Micro-Level Value Creation and Managerial Short-termism *

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Abstract

This paper presents evidence that managers facing short-termist incentives set a lower threshold for accepting projects. Using novel data on new client and product announcements in both the U.S. and international markets, we find that the market responds less positively to a new project announcement when the firm's managers have incentives to focus on short-term stock price performance. Furthermore, textual analysis of project announcements we show that firms with short-termist CEOs use more vague and generically positive language when introducing new projects to the marketplace.

Keywords: CEO Short-termism, Voluntary Disclosure, Corporate Investment, CEO Compensation, Career Concerns

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Abstract

This paper presents evidence that managers facing short-termist incentives set a lower threshold for accepting projects. Using novel data on new client and product announcements in both the U.S. and international markets, we find that the market responds less positively to a new project announcement when the firm's managers have incentives to focus on short-term stock price performance. Furthermore, textual analysis of project announcements we show that firms with short-termist CEOs use more vague and generically positive language when introducing new projects to the marketplace.

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1 Introduction

Managers of publicly-traded companies may worry not only about long-run value maximization, but also about how the stock market will respond to their decisions in the short run. This can induce myopic behavior, with adverse consequences for long-run value creation. Some have blamed such behavior for the recent U.S. financial crisis, arguing that compensation practices rewarding bank executives for boosting stock price in the near term resulted in reckless lending and financing decisions (Bebchuk and Fried, 2010). Treasury Secretary Timothy Geithner contended that "This financial crisis had many significant causes, but executive compensation practices were a contributing factor. Incentives for short-term gains overwhelmed the checks and balances meant to mitigate against the risk of excess leverage." He further argued that "Companies should seek to pay top executives in ways that are tightly aligned with the long-term value and soundness of the firm. Asking executives to hold stock for a longer period of time may be the most effective means of doing this."[1]

Concerns that managerial incentives to focus on generating short-term stock price improvements may undermine value creation have a basis in theory. Bizjak, Brickley, and Coles (1993) show that managers may accept even negative NPV projects to boost stock price temporarily if investors cannot distinguish between good and bad projects. In contrast, Stein (1989) argues the managers may forgo positive NPV investments in order to boost current earnings. Bolton, Scheinkman, and Xiong (2006) argue that, if stock prices can deviate from fundamentals, current shareholders may in fact want to incentivize managers to boost stock price if they plan to sell their shares in the short run.[2] There is growing evidence that firms manage their accounting earnings upwards when managers' incentives to increase

[1]The adoption of such compensation practices was later required for a bank to receive funding under the Troubled Asset Relief Program (TARP).

[2]Recent arguments in the corporate governance literature that informed shareholders can discipline managers by selling shares upon observing negative signals (Admati and Pfleiderer, 2009; Edmans, 2009; Edmans and Manso, 2011) hinge on managers finding stock price decreases in the short run painful. Bhattacharyya and Cohn (2009) and Peng and Röell (2014) show that rewarding managers for short-term stock price performance can help to address distortions due to managerial risk aversion.

stock price are strong.[3] There is also some evidence that these incentives impact research and development spending (Dechow and Sloan, 1991; Edmans, Fang, and Lewellen, 2014). However, concrete evidence linking these incentives to project choice decisions overall remains limited.

This paper adds to the literature by studying how the market's response to new project announcements varies with managerial incentives to focus on short-term stock price performance. To fix ideas, we present a simple rational expectations model of project acceptance under asymmetric information similar to that of Bizjak, Brickley, and Coles (1993). We show that, because managers tend to overinvest when they have incentives to increase stock price in the short run, rational investors discount a firm's new project announcements when these incentives are strong. As a result, project announcement returns should decline with the strength of these incentives. We test this prediction using novel data on new product and client announcements from Capital IQ's Key Developments database.[4] Our focus on value-creation at the elemental project level allows us to sidestep some of the concerns with the more traditional approach of testing the value impact of agency conflicts via "Q regressions."

Our empirical analysis employs several measures of managerial incentives to focus on short-term stock price performance. These include CEO age, CEO tenure, the vesting period of CEO stock option grants, and the expected life of employee stock options as reported by the firm. Age and tenure are commonly used in the career concerns literature as inverse proxies for incentives to focus on observable performance metrics such as stock price performance, as these performance metrics impact an agent's outside options more when her track record is short (e.g., Gibbons and Murphy, 1992; Chevalier and Ellison, 1999; Hong, Kubik, and Solomon, 2000; Lamont, 2002).[5] On the other hand, the approach of retirement

[3]See, e.g., Cheng and Warfield (2005), Bergstresser and Philippon (2006), and Gopalan, et al. (2014)

[4]A minority of the announcements in the Key Developments data involve material improvements in old products or extensions of existing client contracts. For simplicity, we refer to all of the announcements in the data as new client and product announcements.

[5]Providing support for this argument, a recent paper by Pan, Wang, and Weisbach (2014) shows that a firm's stock return volatility declines over the CEO's tenure.

age has also been shown to induce myopic behavior (e.g., Dechow and Sloan, 1991; Gibbons and Murphy, 1992; Brickley, Linck, and Coles, 1999; Jenter and Lewellen, 2011). Shorter CEO option vesting periods have also been shown to induce this behavior (Gopalan, et al., 2014; Edmans, Fang, and Lewellen, 2014). Shorter expected employee option life may have a similar effect for lower-level managers.

Based on these arguments, we test the hypotheses that project announcement returns increase with CEO tenure, CEO option vesting period, and expected employee option life, and are an inverted u-shaped function of CEO age. Controlling for announcement and firm characteristics as well as firm and year fixed effects, we find evidence supporting these predictions.[6] A one standard deviation change in each short-termist incentive measure is associated with a change in abnormal announcement returns of the same order of magnitude as the mean abnormal announcement return, suggesting that short-termist incentives have a material impact on real economic decisions.[7] While our analysis focuses primarily on new project announcements by U.S. firms, we also find an inverted u-shaped relationship between announcement returns and CEO age in a sample of announcements by international firms.[8]

We also analyze new client and new product announcements separately. We find that the results are considerably stronger for new client announcements than for new product announcements. While this difference could be driven by other factors, we argue that it is consistent with differences in the availability of information from other sources to outsiders. Outsiders can often observe new products and their associated characteristics directly. In addition, these characteristics are more or less fixed upon announcement. The nature of new client relationships, on the other hand, may be difficult for outsiders to observe. Moreover,

[6]One factor we cannot control for is a project's scale. We implicitly treat projects as being homogeneous with respect to scale, at least within firm. Any variation in scale will add noise to the dependent variable in our regressions. We see no obvious reason, however, why it should induce any bias in our estimates.

[7]One-standard deviation increases in CEO tenure, CEO option vesting period, and expected employee option life are associated with increases in abnormal returns of 11.3, 3.6, and 7.3 basis points, respectively, compared to mean abnormal return of 13 basis points. Abnormal returns increase by 32 basis points as the CEO's age increases from 40 to 51 and falls by 55 basis points as it increases from 51 to 65.

[8]We do not observe CEO tenure, CEO stock option vesting period, or expected employee stock option life for these firms.

many of the terms of a relationship are likely negotiated over time in the months and years after the announcement. Thus it may be easier to "fool" investors by announcing a new client than by announcing a new product.

For each new product or customer announcement, the Key Developments database also includes a descriptive text. As a less valuable project will generally have fewer specific details that the firm can tout when announcing the project, the firm may use more "filler" language (e.g., vague and generic positive words) in describing such a project. In the final part of the analysis, we show that the amount of filler language in a project's description is an inverse u-shaped function of CEO age and is positively related to expected employee option life. We do not find, however, that investors condition their response to new project announcements on the presence of this filler language.

We couch our analysis and results in terms of new project initiations. However, they could also be couched in terms of discretionary disclosure decisions. In this interpretation, a firm's project portfolio at any point in time is determined by other factors, but the decision about whether to announce a given project is affected by managerial short-termism. These two interpretations are similar in spirit and driven by the same mechanism. More activity at the firm has a positive impact on stock price in the short run, giving a manager focused on short-run stock price performance an incentive to appear more active. This can be accomplished by setting a lower project *acceptance* threshold, but could also be accomplished by setting a lower project "announcement" threshold.[9] As we cannot distinguish project acceptance and announcement in the data, we cannot distinguish between these two interpretations. We discuss this alternative interpretation when presenting the model.

There are also alternative interpretations of the results that are not linked to managerial short-termism. For example, a firm with a better flow of projects may be less likely to replace its CEO, resulting in a positive relation between announcement returns and CEO

[9]We note that a dependence of project announcement decisions but not acceptance decisions on managerial short-termism would require a cost of announcing a new project. Absent such a cost, there is no reason for a firm to withhold announcement of any positive NPV project.

tenure. Alternatively, younger, more entrepreneurial firms may have higher NPV projects available and may also grant employees stock options with shorter vesting periods. We address these concerns to some degree by including firm fixed effects in our regressions, which absorb the effects of any time-invariant firm factors that could be driving the results. In addition, the non-monotonic relation between returns and CEO age would be difficult to square with any simple alternative explanation. However, we ultimately do not have an exogenous source of variation in managerial horizon. Thus we cannot fully rule out alternative explanations.

Our paper contributes to the empirical literature studying the impact of managerial horizon on decision-making. Cheng and Warfield (2005), Bergstresser and Philippon (2006), and Gopalan et al. (2014) show that firms increase discretionary accruals when managers have explicit incentives to increase stock price due to the structure of their compensation. In terms of effects on real decisions, Dechow and Sloan (1991) show that firms reduce research and development spending in the CEO's final few years in office. As R&D spending is expensed for accounting purposes, such cuts increase reported earnings. Edmans, Fang, and Lewellen (2014) show that near-term vesting of CEO stock options also results in reductions in R&D spending. Jenter and Lewellen (2011) show that a firm is more likely to be acquired when the CEO approaches retirement age. Our paper adds to this literature by providing evidence that short-termist incentives distort more traditional project choices. Ours is also the first paper we are aware to consider both explicit (compensation-based) and implicit (non-compensation based) short-termist incentives in the same empirical setting.[10]

Our paper also contributes to the agency conflict literature more generally by providing project-level evidence that agency conflicts impede value creation. McConnell and Muscarella (1985) find positive (negative) announcement returns around announced increases

[10]Our analysis is also related to arguments that agents may have incentives to appear "busy." Fich, Starks, and Yore (2014) show that CEOs are rewarded for deal-making activity, even if that activity does not create value for shareholders. Dow and Gorton (1997) show that portfolio managers have incentives to trade even when they are uninformed if clients cannot distinguish between a manager "actively doing nothing" and "simply doing nothing."

(decreases) in capital expenditures. They conclude that this is consistent with managers generally seeking to maximize value when choosing investment policy. Our argument does not contradict this conclusion, though our model suggests that the average effect may mask some value-destroying behavior by short-termist managers. Our approach provides more granular analysis of project announcement returns. Most of the remaining empirical work on the impact of agency conflicts relies on measuring total firm value as opposed to the value created by individual investment decisions. For example, Morck, Shleifer and Vishny (1988), McConnell and Servaes (1990), Hermalin and Weisbach (1991), and Mehran (1995) all document either a positive or inverse u-shaped relationship between managerial stock ownership and firm value. While these results are suggestive, firms are highly complex, and interpreting associations with value at the firm level can be challenging.

The remainder of the paper is organized as follows. Section 2 presents the model and the main prediction that we test. In Section 3, we describe the data and the sample we use in our empirical analysis. We present the empirical results of the paper in Section 4. Finally, Section 5 concludes.

2 Project Announcement Returns and Managerial Horizon

In this section, we analyze a simple rational expectations model in which managers are asymmetrically informed about project quality and care about short-term stock price performance. The main result of this analysis is a proposition showing that project announcement returns should be lower when incentives to focus on short-term performance are stronger. We test this prediction of the model in Section 4.

2.1 The model

The model consists of a publicly-traded firm run by a risk neutral manager. There is no time discounting in the model. The firm begins at time 0 with with I units of capital and no other assets. At time 1, the firm has the option to invest I units of capital in an indivisible project that yields cash flow $x \in \{x_\ell, x_h\}$ at time 2, with $x_\ell < I < x_h$, $Pr(x_h) = q \in (0,1)$, and $Pr(x_\ell) = 1 - q$. We assume that $qx_h + (1-q)x_\ell < I$, so that the average project destroys value. This seems natural, as negative NPV projects are likely to be available in almost limitless supply, while positive NPV projects are scarce. At time 2, the firm liquidates, with shareholders receiving a liquidating dividend $v = x$ if the firm invested at time 1 and $v = I$ if the firm did not. Before choosing whether or not to undertake the project at time 1, the manager directly observes x.[11] The manager then chooses whether or not to invest. These features of the model are similar to those of the model of Bizjak, Brickley, and Coles (1993).

The firm's shares trade in a perfectly competitive stock market, with investors forming rational expectations. Thus the firm's stock price is always equal to its expected future cash flow, conditional on investors' information at the time. Investors observe the firm's investment decision at time 1 but have no information at this point about the project payoff x other than its distribution. They learn the firm's realized cash flow at time 2. Let p_0, p_1, and p_2 respectively refer to the firm's stock price at time 0, immediately after the firm's decision to invest or not invest at time 1, and immediately after the firm's cash flow is realized at time 2 but before it is paid to shareholders, respectively. The manager's utility function places weight not only on the terminal cash flow v (or equivalently the time 2 stock price p_2), but also on the firm's stock price at time 1, p_1. Specifically, the manager's payoff is

$$U = \alpha p_1 + (1-\alpha)p_2, \tag{1}$$

[11] Similar results obtain if the manager only observes a noisy signal of x.

where α is the weight on short-term stock price. A positive weight on p_1 (i.e., $\alpha > 0$) could reflect an explicit link between managerial compensation and stock price in the short run or implicit incentives to focus on the short run due to career concerns or pending retirement.

The manager's only choice is whether or not to invest after observing x. We allow the manager to mix between investing and not investing. Let σ_j be the probability that the manager invests after observing x_j for $j = \ell, h$. Let $\hat{\sigma}_j$ be the probability that investors assign to the manager investing when $x = x_j$. Investors form rational expectations, so we must have $\hat{\sigma}_j = \sigma_j$ in equilibrium. We denote this equilibrium value as σ_j^*. An equilibrium then is fully described by σ_j^*, $j = \ell, h$, along with prices p_0, p_1, and p_2 in each state of the world that equal the expected liquidating dividend given investors' information set at the time.

2.2 Solution of the model

Consider the manager's decision to invest or not invest. As will become clear shortly, the manager has no incentive to abstain from investing when he observes x_h, as investing increases both the stock price at time 1 and the firm's future cash flow in this case. Thus $\sigma_h^* = 1$. Suppose that investors believe the manager only invests if he observes x_h - i.e., that $\sigma_\ell = 0$. Because $x_h > I$, the firm's stock price responds positively to investment at time 1. Because investors cannot distinguish between x_h and x_ℓ projects, the manager has an incentive to invest even if he observes x_ℓ as long as $\alpha > 0$. When deciding whether to accept an x_ℓ project, the manager trades off the benefit of a higher stock price at time 1 against a lower cash flow at time 2.

We begin by calculating the firm's stock price at each point in time in each possible state of the world. The stock price immediately before liquidation is $p_2 = v$, with $v = x$ if the firm invested at time 1 and $v = I$ if it did not. The stock price immediately after the investment decision, p_1, is I if the firm did not invest and $p_{1I}(\hat{\sigma}_\ell) = \frac{qx_h + (1-q)\hat{\sigma}_\ell x_\ell}{q + (1-q)\hat{\sigma}_\ell}$ if it did invest. Finally, the stock price at time 0 is $p_0(\hat{\sigma}_\ell) = [q + (1-q)\hat{\sigma}_\ell] p_{1I}(\hat{\sigma}_\ell) + \{1 - [q + (1-q)\hat{\sigma}_\ell]\} I$.

The return associated with the announcement that the firm is undertaking a project - the percentage change in stock price from time 0 to time 1 - is

$$r(\hat{\sigma}_\ell) = \frac{p_{1I}(\hat{\sigma}_\ell)}{p_0(\hat{\sigma}_\ell)} - 1. \tag{2}$$

Note that the announcement return is a function of the market's beliefs about the likelihood that the manager invests when $x = x_\ell$. We now show that the announcement returns decreases when the market believes that the manager invests in low-quality projects more often.

Lemma 1. $\frac{\partial r}{\partial \hat{\sigma}_\ell} < 0$. *That is, the announcement return associated with a new project decreases with investors' beliefs about the likelihood that the manager accepts a project if it is negative NPV.*

The proof of Lemma 1 is in the Appendix. Intuitively, if investors believe that the manager invests more often when $x = x_\ell$, then the expected payoff conditional on investment is lower. Hence the market's response to investment is more muted.

We now consider the equilibrium behavior of the manager. The cost to the manager of accepting an x_ℓ project is a reduction in p_2. The benefit is an increase in p_1, assuming that the stock market responds positively to the announcement of a new project. We now show that the market does respond positively to a new project announcement in equilibrium.

Lemma 2. $r(\sigma_\ell^*) > 0$. *That is, in equilibrium, the firm's stock price strictly increases when it announces that it is undertaking a project.*

Suppose that this were not true - i.e., that the stock price were to either remain unchanged or to decrease upon announcement of project acceptance. Consider the decision of a manager with a type x_ℓ project to invest in this case. Not only does the long-run component of her payoff p_2 fall because $x_\ell < I$, but the short-run component p_1 either falls or remains unchanged. Therefore, a manager with a type x_ℓ project would not invest.

However, if only a manager with a type x_h project invests, then the stock market responds positively to project acceptance (because $x_h > I$), contradicting the assumption. Thus the stock price must increase on announcement of project acceptance.

Suppose that, in equilibrium, the manager were to invest with probability one when $x = x_\ell$ - i.e., that $\sigma_\ell^* = 1$. As $p_{1I}(1) = qx_h + (1-q)x_\ell$ and $qx_h + (1-q)x_\ell < I$ by assumption, $r(1) < 0$. However, this would violate Lemma 2. Thus we can conclude that $\sigma_\ell^* < 1$.

Now suppose that, in equilibrium, the manager were to invest with probability zero when $x = x_\ell$ - i.e., that $\sigma_\ell^* = 0$. If the manager doesn't invest, then his payoff is simply I. Noting that $p_{1I}(0) = x_h$, if the manager deviates and invests in a type x_ℓ project, then his payoff is $\alpha x_h + (1-\alpha)x_\ell$. So, if α is small enough that $\alpha x_h + (1-\alpha)x_\ell \leq I$, $\sigma_\ell = 0$ is the equilibrium outcome. On the other hand, if $\alpha x_h + (1-\alpha)x_\ell > I$, then $\sigma_\ell = 0$ is not an equilibrium. We focus on the case where the manager's weight on p_1 is large enough that he invests with positive probability when $x = x_\ell$. Specifically, we make the following assumption.

Assumption 1. $\alpha > \frac{I - x_\ell}{x_h - x_\ell}$.

This assumption is necessary because of the discrete nature of project types. With a continuum of types, even a manager placing only small weight on short-term stock price would accept marginally negative NPV projects. Since we have already ruled out the case where $\sigma_\ell^* = 0$, the manager mixes between investing and not investing when $x = x_\ell$ - that is, $\sigma_\ell^* \in (0, 1)$. For the manager to mix between investing and not investing when $x = x_\ell$, he must be indifferent between the two choices. This requires that

$$I = \alpha p_{1I}(\hat{\sigma}_\ell) + (1-\alpha)x_\ell \tag{3}$$

As σ_ℓ must equal $\hat{\sigma}_\ell$ in equilibrium, solving (3) for $\hat{\sigma}_\ell$ gives the equilibrium value σ_ℓ^*:

$$\sigma_\ell^* = \frac{q}{1-q}\frac{\alpha x_h + (1-\alpha)x_\ell - I}{I - x_\ell}. \tag{4}$$

Assumption 1 ensures that this is always strictly positive. The comparative static on σ_ℓ^* with respect to α is given by

$$\frac{\partial \sigma_\ell^*}{\partial \alpha} = \frac{q}{1-q} \frac{x_h - x_\ell}{I - x_\ell} \tag{5}$$

This is strictly positive, proving the following lemma.

Lemma 3. $\frac{\partial \sigma_\ell^*}{\partial \alpha} > 0$. *That is, in equilibrium, the manager accepts a low-quality project with greater likelihood when his objective function places more weight on* p_1.

Putting together the results in Lemmas 3 and 1 yields the main result of the analysis.

Proposition 1. $\frac{dr}{d\alpha} < 0$. *That is, the announcement return associated with a new project decreases with the weight the manager's objective function places on time 1 (i.e., short-term) stock price.*

This comparative static forms the basis for the predictions that we test in Section 4. Overall, the market discounts project announcements more when the manager's objective function places more weight on short-term stock price, as the market knows that the manager sets a lower standard for accepting a project in this case.

It is important to note that the announcement return in the model is deterministic conditional on the manager's strategy. This presumes that investors do not draw independent signals about the quality of new projects. It also presumes that there is no "noise" in the price formation process, where noise might represent other information that investors learn about the firm contemporaneously with the project announcement. This is a limitation of the model once we take it to the data, as there is significant variation in new project announcement returns. Ultimately, adding noise to prices in the model would complicate the analysis without producing significant additional insights, and we therefore abstain from doing so.

Finally, we note that the model could easily be recast as a model of project *announcement* rather than *acceptance* decisions. Suppose that managerial agency conflicts do not impact the choice of projects that the firm undertakes (so only positive NPV projects

are accepted), but that the manager has discretion about whether or not to disclose that a project has been undertaken. The market would respond positively to the announcement of a new project. A manager worried about short-term stock price performance then would like to announce as many projects as possible. If there is no cost of announcing a project, then the firm would presumably announce all undertaken projects regardless of the degree of managerial short-termism. However, suppose that disclosing a new project is costly and that the market receives a noisy indpendent signal about the quality of a new project. In this case, the manager would disclose only some lower-quality projects, and would disclose more of these projects when facing stronger short-termist incentives. Announcement returns would then be negatively related to managerial short-termsism, as in Proposition 1.

3 Data and Sample

We test Proposition 1 primarily by examining the relation between new project announcement returns and proxies intended to capture management's incentives to focus on short-run stock price movements. We identify new projects using novel data from Capital IQ's (CIQ's) Key Development database on new product and new client announcements. We then combine this data with data from a number of other sources, including stock return information from CRSP, data on executive characteristics and compensation from Execucomp, data on executive stock option grants from SEC Form 4 filings obtained from Thomson Reuters Insiders Data, corporate governance measures from IRRC, and firm-level financial data from Compustat quarterly. This section describes the formation and composition of the dataset we use in our empirical analysis.

3.1 New project announcements

We begin by obtaining the dates and full texts of all announcements in the Key Development database from 2002 through 2009. The database consists of information gathered

from over 20,000 public news sources, as well as company press releases, regulatory filings, call transcripts, investor presentations, stock exchanges, regulatory websites, and company websites. CIQ analysts filter this data to eliminate duplicate and extraneous information, identify the companies involved, and then categorize the data based on the type of event. Event categories include new product announcements, new client announcements, executive changes, M&A rumors, changes in corporate guidance, delayed filings, and SEC inquiries. We retain only the new product and new client announcements, as these announcements correspond directly to specific real projects. CIQ's Key Development database contains 141,079 new client and product announcement events in the 2002-2009 period. Of these, 82,015 involve new client announcements, while 59,064 involve new product announcements.

Next, we calculate abnormal stock return measures for the announcing firm around each announcement using data from CRSP. Our primary measure of abnormal announcement return is $CAR(-3,+3)$, the return over the period from three days before to three days after the announcement minus the appropriate Daniel, Grinblatt, Titman, and Wermers (1997) characteristic-based benchmark. We include up to three days on either side of the announcement to allow for information leakage or errors in capturing the actual announcement date. However, we also consider the equivalent abnormal return from one day before to one day after, $CAR(-1,+1)$, for robustness.

Table 1 shows summary statistics for $CAR(-1,+1)$ and $CAR(-3,+3)$. For each measure, it also shows the mean and median for non-event dates (i.e., dates on which a firm does not announce a project).

— Table 1 here —

The mean abnormal event returns are 9 basis points and 13 basis points for the (-1,+1) and (-3,+3) windows, respectively. Both of these are statistically different than zero at the one percent level based on a simple t-test. Both are also statistically different than the comparable mean abnormal returns on non-event dates (2 and 3 basis points) at the one percent level based on a two-tailed t-test. Median abnormal event returns are smaller at 0

and negative 3 basis points for the two windows. Thus the distribution of abnormal event returns appears to be skewed. Nevertheless, the median event returns for both windows are higher than the comparable median abnormal returns for non-event dates, with differences that are statistically significant at the one percent level based on a Wilcoxon z-test. On the whole, then, it appears that new project announcements are perceived as being positive news on average. This is consistent with the prediction of Lemma 2 in Section 2, and suggests that an asymmetrically informed manager seeking to increase stock price in the short run may indeed be able to do so, on average, by announcing a new project.

To get a sense of how important these announcements are (irrespective of whether they are perceived positively or negatively), we compare the absolute values of abnormal returns on event and non-event dates. Since the distributions of the abnormal returns measures are centered near zero, this provides a sense of how extreme event date returns are compared to non-event date returns. The mean absolute values of $CAR(-1,+1)$ and $CAR(-3,+3)$ are 2.52% and 3.91%, respectively. These are almost twice as large as the comparable values for non-event dates. The differences are statistically significant at the one percent level based on a simple t-test. Similar conclusions are reached from examining medians. The events that we study in this paper, then, appear to be important in the sense that they move stock prices (positively or negatively) substantially.

In addition to examining announcement returns, we also analyze the text of each announcement in order to calculate a number of different variables capturing characteristics of the announcement. The simplest of these is *Sentences*, which is just the number of sentences in the announcement and measures the length of the text. *LongTermProject* is an indicator variable equal to one if the announcement contains the term "long-term," the expression "N-year" for N greater than or equal to three (e.g., "five-year"), or reference to a year more than one year later than the year of the announcement (e.g., "2012" for an announcement in 2009).

The remaining characteristics focus on the nature of the specific words in the an-

nouncements. While many algorithms exist for classifying words, it is unclear that existing word categorizations are appropriate for announcements about new clients and products. We therefore build our own categories of words. We define four major categories of words: specific, sector, process, and soft. Each of these consists of subcategories. Specific words include words relating to product/client characteristics, numbers, places, transaction terms, dates/times, and capitalized words occurring in places other than the beginning of a sentence. Sector words include words relating to research & development, innovation, defense, energy, finance, and health. Process words include words relating to marketing, operations, technology, and distribution, as well as any words relating to international business (excluding the names of specific countries and cities, which are classified as place words). Soft words include words that are vague and words that are generically positive in tone.

We asked a research assistant to assign each of the 6,000 most prevalent words in the announcement texts to at most one subcategory, leaving a word unassigned if it did not fit into any of the subcategories. We provided the research assistant with between two and four sample words in each subcategory to provide guidance. A list of categories and subcategories as well as the sample words for each subcategory can be found in the Appendix.

— Table A.1 here —

The 6,000 words we asked the research assistant to attempt to assign account for over 91% of the overall word count for the full sample of announcements. The research assistant successfully assigned 1,899 words to a subcategory. These represent 63% of the overall word count. We then rolled the subcategories up to the category level, and calculated the number of words in each category for each announcement. We scale this by the number of sentences in an announcement to calculate measures of the prevalence of words in each category. The resulting variables are $Specific/Sentence$, $Sector/Sentence$, $Process/Sentence$, and $Soft/Sentence$. We also calculate the prevalence of positive and vague words, the two subcategories of soft words, separately as $Positive/Sentence$ and $Vague/Sentence$, as the

last part of our analysis in Section 4 focuses specifically on the usage of soft language in detail.[12]

We additionally construct two variables based on the timing of an announcement. $TimeSinceLast$ is the number of days since the firm's last project announcement. $TimeToNextEarnings$ is the number of days until the firm's next earnings announcement. Table 2 presents summary statistics for all of the announcement-related variables.

— Table 2 here —

As the table shows, the mean and median number of sentences in an announcement is five. The range is relatively small, with the 5th and 95th percentiles at three and eight, respectively. The mean and median number of Specific words per sentence is approximately four. The mean and median number of Sector and Process words is approximately 0.4. The mean and median number of Soft words is approximately 0.2. Among Soft words, Positive words are about twice as prevalent as Vague words.

3.2 Managerial horizon

The main prediction we seek to test focuses on how project announcement returns relate to management's incentives to focus on short-term stock price performance. As no single observable characteristic perfectly captures such incentives, we use four different measures based on characteristics of managers or the structure of their compensation that create incentives to focus on short-run performance. The first two relate to implicit incentives to focus on the short run and have been used in a number of prior papers. The first is the age of the firm's CEO. The career concerns literature has treated an agent's age as an inverse proxy for the agent's incentives to focus on short-run performance (Gibbons and Murphy, 1992; Chevalier and Ellison, 1999; Lamont, 2002). The argument underlying the use of this proxy is that outsiders have more diffuse priors about the skill level of younger agents, who

[12]The full categorization of words is available from the authors upon request.

generally have a shorter track record. If stock prices are informative about CEO skill and hence impact a CEO's outside options, then younger CEOs have a stronger incentive to focus on stock price in the short-run than older CEOs.

While young managers may have an incentive to focus on short-run stock price performance because of career concerns, the literature has also argued that managers approaching retirement age have incentives to shift their focus away from long-run value maximization and towards maximizing stock price in the short run. A high stock price in the short run may bolster the manager's legacy, while an increase in firm value long after a manager has retired is likely to have little impact on the manager's well-being (Dechow and Sloan, 1991; Gibbons and Murphy, 1992; Brickley, Linck, and Coles, 1999; Jenter and Lewellen, 2011). The combination of the career concerns and retirement horizon compression arguments suggests that incentives to focus on the short-run should be a u-shaped function of CEO age. We define $CEOAge$ as the age of a firm's CEO as reported by Execucomp. Proposition 1 then predicts that abnormal announcement returns will be an *inverse* u-shaped function of $CEOAge$. To allow for this possibility in our regression analysis, we include both $CEOAge$ and $CEOAgeSquared$, the second power of $CEOAge$.

The second proxy we use for management's incentive to focus on short-term stock price performance is the length of the CEO's tenure with the firm at the time. Like age, the career concerns literature has used tenure as an inverse proxy for an agent's incentives to focus on short-run performance in a variety of contexts (Gibbons and Murphy, 1992; Hong, Kubik, and Solomon, 2000), arguing that agents with less of a track record have stronger incentives to focus on the short run. We define $CEOTenure$ as the difference between the year in which a project announcement takes place and the year the CEO rose to that position as reported by Execucomp. Proposition 1 predicts that project announcement returns will be positively related to $CEOTenure$.[13]

While the literature has devoted more attention to implicit incentives to focus on

[13]As retirement is more likely to be driven by age rather than tenure, we do not consider a nonlinear relation between returns and tenure as we do for age.

short run stock price performance, much of the recent policy debate focuses on the explicit dependence of managerial compensation on short-term performance. The third and fourth proxies we use for management's incentives to focus on the short-run relate to these explicit incentives. The third is the average vesting period of the CEO's stock option grants. The CEO can exercise an option that has already vested. If he does so, his payoff on that option is the difference between the stock price at that point in time and the strike price of the option. Assuming that CEOs do exercise options once they vest at least some of the time, the shorter the vesting period of an option, the shorter the period over which the option exposes the CEO's compensation to the firm's stock price peformance.

The length of the vesting period of an option effectively captures information about the "duration" of the option. In a recent paper, Gopalan et al. (2014) measure the duration of a CEO's entire compensation package, including option and stock grants, using data on vesting periods from Equilar. They show that CEOs with shorter pay duration are more likely to manage earnings upwards to boost stock price in the short run. Because we do not have access to Equilar data, and information on the vesting period of stock grants is not available generally, we focus only on the vesting period of option grants.

We obtain data on CEO option grants from the firm's Form 4 SEC filings as reported in Thomson Reuters Insiders Data. For each CEO grant in a given year, we calculate the vesting period as the difference between the date on which the option vests and becomes exercisable (*xdate* in the Form 4 data) and the grant date (*trandate*). We then compute $CEOOptionVestPeriod$ as the value-weighted average of the vesting period of each option granted during the year. We use the value of each grant to weight options with different vesting dates granted in the same year. We calculate this value using the Black-Scholes option pricing model. In doing so, we set the stock price and strike price equal to the values reported in the Form 4 data (*sprice* and *xprice*, respectively). We compute the time to maturity as the expiration date, *tdate* from the Form 4 data, minus the grant date, *trandate*. We set the risk-free rate equal to the seven-year Treasury yield. We set dividend yield equal to the

firm's mean quarterly ratio of dividends to stock price over the three previous years. Finally, we set volatility equal to the the standard deviation of the firm's daily stock returns over the preceding five years as computed using CRSP return data. Our approach is similar to the approach used to calculate the Black-Scholes value of stock options in the Execucomp database.

Our fourth and final proxy for management's incentive to focus on short-run stock price performance is the expected life of stock options granted to employees in a given year as reported by the firm. This is similar to the $CEOOptionVestPeriod$ measure in the sense that it captures information about the duration of stock options, though it is based only partly on vesting period and reflects options granted to all employees and not just the CEO. Implicit in our use of this variable is the assumption that managers throughout a company's hierarchy can approve projects, and that they respond to incentives to focus on the firm's short-run stock price performance when their compensation is linked to it.

We set the variable $EmpOptionExpectedLife$ equal to Compustat variable $OPTLIFE$, the reported estimated life of employee stock options. Reporting of this variable is governed by FASB Accounting Standards Codification Topic 718 and SEC's Staff Accounting Bulletin Number 107. Companies are permitted to use either of two methods to compute the expected life of options. They can use historical stock option exercise experience to estimate expected term (with as few as one or two relatively homogenous employee groupings) if this represents the best estimate of future exercise patterns. If they do so, the expected life must be at least as long as the vesting period of the options. Alternatively, they can add the time to vesting and the time to maturity, and divide by two. This "plain vanilla" approach implicitly assumes that options are exercised halfway between the time that they vest and the time that they expire.

3.3 Other data

In addition to the data described so far, we also use data from CRSP, Execucomp, IRRC, Thomson Reuters, and Compustat quarterly to construct a number of control variables that we use in our regression analysis. We obtain governance-related variables primarily from IRRC. These include whether the CEO is also the Chair of the firm's board of directors ($CEOasChair$), the percentage of independent directors on the firm's board ($\%IndepDirectors$), and Gompers, Ishii, and Metrick's (2003) G-index ($GIndex$). We also calculate a Herfindahl index of institutional ownership concentration using Thomson Reuters (13f) Holdings data ($Herf(Inst'lOwnership)$).

We calculate the CEO's overall pay-performance sensitivity (PPS) using the approach of Core and Guay (2002). We calculate a firm's market capitalization ($MarketCap$) as of the quarter end prior to the announcement date and its stock return over the prior year ($Return1YR$) using CRSP data. We use Compustat to calculate three financial variables. $Tobin'sQ$ is the sum of the market value of the firm's equity and the book value of its short- and long-term debt, divided by the sum of the book values of its equity and debt. ROA is operating income before depreciation divided by total assets. $R\&D/Sales$ is research and development expense as a percentage of sales, and is set to zero if research and development expense is missing in COMPUSTAT, the standard approach in the literature. $Tobins'Q$ is calculated as of the end of the prior year, while ROA and $R\&D/Sales$ are calculated during the prior year. We exclude announcements from our dataset if any variable is missing. Our final sample consists of 70,197 announcements. Table 3 describes the main U.S. sample.

— Table 3 here —

Panel A shows summary statistics for the firm-years in the sample. The firms in the sample are similar on all dimensions to COMPUSTAT firms as a whole. Panel B shows pairwise correlations among the four variables we use as proxies for incentives to focus on short-run stock price performance. Two features are noteworthy. First, not surprisingly, CEO

age and CEO tenure are positively correlated. CEOs who have been in the position longer tend to be older. Second, none of the other pairwise correlations are large. This suggests that our various measures for short-termist incentives contain independent information, and that they are not all simply proxying for a single unobserved firm characteristic that would contaminate the analysis in the next section.

While our primary sample consists only of new project announcements by U.S. firms, the CIQ Key Developments database also includes data on international (i.e., non-U.S.) firms. We are able to obtain data on CEO age as well as a handful of firm characteristics for these international firms from CIQ as well, though not measures of option duration or CEO tenure. We are also able to compute abnormal project announcement returns using data from CIQ for this sample. We use this international sample to conduct corroboratory tests of the relation between CEO age and project announcement returns. We do not present descriptive statistics for this international sample, partly for the sake of brevity and partly because differences in accounting standards across countries makes it difficult to compare the financial characteristics of these firms.

4 Results

This section presents results from our analysis of project announcement returns. It also presents analysis of the text describing new projects.

4.1 Determinants of abnormal project announcement returns

We directly test the implication of Proposition 1 by regressing $CAR(-3,+3)$ on our proxies for short-termist incentives, controlling for firm and project characteristics as well as firm and year fixed effects. Table 4 shows the results. Standard errors clustered at the firm level are shown below each point estimate in this and later tables.[14]

[14]The results are all similar if we double cluster by firm and year.

— Table 4 here —

We include each proxy for short-termist incentives one-at-a-time in the first four columns, and then include all four proxies in the fifth column. When we include the incentive variables one-at-a-time, we find that all of the coefficients except the one on $CEOTenure$ have a sign consistent with CEOs lowering their project acceptance standards when they have incentives to focus on the short run. However, only the coefficients on $CEOAge$ and $CEOAgeSquared$ in column (1) are statistically significant at the ten percent or better level. Once we include all four variables in column (5), all of the coefficients have the predicted sign, and all but the coefficient on $CEOOptionVestPeriod$ are statistically significant.[15] The results are broadly consistent with the market discounting project announcements when managers' incentives to focus on short-run stock price performance are greater.

The coefficients in column (5) imply that one-standard deviation increases in $CEOTenure$, $CEOOptionVestPeriod$, and $EmpOptionExpectedLife$ are associated with increases in $CAR(-3,+3)$ of 11.3, 3.6, and 7.3 basis points, respectively. While these sensitivities may not appear large, it is important to keep in mind that each project in our data is relatively small, and that the mean $CAR(-3,+3)$ is only 13 basis points. The relation between $CAR(-3,+3)$ and $CEOAge$ has an inverted u shape. The implied peak given the quadratic functional form in the regression specification in column (5) occurs at $CEOAge$ of approximately 51 years. The coefficients on $CEOAge$ and $CEOAgeSquared$ imply that the expected abnormal announcement return increases by approximately 32 basis points as the CEO's age increases from 40 to 51. It falls by approximately 55 basis points as $CEOAge$ increases from 51 to 65.

The maximal announcement return at CEO age of 51 may seem at odds with our in-

[15] The change in the sign of the coefficient on $CEOTenure$ from column (2) to column (5) is driven by the inclusion of $CEOAge$ and $CEOAgeSquared$ in the latter. The positive correlation between $CEOTenure$ and $CEOAge$ and the non-monotonic relationship between announcement returns and $CEOAge$ appear to mask the relationship between announcement returns and $CEOTenure$ when the age variables are not included. The coefficient on $EmpOptionLife$ becomes significant at the ten percent level when $CEOOptionVestPeriod$ is included. However, this coefficient is of a similar magnitude and already almost significant at the ten percent level without the inclusion of this variable (column (4)).

terpretation. A reduction in announcement response due to the CEO approaching retirement and worrying less about long-run (i.e., post-retirement) value should be most relevant for CEOs nearing typical retirement ages - i.e., those in their 60s rather than 50s. However, it is important to note that the relationship implied by the coefficients in this quadratic form is actually fairly flat for several years around the maximum. The fitted drop in announcement returns form the age of 51 to 60 is 23 basis points, or 2.6 basis points per year of age. The drop in announcement returns from age 60 to 65 is 32 basis points, or 6.4 basis points per year of age.

We note here that the coefficient on $CEOTenure$ goes from being negative (statistically insignificant) when it is the only measure of short-termism in the regression in column (2) to being positive and statistically significant when we include the other measures in column (5). This change is driven by the addition of the CEO age variables. As noted in the discussion of Table 3, Panel B, CEO tenure and age are highly correlated. This correlation combined with the non-monotonic relationship between announcement returns and CEO age appears to bias the coefficient on CEO tenure towards zero in column (2).

The results in Table 4 are consistent with managers lowering their standards for project acceptance when they have incentives to focus on short-run stock price performance (and investors anticipating such behavior). Of course, there could be other explanations for the relation between announcement returns and any of the proxies we use for short-termist incentives. For example, a firm that is performing well is less likely to replace its CEO, and the market may view the incremental project undertaken by such a firm more positively, which could produce a positive relation between announcement returns and CEO tenure. Alternatively, younger, more entrepreneurial firms may grant employees stock options with short vesting periods and may also have higher NPV projects. The non-monotonic relation between returns and CEO age would be more difficult to square with any specific alternative explanation. It would also be more difficult to come up with a single alternative explanation that accounts for all of the relations. Ultimately, though, without a source

of exogenous variation in short-termist incentives, it is impossible to completely rule out alternative explanations.

While not a focus of the paper, the positive coefficient on pay-performance sensitivity suggests that the market reacts more favorably when the CEO's compensation is more closely linked to firm stock price performance in general (unconditional on the horizon). This may indicate that CEOs whose pay is more closely linked with shareholder payoffs are expected to exert more effort to generate better projects or screen out less valuable projects, consistent with traditional theories of moral hazard in firms.

The positive coefficient on $LongTermProject$ indicates that the market responds more positively to projects that are expected to have a longer horizon. Interestingly, abnormal announcement returns are unrelated to any of the other variables relating to the text of the announcement. Abnormal announcement returns are lower when the text includes more soft words, though this relation is not statistically significant at the ten percent level. To the extent that the prevalence of such filler language is a sign of a project lacking true redeeming qualities, the stock market should discount projects with more of this language. However, these texts may be difficult for investors to parse.

We offer interpretations for some of the other coefficients as well, though they are not a focus of the paper and we do not attempt to further validate these interpretations. None of the coefficients on the governance-related variables is statistically insignificant. As announcement returns are positive on average, the negative coefficient on $TimeToNextEarnings$ might indicate that the market gets distracted by earnings announcement news and overlooks projects announced in close proximity to such announcements. Alternatively, but relatedly, the sign of the coefficient might indicate that firms tend to announce less valuable projects around earnings announcements in order to "hide" them. The negative coefficient on $Log(MarketCap)$ suggests that an average incremental project creates less expected value in an already larger firm. The positive coefficient on $Return1YR$ could suggest that the market gives more credibility to projects undertaken when a firm appears to be performing

well. Alternatively, stock returns may be high because the market anticipates better future potential projects.

One potential concern with measuring abnormal announcement returns using $CAR(-3,+3)$ is that including three days on either side of the announcement increases the likelihood that contaminating events unrelated to the announcement impact the measurement. The most likely impact of this would be to add noise to our measure of event returns. The use of this window is justified as a means of addressing any concerns about the accuracy of the event dates as captured by the Key Developments database as well as the possible leakage of information prior to an announcement. Another concern is that the results in Table 4 might somehow be driven by the DGTW adjustment. To ensure that the results in Table 4 are robust, we re-estimate the regression shown in column (5) of that table using two alternative announcement return measures. Table 5 shows the results.

— Table 5 here —

In column (1), we use $RAW(-3,+3)$ - that is, returns from which the DGTW characteristic benchmark has not been subtracted - as the dependent variable. The coefficients are generally similar to those in Table 4, suggesting that the DGTW adjustment has little effect on the results. The coefficients on $CEOAge$ and $CEOAgeSquared$ are similar to those obtained when $CAR(-3,+3)$ is the dependent variable and maintain their statistical significance level. The coefficient on $CEOTenure$ loses statistical significance, but the coefficient on $CEOOoptionVestPeriod$ now becomes statistically significant at the ten percent level. The coefficient on $EmpOptionExpectedLife$ remains statistically significant.

In column (2), we use $CAR(-1,+1)$ as the dependent variable. Many of the coefficients shrink when we use this narrower window, suggesting that the wider window we use in Table 4 does capture additional information about the value implications of a project acceptance decision. Nevertheless, the coefficients on $CEOAge$ and $CEOAgeSquared$ and $CEOTenure$ maintain their signs and remain statistically significant. The coefficient on $EmpOptionExpectedLife$, however, becomes statistically insignificant. Overall, the results

do not appear highly sensitive to our approach to measuring the market's assessment of the value that a project will create.

Next, we examine abnormal announcement returns for the two types of events in our sample - new client announcements and new product announcements - separately. These two types of announcements are potentially quite different. New products generally, especially those that are physical or experiential in nature, have outwardly-observable characteristics, and investors can condition their estimates of the value that a product will create on their assessment of these characteristics. We conjecture that it is more difficult for investors to independently assess the value to be created by a new client relationship. Even if the firm announces some of the terms of a new client relationship, the relationship is likely to be complex and to evolve over time.

If our conjecture is correct, then managers generally have a larger informational advantage regarding the true value of a new client relationship. This information gap is what gives managers an incentive to accept negative NPV projects when they are concerned about stock price in the short run more than long-run value. As a result, if the relationships we observe between abnormal project announcement returns and short-termist incentive measures are driven by this lowering of standards, these results should be more pronounced for new client announcements than for new product announcements. Table 6 shows results from estimating the regression shown in column (5) of Table 4 separately for new client and new product announcements.

— Table 6 here —

For the new client announcements subsample, the coefficients on the short-termist incentive variables all have signs consistent with the market discounting projects when short-termist incentives are stronger, and all but the coefficient on $CEOOptionVestPeriod$ are statistically significant. The coefficients on these variables are generally much smaller in magnitude for new product announcements subsample, and none of them are statistically significant. While we have no means of independently corroborating our conjecture that

informational asymmetries are larger for new client than new product announcements, the results are consistent with this conjecture.

In the last part of our analysis of announcement returns, we seek out-of-sample confirmation of the conclusions from the results in Table 4 by examining new project announcements of firms outside of the U.S. Recall that we only observe a limited set of the explanatory variables for this sample. The only proxy for short-termist incentives we observe in this data is $CEOAge$. We estimate OLS regressions with firm, year, and country fixed effects, noting that firms occasionally change countries. Again, the unit of observation is a new product or client announcement, and $CAR(-3,+3)$ is the dependent variable. Table 7 shows the results.

— Table 7 here —

As in the case of the U.S. sample, the relation between announcement returns and CEO age exhibits an inverse u shape. The coefficients on $CEOAge$ and $CEOAgeSquared$ are both statistically significant at the five percent level once we control for firm-level characteristics. Overall, the results in this section are consistent with the market discounting new project announcements when managers have stronger incentives to take actions to boost short-run stock price, as predicted by Proposition 1 of the model.

The final analysis in the paper further explores how incentives to focus on short-run stock price performance impact firm behavior by examining the texts of the project announcements in our sample. We focus specifically on whether proxies for managerial short-term incentives predict the use of "soft" words as described in Table A.1.

4.2 Determinants of "Soft" word usage

If managers with shorter horizons are less discriminating when accepting projects, then the average project they accept will have fewer redeeming features. Firms may compensate for a lack of tangible positive project features by using more vague language in

describing a project. That is, they may use more of the types of words that we classify as "soft" in Table A.1. We examine whether this is the case by regressing measures of the prevalence of these words on our four proxies for short-termist incentives as well as control variables. We also include firm fixed effects to account for any time invariant unobserved firm characteristics related to the use of specific types of language, as well as year fixed effects to account for aggregate time series variation in word usage. Table 8 shows the results.

— Table 8 here —

The dependent variables in the first three columns are $Soft/Sentence$, $Positive/Sentence$, and $Vague/Sentence$, recalling that "positive" and "vague" are the two subcomponents of "soft." The prevalence of soft words, as well as the two types of soft words, decreases with the expected life of employee stock options and is a u-shaped function of CEO age. These relations are consistent with firms accepting projects with fewer verifiable positive features when incentives to focus on the short run are greater. However, the use of these types of words is not related to either CEO tenure or CEO option grant vesting period.

Columns (4) and (5) show that the sensitivities of the prevalence of soft words to $CEOAge$ and $EmpOptionExpectedLife$ are stronger for product announcements than for client announcements. While we are careful not to draw strong conclusions, this appears to be consistent with the explanation we consider for why announcement returns are more strongly related to our short-termist incentive measures for client announcements than for product announcements. If investors face greater difficulty in verifying information about new clients, as we conjectured there, then management may have greater scope for embellishing the descriptions of these projects without having to resort to vague "filler" language. The use of such language then would be more sensitive to short-termist incentives for new client announcements than for new product announcements. Overall, the results of the textual analysis provide some support for managers using more filler language when their incentives to focus on short-term stock price improvements are stronger.

5 Conclusion

This paper investigates how CEO incentives to focus on short-run stock price performance affects actual project choices and value creation. Our analysis of new client and product announcement returns provides evidence that such incentives distort project acceptance decisions away from long-run value maximization. These announcement returns decline with several proxies for short-termist incentives, do so more in cases where in cases where management is likely to have more of an informational advantage (new client rather than new product announcements) and hence have greater scope for deviating from value maximization. The use of more filler language in project announcements issued by such managers adds further evidence that these incentives do, in fact, alter project acceptance decisions.

Although a handful of papers have examined the impact of short-termist incentives on accounting decisions, little prior evidence exists that they actually distort real economic decisions. Moreover, what evidence does exist focuses on a fairly narrow set of decisions (how much to spend on research and development, whether or not to be acquired) and a single cause of short-termism (the approach of retirement). Our papers adds to the literature by considering both a variety of causes of short-termism as well as their impact on a broad set of specific, elemental project decisions. Our analysis of specific project also represents a departure from the standard approach in the literature of studying the relationship between measures of agency conflict and total firm value.

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Table 1: Distribution of project announcement returns

This table presents the distribution of abnormal new project announcement returns. Abnormal returns are defined as buy-and-hold returns less the buy-and-hold returns of the Daniel, Grinblatt, Titman and Wermers (1997) characteristic-matched benchmark. Event dates are days on which a firm announces a new project, and non-event dates are days on which the firm does not announce a new project. Below each row presenting statistics for abnormal announcement return measures are the mean and median of the same measure on non-event dates.

	Mean	Median	SD	p5	p25	p75	p95
CAR (-1,+1)	0.0009	0.0000	0.0399	-0.0530	-0.0159	0.0170	0.0579
Non-event dates	0.0002	-0.0006					
CAR (-3,+3)	0.0013	-0.0003	0.0603	-0.0841	-0.0255	0.0264	0.0914
Non-event dates	0.0003	-0.0009					
|CAR (-1,+1)|	0.0252	0.0164	0.0309	0.0014	0.0074	0.0319	0.0776
Non-event dates	0.0137	0.0088					
|CAR (-3,+3)|	0.0391	0.0259	0.0459	0.0023	0.0116	0.0504	0.1188
Non-event dates	0.0212	0.0140					

Table 2: Announcement summary statistics

This table presents summary statistics for the project announcements in our sample. *Sentences* is the number of sentences in an announcement. $LongTermProject$ is an indicator variable equal to one if the announcement contains the term "long-term," the expression "N-year" for N greater than or equal to three (e.g., "five-year"), or reference to a year more than one year later than the year of the announcement (e.g., "2012" for an announcement in 2009). $Specific/Sentence$, $Sector/Sentence$, $Process/Sentence$, and $Soft/Sentence$ are the numbers of specific, sector, process, and soft words per sentence in the announcement. $Positive/Sentence$ and $Vague/Sentence$ are the number of positive and vague words per sentence, respectively. Positive and vague words are the two subcategories of soft words. See Table A.1 for the category hierarchy as well as examples of words in each subcategory. $TimeSinceLast$ is the number of days since the firm's last project announcement. $TimeToNextEarnings$ is the number of days until the firm's next earnings announcement.

	Mean	Std. Dev.	P5	P25	Median	P75	P95
Sentences	5.1320	1.4002	3.0000	4.0000	5.0000	6.0000	8.0000
LongTermProject	0.1624	0.3323	0.0000	0.0000	0.0000	0.0000	1.0000
Specific/Sentence	4.3481	1.5210	2.2500	3.4223	4.1820	5.0417	6.9929
Sector/Sentence	0.3936	0.1871	0.1578	0.2788	0.3693	0.4845	0.6982
Process/Sentence	0.4111	0.2109	0.1111	0.2692	0.3968	0.5208	0.7722
Soft/Sentence	0.1908	0.1144	0.0000	0.1311	0.1917	0.2476	0.3611
Positive/Sentence	0.1204	0.0827	0.0000	0.0685	0.1223	0.1667	0.2500
Vague/Sentence	0.0705	0.0691	0.0000	0.0190	0.0625	0.0982	0.1944
TimeSinceLast	141.120	245.996	6.618	20.875	53.429	146.500	560.000
TimeToNextEarnings	94.456	21.212	83.625	90.652	91.500	94.500	109.000

Table 3: Firm-level data summary

This table describes the firm-level data for our sample of firm-years. Panel A presents summary statistics for the sample. $CEOAge$ is the age of the CEO as reported in Execucomp. $CEOTenure$ is the number of years since the CEO assumed that position. $CEOOptionVestPeriod$ is the mean vesting period (in years) of CEO stock options granted during the year. $EmpOptionExpectedLife$ is the the expected life of employee stock options. PPS is CEO pay-performance sensitivity, and is calculated using the approach of Core and Guay (2002). $CEOasChair$ is an indicator variable equal to one if the CEO also serves as Chair, as reported by IRRC. $\%IndepDirectors$ is the percentage of the firm's directors classified as independent by IRRC. $Herf(Inst'lOwnership)$ is the Herfindahl index of the firm's institutional ownership calculated using Thomson Reuters 13(f) Holdings data. $GIndex$ is the G-Index of Gompers, Ishii, and Metrick (2003). $MarketCap$ is the firm's market capitalization, and is equal to the product of its stock price and shares outstanding as reported in CRSP. $Tobin'sQ$ is equal to the sum of market capitalization and short- and long-term debt, divided by the sum of the book value of equity and short- and long-term debt, and is calculated using Compustat data. $Return1Yr$ is the firm's buy-and-hold stock return over the year as reported by CRSP. ROA is operating profit before depreciation divided by sales, both obtained directly from Compustat. $R\&D/Sales$ is research and development expense divided by sales, both obtained from Compustat, and is set to zero if research and development expense is missing. Panel B shows pairwise correlations among the proxies for incentives to focus on short-run stock price performance.

Panel A: Summary statistics

	Mean	Std. Dev.	P5	P25	Median	P75	P95
CEOAge	54.585	6.441	43.000	50.000	55.000	59.000	65.000
CEOTenure	7.187	6.363	1.000	3.000	5.000	9.000	21.000
CEOOptionVestPeriod	2.353	0.689	1.000	2.002	2.465	2.503	3.474
EmpOptionExpectedLife	4.917	1.107	3.100	4.150	5.000	5.610	7.000
PPS	677.973	1,275.692	13.215	108.695	329.640	749.418	2,421.551
CEOasChair	0.670	0.470	0.000	0.000	1.000	1.000	1.000
%IndepDirectors	0.838	0.084	0.667	0.800	0.867	0.900	0.923
Herf(Inst'lOwnership)	0.044	0.022	0.022	0.031	0.040	0.052	0.080
GIndex	9.320	2.508	5.000	8.000	9.000	11.000	13.000
MarketCap	12,939	32,209	274	1,008	3,010	10,673	56,953
Log(MarketCap)	8.124	1.625	5.613	6.916	8.010	9.275	10.950
Tobin's Q	2.928	2.914	0.794	1.438	2.174	3.423	6.940
Return1YR	0.078	0.469	-0.565	-0.201	0.044	0.280	0.841
ROA	0.034	0.144	-0.120	0.014	0.049	0.086	0.155
R&D/Sales	0.079	0.341	0.000	0.000	0.014	0.098	0.254

Panel B: Pairwise correlations among short-termist incentive variables

	CEOAge	CEOTenure	CEOOption VestPeriod	EmpOption ExpectedLife
CEOAge	1.000			
CEOTenure	0.318	1.000		
CEOOptionVestPeriod	-0.141	0.111	1.000	
EmpOptionExpectedLife	0.128	0.010	0.005	1.000

Table 4: Determinants of project announcement returns

This table presents results from OLS regressions in which the unit of observation is a project announcement, and the dependent variable is CAR (-3,+3), the abnormal (DGTW) return from three days before to three days after the announcement. The explanatory variables are described in Tables 2 and 3. Firm characteristics are measured at the end of the most recent year prior to the announcement. All specifications include firm and year fixed effects. Standard errors clustered by firm are shown below each point estimate.

	(1)	(2)	(3)	(4)	(5)
CEOAge	26.656***				27.660***
	(8.086)				(8.107)
CEOAgeSquared	-0.254***				-0.272***
	(0.072)				(0.072)
CEOTenure		-0.038			1.782**
		(0.700)			(0.907)
CEOOptionVestPeriod			6.346		5.288
			(5.932)		(5.927)
EmpOptionExpectedLife				5.800	6.559*
				(3.850)	(3.848)
PPS	0.013***	0.013***	0.013***	0.013***	0.014***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
CEOasChair	2.553	-1.717	-2.075	-1.974	-1.596
	(7.394)	(7.693)	(7.342)	(7.332)	(7.654)
%IndepDirectors	49.300	52.978	51.676	53.213	44.357
	(35.251)	(35.488)	(35.353)	(35.282)	(35.474)
Herf(Inst'lOwnership)	-189.52	-233.586	-225.188	-229.358	-143.986
	(231.305)	(230.430)	(230.944)	(231.006)	(230.928)
GIndex	8.278	9.838*	9.673*	10.055*	7.130
	(5.798)	(5.802)	(5.812)	(5.802)	(5.839)
TimeSinceLast	-0.012	-0.013	-0.012	-0.012	-0.011
	(0.031)	(0.031)	(0.031)	(0.031)	(0.031)
TimeToNextEarnings	-0.228**	-0.229**	-0.232**	-0.223**	-0.222**
	(0.101)	(0.101)	(0.101)	(0.101)	(0.101)
Log(MarketCap)	-90.351***	-88.459***	-88.475***	-87.776***	-89.748***
	(10.008)	(9.992)	(9.991)	(10.045)	(10.056)
Tobin'sQ	-1.905	-1.895	-1.893	-1.834	-1.746
	(1.322)	(1.314)	(1.314)	(1.316)	(1.328)
Return1YR	0.230***	0.223***	0.223***	0.220***	0.235***
	(0.070)	(0.070)	(0.070)	(0.070)	(0.070)
ROA	-0.346	-0.256	-0.254	-0.283	-0.399
	(0.385)	(0.382)	(0.382)	(0.383)	(0.386)
R&D/Sales	8.244	7.821	8.266	7.756	8.940
	(24.211)	(24.213)	(24.222)	(24.215)	(24.210)
Sentences	1.916	1.888	1.887	1.861	1.891
	(1.343)	(1.343)	(1.343)	(1.343)	(1.342)
Specific	-0.253	-0.294	-0.298	-0.299	-0.256
	(1.001)	(1.001)	(1.002)	(1.001)	(1.002)
Sector	1.367	1.565	1.567	1.467	1.276
	(8.866)	(8.878)	(8.878)	(8.879)	(8.865)
Process	4.104	4.101	4.109	4.150	4.097
	(8.257)	(8.262)	(8.262)	(8.265)	(8.259)
Soft	-10.913	-11.742	-11.691	-11.665	-10.693
	(12.361)	(12.374)	(12.375)	(12.375)	(12.358)
LongTermProject	17.212***	17.135***	17.064***	17.047***	17.033***
	(6.165)	(6.168)	(6.168)	(6.169)	(6.166)
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
N	70,197	70,197	70,197	70,197	70,197
R2	0.033	0.032	0.032	0.033	0.033

Table 5: Determinants of project announcement returns - other announcement return measures

This table presents results from OLS regressions of announcement return measures other than $CAR(-3,+3)$ on various firm and announcement characteristics. The dependent variable in the first column is the raw return from three days before to three days after the announcement. The dependent variable in the second column is CAR (-1,+1), the abnormal return from one day before to one day after the announcement. The explanatory variables are described in Tables 2 and 3. Firm characteristics are measured at the end of the most recent year prior to the announcement. All specifications include firm and year fixed effects. Standard errors clustered by firm are shown below each point estimate.

	Raw ret (-3,+3)	CAR (-1,+1)
CEOAge	26.175***	13.206***
	(8.340)	(4.356)
CEOAgeSquared	-0.256***	-0.129***
	(0.076)	(0.040)
CEOTenure	0.197	1.330**
	(0.990)	(0.517)
CEOOptionVestPeriod	12.031*	-0.614
	(6.948)	(3.629)
EmpOptionExpectedLife	10.069**	2.003
	(4.579)	(2.392)
PPS	0.015***	0.007***
	(0.004)	(0.002)
CEOasChair	2.388	3.855
	(9.207)	(4.809)
%IndepDirectors	73.730*	20.705
	(40.093)	(20.941)
Herf(Inst'lOwnership)	-435.168**	-13.587
	(215.111)	(112.355)
GIndex	9.653	2.619
	(6.603)	(3.449)
TimeSinceLast	-0.022	0.005
	(0.042)	(0.022)
TimeToNextEarnings	-0.238**	-0.164***
	(0.115)	(0.060)
log(MarketCap)	-126.341***	-42.248***
	(8.774)	(4.583)
Tobin'sQ	-1.672	0.506
	(1.263)	(0.660)
Return1YR	0.285***	0.062*
	(0.070)	(0.037)
ROA	-0.382	-0.120
	(0.310)	(0.162)
R&D/Sales	21.336	0.330
	(17.109)	(8.936)
Sentences	1.648	1.096
	(1.676)	(0.875)
Specific	0.369	-0.519
	(1.203)	(0.628)
Sector	9.827	6.670
	(11.201)	(5.850)
Process	1.248	6.765
	(10.057)	(5.253)
Soft	-27.943*	8.266
	(15.164)	(7.920)
LongTermProject	16.744**	15.260***
	(8.039)	(4.199)
Firm Fixed Effects	Yes	Yes
Year Fixed Effects	Yes	Yes
N	70,197	70,197
R2	0.044	0.030

Table 6: Determinants of project announcement returns - client and product announcements

This table presents results from OLS regressions of $CAR(-3,+3)$ on various firm and announcement characteristics separately for new client and new product announcements. The sample is restricted to announcements of new clients in the first column and new projects in the second column. The explanatory variables are described in Tables 2 and 3. Firm characteristics are measured at the end of the most recent year prior to the announcement. All specifications include firm and year fixed effects. Standard errors clustered by firm are shown below each point estimate.

	Client only	Product only
CEOAge	41.387***	12.278
	(10.486)	(11.541)
CEOAgeSquared	-0.406***	-0.120
	(0.094)	(0.104)
CEOTenure	2.432**	0.746
	(1.152)	(1.286)
CEOOptionVestPeriod	3.866	8.784
	(7.602)	(8.827)
EmpOptionExpectedLife	9.868*	4.867
	(5.274)	(5.283)
PPS	0.014***	0.011***
	(0.003)	(0.004)
CEOasChair	3.519	-8.649
	(10.245)	(11.065)
%IndepDirectors	52.882	50.588
	(44.733)	(52.062)
Herf(Inst'lOwnership)	-283.580	-49.845
	(303.293)	(325.530)
GIndex	5.082	14.670*
	(6.821)	(8.907)
TimeSinceLast	0.019	-0.064
	(0.045)	(0.049)
TimeToNextEarnings	-0.281**	-0.167
	(0.142)	(0.127)
log(MarketCap)	-83.700***	-97.709***
	(12.613)	(14.082)
Tobin'sQ	-3.510*	-1.408
	(1.914)	(1.742)
Return1YR	0.294***	0.146
	(0.087)	(0.114)
ROA	-1.005*	-0.115
	(0.550)	(0.476)
R&D/Sales	-130.304**	9.369
	(52.002)	(29.356)
Sentences	1.157	3.374
	(1.661)	(2.272)
Specific	-0.673	0.445
	(1.296)	(1.577)
Sector	0.212	1.786
	(10.810)	(16.058)
Process	-7.037	20.010
	(10.034)	(14.844)
Soft	-2.891	-24.812
	(15.172)	(21.471)
LongTermProject	12.633*	26.020*
	(7.118)	(14.377)
Firm Fixed Effects	Yes	Yes
Year Fixed Effects	Yes	Yes
N	38,624	31,573
R2	0.051	0.046

Table 7: Determinants of project announcement returns - international sample

This table presents results from OLS regressions in which the unit of observation is a project announcement, and the dependent variable is CAR (-3,+3), the abnormal (DGTW) return from three days before to three days after the announcement. The explanatory variables are described in Table 3. Firm characteristics are measured at the end of the most recent year prior to the announcement. All specifications include firm and year fixed effects. Standard errors clustered by firm are shown below each point estimate.

	(1)	(2)
CEOAge	23.855	34.512**
	(16.879)	(16.944)
CEOAgeSquared	-0.239	-0.330**
	(0.156)	(0.157)
log(MarketCap)		-80.622***
		(13.706)
Tobin'sQ		-0.188
		(0.249)
Return1YR		0.272***
		(0.066)
ROA		1.625
		(1.185)
R&D/Sales		195.866
		(158.561)
Firm Fixed Effects	Yes	Yes
Year Fixed Effects	Yes	Yes
Country Fixed Effects	Yes	Yes
N	42,686	42,686
R2	0.101	0.101

Table 8: Determinants of project announcement content

This table presents OLS regressions in which the dependent variables are measures of the prevalence of soft words as defined in Table 2. The dependent variables are the prevalence of any soft word in column 1, of positive words in column 2, and of vague words in column 3. The explanatory variables are defined in Tables 2 and 3. All specifications include firm and year fixed effects. Standard errors clustered by firm are shown below each point estimate.

Announcement types	Soft/Sentence All	Positive/Sentence All	Vague/Sentence All	Soft/Sentence Client	Soft/Sentence Product
CEOAge	-55.807**	-28.191*	-27.615**	-67.240**	-39.961
	(22.573)	(15.934)	(13.858)	(33.429)	(30.526)
CEOAgeSquared	0.556***	0.286*	0.270**	0.613**	0.464*
	(0.204)	(0.146)	(0.125)	(0.300)	(0.280)
CEOTenure	-1.046	0.177	-1.224	1.726	-5.576
	(2.688)	(1.962)	(1.614)	(3.926)	(3.676)
CEOOptionVestPeriod	-15.652	-1.203	-14.449	-19.698	1.579
	(18.307)	(13.385)	(12.045)	(26.760)	(26.202)
EmpOptionExpectedLife	-21.325*	-20.071**	-1.255	-0.664	-42.295***
	(11.908)	(8.401)	(7.782)	(17.590)	(16.363)
PPS	0.013	0.010	0.003	0.011	0.013
	(0.010)	(0.007)	(0.006)	(0.012)	(0.015)
CEOasChair	20.725	12.087	8.638	29.664	12.432
	(23.128)	(16.594)	(14.794)	(33.921)	(31.315)
%IndepDirectors	-297.807***	-214.281***	-83.526	-596.690***	-3.022
	(103.485)	(77.111)	(66.564)	(153.557)	(144.788)
Herf(Inst'lOwnership)	-747.013	-29.11	-717.903**	-2,091.341	584.606
	(544.048)	(396.776)	(338.839)	(844.676)	(704.536)
GIndex	4.027	-22.965	26.992**	-2.962	33.195
	(18.091)	(14.504)	(11.372)	(24.662)	(26.981)
TimeSinceLast	-0.062	-0.008	-0.054	-0.008	-0.145
	(0.102)	(0.070)	(0.072)	(0.148)	(0.145)
TimeToNextEarnings	-0.083	-0.179	0.096	0.298	-0.386
	(0.289)	(0.197)	(0.182)	(0.407)	(0.379)
log(MarketCap)	27.615	19.177	8.439	-27.101	50.262
	(23.242)	(17.074)	(14.530)	(33.293)	(31.742)
Tobin'sQ	-1.154	-2.111	0.957	2.837	-5.922
	(3.108)	(2.095)	(2.035)	(5.114)	(3.831)
Return1YR	-0.281	-0.126	-0.155	-0.426*	0.074
	(0.188)	(0.142)	(0.114)	(0.255)	(0.268)
ROA	0.094	-0.334	0.428	0.747	-0.847
	(0.886)	(0.610)	(0.543)	(1.311)	(1.183)
R&D/Sales	-45.991*	4.481	-50.471***	-246.062**	-50.570*
	(27.397)	(20.947)	(17.940)	(118.485)	(28.480)
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
N	70,197	70,197	70,197	38,624	31,573
R2	0.068	0.082	0.032	0.085	0.083

Appendix

Proof of Lemma 1

Note that

$$r'(\hat{\sigma}_\ell) = \frac{p_0(\hat{\sigma}_\ell)p'_{1I}(\hat{\sigma}_\ell) - p'_0(\hat{\sigma}_\ell)p_{1I}(\hat{\sigma}_\ell)}{[p_0(\hat{\sigma}_\ell)]^2}, \tag{6}$$

Let $\psi(\hat{\sigma}_\ell) = q + (1-q)\hat{\sigma}_\ell$. Substituting in the expression for p_0, we have

$$r'(\hat{\sigma}_\ell) = -\frac{(1-q)[q(x_h - x_\ell) + x_\ell]}{[p_0(\hat{\sigma}_\ell)]^2} \times \{q[x_h - \psi(\hat{\sigma}_\ell)I] + [1 - \psi(\hat{\sigma}_\ell)]I + (1-q)x_\ell\}. \tag{7}$$

The first term is clearly positive. The first sub-term of the second term is positive because $\psi \leq 1$ and $x_h > I$. The second sub-term is non-negative because $\psi \leq 1$. The third sub-term is positive because $x_\ell > 0$. Therefore the entire expression is negative. ■

Table A.1: Word categories and subcategories

This table presents the categories and subcategories to which specific words in the texts of the new client and new product announcements in our sample are assigned. We had a research assistant attempt this categorization for the 6,000 most commonly-used words in the full set of announcements. We provided the example words to the right of each subcategory to the research assistant to provide guidance for the categorization process.

Subcategory	Examples
Specific	
Characteristics	Including, Designed, Provides, Features, Capabilities
Number	Eighteen, 12, 44%, $3.50
Place	Texas, Germany, U.S., Atlanta
Terms	Contract, Agreement
Time	2007, Now, Year
Sector	
R&D	Study, Development, Research
Innovation	New, Advanced, First, Leading
Defense	Military, Army, Weapons, Defense
Energy	Energy, Solar, Gas, Oil
Financial	Sales, Profits, Earnings
Health	Patients, Phase, Trials, Clinical, Drug
Process	
International	International, Global
Marketing	Market, Release, Advertising
Operations	Operating, Manufacture, Factory, Turnkey, Cost-Effective
Technology	System, Data, Software, Network, Applications
Distribution	Distribution, Delivery, Infrastructure,
Soft	
Positive	Best, Better, Highest, Improve
Vague	Approximately, Almost, Nearly, Expected