance awards, including p-v shares and LT cash, are more likely to be granted by firms with poor prior performance, when firms hires a new CEO, and by firms with complex business environment. Poor performance can indicate poorly structured compensation. The grants of performance awards inject incentives into managers to improve firm performance. The uncertainty regarding whether a new CEO is capable or a good match for the company is another factor associated with the grant of performance awards. The reason is that performance awards prevents the vesting of awards when a company later finds that the new CEO performs poorly and is a mismatch for the company. The grant of performance awards is also a sorting mechanism to attract CEOs with greater ability or lower risk aversion. In a complex company, it is even harder to find a CEO that matches the company's environment, so the grant of performance awards helps reduce the cost of a poor fit.

H1: Firms which have poor prior performance, hire new CEOs, or have complex business environment are more likely to grant p-v shares and LT cash to executives than other firms.

Choice of Performance Measures

Prior studies on the choice of performance measures focus on CEO cash bonus contracts and rely heavily upon the informativeness principle of Holmstrom's theory (1979) (Ittner et al. 1997; Ittner and Larcker 2002; Core, Guay, and Verrecchia 2003; and Matějka et al. 2009). According to the informativeness principle, the relative weight placed on a performance measure in a compensation contract is a decreasing function of its noise (Holmstrom 1979; Banker and Datar 1989). Lambert and Larcker (1987) empirically tests the theory for cash compensation and find that firms place more weight on market measures than accounting measures when the variance of the accounting measure is high relative to the variance of the market measure.

Firms with high investment intensity tend to focus on long-term performance because investments could temporarily depress their accounting performance. For such firms, market measures capture the future benefits of executives' current strategic decisions and are less likely to distort executives' incentives than accounting measures. Hence, it is expected that firms with

high investment intensity are more likely to choose market measure than accounting measures for p-v shares and LT cash.

Additionally, the informativeness of a performance measure could vary with the complexity of a firm's business. The more complex a business is, the more important it is for executives to act with a broad and strategic scope. For complex firms, executives' actions are better captured by market measures than accounting measures. This is because market measures are all-inclusive and forward-looking, and thus better captures the performance of a complex business.

H2: For p-v shares and LT cash awards, market measures are more likely to be used than accounting measures when accounting measures are noisier than market measures, when firms have higher investment intensity, or when firms have higher business complexity.

II. SAMPLE AND DATA

The sample includes S&P 500 firms identified using Compustat's annual file for fiscal years 2006 to 2008. The sample starts from 2006 because it is the first year when SEC requires firms to enhance compensation disclosure. Firms in the financial service and utilities industries are excluded because they are regulated and behave differently from the other firms. From the proxy statements, the following contractual features of executives' short-term bonus, long-term p-v shares, and long-term cash incentives are hand collected: vesting condition (performance-vested or time-vested), choice of performance measures, RPE use, and length of performance horizon. Accounting data is obtained from COMPUSTAT, stock prices and returns from CRSP, executive compensation data from ExecuComp, and corporate governance data from RiskMetrics and Thomson Financial. After deleting observations with missing data, the final sample is composed of 1,045 firm-years between 2006 and 2008, with 634 firm-year observations granting p-v shares and 174 firm-year observations granting LT cash. While more than half of the sample firms granted p-v shares during 2006 and 2008, lower amount of firms granted LT cash to executives.

Table 1 shows the descriptive statistics of the sample firms. Panel A compares firms granting p-v shares with firms that did not grant p-v shares during 2006-2008. Relative to firms without p-v shares, firms that grant p-v shares have worse financial performance and weaker corporate governance in the past year. For example, p-v-share-granting firms tend to have lower sales growth rate, lower buy-and-hold abnormal stock returns, higher book-to-market ratio, and lower investment intensity in the past year. They also tend to have lower institutional holdings and a higher propensity that the CEO has a dual role as the chair of the board.

Panel B of Table 1 compares firms that granted LT cash with firms that did not grant LT cash during the sample period. Relative to firms that did not grant LT cash, LT cash granting firms have worse past performance (demonstrated in the lower profit margin and lower industry-adjusted ROA), lower investment intensity, but higher business complexity (i.e. more segments) in the past year. Besides, LT-cash-granting firms have a higher proportion of outside directors on the board, and a higher propensity that the CEO has a dual role as the chair of the board.

Table 2 reports the Spearman correlations among the main variables for firms that grant p-v shares to executives. The choice of a market performance measure (*Mkt*) is positively correlated with performance horizon (0.21) and RPE use (0.65), suggesting that the choice of performance measure is significantly related with the design of the other two features in the

compensation contracts--performance horizon and RPE. The positive correlation between *Mkt* and *segmt* (0.16) indicates that more complicated companies tend to choose market return performance measures for p-v shares awards because market measures are all-inclusive and forward-looking, and thus better captures the performance of a complex business.

III. EMPIRICAL FINDINGS

4.1 Propensity of P-v Shares and LT Cash Grants

H1 predicts that firms which have poor prior performance, hire new CEOs, or have complex business environment are more likely to grant p-v shares or LT cash. The following equation is used to test H1.

$$Grant_t = \alpha_0 + \alpha_1 Grw\_s_{t-1} + \alpha_2 ceoNew_{t-1} + \alpha_3 Segmt_{t-1} + \alpha_4 Size_{t-1} + \alpha_5 Invest_{t-1}$$
$$+ \alpha_6 BM_{t-1} + \alpha_7 Volt_{t-1} + \alpha_8 ceoshr_{t-1} + \alpha_9 Ih_{t-1} + \alpha_{10} BrdIndp_{t-1}$$
$$+ \alpha_{11} Dual_{t-1} + \varepsilon_{1t} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots.(i)$$

The dependent variable *Grant* takes the value 1 if a firm granted p-v shares/LT cash to executives, and zero otherwise. Past performance is measured by past sales growth (*Grw_s*). *ceoNew* equals 1 if the company hires a new CEO, and zero otherwise; business complexity is measured by the number of business segments (*Segmt*). The other variables are included in Equation (i) to control for their effects on the likelihood of award grants.

Table 3 displays the estimate of logit models for the propensity to grant p-v shares and LT cash to executives. In Panel A, the dependent variable takes the value 1 if the firm granted p-v shares to executives, and zero otherwise. The results show that the propensity to grant p-v shares to executives is negatively related with past performance (*Grw_s*), CEO's shareholdings (*ceoshr*), and institutional holdings (*Ih*), and positively related with business complexity (*segmt*). It indicates that firms with worse performance in the previous year are more likely to include p-v shares in the compensation contract as a motivation for executives to improve firm performance. Similar to the findings of Bettis et al. (2010), firms with less CEO's shareholdings are more likely to grant p-v shares to align managers' incentives with shareholders. The negative sign of institutional holdings implies that the grant of p-v shares is not consistent with the stakeholder placation hypothesis, under which awards are granted as window dressing to mollify stakeholders and cannot produce real effects on future performance or policies. The positive sign of business segment number (*segmt*) is consistent with H1, suggesting that complicated firms are more likely to grant p-v shares to executives. Moreover, the results show that in years 2006-2008, the arrival of a new CEO is not a determinant of the grant of p-v shares. This result is different from Bettis at al. (2010) which examines randomly selected firms in the period 1995-2001 and finds that firms are more likely to grant p-v shares or options to new CEO to mitigate the uncertainty of CEO's competence. One possible explanation for the discrepancy between this paper and Bettis et al. (2010) is that p-v shares became more popularly used in the sample period of this paper and that the p-v share awards are not only granted to new CEOs, but also to existing CEOs and other executives.[4]

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[4] Prior to 2002, the majority of long-term equity compensation is time-based, rather than performance-vested (Bettis et al. 2010).

Panel B reports the likelihood of granting LT cash to executives. The dependent variable takes the value 1 if the firm granted LT cash in the sample period, and zero otherwise. The propensity to grant LT cash to executives is negatively related with past performance (*Grw_s*), past investment level (*Invest*), and positively related with new CEO (*ceoNew*) and business complexity (*segmt*). Firms with bad performance in the previous year are more likely to grant LT cash incentives to executives so that they are motivated to improve company performance. The negative sign of *Invest* implies that investment-intensive firms are less likely to grant LT cash to executives since cash is reserved for investment purpose. While firms with new CEOs are not more likely to grant p-v shares to executives, the results in Panel B of Table 3 indicate that firms with new CEOs tend to grant LT cash to top executives. Since the board and shareholders know relatively little about the new CEO's competence and fitness for the company, the use of LT cash instead of p-v shares allows a company to scrutinize a new CEO's competence over the long term. In this way, current shareholders can be better protected if the company realizes later that the new CEO is a mismatch for the company.

Overall, the results partially support H1. Firms with poor prior performance and complex business environment are more likely to grant p-v shares and LT cash to executives. During fiscal year 2006 to 2008, Firms which hire new CEOs are more likelihood to grant LT cash than p-v shares to executives.

4.2 Choice of Performance Measures

Table 4 reports the choice and number of performance measures in bonus, p-v shares, and LT cash incentives awards for executives. Panel A shows that compared with p-v shares and LT cash, bonus relies more on accounting measures such as earnings and sales. For example, 89.76% (45.72%) of sample firms use earnings (sales) measures for bonus, but less than 60% (about 20%) of firms use earnings (sales) measures for p-v shares and LT cash awards. In contrast, market return is more related with p-v shares and LT cash than with bonus. While only 4.13% of the firms choose market measure for bonus, over 27% of firms use market returns for p-v shares and LT cash awards. Different from accounting measures, a market return measure is forward-looking, more volatile in the short term, but is likely to absorb performance information in other measures. This explains why market measure is more likely to be used for long-term compensation such as p-v shares and LT cash than for short-term bonus.

Panel A also shows that asset utilization (AU) measure such as ROA or ROE plays a more important role for LT cash than for bonus and p-v shares. Among firms that grant LT cash, 45.55% of them choose AU measures. The frequency of AU measure usage drops down to 30.28% among firms that grant p-v shares and to 25.23% for firms with bonus. Besides, cash measures and non-financial measures are used less frequently in p-v shares and LT cash than in bonus. For bonus, the percentage of firms choosing cash as a performance measure is 28.75%, which is significantly higher than the frequency 12.8% reported in Ittner et al. (1997). Only 9.48% of p-v-share-granting firms and 14.14% of LT-cash-granting firms choose cash as a performance measure.

In a performance awards, the use of multiple performance measures, relative to a single measure, may enhance the evaluation of executives' performance. If performance horizon is short, a performance measure is volatile, so the use of multiple performance measures can increase the informativeness of performance measures. Consistent with this conjecture, Panel B of Table 4 shows that the sample firms are more likely to use multiple performance measures for

bonus than for p-v shares and LT cash awards. For example, 25.23% of firms use a single performance measures for bonus; in other words, 74.77% of firms use multiple performance measures in the bonus contract. In contrast, only 45.11% (50.26%) of firms use multiple performance measures for p-v shares (LT cash) contracts. Besides, while 26.91% of firms use three performance measures for bonus, the frequency drops to 7.49% for p-v shares and 14.66% for LT cash awards.

H2 predicts that for long-term performance awards, the choice of market measure is negatively associated with the relative noisiness of the market measure and positively related with the investment intensity and business complexity. The following equation is used to test this hypothesis.

$$Mkt_t = \beta_0 + \beta_1 Relvol_{t-1} + \beta_2 Invest_{t-1} + \beta_3 Segmt_{t-1} + \beta_4 BM_{t-1} + \beta_5 Size_{t-1}$$
$$+ \beta_6 IH_{-1} + \beta_7 BrdIndp_{t-1} + \beta_8 CEOshr_{t-1} + \beta_9 Dual_{t-1} + \varepsilon_{2t} \ldots\ldots\ldots(ii)$$

The dependent variable (*Mkt*) equals 1 if a company chooses a market measure for p-v shares or LT cash. The relative noise of market measures and earnings measures (*Relvol*) is measured as the volatility of stock returns divided by the volatility of earnings. H2 predicts a negative sign for β_1 and a positive sign for both β_2 and β_3 for both p-v shares and LT cash awards.

For the analysis on p-v shares, the results partially support H2. The left column of Panel C of Table 4 reports that firms with higher *Relvol* is less likely to choose market return measure for p-v shares since their stock returns are more volatile and noisier relative to accounting returns. The positive sign of *Segmt* also supports H2, indicating that more complicated firms are more likely to choose a market measure for p-v shares awards since market measure is all-inclusive and better captures the performance of a complex business. Although H2 predicts a positive effect of *Invest* on the choice of a market measure, its coefficient (β_2) is not significant at the 10% confidence level. The right column of Panel C in Table 4 shows the choice of performance measures for LT cash awards. The results reject H2 since the sign of *Relvol* is inconsistent with the prediction of informativeness theory and the coefficients of *Invest* and *Segmt* are both insignificant.

3.3 Analysis on Other Contractual Features

3.3.1 Use of RPE Standard

Panel A of Table 5 demonstrates the frequency of RPE use in three contracts—bonus, p-v shares, and LT cash incentives. The use of RPE standard is more frequent in p-v shares (31.8%) and LT cash (34.55%) than in bonus (10.55%). For bonus, firms mainly set internal numerical goals for executives, rather than compare company performance with peers.

The following empirical analysis is conducted to understand companies' decision to adopt RPE standard for p-v shares and LT cash, and the results are reported in Panel B of Table 5.

$$RPE_t = \gamma_0 + \gamma_1 Mkt_t + \gamma_2 Commonrisk_{t-1} + \gamma_3 |size\_rkadj_{t-1}| + \gamma_4 |ret\_rkadj_{t-1}|$$
$$+ \gamma_5 concentration_{t-1} + \gamma_6 BM_{t-1} + \gamma_7 Size_{t-1} + \gamma_8 adjROA_{t-1} + \gamma_9 adjret_{t-1}$$
$$+ \gamma_{10} ceoWlth_{t-1} + \gamma_{11} CEOage_{t-1} + \gamma_{12} Dual_{t-1} + \gamma_{13} brdIndp_{t-1}$$
$$+ \gamma_{14} brdsize_{t-1} + \varepsilon_{3t} \ldots\ldots\ldots(iii)$$

The dependent variable *RPE* equals to 1 if a firm uses RPE standard in year t, and zero otherwise. *Mkt* equals 1 if a firm chooses market return for p-v shares or LT cash, and zero otherwise. Commonrisk is measured by the R^2 from regressing firm-level stock returns on value-weighted industry stock returns over the prior 36 months. The other variables are defined according to Gong et al. (2011).

Equation (1) in Panel B of Table 5 shows that consistent with the theory and prior literature (e.g. Gong et al. 2011), common shock is positively correlated with the use of RPE for p-v shares. After the choice of market measures is added to the analysis, Equation (2) in Panel B of Table 5 shows that the variable common shock loses its significance as a determinant of RPE use. Consistent with Gao et al. (2012), the choice of market return as a performance measure is a key determinant of RPE use. The explanation of market measure for RPE use (the coefficient 2.133, significant at 1% level) subsumes common shock as a determinant of RPE use.

When it comes to LT cash awards, the right column of Panel B of Table 5 shows that the choice of market returns as a performance measure is also a significant determinant of RPE use for LT cash contracts (the estimated coefficient 2.697 is significant at 1% level). But other variables do not have explanatory power for RPE use in LT cash contracts.

3.3.2   Performance Horizon

Panel A of Table 6 shows the distribution of performance horizon in p-v shares and LT cash contracts. For long-term compensation that is contingent on future performance, most companies choose three years as performance horizon: the frequency is 63.46% for p-v shares and 82.72% for LT cash awards. In the sample, only 3.52% (1.05%) of firms which grant p-v shares (LT cash) choose five years as performance horizon. It is interesting to find that for the long-term compensation, 19.11% of companies choose a one-year performance horizon for p-v shares. The characteristics of these firms and the reason for choosing one-year horizon for long-term compensation such as p-v shares are left for future research.

The following empirical model is used to test the determinants of performance horizon. It is predicted that performance horizon is a function of financial performance and corporate governance.

$$Horizon_t = \theta_0 + \theta_1\ Mkt_t + \theta_2\ adjROA_{t-1}\ + \theta_3\ Bhar_{t-1}\ + \theta_4\ Volt_{t-1}\ + \theta_5\ Invest_{t-1}$$
$$+ \theta_6\ Segmt_{t-1}\ + \theta_7\ Ih_{t-1} + \theta_8\ BrdIndp_{t-1} +\ \ \theta_9\ ceoshr_{t-1} + \theta_{10}\ Dual_{t-1} +$$
$$+ \theta_{11}\ ceoNew_{t-1} +\ \theta_{12}\ Excash_{t-1} + \theta_{13}\ ceoRetire_{t-1} + \theta_{14}\ Size_{t-1} +\ \ \varepsilon_{4t} \ldots\ldots\ldots\ldots(iv)$$

Horizon equals to the length of performance horizon chosen for p-v shares or LT cash. Gao et al. (2012) shows that the length of performance horizon is related with the choice of performance measures. Market return is usually more volatile than accounting measures in the short term, so extending their associated performance horizon will improve its informativeness. Following Cadman et al. (2012), the variables of past performance (*adjROA*, *Bhar*, *Volt*), investment intensity (*Invest*), CEO characteristics (*Dual*, *ceoshr*, *ceoNew*, *ceoRetire, Excash*), monitoring (*Ih, BrdIndp*) are included in the equation. Business complexity (*segmt*) and size are also included in the equation to control for their effects on performance horizon.

The results are reported in Panels B of Table 6. Consistent with Gao et al. (2012), companies choosing a market measure for p-v shares are more likely to adopt longer performance horizon. The positive sign of *adjROA* indicates that retention is important for high performing managers. While CEOs with greater power and CEOs of firms with weaker

monitoring may influence contract design to receive compensation of shorter performance horizon, the result suggests the opposite. Panel B of Table 6 shows that firms with less institutional holdings (*Ih*) and CEO chairing the board (*Dual*) are associated with longer performance horizon for p-v shares. This suggests that the arguments in Cadman et al. (2012) for time-based options cannot be applied for p-v shares. In contrast with p-v shares, no significant determinants are found for the performance horizon of LT cash contracts.

Since the majority of firms choose three-year as performance horizon for p-v shares and LT cash (as indicated in Panel A of Table 6), a further analysis is conducted which dichotomized the dependent variable as 1 when performance horizon is at least three years and zero if performance horizon is less than three years. Panel C of Table 6 shows that results are similar to Panel B, except that *adjROA* lost its significance for p-v shares contracts and the variable institutional holdings (*Ih*) now carries a negative sign for the analysis on LT cash contracts.

IV. CONCLUSION

This paper examines the contractual features of p-v shares and LT cash compensation for executives, including the choice of performance measures, performance horizon, and RPE use. The goal is to understand the determinants of award grants and the design of different performance awards in executives' long-term compensation.

This paper is motivated by the limited evidence on p-v shares and LT cash, the two forms of long-term performance awards which grows popularity in recent years. The enhanced disclosure requirement by SEC on executives' compensation, effective in 2006, makes it possible to examine in detail the contractual features of executives' incentive compensation. While the vesting of both p-v shares and LT cash awards is based on future long-term performance, these two awards differ in the payment format: p-v shares is dominated by the payment of stocks and LT cash is mainly paid in cash. The distinctive nature of these two awards should be related with company characteristics and the design of compensation contracts.

The findings show that firms with poor past performance are more likely to grant p-v shares and LT cash to executives so that managers are incentivised to improve firms' long-term performance. The sample firms tend to grant LT cash, but not p-v shares, to new CEOs. Since the board and shareholders know relatively little about the fitness of a new CEO, the use of LT cash instead of p-v shares allows a company to scrutinize a new CEO's competence over the long term without giving too many stocks and sacrificing existing shareholders if the new CEO turns out to be a mismatch for the company.

This paper also documents substantial differences in the choice of performance measures, RPE use, and performance horizon among bonus, p-v shares, and LT cash. Compared with bonus, long-term performance awards (i.e. p-v shares and LT cash) are more likely to use market measures, but less likely to use non-financial measures. Although firms choose multiple performance measures for bonus, they use fewer performance measures for p-v shares and LT cash. The analysis shows that firms with lower volatility of market returns relative to accounting measures and more complicated business environment are more likely to choose market returns as a performance measure for p-v shares. For p-v shares awards, the choice of market measure is associated with longer performance horizon and the use of RPE standard. However, the results are less significant for LT cash awards. Future research can examine how the design of different compensation components impacts subsequent performance and the possibility of earnings management.

REFERENCE

Banker, R., & Datar, S. (1989). Sensitivity, precision, and linear aggregation of signals for performance evaluation. *Journal of Accounting Research*, 27 (1), 21-39.

Bettis, C., Bizjak, J., Coles, J., & Kalpathy, S. (2010). Stock and option grants with performance-based vesting provisions. *The Review of Financial Studies*, 23 (10), 3849-3888.

Cadman, B., Rusticus, T, & Sunder, J. Stock option grant vesting terms: economic and financial reporting determinants. *Review of Accounting Studies* (forthcoming).

Carter, M., Ittner, C., & Zechman, S. (2009). Explicit relative performance evaluation in performance-vested equity grants. *Review of Accounting Studies*, 14 (2-3), 269-306.

Cook, F. W. (2006). Long-term incentive grant practices for executives. Retrieved from http://www.fwcook.com/alert_letters/Top_250_06.pdf

Cook, F. W. (2008). Long-term incentive grant practices for executives. Retrieved from http://www.fwcook.com/alert_letters/2008_Top_250.pdf

Core, J., Guay, W., & Verrecchia, R. (2003). Price versus non-price performance measures in optimal CEO compensation contracts. *The Accounting Review*, 78 (4), 957-981.

Fama, E., & French, K. (1997). Industry cost of equity. *Journal of Financial Economics*, 43 (2), 153-193.

Gao, Z., Hwang, Y., & Wu, W. (2012). Contractual features of executive performance-vested equity compensation. Working paper. Retrieved from http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1896289

Gerakos, J., Ittner, C., & Larcker, D. (2007). The structure of performance-vested stock option grants. In R. Antle, P. Liang, & F. Gjesdahl (Eds). 2007. *Essays on accounting theory in honour of Joel S. Demski.* Norwell, MA: Springer.

Gong, G., Li, L., & Shin, J. (2011). Relative performance evaluation and related peer groups in executive compensation contracts. *The Accounting Review*, 86 (3), 1007-1043.

Holmstrom, B. (1979). Moral hazard and observability. *Bell Journal of Economics*, 10 (1), 74-91.

Holmstrom, B. (1982). Moral hazard in teams. *Bell Journal of Economics*, 13 (2), 324–340.

Ittner, C. and D. Larker. (2002). Determinants of Performance Measure Choices in Worker Incentive Plans. *Journal of Labor Economics*, 20 (2):558-590.

Ittner, C., Larcker, D., & Rajan, M. (1997). The choice of performance measures in annual bonus contracts. *The Accounting Review*, 72 (2), 231-255.

Kuang, Y. and B. Qin (2009). Performance-vested stock options and interest alignment. *The British Accounting Review*, 41 (1): 46-61.

Lambert, R., & Larcker, D. (1987). An analysis of the use of accounting and market measures of performance in executive compensation contracts. *Journal of Accounting Research*, 25 (Supplement), 85-125.

Matějka, M., Merchant, K., & Stede, W. (2009). Employment horizon and the choice of performance measures: Empirical evidence from annual bonus plans of loss-making entities. *Journal Management Science*, 55 (6), 890-905.

Table 1 Descriptive statistics of firm characteristics

Variable	All sample	Panel A				Panel B			
		Firms without p-v shares N=411 (1)	Firms with p-v shares N=634 (2)	Differ-ence (2)-(1)		Firms without LT cash N=871 (3)	Firms with LT cash N=174 (4)	Differ-ence (4)-(3)	
Grw_s	0.12	0.15	0.10	-0.05	***	0.12	0.10	-0.02	
Bhar	0.45	0.61	0.34	-0.27	***	0.43	0.53	0.08	
BM	0.39	0.37	0.41	0.04	**	0.40	0.35	-0.05	***
Invest	0.10	0.11	0.09	-0.02	***	0.10	0.09	-0.02	***
Segmt	3.52	3.19	3.74	0.55	***	3.43	4.00	0.55	***
Size	4.11	4.11	4.11	0.00		4.10	4.15	0.04	
ROE	0.23	0.26	0.21	-0.06		0.23	0.24	0.02	
PM	0.09	0.10	0.09	-0.01		0.09	0.08	-0.02	**
AdjROA	0.08	0.07	0.08	0.01		0.08	0.06	-0.03	***
Ih	0.81	0.83	0.80	-0.03	***	0.81	0.82	0.01	
BrdIndp	0.74	0.74	0.75	0.01		0.74	0.77	0.03	**
Dual	0.66	0.62	0.68	0.06	**	0.65	0.73	0.08	**

This table shows the mean statistics of the main variables in this paper. The sample is composed of S&P 500 industrial firms between 2006 and 2008, excluding firms in the financial and utilities industries. Panel A of this table compares the characteristics of firms that grant p-v shares with firms that did not grant p-v shares. An equity award is considered as "performance-vested" if its vesting is based on future performance of the company. Panel B of this table compares the characteristics of firms that grant LT cash awards and firms that did not grant LT cash awards in the sample period.

Variable definitions:

Variables		Definitions
Grw_s	=	growth of sales, $Sales_t / Sales_{t-1} - 1$, smoothed over the previous two years.
BHAR	=	buy-and-hold market-adjusted abnormal returns over the previous 36 months
BM	=	book-to-market ratio, calculated as book equity/market capitalization where book equity is common equity, adjusted for deferred tax liabilities, and market capitalization is from four months after fiscal year end
Invest	=	investment intensity of a firm, calculated as (R&D + advertising + capital expenditures) / average total assets, smoothed over three years
Segmt	=	number of business segments
Size	=	natural logarithm of market capitalization
ROE	=	return on equity, calculated as Income before extraordinary items / average common equity
PM	=	profit margin, measured as income before extraordinary items / net sales
AdjROA	=	industry-adjusted return on assets, where return on assets is measured as income before extraordinary items / average total assets. The definition of industry is based on Fama and French (1997).
Ih	=	institutional holdings, which equals the number of shares held by institutional investors / the total number of shares outstanding
BrdIndp	=	independence of the board of directors, calculated as the number of independent directors / overall board size
Dual	=	1 if the CEO is also the chairman of the board, and 0 otherwise

Table 2 Correlation Table

	Horizon	RPE	BM	Segmt	Size	ceoNew	BrdIndp	Dual
Mkt	0.21***	0.65***	0.08**	0.16***	0.08*	0.02	0.06	0.06
Horizon	1	0.24***	-0.07	-0.01	0.07*	0.02	0.05	0.10**
RPE		1	0.09**	0.22***	0.09**	-0.01	0.18***	0.09**
BM			1	0.12***	-0.19***	-0.05	-0.05	0.07*
Segmt				1	0.17***	-0.01	0.04	0.03
Size					1	-0.01	0.00	0.11
ceoNew						1	0.08**	-0.08**
BrdIndp							1	0.14***
Dual								1

This table shows the spearman correlation of S&P 500 industrial firms that grant p-v shares during 2006 and 2008. *Horizon* is the length of performance period for p-v shares. *RPE* equals 1 if a firm uses RPE for p-v shares, and zero otherwise. *BM* is the book-to-market ratio. *Segmt* is the number of business segments. *Size* is the natural logarithm of market capitalization. *ceoNEW* equals 1 if the company hires a new CEO, and zero otherwise. *BrdIndp* measures the independence of the board of directors and is calculated as the number of independent directors / overall board size. *Dual* equals 1 if the CEO is also the chairman of the board, and 0 otherwise.
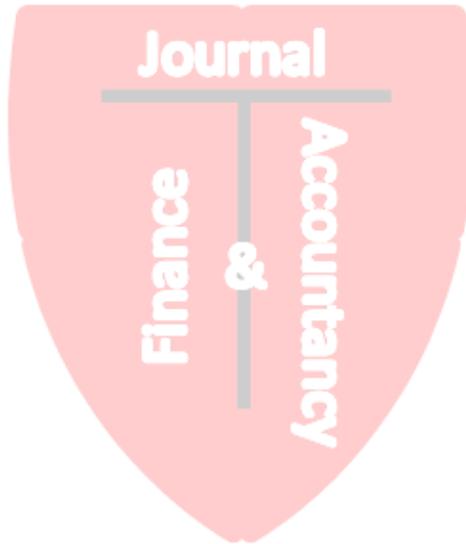
Table 3 Logistic regression of the likelihood of granting performance-vested shares and long-term cash incentives

Penal A Likelihood of granting performance-vested shares

Indep.Var.	(1) Coeff.	p-value		(2) Coeff.	p-value		(3) Coeff.	p-value	
Intercept	0.309	0.596		1.029	0.173		2.098	0.027	
Grw_s	-1.450	0.000	***	-0.956	0.020	**	-0.894	0.030	**
ceoNew	-0.285	0.295		-0.274	0.315		-0.262	0.346	
Segmt	0.110	0.000	***	0.086	0.007	***	0.081	0.012	**
Size	-0.043	0.766		-0.079	0.619		-0.205	0.217	
Invest				-1.690	0.075	*	-1.225	0.200	
BM				0.354	0.158		0.445	0.084	*
Volt				-31.976	0.019	**	-31.263	0.024	**
ceoshr							-6.015	0.001	***
Ih							-1.232	0.005	***
BrdIndp							0.308	0.493	
Dual							0.178	0.211	
Fixed year	yes			yes			yes		
N	1045			1045			1045		
Likelihood ratio	33.365			44.682			64.662		
% Concordant	59.8			60.5			63.0		

Panel B Likelihood of granting long-term cash incentives

Indep.Var.	(1) Coeff.	p-value		(2) Coeff.	p-value		(3) Coeff.	p-value	
Intercept	-2.327	0.002	***	-2.002	0.041	**	-3.642	0.003	***
Grw_s	-0.658	0.202		-1.043	0.079	*	-0.968	0.104	
ceoNew	0.547	0.081	*	0.499	0.116		0.559	0.088	*
Segmt	0.092	0.012	**	0.089	0.022	**	0.091	0.021	**
Size	0.107	0.561		0.162	0.438		0.202	0.352	
Invest				-4.467	0.005	***	-4.374	0.006	***
BM				-1.084	0.004	***	-1.023	0.008	***
Volt				19.948	0.270		21.550	0.244	
ceoshr							-5.954	0.163	
Ih							0.859	0.128	
BrdIndp							0.697	0.261	
Dual							0.377	0.057	*
Fixed year	yes			yes			yes		
N	1045			1045			1045		
Likelihood ratio	13.457			30.003			43.092		
% Concordant	58.800			62.000			65.400		

This table reports the logistic regression of the likelihood of granting p-v shares and LT cash incentives. The sample includes S&P 500 industrial firms between 2006 and 2008. In Panel A, the dependent variable takes the value 1 if the firm granted p-v shares, and 0 otherwise. In Panel B, the dependent variable takes the value 1 if the firm granted long-term cash incentives, and 0 otherwise. *CEOnew* equals 1 if the company hires a new CEO, and zero otherwise. *Volt* is the volatility of stock returns, calculated as the standard deviation of daily stock returns over the previous 12 months. Ceoshr is CEO's share ownership, measured as the number of shares owned by the CEO (excluding options) / total number of shares outstanding. See Table 1 for the definitions of other variables. ***, **, * indicate significance levels of 1%, 5%, 10%, respectively.

Table 4 Choice of performance measures

Panel A Distribution of performance measures used

	Earn	AU	Sales	Return	Cash	NonFin
Bonus	89.76%	25.23%	45.72%	4.13%	28.75%	25.08%
p-v shares	59.33%	30.28%	20.80%	29.36%	9.48%	5.05%
LT cash	58.64%	45.55%	17.80%	27.75%	14.14%	5.24%

Panel B Distribution of number of performance measures used

	1	2	3	4	5
Bonus	25.23%	38.53%	26.91%	7.95%	0.76%
p-v shares	54.89%	36.85%	7.49%	0.61%	0.15%
LT cash	49.74%	33.51%	14.66%	2.09%	0%

Panel C Likelihood of choosing a market measure for p-v shares and LT cash

	p-v shares			LT cash		
Parameter	Coeff.	p-value		Coeff.	p-value	
Intercept	-1.296	0.062	*	-0.593	0.706	
Relvol	-5.117	0.004	***	5.389	0.058	*
BM	0.344	0.090	*	0.305	0.551	
Invest	1.236	0.141		3.555	0.117	
Segmt	0.083	0.001	***	0.025	0.638	
Size	0.137	0.253		-0.037	0.885	
ih	-0.763	0.033	**	-1.421	0.144	
brdIndp	0.321	0.379		0.751	0.288	
ceoshr	-0.797	0.687		-29.221	0.192	
Fixed year	yes			yes		
N	634			174		
Likelihood ratio	41.609			15.381		
% Concordant	65.7			67.2		

Panels A and B in this table report the distribution of performance measures use and the number of performance measures used in bonus, performance-vested shares, and long-term cash incentives awards. The sample is composed of S&P 500 industrial firms between 2006 and 2008. The earnings category includes all performance measures directly derived from earnings, such as net income, earnings per share, and earnings growth. The asset utilization (AU) category includes return on equity, return on assets, return on invested capital, EVA, and working capital, among others. The sales category includes sales and sales growth. The return category includes stock prices or stock returns. The cash category includes all performance measures directly related to cash, such as cash from operations. The non-financial (NonFin) category includes all non-financial metrics, such as customer satisfaction, safety, innovation, etc. Panel C reports the choice models for performance measures, estimated by multivariate probit regression. In the analysis of p-v shares (LT cash), the sample includes 634 (174) S&P 500 industrial firms between 2006 and 2008 that granted p-v shares (LT cash) to executives; the dependent variable equals to 1 if a company chose a market measure for p-v shares (LT cash). *Relvol* is the volatility of stock returns divided by the volatility of earnings, where a measure's volatility is calculated as the standard deviation of the measure scaled by its mean (after taking absolute values) over twelve quarters. Ceoshr is CEO's share ownership, measured as the number of shares owned by the CEO (excluding options) / total number of shares outstanding. See Table 1 for the definitions of other variables. ***, **, * indicate significance levels of 1%, 5%, 10%, respectively.

Table 5 Relative performance evaluation standard in p-v shares and LT cash awards

Panel A Frequency of RPE use

	Absolute	RPE
Bonus	89.45%	10.55%
p-v shares	68.20%	31.80%
LT cash	65.45%	34.55%

Panel B Likelihood of RPE use

	p-v shares						LT cash					
	(1)			(2)			(3)			(4)		
Indep. Var.	Coeff.	p-value		Coeff.	p-value		Coeff.	p-value		Coeff.	p-value	
Intercept	-3.347	<.0001	***	-3.792	0.000	***	-0.065	0.971		0.337	0.888	
Mkt				2.133	<.0001	***				2.697	<.0001	***
comShk	0.971	0.000	***	0.517	0.110		0.117	0.831		0.873	0.217	
|size_rkadj|	-0.001	0.858		0.000	0.915		-0.001	0.969		-0.045	0.038	**
|ret_rkadj|	-0.543	0.464		-0.287	0.742		-0.958	0.464		0.929	0.557	
concentrtn	-0.874	0.327		-0.151	0.885		-3.567	0.076	*	-4.159	0.127	
BM	0.452	0.055	*	0.412	0.142		0.124	0.832		-0.096	0.897	
Size	0.262	0.051	*	0.215	0.189		-0.131	0.659		-0.134	0.726	
adjROA	-0.741	0.424		1.073	0.311		1.505	0.510		5.022	0.079	*
adjRet	0.310	0.156		-0.111	0.681		0.096	0.828		-0.517	0.386	
ceoWlth	-0.087	0.033	**	-0.088	0.072	*	0.054	0.525		0.096	0.390	
ceoAge	0.019	0.044	**	0.018	0.118		-0.018	0.415		-0.059	0.046	**
dual	0.114	0.382			0.381		0.112	0.712		0.693	0.105	
brdIndp	1.774	<.0001	***	2.769	<.0001	***	1.631	0.043	**	1.077	0.303	
brdsz	-0.023	0.334		-0.076	0.007	***	-0.028	0.558		0.022	0.711	
N	634			634			174			174		
Fixed year	yes			yes			yes			yes		
Likelihood ratio	61.215			311.222			11.814			101.172		

This table reports the determinants of the use of RPE standard for p-v shares and LT cash. In Panel A, a RPE standard evaluates an executive's performance based on the company's performance relative to peers or market index. An absolute standard benchmarks an executive's performance to a pre-specified target. In Panel B, the dependent variable RPE equals 1 when a firm adopts relative performance evaluation, and 0 otherwise. In the regression of p-v shares (LT cash), the sample includes 634 (174) S&P 500 industrial firms between 2006 and 2008 that adopt p-v shares (LT cash). *Mkt* equals 1 when a firm uses stock returns or price as a performance measure. *ComShk* is proportion of firm-level stock return variance that is explained by value-weighted industry stock returns, measured by the R^2 from regressing firm-level stock returns on value-weighted industry stock returns over the prior 36 months. |size_rkadj| is natural logarithm of the absolute difference between the firm's market value of equity and the median market value of equity for the firm's corresponding decile. |Ret_rkadj| is absolute difference between the firm's annual stock returns and the median annual stock returns for the firm's corresponding decile. *Concentrtn* measures industry concentration and is calculated as the sum of the squares of the market shares of the firms' sales within each two-digit SIC industry. *Adjret* is industry-adjusted buy-and-hold annual stock returns. *ceoWlth* is the CEO's wealth and is calculated as the natural logarithm of the value of equity held by CEOs. *ceoAge* is the age of CEOs. *Brdsz* is the number of directors on the board. See Table 1 for other variable definitions. ***, **, and * denote significance at less than the 1%, 5%, and 10% levels, respectively.

Table 6 Determinants of performance horizon for p-v shares and LT cash awards

Panel A Distribution of performance horizon (in years)

	1	2	3	4	5
p-v shares	19.11%	7.65%	63.46%	6.27%	3.52%
LT cash	3.14%	7.33%	82.72%	5.76%	1.05%

Panel B Determinants of performance horizon (continuous dependent variable)

| | p-v shares | | | | | | LT cash | | | | |
| | (1) | | | (2) | | | (3) | | | (4) | |
Indep. Var.	Coeff.	p-value		Coeff.	p-value		Coeff.	p-value		Coeff.	p-value
Intercept	2.195	0.001	***	2.226	0.001	***	2.878	<.0001	***	2.783	<.0001	***
Mkt				0.577	<.0001	***				0.071	0.436	
adjROA	0.599	0.166		0.744	0.078	*	0.671	0.217		0.700	0.198	
bhar3	0.044	0.450		0.010	0.857		-0.067	0.176		-0.071	0.154	
volt	0.511	0.964		0.059	0.996		8.911	0.323		10.963	0.242	
Invest	0.833	0.291		0.574	0.457		-0.867	0.340		-0.946	0.300	
segmt	-0.016	0.463		-0.038	0.085	*	-0.012	0.550		-0.012	0.557	
ihtr	-0.827	0.007	**	-0.692	0.022	**	-0.136	0.683		-0.115	0.732	
brdIndp	0.316	0.326		0.276	0.379		-0.199	0.454		-0.222	0.405	
ceoshr	-0.151	0.925		0.094	0.952		0.374	0.821		0.483	0.770	
dual	0.307	0.004	***	0.276	0.008	***	0.043	0.662		0.051	0.605	
ceoNew	0.369	0.086	*	0.322	0.125		0.006	0.966		-0.001	0.996	
excash	-0.047	0.634		-0.040	0.675		-0.056	0.532		-0.067	0.463	
ceoRetire	0.191	0.190		0.226	0.112		0.061	0.683		0.071	0.637	
Size	0.108	0.352		0.081	0.476		0.072	0.463		0.083	0.402	
N	634			634			174			174		
Fixed year	yes			yes			yes			yes		
Log Likelihood	-937.608			-922.646			-128.369			-128.067		

Panel C Determinants of performance horizon (dummy dependent variable)

	p-v shares					LT cash				
	(1)			(2)		(3)			(4)	
Indep. Var.	Coeff.	p-value		Coeff.	p-value	Coeff.	p-value		Coeff.	p-value
Intercept	0.722	0.352		0.737	0.370	3.355	0.174		2.788	0.271
Mkt				1.007	<.0001 ***				0.362	0.331
adjROA	0.413	0.417		0.704	0.189	1.006	0.687		1.389	0.592
bhar3	0.079	0.237		0.036	0.609	-0.142	0.486		-0.173	0.404
volt	-10.655	0.412		-9.952	0.457	28.703	0.446		41.868	0.300
Invest	1.224	0.179		0.839	0.370	1.120	0.751		0.360	0.920
Segmt	0.026	0.332		-0.006	0.848	-0.114	0.147		-0.108	0.164
ihtr	-0.860	0.017	**	-0.781	0.042 **	-2.513	0.049	**	-2.318	0.073 *
BrdIndp	0.469	0.194		0.471	0.211	-1.625	0.185		-1.704	0.170
ceoshr	-1.179	0.511		-0.744	0.686	28.956	0.559		27.420	0.547
Dual	0.347	0.004	***	0.313	0.011 **	-0.178	0.653		-0.133	0.740
ceoNew	0.291	0.257		0.226	0.397	0.102	0.872		0.056	0.930
excash	-0.089	0.419		-0.100	0.386	0.013	0.971		-0.005	0.989
ceoRetire	0.281	0.119		0.388	0.040 **	4.652	0.989		4.759	0.988
Size	-0.046	0.733		-0.075	0.603	0.358	0.407		0.400	0.365
N	634			634		174			174	
Fixed year	yes			yes		yes			yes	
Likelihood Ratio	-937.608			-922.646		-128.369			-128.067	

This table reports the determinants of performance horizon. In Panel A, the dependent variable equals to the length of performance horizon required in each compensation contract. In the analysis for p-v shares (LT cash), the sample includes 634 (174) S&P 500 industrial firms between 2006 and 2008 that adopt p-v shares (LT cash). In Panel B, the dependent variable Horizon equals to the length of performance horizon. In Panel C, the dependent variable *D_Horizon* equals 1 when the performance horizon is at least three years, and 0 otherwise. *Mkt* equals 1 when a firm uses stock returns or price as a performance measure. *volt* is the standard deviation of daily stock returns over previous 12 months. *ceoNEW* equals 1 if the company hires a new CEO, and zero otherwise. Ceoshr is CEO's share ownership, measured as the number of shares owned by the CEO (excluding options) / total number of shares outstanding. *Excash* is the difference between the annual salary and bonus and the average salary and bonus for firms in the same two-digit SIC industry, size decile, and year scaled by the average salary and bonus of the group, year t-1. *ceoRetire* is an indicator variable if the CEO age is greater than or equal to 62, year t-1. See Table 1 for other variable definitions. ***, **, and * denote significance at less than the 1%, 5%, and 10% levels, respectively.