Costs of including accounting performance goals in executive compensation

Benjamin Bennett[*], *Carr Bettis*[†], *Radhakrishnan Gopalan*[‡], and *Todd Milbourn*[§]

This Version: May 1, 2014

Abstract

How is firm performance related to executive compensation goals? Using a large dataset of performance goals employed in incentive contracts we study this question. A disproportionately large number of firms exceed their goals by a small margin as compared to the number that fall short of the goal by a small margin. This asymmetry is particularly acute when compensation is contingent on a single goal or if there is a discontinuous jump in compensation earned for meeting the goal. Firms that just exceed their EPS goals have higher abnormal accruals as compared to firms that just miss their EPS goals. Firms that just exceed profit goals have lower R&D and SG&A expenditures, and experience lower long-run stock returns as compared to firms that just miss their profit goals. Overall our results highlight some unintended costs of linking executive compensation to specific performance goals.

JEL Classification: G30, J33

[*]PhD student in Finance, W.P. Carey School of Business, Arizona State University. Corresponding author. e-mail: bfbennett@asu.edu.

[†]Research Professor of Finance, W.P. Carey School of Business, Arizona State University

[‡]Associate Professor, Olin Business School, Washington University

[§]Hubert C. and Dorothy R. Moog Professor of Finance, Olin Business School, Washington University in St. Louis.

"Charlie and I believe that those entrusted with handling the funds of others should establish performance goals at the onset of their stewardship. Lacking such standards, managements are tempted to shoot the arrow of performance and then paint the bull's-eye around wherever it lands."

Warren Buffett

Introduction

The relationship between firm performance and managerial pay has been an area of significant research interest (see Jensen and Murphy (1990); Hall and Liebman (1998)). In their ongoing effort to achieve an optimal link between pay and performance, firms have increasingly resorted to linking annual bonus grants and long-term stock and option grants to achieving explicit performance goals. As mentioned in the above quote, investors like Warren Buffett have been major proponents of assessing management against explicit performance goals. A typical cash or stock grant linked to firm performance identifies a threshold, target and maximum value for one or more accounting or stock price-based metrics. The payout from the grant or the vesting schedule of the grant is then tied to the firm achieving these particular performance goals. For example, a manager may receive no payout if performance is below the threshold and her payout may increase if she exceeds the target performance.[1] Performance linked grants often result in a discontinuous change in managerial pay with firm performance around some "kink points" providing management strong incentives to achieve the performance goals. This practice certainly has a bright side, especially when the goals are challenging, but it may also have a dark side. If managers realize that actual performance is likely to be close to but short of the goal, then they may be tempted to take actions that push reported performance past the goal. In this paper, we use a comprehensive dataset containing information on the performance goals employed in pay contracts to investigate the extent to which reported financial performance is "managed" to achieve compensation performance goals.

[1]See Appendix A for the description of a few bonus and stock grants linked to firm performance.

Managers can ensure that they achieve the performance goals by manipulating either the ex ante goals or the ex post reported performance. They can influence the goal setting process to ensure easy goals, "sandbagging" (Morse et al. (2011)), or change real activities or accounting accruals to alter reported performance (Dechow et al. (2003); Roychowdhury (2006a)). Our main empirical tests which compare the frequency of firms that just exceed and just miss an accounting performance goal will not be able to distinguish between these two channels. Later in the paper (see Section 5.3), we perform tests that specifically focus on the extent to which firms appear to manage reported financial performance to achieve their accounting based performance goals.

Our analysis in this paper proceeds as follows. First, we analyze the distribution of reported performance around the performance goal. If reported accounting performance is managed, then its distribution will exhibit a discontinuity around the goal (Burgstahler and Dichev (1997) and Bollen and Pool (2009)). A disproportionate number of firms will just exceed the goal as compared to the number that just miss the goal. McCrary (2008) develops a test to identify if a probability density has a statistically significant discontinuity at a given point. We employ this methodology along with those in Bollen and Pool (2009) to conduct our tests. Our results are consistent with (some) firms managing reported performance to meet performance goals. Our cross-sectional tests reveal that this tendency is greater if the managerial pay involved is greater. Our evidence is also consistent with managers changing both real activity and accounting accruals to meet performance goals.

Prior literature has identified other performance goals that managers try to meet. These include the zero EPS goal (Burgstahler and Dichev (1997)) and the consensus analyst estimates (Bartov et al. (2002)). Our study differs from these in two important respects. In our setting, we know the monetary penalty managers face for not meeting a performance goal. This allows us to design sharper tests to understand if the management of accounting performance varies with the size of the monetary penalty involved. Second, firms increasingly use accounting and stock based metrics to design pay contracts. Our study is the first to document that there may be costs involved in employing explicit performance goals in such contracts. Furthermore, the cross-sectional tests we perform help us understand

the situations when the use of performance goals in pay contracts result in more or less distortions.This may help in optimal design of performance goals in pay contracts.

We obtain the data on performance goals from a dataset collected from firm's proxy statements by Incentive Lab (IL). We have information on all the cash, stock and option grants awarded to a top five highest paid executive for the 750 largest firms by market capitalization over the time period 1998-2012. We have information on the metric(s) the grant is tied to, the nature of the relationship, i.e., whether the payout or vesting schedule is tied to the metric(s), and the nature (absolute versus relative) and specific value of the performance goal. Given our interest in understanding how executives manage reported accounting performance to achieve goals, we focus on grants linked to an absolute accounting based metric that we can match with actual performance as reported in Compustat. This limits the grants to those that are tied to the level or the growth of one of the following metrics: Earnings, EPS, Sales, EBIT, EBITDA, Operating Income and FFO. This results in a sample of 13,895 grants awarded by 653 firms to 4,534 executives. Among the metrics employed, EPS is the most popular with over 40.5% of the grants linked to a EPS goal. Cash and stock are the most popular modes of payout for the grants in our sample, with over 92.7% (60.87%) of the grants involving some cash (stock) payout.

We begin our empirical analysis by comparing the target performance in the pay contract to the actual performance. We conduct this test separately on earnings (Earnings and EPS), sales (Sales) and profit (EBIT, EBITDA, Operating Income and FFO) based grants. We do this because the underlying distribution of the earnings, sales and profit are quite different and combining them in the same test will make the density estimation very noisy. We construct three variables to help us identify discontinuity at the performance goal. *Actual less target EPS* is the difference between actual EPS as reported in Compustat and the target EPS as identified in the pay contract. Similarly *Actual less target sales* (*Actual less target profit*) is the difference between actual sales (profit) and targeted sales (profits) normalized by the book value of total assets. We find that the density of all three variables exhibit a significant discontinuity at zero, that is, at the target value specified in the grant. A disproportionately large number of firms exceed the performance target by a small margin

as compared to the number of firms that fail to meet the performance target by a small margin. We find a similar pattern when we compare the actual performance to the threshold performance mentioned in the pay contract.[2]

To the extent manipulating a single metric is easier than manipulating multiple metrics, grants contingent on a single metric may provide greater incentives for managers to manage the accounting values that are tied to their performance contracts, compared to those contingent on multiple metrics. Consistent with this, when we divide or sample into executives that obtain grants contingent on single versus multiple metrics, we find that the discontinuity at the performance target is visually larger for executives who obtain grants contingent on a single metric. Since the methodology in McCrary (2008) does not allow for a statistical comparison of the size of two discontinuities, our comparison in this test is visual. Presently we introduce a regression based test that allows us to statistically compare the size of discontinuities. Some grants involve interpolation of the payout between the threshold and target performance. That is, the payout varies continuously with firm performance between the threshold and target performance. Such grants do not involve a discontinuous jump in pay at the target performance, and hence may not provide incentives to manage reported accounting performance. Consistent with this, we find the discontinuity at the target to be larger for executives who receive grants that do not involve interpolation between the threshold and target markers.[3]

Managers can exceed target performance by their discretionary control over reported financial performance, but can also meet their targets by lowering the ex ante goal. That is, managers can set a goal below and close to the anticipated performance so that they achieve it with a high probability and small margin. Such a practice is often referred to as sandbagging. Since managers will be better able to anticipate short-term performance as compared to long-term performance, management of the accounting values associated

[2]We cannot compare the frequency of firms that meet and miss the target *and* threshold performance cutoffs in the same test because the methodology in McCrary (2008) is designed to test for discontinuity at only one point in the density.

[3]Since disclosure requirements for the grant features is not standardized, firms may not always disclose if a grant involves interpolation or not. For our analysis, we classify all grants that do not disclose information about interpolation as not involving interpolation. Thus some of the grants that we classify as not involving interpolation, may actually involve interpolation. This is likely to bias downwards any difference we find between the two subsamples.

with the performance goal is more likely for short-term grants than for long-term grants. When we divide the grants into short-term and long-term grants, we find a significant discontinuity for both sets of grants. We interpret this to be evidence that at least part of the discontinuity is attributed to the management of reported accounting performance, and seemingly *not* solely from sandbagging the ex ante goal.

To cross-sectionally compare the size of the discontinuities, for the first time, we introduce a regression based test. Similar to the test in McCrary (2008), the regression involves comparing the actual number of firms whose performance falls within a bin to an expected number. That is, for any metric, such as say EPS, we use the bin size as recommended by McCrary (2008) and divide all our sample firms into bins based on reported EPS. The dependent variable in the regression is *Number of firms,* the logarithm of one plus the number of firms in each bin. We do a similar exercise for sales and profit measures as well. Our main independent variable is *Number of goals* which is defined as the logarithm of one plus the number of firms with the target or threshold performance in a particular bin. If firms manage reported performance so as to exceed a goal, then we expect their reported performance to fall near (within the same bin as) the performance goal. We model the expected number of firms in each bin in a flexible manner by including a fourth order polynomial of the mid-point of the bin.

In comparison to McCrary (2008), the regression analysis has three advantages and two disadvantages. The first advantage is that we can combine all the metrics in the same test. We can estimate the metric-specific distrbution within the same model by including an interaction term between metric fixed effects and the fourth order polynomial. Secondly, the regression also allows us to test for discontinuities at multiple points in the density. We can include both the threshold and target goals to construct the *Number of goals.* Lastly, the regression also allows us to perform cross-sectional tests. We can do this by splitting our grants say, based on the number of metrics involved and constructing two versions of the *Number of goals.* By comparing the coefficients on the two variables we can compare the size of the discontinuity. The first disadvantage of the regression approach is that it will not be able to tell if the firm actually exceeded the goal or fell short of the goal as we

only test to see if the actual performance is close to the goal. To overcome this, we rely on our prior analysis which clearly shows that whenever firm performance is close to a goal, it is more likely to be greater than the goal. The second disadvantage of the regression approach is that since we only model the total number of firms in a bin as a function of the number of goals in a bin, we will not know if the same firm has its performance and goal in the same bin.

Importantly, our results from the regression analysis confirm the results from the graphical analysis. We find that more firms have their reported performance in a bin if more firms have their goals in the same bin. We also find that this effect is greater if the goal is the only one that affects the payout from the grant and if the grant does not involve interpolation of the payout between the threshold and target performance. Finally, we find that the actual performance clusters around the goal, both for long-term and short-term goals. Observe that we find our regression results to be robust to including metric-bin fixed effects instead of the fourth-order polynomial in the mid-point.

To facilitate our understanding of how firms meet their accounting performance goals, in our next set of tests we compare firms that just exceed a goal to those that just miss a goal on a number of dimensions. Depending on the metric involved, firms can employ a variety of means to meet a goal. In the case of EPS goals, they can increase abnormal accruals, reduce discretionary expenditures such as R&D and SG&A, as well as repurchase shares to meet a particular EPS mark. Sales goals can be met by increasing SG&A and accounts receivables. We compare the level of *Accruals*, *Change R&D/TA*, *Change SG&A/Sales* and *Repurchase* for firms that just exceed the goal, i.e., the firms that fall in the first bin above the performance goal (either target or threshold) and the firms that just miss the goal – that is, firms whose performance is in the two bins below the performance goal – to identify if there are any systematic differences.[4] Since firms deliberately pick performance goals and may take deliberate action to meet those goals, firms that meet and miss goals are not likely to be randomly selected. To this extent our evidence should not be interpreted as being

[4]Since there is a disproportionately large number of firms in the bin above the performance goal as compared to the bin below the performance goal, we include firms in the two bins below the performance goal to ensure a relatively equal number of firms that exceed and miss the goal.

causal in nature.

We find that firms that exceed the EPS goal by a small margin have much higher abnormal accruals as compared to firms that miss the goal by a small margin. When we focus on profit goals, we find that firms that exceed the goal by a small margin have lower R&D and lower SG&A expenses as compared to firms that miss the goal by a small margin. This is consistent with firms using accruals and cuts to discretionary expenditures to meet EPS and profit goals, respectively (see also Graham et al. (2005a); Roychowdhury (2006a)).

In the final set of tests, we look at one and three year abnormal returns to see if meeting a performance goal has long-term value implications. We again compare firms that exceed the performance goal by a small margin to firms that miss the performance goal by a similarly small margin. We find mixed results. While there is no difference in abnormal returns for firms with EPS and sales goals, for firms with profit goals, three year abnormal returns are lower for firms that exceed the goal as compared to firms that miss the goal. This highlights that the reduction in R&D and SG&A expenses among firms that just exceed the profit goal is associated with lower long-term value.

The rest of the paper is organized as follows. Section 1 discusses the related literature. Section 2 describes our empirical methodology. Section 3 discusses the hypothesis we test while Section 4 describes our data and provides the summary statistics. Section 5 discusses the results of our empirical tests while Section 6 concludes. Definitions of empirical variables are in Appendix A.

1 Related Literature

Our paper is most closely related to the papers that highlight the exercise of CEO power over her pay. Bebchuk and Fried (2004) and Adams et al. (2005) argue that CEO power over the pay process can explain much of the contemporary landscape of executive compensation. More managerial power leads to pay that is less sensitive to performance (what they call "compensation camouflage"). Morse et al. (2011) argue that a powerful CEO may

opportunistically change performance benchmarks to increase her pay. In comparison, our paper highlights the effects of having *explicit* performance goals when executives exercise power over both the goal setting process and the reported performance.

Our research is also related to the theoretical moral hazard and adverse selection literature. More specifically applicable is a strand of theoretical research on contracting settings where the agent can manipulate the observable performance measure. The main finding in Crocker and Slemrod (2008) is that compensation contracts that are written in terms of reported earnings cannot provide managers with incentives to maximize profits and at the same time provide managers with incentives to report those profits truthfully. Maggi and Rodríguez-Clare (1995) study a principal-agent setting in which the agent is privately informed about his marginal cost of production. In their paper, costly information distortion emerges as an equilibrium behavior. Additionally, Guttman et al. (2006) find that there exist equilibria in which kinks and discontinuities emerge endogenously in the distribution of reported earnings.

A large literature in accounting and finance documents how executives manipulate reported performance to achieve performance goals. Cheng et al. (2010) find that firms may repurchase shares to manipulate EPS to achieve bonus targets. Roychowdhury (2006b) and Dechow et al. (2003) find that firms may reduce discretionary expenditures, such as R&D and SG&A, to improve reported margins and avoid reporting a loss. Additionally, Graham et al. (2005b) show that when surveyed, a majority of CEOs admit to sacrificing long-term value to smooth earnings. Bergstresser and Philippon (2006) provide evidence that the use of discretionary accruals to manipulate reported earnings is related to the amount of stock-based pay. In comparison, we find that firms increase accruals and cut discretionary spending to meet *highly specific* performance goals explicitly embedded in compensation contracts.

Our paper is also related to the recent literature that studies the use of performance provisions in executive compensation. Bettis et al. (2010, 2013) explore the usage, determinants and implications of performance-vesting provisions in executive stock and option grants, and find that firms with such provisions have better subsequent operating perfor-

mance. Gong et al. (2011) study grants that are tied to relative performance and find a weak relationship between the relative performance targets and future peer group performance. Kuang and Qin (2009) find that performance-vesting stock options plans are associated with better executive incentives among non-financial UK firms. Unlike these papers, we focus on the role of performance provisions in providing incentives to manage reported performance to meet managers own performance targets.

Our paper is also related to the literature that highlights the costs and benefits of alternate metrics to evaluate executive performance. Holmstrom (1979) argues for the use of metrics that are most informative about CEO effort. More recently, Matějka et al. (2009) hypothesize that metrics are chosen in response to past poor performance, while Gao et al. (2012) hypothesize that good past performance is indicative of the importance of a given metric. In comparison, our paper highlights the costs of picking metrics that can be more readily managed by the executive.

In addition to the intended contribution to the literature, our paper may also further stir up the already active, policy-oriented, executive compensation debate. As revealed in the opening quote from Warren Buffett, large investors are in favor of evaluating managers against specific performance goals. There is also increasing pressure from proxy advisory firms such as ISS and Glass Lewis for the use of explicit performance goals in executive compensation. Our paper highlights that the effective use of such provisions also requires greater board oversight on firm performance to minimize executives gaming of reported performance to meet the goals.

2 Empirical methodology

In this section, we describe the three tests that we perform to identify manipulation of firm performance to meet goals. All three tests look for descrepencies in the distribution of reported performance.

The first test we implement is the one described in McCrary (2008) that is designed to

test for the presence of a discontinuity at a point in a density. To implement this test, we construct variables that measure the difference between actual performance and the stated goal, and test for discontinuity at zero, i.e., at the performance goal. The test involves two steps. In the first step, one obtains a "finely-gridded histogram" of the underlying variable. The bins are carefully defined such that no bin includes points both to the left and right of zero. In the second step, one smooths the histogram by estimating a weighted regression separately on either side of zero. The midpoints of the histogram bins are treated as the regressor and the normalized counts of the number of observations falling within each bin are treated as the outcome variable. The weighing function is a triangular kernel that gives most weight to the bins nearest to where one is trying to estimate the density. The test for discontinuity is then implemented as a Wald test of the null hypothesis that the discontinuity is zero. We implement the test using the "DCdensity" function in STATA. The output of this function includes both the first-step histogram and the second step smoother along with 95% confidence intervals (CI) of the second step density.

The critical parameters in the test are the bin-size for the first-step histogram and the bandwidth used in the second stage estimation. For our analysis we use the default bin-size and bandwidth as recommended by the DCdensity function. The default bin size b equals $2\sigma n^{-1/2}$, where σ is the sample standard deviation and n is the number of observations. To estimate the default bandwidth, the "DCdensity" function estimates the weighted regression described above and for each side, it computes $3.348[\tilde{\sigma^2}(b-a)/\Sigma\tilde{f}"(Xj)^2]^{1/5}$, and sets the bandwidth equal to the average of the two quantities. In this formula $\tilde{\sigma^2}$ is the mean-squared error of the regression, $b-a$ equals X_j for the right-hand regression and $-X_j$ for the left-hand regression, where X_j is the bin-size and $\tilde{f}"(Xj)^2$ is the estimated second derivative implied by the global polynomial model.

The second test that we conduct to detect performance manipulation is from Bollen and Pool (2009). This test not only serves as a robustness to the test in McCrary (2008) but also allows us to test for discontinuities all through the density. This test is similar to McCrary (2008) and involves dividing the data into bins, estimating a smooth density, and comparing the actual number of observations to those predicted by the smooth density. The

bin-size for the first-stage histogram is estimated to minimize the mean square error and is equal to $1.0585 \times \min\{\sigma, \frac{Q}{1.34}\} \times n^{\frac{1}{5}}$ where σ is the standard deviation, Q the interquartile range and n the number of observations.

In the second stage, the test uses the Gaussian kernel and estimates the smooth density. The bandwidth for the second stage estimation is set equal to the bin size from the first stage. The test then uses an estimate of sampling variation in the histogram to determine whether the actual number of observations in a given bin is significantly different from the expected number under the null hypothesis of a smooth underlying distribution. If p denotes the probability that an observation lies in a bin (estimated by integrating the kernel density along the boundary of each bin) then according to the Demoivre-Laplace theorem the actual number of observations in a bin is asymptotically normally distributed with mean np and standard deviation $np\ (1-\ p)$, where n is the total number of observations. This is used to design the test for discontinuity all along the density.

An important limitation of the tests described above is that they do not allow one to compare the size of the discontinuities at two points in the density or across densities. To perform such cross-sectional tests we introduce a new regression based analysis to complement the above two tests. We describe this in greater detail in Section 5.3.

3 Hypothesis

In this section, we outline the hypothesis that have predictions relevant for our setting. If managers realize that actual performance is likely to be close to but short of the goal and take actions to push reported performance past the goal, then the distribution of reported performance will exhibit a discontinuity around the goal (Burgstahler and Dichev (1997) and Bollen and Pool (2009)). A disproportionate number of firms will exceed the goal by a small margin as compared to the number of firms that miss the goal by a small margin. This forms our first prediction.

We expect managers to be more likely to manage performance to meet a goal if (a) it is

relatively easy to manipulate the performance and (b) if there is a large and discontinuous increase in pay around the goal. To the extent manipulating a single metric is easier than doing so for multiple metrics, grants contingent on a single metric may provide greater incentives for managers to find ways to achieve the financial performance embedded in their compensation contracts. Thus, for our second prediction, we expect a larger discontinuity in the underlying performance for executives that obtain grants that depend on a single metric as compared to executives that obtain grants contingent on multiple metrics.

As described in Appendix A, a grant typically has both a target and threshold performance goal. If the firm performance falls between the threshold and target performance, some grants interpolate the payout, whereas others do not. Without interpolation, pay jumps discontinuously when firm performance exceeds the target. For grants that involve interpolation, there is no discontinuous increase in pay when the performance exceeds the target. To the extent a discontinuous increase in pay provides greater incentives to meet a goal, we expect managers that obtain grants that do not involve interpolation to manage reported results to a greater extent as compared to managers that obtain grants that involve interpolation. Hence we expect a larger discontinuity at zero for exectuvies that obtain grants that do not involve interpolation. This forms our third prediction.

Managers can exceed target performance by their discretionary control over reported financial performance, but they can also accomplish this by *lowering* the ex ante goal. That is, managers can set a goal below and close to the anticipated performance so that they achieve it with a high probability and small margin. This is often referred to as sandbagging. Since managers will be better able to anticipate short-term performance as compared to long-term performance, management of the accounting values associated with the performance goal is more likely for short-term grants than for long-term grants. Thus if discontinuities are present for long-term grants they are more likely to arise from ex post performance management as opposed to ex ante goal management.

Depending on the metric involved, managers can employ a variety of means to meet a goal. In the case of EPS goals, managers can increase abnormal accruals, cut discretionary expenditures such as R&D and SG&A, and repurchase shares to meet a goal. Managers

can meet their sales goals by increasing SG&A and accounts receivables. Managers can meet profit goals by cutting discretionary expenditures. We compare the level of *Accruals*, *Change R&D/TA*, *Change SG&A/Sales* and *Repurchase* for firms that exceed the goal by a small margin to the firms that miss the goal by a small margin to test these predictions.

4 Data

Our data come from four sources: Incentive Lab, ExecuComp, the Center for Research in Security Prices (CRSP), and Compustat.

1. Data on the metrics used to design stock and bonus awards are from Incentive Lab (hereafter IL). Similar to S&P (provider of ExecuComp), IL collects grant data from firms' proxy statements. We obtain details of all the stock, option and cash grants to all named executives of the 750 largest firms by market capitalization for the years 1998-2012. Since SEC standardized disclosure requirements for grants of plan based awards after 2006, for some of our analysis, we confine the sample to the time period 2006-2012. Since the identity of the set of largest firms changes from year to year, IL backfill and forward fill data to yield a total sample of 1,833 firms for the period 1998-2012. Of these firms, 1,268 tie some of their grants to a performance metric, that is, they award "performance-based grants". For our analysis, we use information on the performance metrics employed in the grant and the specific threshold, target and maximum performance goals specificed in the award.

2. We obtain data on other components of executive pay, such as salary and bonus, from ExecuComp. We carefully hand-match IL and ExecuComp using firm tickers and executive names. Since prior studies on executive compensation predominantly use ExecuComp, we ensure comparability of IL and ExecuComp in terms of the total number of stock and options awarded during the year.

3. We complement the compensation data with stock returns from CRSP and firm and segment financial data from Compustat.

Given our interest in understanding how reported accounting performance is managed to achieve managerial performance goals, we focus on grants linked to an absolute accounting performance metric that we can match with actual performance as reported in Compustat. This limits the grants to those that are linked to the level or the growth of one of the following metrics: EPS, Earnings, Sales, EBIT, EBITDA, Operating Income and FFO. This results in a final sample of 653 firms and 4,534 executives covered by both IL and ExecuComp for the time period 2006-2012. For most of our analysis, we group the performance metrics into earnings (EPS and earnings), sales (Sales), and profit (EBIT, EBITDA, Operating Income and FFO) based metrics.

Panel A of Table 1 provides the summary characteristics of the grants that we analyze. We have a total of 13,895 grants in our sample. As can be seen, EPS is the most popular metric with over 40% of the grants in our sample (5,640 out of 13,895) linking some of the payout to an EPS goal. This is followed by sales, with about 28.5% of the grants (3,963 out of 13,895) partly tied to a sales goal. Note that the classification of grants based on the metric employed is not mutually exclusive because a single grant can be (and typically is) tied to multiple metrics. Grants can involve a cash, stock or option payout. In the next three rows, we break up the grants in our sample based on the nature of the payout involved. Cash is by far the most popular payout, with 12,884 of the 13,895 grants involving some cash payout. Stock is the next most popular form of payout, while very few grants involve an option payout. Grants can also involve more than one form of payout and hence, the sum of grants involving cash, stock and option payouts will exceed the total number of grants in our sample.

We classify a grant as *long* if its final vesting occurs 11 or more months after the grant date; 11 months is the median time between grant date and final vesting date for the grants in our sample. About 31.6% of the grants in our sample are classified as long. The fraction of the grants that we classify as long is less than 50% because a large number of grants award their final payout 11 months after the grant date. We find that grants that tie their payout to EPS are more likely to be long term as compared to grants that tie their payout to other metrics. *Interpolated* identifies grants for which the payout varies in a continuous manner

with firm performance between the threshold and target performance. That is, for grants with *Interpolated* = 0, the payout discontinuously jumps when the firm performance exceeds the target performance. Since all firms do not disclose whether the payout is interpolated or not, in case of missing information, we assume the grants do not involve interpolation. We find that about 30.9% of the grants in our sample are *Interpolated*. The average grant in our sample is tied to 1.72 metrics, as seen from the mean value of *Number of metrics*. There is not much variation across the metrics in terms of whether they are employed alone or in combination with other metrics.

In the next panel, we provide the summary statistics for the key variables we employ in our analysis. In this panel, we convert our dataset to have one observation per executive-year. To do this, we combine all grants to an executive linked to the same metric (i.e., EPS for 2006) into one observation. Given our interest in understanding if firms try to exceed performance goals, if more than one grant is tied to the same accounting metric and if the goals mentioned are different, then we pick the goal that is closest to the actual performance. *Actual less target EPS* is the difference between the reported EPS (from Compustat) and the goal identified as the target EPS in a grant to an executive of the firm. Compustat provides four different EPS estimates for the firm, (epspi, epspx, epsfi, epsfx) that vary based on whether they are fully diluted or not and whether they include extraordinary items or not. Firms do not typically provide information on which EPS the grant is tied to. Hence in constructing *Actual less target EPS*, we pick the actual EPS that is closest to the target EPS specified in the grant. Note that while this is likely to concentrate the distrbution of *Actual less target EPS* around zero, it is not likely to bias our tests that compare the number of firms that just exceed the goal with the number that just miss the goal.[5] Given our interest in estimating an empirical density of the variable around zero, we truncate *Actual less target EPS* at the 5th and 95th percentiles.

We find that while the average firm performance is just short of the targeted EPS (mean value of *Actual less target EPS* is -0.175), the median performance is very close to the targeted EPS (median value of *Actual less target EPS* is 0). *Actual less threshold EPS*

[5]See Wall Street Journal article from June 26, 2014 entitled "Some Companies Alter the Bonus Playbook" for instances of firms using non-GAAP measures to design executive compensation.

is the difference between the reported EPS (from Compustat) and the goal identified as the threshold EPS in a grant to an executive of the firm. We construct this in the same manner as we construct *Actual less target EPS.* We find that actual firm performance is, on average, greater than the threshold performance. Both the mean and median values of *Actual less threshold EPS* is positive. The *Actual less target sales* is the difference between the actual sales and sales target mentioned in the pay contract normalized by the book value of total assets. We find that firms, on average, exceed the sales target as seen from the positive mean value of *Actual less target sales.* Not surprisingly, as compared to the target sales, firms exceed the threshold sales by a larger margin. We have information about threshold performance for fewer grants because not all grants mention a threshold performance. On the other hand, for the purpose of calculating a fair value, all performance-linked grants mention a target performance. Finally, we find that the average firm's reported profits are higher than both the target and threshold profit mentioned in the pay contract, as can be seen from the mean value of *Actual less target profit* (*Actual less threshold profit*). We now discuss the empirical tests of our hypothesis.

Table 2 provides summary statistics of the firm level variables used in our analysis. We have a total of 32,120 firm-year observations and our sample is tilted towards the larger firms in Compustat. The average Log(Total assets) of our sample firms is 8.843 and this translates into a mean book value of total assets of about $7 Billion. Our sample firms have growth opportunities as seen from the average market to book ratio of 1.772. The average annual stock return of our sample firms is 11.3% while the average volatility is 0.204. The average bid-ask spread of 0.104 also highlights the skew of our sample towards the larger firms in Compustat.

5 Empirical tests

5.1 Fullsample analysis

In panel (a) of Figure (1), we plot the histogram of *Actual less target EPS* along with a smooth density. The bin width for this histogram is 0.0118, the default suggested by the "DCdensity" procedure in STATA. The histogram is bunched around zero with a larger number of observations to the right of zero as compared to the left. *Actual less target EPS* appears to be left skewed and because of this, the smooth density estimated by STATA has a mode to the left of zero. In panel (b), we present the results of the test proposed in McCrary (2008) that tests for the presence of a discontinuity in the empirical density at zero. This is the output from the "DCdensity" function in STATA with the default bin width. Panel (b) of Figure 1 plots the empirical density along with the 95% confidence intervals (CIs). Given the small standard errors, the CIs are difficult to visually distinguish from the density plot. From the figure, we find significant evidence for a discontinuity at zero. A disproportionately large number of firms have reported performance that just exceeds the target performance as compared to the number of firms whose reported performance falls short of the target performance. One of the critical parameters that may affect the test results is the bin width. A small bin width will result in a noisy (and volatile) empirical density and lead to identifying discontinuities where there are none, whereas a large bin width will smooth the density and result in false negatives. We find that the discontinuity at zero for *Actual less target EPS* is not very sensitive to the bin width. The discontinuity is present and significant when we vary the bin width from 0.01 to 0.05.

In panel (c) of Figure 1, we present the result of a test that provides a t-statistic for the presence of a discontinuity in the density at points other than at zero. Specifically, we plot the t-statistic for the test of the difference between the actual number of observations in a bin and the number of observations that is expected based on the empirical density. The tests are similar to the ones in Bollen and Pool (2009). Similar to Bollen and Pool (2009), we pick the bin size for these tests as $0.7764 \times 1.364 \times \min \sigma, \frac{Q}{1.34} n^{-\frac{1}{5}}$ where σ is the empirical standard deviation, Q is the empirical interquartile range and n is the number of

observations. This results in a bin size of 0.0683 for *Actual less target EPS*. The green line plots the t-values and the blue lines identify the cutoff t-values for 99% significance. As we see, there is again a significant discontinuity at zero. The t-values are significantly large (small) to the right (left) of zero. This is consistent with the presence of a disproportionatly large (small) number of observations to the right (left) of zero.

Interestingly, the graph in panel (c) also identifies discontinuities at places other than at zero. There are two possible reasons for this. First is the noise in our estimate of *Actual less target EPS*. As mentioned before, Compustat provides four different EPS numbers as reported by the firm. Unfortunately, pay contracts do not typically specify the exact EPS the contract is based on. A comparison of the target performance with the wrong EPS (say fully diluted EPS instead of undiluted EPS) is likely to introduce noise in *Actual less target EPS*. This can result in discontinuities at places other than zero. The second reason is that the pay contract often involves a discontinuous change in managerial payoff at more than one place (see Appendix A). Specifically, the manager's payoff may jump not only at the target value, but also when the firm performance exceeds the threshold value. Our tests in Figure 1 only test for the presence of a discontinuty at the target performance. If firm performance is closer to threshold, then the high t-values may capture the clustering of firm performance above threshold performance. Thus, an issue with the test in panel (b) of Figure 1 is its inability to test for discontinuities at more than one place in the density. In Section 5.3, we perform additional tests that not only help us test for discontinuities at multiple points, but also provide a way to compare the size of the discontinuities.

In Figure 2, we test for discontinuities at zero for *Actual less target sales*. Note that we perform our analysis separately for the earnings, sales and profit metrics because their distributions are very different and combining them will make our empirical density noisy. The tests in Figure 2 are similar to the ones in Figure 1. From panel (a), we find that the histogram is clustered around zero, but the distribution is positively skewed with a few large positive values. The bin width for the histogram is 0.0028 From panel (b), we find that there is a marginally significant discontinuity at zero at the 95% CI when we employ the default bin width of 0.0028. Although the discontinuity is only marginally significant,

we find that it is robust to changing the bin-width. The discontinuity is present when we vary the bin width from 0.001 to 0.005. Finally, from the last panel we find that while the t-values indicate a significant discontinuity at zero, there are significant discontinuities at points other than zero as well. We believe that these are partly due to the presence of discontinuities at multiple points in the contract. Furthermore, since the number of observations reduces significantly as we go away from zero, this may also introduce a noise in our tests.

Finally in Figure 3, we test for discontinuities at zero for *Actual less target profit*. From panel (a), we find that the histogram is clustered around zero, but the distribution is positively skewed with a few large positive values. The bin width for the histogram is 0.0006. From panel (b), we find that there is a significant discontinuity at zero at the 95% CI when we employ the default bin width of 0.0006. We find that the discontinuity is again not dependent on the bin width when we vary the bin width from .0001 to .001. Finally, from the last panel we find that while the t-values indicate a significant discontinuity at zero, they also indicate discontinuities at places other than zero.

In unreported tests, we repeat our analysis with *Actual less threshold EPS, Actual less threshold sales* and *Actual less threshold profit* and find a statistically significant discontinuity at zero for all three. Thus a disproportionate number of firms have performance just above threshold performance as compared to the number of firms with performance just below the threshold performance.

5.2 Subsample analysis

An important advantage of our empirical setting is that we know the exact amount of pay at stake for a manager when she beats a goal. If the discontinuity at zero documented in Figures 1-3 is because of the manager altering the reported performance to exceed the goal and obtain a higher pay, then we expect the discontinuity to be larger if the pay involved in exceeding the goal is greater. We test this in Figures 4-6. Specifically, we divide our sample into two subsamples based on a proxy for the manager's incentive to exceed the goal and

test for discontinuities within the subsamples. As mentioned before, the methodology in McCrary (2008) does not allow for a statistical comparison of the size of the discontinuities. In the next section, we introduce a regression-based test that allows us to statistically compare the size of the discontinuity. Hence, the subsample analysis in this section only involves a visual comparison of the discontinuities.

In Figure 4, we focus on *Actual less target EPS*, and in panels (a) and (b) we divide our sample into subsamples based on whether the grant involves a single metric or multiple metrics. We expect managers are more likely to alter reported EPS if that is the *only* metric that affects the payout from the grant. Thus, we expect the size of discontinuity to be larger in panel (a) as compared to in panel (b). Consistent with this, we find that, visually at least, the size of the discontinuity appears larger in the former subsample. In panels (c) and (d), we focus on *Actual less target sales* and find that while the discontinuity at zero is marginally significant for grants involving single metrics, the discontinuity is not present for grants involving multiple metrics. Finally in panels (e) and (f), we focus on *Actual less target profit* and find that similar to *Actual less target EPS*, the discontinuity at zero is larger for firms that award grants that include profit as the only metric. The discontinuity when profit is used along with other metrics is much smaller.

In Figure 5, we perform cross-sectional tests focusing on whether the grant involves interpolation between the target and threshold values. Grants that do not involve interpolation will involve a discontinuous jump in the payoff at the target value and may provide incentives for the manager to alter firm performance to exceed the target. This in turn would imply that the size of discontinuity should be greater among such grants. Note that in these tests we classify grants with missing information on interpolation as not involving interpolation. In panels (a) and (b) of Figure 5, we divide our sample into grants that involve interpolation and those that do not and test for a discontinuity at zero for *Actual less target EPS*. We find that the discontinuity at zero appears to be larger among grants that do not involve interpolation. In panels (c) and (d), we repeat our analysis with *Actual less target sales* and find that there is no discontinuity at zero for either set of grants. Finally in panels (e) and (f), we focus on *Actual less target profit* and again find that the discontinuity

at zero is much larger for grants that do not involve interpolation. Overall the evidence in Figure 5 is consistent with a bigger discontinuity at zero for grants that do not involve interpolation.

In Figure 6, we divide our sample into short-term and long-term grants and test for a discontinuity at zero in each of the two subsamples. As mentioned before, to the extent it is difficult to anticipate long-term performance as compared to short-term performance, any discontinuity at zero for long-term grants is likely to be due to managers managing ex post accounting performance as opposed to the ex ante goal. On the other hand, the discontinuity at zero for short-term grants can arise both due to setting lower goals and managing ex post accounting values. In panels (a) and (b), we focus on *Actual less target EPS* and find that the discontinuity at zero is only present for short-term grants. Recall that we classify all grants with a final payout beyond 11 months after the grant date as long-term. In panels (c) and (d), we focus on *Actual less target sales* and find that the discontinuity at zero is not present for either short-term or long-term grants. Finally in panels (e) and (f), we focus on *Actual less target profit* and find that while the discontinuity at zero is present for both long-term and short-term grants, it appears larger for short-term grants. Overall, the evidence in Figure 7 indicates that while the discontinuity is more pronounced for short-term grants especially if they are based on an earnings or profit metric, there is some discontinuity at zero even for long-term grants. The latter evidence is consistent with ex post management of accounting values to meet compensation performance goals.

5.3 Regression analysis

Note that the tests in Figures 4-6 do not allow for a statistical comparison of the size of the discontinuities. To statistically compare the size of the discontinuities and also to accomodate for discontinuities at multiple points in the density we perform a regression analysis. That is we estimate the following model:

$$\begin{aligned}\text{Number of firms} &= \alpha + \beta_0 \text{Metric} \times \text{Mid-point} + \beta_1 \text{Metric} \times \text{Mid-point}^2 + \beta_2 \text{Metric} \times \text{Mid-point}^3 \\ &+ \beta_3 \text{Metric} \times \text{Mid-point}^4 + \beta_4 \text{Number of goal} + Y \qquad (1)\end{aligned}$$

where the dependent variable, *Number of firms* is the logarithm of one plus the number of firms whose reported performance falls in a particular bin. That is, for any metric, such as say EPS, we use the bin size as recommended by McCrary (2008) and divide the firms into bins based on reported EPS. In this test, we combine the metrics so *Number of firms* also counts the number of firms whose reported sales falls within a sales-bin and the number of firms whose profit falls within a profit-bin. The bin sizes vary for the different metrics. The number of observations for this test for each year is the sum of the number of bins of EPS, sales and profit. Note that the number of bins each year depends on the bin size (which is the same across years), the maximum and the minimum values of the metric. Our main independent variable is *Number of goals*, which is the logarithm of one plus the number of firms whose target or threshold performance is in a particular bin. If firms manage reported performance so as to exceed a goal, then we expect their reported performance to fall near (within the same bin) as the performance goal. This would imply a positive β_4. We model the expected number of firms in each bin in a flexible manner by including a fourth order polynomial of the mid point of the bin – the first four terms in the above model. Also we allow this model to vary across the earnings, sales and profit metric groups by including an interaction term between *Metric,* a set of dummy variables that identify the metric group and the fourth order polynomial in *Mid-point*. In this specification, we also include year fixed effects to control for time-series effects and cluster the standard errors at the bin level.

Note that the spirit of the test in (1) is similar to the graphical test in that it statistically compares the number of firms whose actual performance falls near the goal to some expected number. In comparison to the graphical test, the regression analysis has three advantages and two disadvantages. The first advantage is that we can combine all the metrics in the same test. We can account for differences in the distribution of the metrics by including the interaction term between *Metric* and the fourth order polynomial in *Mid-point*. The regression also allows us to test for discontinuities at multiple points in the density. We include both the threshold and target goals to construct *Number of goals*. For example, if a firm has an EPS-based grant with a threshold EPS of 0.9 and a target EPS of 1.1, then *Number of goals* will increment in both the bins that include 0.9 and 1.1. Thus, β_4 will

capture firms whose managers appear to alter reported performance to exceed either the target or the threshold value. The regression also allows us to perform cross-sectional tests. To test if the discontinuity is greater in cases where the grant only depends on one metric as compared to when the grant depends on multiple metrics, we divide *Number of goals* into two variables *Number of goals - single metric* and *Number of goals - multiple metrics* and repeat our estimation. *Number of goals - single metric* (*Number of goals - multiple metric*) counts the number of firms that offer a grant with a single (multiple) metric and whose performance goal falls within a bin. By comparing the size of the coefficient on the two variables, we can compare the marginal incentive for firms to exceed these goals.

The first of two disadvantages of this regression approach is that it will not be able to identify if the firm actually exceeds the goal or falls short of the goal as we only test to see if the actual performance is close to the goal. To overcome this, we rely on our graphical analysis that clearly shows that whenever firm performance is close to a goal, it is more likely to be greater than the goal. The second disadvantage of the approach is that since we only model the total number of firms in a bin as a function of the number of goals in a bin, it does not tell us if the same firm has its performance and goal in the same bin.

In Table 3, we present the results of our analysis. The positive and significant coefficient on *Number of goals* in column (1) shows that, consistent with the graphical analysis, a disproportionate number of firms have their actual performance close to the performance goal mentioned in the pay contract. The size of the coefficient indicates that the presence of a performance goal within a bin increases the probability of an additional firm having its reported performance in that bin by 30%. Note that we include all the control variables mentioned in (1), but for brevity we do not report their coefficients. The R^2 of 0.627 highlights that the fourth order polynomial does a reasonable job of fitting the empirical density.

In column (2), we repeat our tests after splitting *Number of goals* into two variables, *Number of goals- single metric* and *Number of goals- multiple metrics,* and find that while the coefficient on both the variables is positive and significant, the coefficient on *Number of goals- single metric* is larger than that on *Number of goals- multiple metric.* The row titled

Δ*Coefficient* shows that this difference is statistically significant. In column (3) we include two variables, *Number of goals- interpolation and Number of goals- non-interpolation*, and repeat our tests. *Number of goals- interpolation* (*Number of goals- non-interpolation*) counts the number of firms that offer a grant that involves interpolation (no interpolation) between the threshold and target values and whose performance goal falls within a bin. The results in column (3) shows that only the coefficient on *Number of goals - non-interpolation* is positive and significant. This is consistent with non-interpolated awards providing greater incentives for firms to manage reported performance to exceed performance goals. From the row titled Δ*Coefficient* we find that the coefficient on *Number of goals- non-interpolation* is statistically larger than that on *Number of goals- interpolation.*

Finally in column (4), we compare long-term and short-term goals by including two terms, *Number of goals-short term* and *Number of goals-long term*, and surprisingly we find that while the coefficient on *Number of goals -long term* is positive and significant, the coefficient on *Number of goals-short-term* is not significant. We also find that the coefficient on the former is statisticaly larger than that on the latter (row titled Δ*Coefficient*). From Figure 6, we find that it is only for executives who receive profit based grants that we find a larger discontinuity in the empirical density at zero for long-term grants as compared to for short-term grants. One concern with the results in column (4) is that they may be disproportionately affected by profit-based grants. This does not appear to be the case because when we repeat our tests with only earnings and sales based grants, we again find that the coefficient on *Number of goals-long term* is larger than that on *Number of goals-short term.*

In additional robustness tests, instead of a fourth-order polynomial in *Mid-point*, we include bin fixed effects and repeat our tests. We find our results are robust to this alternate specification.

5.4 How do firms exceed performance goals?

In our next set of tests, we compare firms that just exceed a manager's compensation goal and those that just miss a goal on a number of dimensions to understand how firms exceed performance goals. Depending on the metric involved, managers can employ a variety of means to meet a performance goal. In the case of EPS goals, managers can use abnormal accruals, cut discretionary expenditures such as R&D and SG&A, as well as repurchase shares to meet the goal. Similarly managers can meet their sales goals by increasing SG&A and accounts receivables. In these tests, we compare firms that just exceed their goal, that is, the firms that fall in the first bin above the performance goal (either target or threshold) and the firms that just miss their goal that is, firms whose performance is in the two bins below the performance goal. We include two bins to the left of the performance goal because there are very few firms in the bin just below the performance goal. We separately look at EPS, sales and profit goals because the sample of firms that exceed and miss the goals are different. In Table 4, we compare firms that exceed and those that miss their performance goal. Definitions of all the variables we compare in this table are provided in Appendix B.

In panel (a) we focus on EPS goals. We find that firms that exceed the EPS goal are very similar to firms that miss their EPS goal on most observable characteristics. The two significant differences between the two sets of firms are that firms that exceed their EPS goal have higher leverage and repurchase less shares. The second result is rather surprising as one would expect firms that exceed EPS goals to repurchase more shares. In the second panel, we compare firms that just exceed and just miss their sales goal. We do not find any significant difference between the two sets of firms. Finally, in the last panel we focus on profit goals and find that firms that exceed their profit goals have higher leverage and lower R&D than firms that miss their profit goals. The smaller increase in R&D for the firms that just exceed their profit goals as compared to firms that miss their profit goals is consistent with Roychowdhury (2006b) and Dechow et al. (2003) who find that firms often decrease discretionary spending, specifically R&D, in an effort to increase short term earnings. We now present some multivariate evidence.

In Table 5 we perform multivariate tests that compare firms that exceed and miss their performance goals. We do this by estimating variants of the following model:

$$y_i = \alpha + \beta_0 \times \text{Exceed EPS/Sales/Profit} + \beta_1 \times \text{Size} + \beta_2 \times \text{Market to book} + Y + \gamma_j + \epsilon_i \quad (2)$$

where the dependent variable is one of *Accruals*, *Change R&D/TA*, *Change SG&A/Sales* or *Repurchase*. The main independent variable is one of *Exceed EPS*, *Exceed sales*, or *Exceed profit*. These variables take a value one for firms whose performance is in the bin just above the performance goal, and zero for firms whose performance is in the two bins below the performance goal. In all the regressions, we control for firm size, *Size* and *Market to book*. In addition, for the regressions with *Accruals* as the dependent variable, we also include the standard deviation of sales growth and standard deviation of profitability as additional controls. All the regressions include year and industry fixed effects, the latter at the two digit SIC code level, and the standard errors are clustered at the firm level. Since managers at firms are typically involved in selecting performance goals and may take deliberate actions to meet those goals, firms that meet and miss goals are not likely to be randomly selected. To this extent, our evidence should not be interpreted as being causal in nature. On the other hand, our univariate evidence did not indicate systematic differences between the two sets of firms on observable characteristics.

In panel (a) we focus on firms that exceed EPS goals. From column (1) we find that the coefficient on *Exceed EPS* is positive and significant. This indicates that firms that exceed EPS goals have higher abnormal accruals as compared to firms that miss EPS goals. None of the other coefficients are significant at conventional levels. The only coefficient that is close to being significant is the one in column (3) which offers some weak evidence for firms that exceed EPS goals reducing R&D expenditure more than firms that miss EPS goals. In panel (b), we compare firms that exceed sales goals to firms that just miss sales goal. None of the coefficients are significant at conventional levels. Thus, firms that exceed sales goals are not very different from firms that miss sales goals. Finally in panel (c), we compare firms that miss profit goals to firms that exceed profit goals and find that the latter set of firms

repurchase more shares (column (2)), and reduce R&D (column (3)) and reduce SG&A (column (4)) more than firms that just miss their profit goal. In summary, the evidence in Table 9 offers some evidence consistent with managers using accruals to meet their incentive compensation EPS goals and reducing discretionary expenditure to meet their profit goals.

5.5 Value implications of exceeding performance goals

In Table 6, we test to see if there are any long-term value implications of firms exceeding manager's compensation performance goals. We do this by estimating a model similar to (2) with abnormal stock returns as the dependent variable. We model industry adjusted and Fama-French 4-factor adjusted abnormal returns for the subsequent one and three year period. We employ size, and market-to-book as control variables in the specification.

In panel (a), we focus on firms that exceed their EPS targets and find that none of the coefficients on *Exceed EPS* are significant at conventional leves. Thus there is no significant difference in long-term stock performance of firms that exceed and miss their manager's EPS goals. In panel (b), we focus on firms that exceed their manager's sales targets and again find that none of the coefficients are significant at conventional levels. The only coefficient which is close to being significant is the one in column (4), which indicates that firms that marginally exceed manager's compensation-related sales goals slightly outperform, over a three year period as compared to firms that miss sales goals.

Finally in panel (c), we focus on profit goals and find that firms that exceed their manager's profit goals significantly underperform the firms that miss profit goals during the subsequent three year period. Specifically firms that exceed manager's profit goals have lower Fama-French 4-factor abnormal returns (column (3)) and lower industry adjusted returns (column (4)). Our tests in Table 9 showed that firms that exceed manager's profit goals have lower R&D and lower SG&A as compared to firms that miss profit goals. Taken in conjunction with our current results, we find that managers may be reducing R&D and SG&A more than optimal in an effort to meet profit goals. Our evidence is consistent with the findings of Graham et al. (2005b) whose survey evidence indicates that managers

sometimes knowingly sacrifice long-term value in an effort to meet their own compensation contract performance goals.

6 Conclusion

In this paper, we use a comprehensive dataset containing information on the performance goals employed in 13,895 stock and cash grants awarded by 653 firms to 4,534 executives to investigate the extent to which they "manage reported financial performance" to meet their own compensation-related performance goals. We identify this effect by testing for discontinuities in reported performance around the goals (McCrary (2008)).

We find evidence consistent with executives managing the reported accounting performance to achieve goals. A disproportionately large number of firms just exceed the goals as compared to the number of firms that just fail to meet the goals. This effect is present for EPS, sales and profit based goals, and is stronger among executives who receive grants contingent on a single metric as opposed to grants contingent on multiple metrics. This effect is stronger among executives whose grants involve a discontinuous increase in pay around the goal, and is present both for short-term and long-term goals. Firms that just exceed their EPS goals have higher abnormal accruals as compared to firms that just miss their goal. Firms that just exceed their profit goals have lower R&D and lower SG&A expenses as compared to firms that miss their goal. Such firms also have lower long-run stock returns.

In their ongoing effort to achieve an optimal link between pay and performance, firms have increasingly resorted to linking annual bonus grants and long-term stock and option grants to achieving explicit performance goals. Our paper highlights an important cost to awarding such performance-contingent grants. Our results highlight that the discontinuous increase in pay associated with achieving the performance targets may result in incentivizing management to manage the reported performance so that they can maximize their own compensation. We believe that, at a minimum, our results suggest that it is better to include performance provisions in pay contracts in a way that they provide a more *continuous* link

between pay and performance.

Appendix A - Variable Definitions

The variables used in the empirical analysis are defined as follows:

- *Abnormal-1 yr. (Abnormal-3 yr.)* is the abnormal return on the firm's stock over the next one (three) fiscal year(s). We calculate abnormal return as the difference between realized return and expected return and employ the Fama-French four-factor model to estimate expected returns.
- *Accruals* is signed abnormal accruals. We calculate this measure following the procedure outlined in Jones (1991).
- *Actual less target/threshold EPS* if the difference between actual EPS as reported in Compustat and the target/threshold EPS as identified in the compensation contract.
- *Actual less target/threshold profit* is the difference between the actual profit and the target or threshold profit mentioned in the compensation contract normalized by the book value of total assets.
- *Actual less target/threshold sales* is the difference between the actual sales and the target or threshold sales mentioned in the compensation contract normalized by the book value of total assets.
- *Change R&D* is the percentage change in R&D/Total assets with respect to the previous fiscal year.
- *Change SG&A* is the percentage change in SG&A/Sales with respect to the previous fiscal year.
- *Debt/Total Assets* (or *Leverage*) is the ratio of the sum of long-term and short-term debt (Compustat items: dltt and dlc) to the book value of total assets.
- *Exceed EPS/sale/profit* take a value one for firms whose performance is in the bin just above the performance goal and zero for firms whose performance is in the two bins below the performance goal.

- *Fraction contingent* is the percentage of grants tied to a particular metric.
- *Ind. adjusted-1 yr (Ind. adjusted-3 yr)* is the industry-adjusted abnormal return on the firm's stock over the next one (three) fiscal year(s). We calculate industry-adjusted abnormal return as the difference between realized return on the firm's stock and average return of all firms in the same three-digit SIC code industry.
- *Market to book* is the ratio of market value of total assets to book value of total assets.
- *Number of firms* is one plus the natural logarithm of number of firms whose actual performance (EPS, sales, EBIT, EBITDA, FFO or Operating Income) falls within a bin.
- *Number of goals* is one plus the natural logarithm of number of firms whose compensation contract goals (EPS, sales, EBIT, EBITDA, FFO or Operating Income) fall within a bin.
- *Number of goals - Single metric (Number of goals - Multiple metrics)* is one plus the natural logarithm of number of firms whose compensation contract goals (EPS, sales, EBIT, EBITDA, FFO or Operating Income) that are in grants involving a single (multiple) metric fall within a bin.
- *Number of goals - Interpolated (Number of goals - Not-interpolated)* is one plus the natural logarithm of number of firms whose compensation contract goals (EPS, sales, EBIT, EBITDA, FFO or Operating Income) that are in grants involving interpolation (no interpolation) fall within a bin.
- *Number of goals - Long-term (Number of goals - Short-term)* is one plus the natural logarithm of number of firms whose compensation contract goals (EPS, sales, EBIT, EBITDA, FFO or Operating Income) that are in short-term (long-term) grants fall within a bin.
- *Number of metrics* is the number of different metrics (such as EPS, sales, ROA, etc) that the particular grant is tied to.

- *Option* is a dummy variable that takes a value of one if a grant payout is in the form of stock options and zero otherwise.
- *R&D/Total Assets* is the ratio of research and development expenditure over book value of total assets. We code missing values of research and development expenditure as zero.
- *Repurchase* is the percentage change in shares outstanding with respect to the previous fiscal year.
- *ROA* is return on assets calculated as the ratio of net income to total assets.
- *Sales growth* is the percentage change in revenue with respect to the the previous fiscal year.
- *Spread* is the average daily stock bid-ask spread during the previous year.
- *Stock* is a dummy variable that takes a value of one if a grant payout is in the form of stock and zero otherwise.
- *Stock Return* is the one-year percentage return for the firm's stock over the previous scal year.
- *Tangibility* is the ratio of tangible assets to total assets.
- *Total assets* is the book value of total assets; *Log(Total assets)* (or *Size*) is the natural logarithm of Total assets.
- *Volatility* is the stock return volatility calculated as the annualized volatility of daily stock returns during the previous year.

Appendix B - Examples of performance linked grants

Example - 1 Barnes & Noble in fiscal year 2012

This is a cash award without interpolation. The proxy reads: "Set forth below is a chart showing the payout scale on which the consolidated Adjusted EBITDA portion of incentive compensation was based."

Table A.1: Barnes and Nobel payout levels

Level of Achievement of Consolidated Adjusted EBITDA Target	% of Target Payout
0% - less than 50%	0
50% - less than 75%	0.25
75% - less than 100%	0.625
100% - less than 112.5%	1
112.5% - less than 125%	1.085
125% or more	1.17

Subsequently in the proxy statement for fiscal year 2013, the company mentions the actual payout from the award as follows: "For Fiscal 2013, the Company's actual consolidated Adjusted EBITDA was less than the minimum performance level of 50% of the consolidated Adjusted EBITDA target. Accordingly, actual consolidated Adjusted EBITDA performance resulted in a payout for this portion of the executives' annual incentive compensation of 0% of target."

Example - 2 HealthNet in fiscal year 2006

Our next example is a cash/stock award that involves interpolation The proxy reads: "The performance share unit awards were granted pursuant to our 2006 Long-Term Incentive Plan (the "2006 LTIP"). The grants cliff vest as soon as practicable following the third anniversary of the date of grant based on achievement of minimum levels of pre-tax income and pre-tax income margin (pre-tax income as a percent of total revenues). For the Chief Executive Officer, no shares vest upon achievement of the target level of pre-tax income and pre-tax income margin, 100% of the shares vest upon achievement of the median level and 200% of the shares vest upon achievement of the maximum level (with linear interpolations for performance between the target and maximum levels), and for all other named executive officers, 50% of the shares vest upon achievement of the threshold level of pre-tax income and pre-tax income margin, 100% of the shares vest upon achievement of

the target level, 150% of the shares vest upon achievement of the median level and 200% vest upon achievement of the maximum level (with linear interpolations for performance between the threshold and maximum levels). In addition, the Chief Executive Officer's award can be settled in (i) shares of Common Stock, (ii) a cash payment equal to the fair market value of the shares earned as of the vesting date, or (iii) a combination of stock and cash."

Example - 3 Quanta in fiscal year 2012

This is a cash award that involves interpolation. The proxy reads: "Based upon the sliding performance/payout scale adopted by the Compensation Committee, NEOs could earn cash awards under the annual incentive plan for 2012 as follows (when the attainment of the performance goal falls between the designated percentages in the table below, the cash awards are determined by interpolation)."

Table A.2: *Quanta Payout Scale*

Percentage of Operating Income Goal Attained	Payout as a Percentage of AIP Target Incentive
Less than 75%	0
0.75	0.25
0.8	0.4
0.85	0.55
0.9	0.7
0.95	0.85
1	1
1.1	1.3
1.2	1.75
1.3	1.85
1.4	1.95
150% or greater	2

Example 4 Sunoco in fiscal year 2006

This is an example of a performance based award with multiple metrics, each with its own weight, threshold, target, and maximum levels The proxy reads: "Set forth below are the performance elements, and their respective weightings as a percentage of annual incentive compensation, the Committee used to arrive at actual 2006 bonus awards. It is the Committee's philosophy that annual incentive plan elements should be limited to three or fewer to maximize concentration on those most critical to the success of our business in the forthcoming year. Base earnings per share,

revenue growth and working capital management are all considered to be key performance variables essential to maximizing shareholder value. Base earnings per share are defined as earnings per share excluding the impact of restructuring charges and certain non-recurring, infrequent or unusual items and are used to place primary focus on year over year operating results. Revenue growth excludes revenue from acquisitions completed during the year. We believe that in most years, base earnings per share will be the most critical measure in driving share price and, in turn, shareholder value. Consequently, the Committee felt that a 60% weighting on this element was appropriate. Revenue growth was weighted at 20%. This is an important Company objective, but profitable revenue growth is of greater importance, hence the lower weighting than that for base earnings per share. The Committee added working capital improvement as a performance element in 2006 because it believed there was an opportunity to increase cash flow through reduction in our working capital requirements."

Table A.3: Sunoco performance elements and weights

Incentive Plan Elements	Weight
Base Earnings per share	0.6
Revenue growth	0.2
Working capital improvement	0.2

The proxy then gives the levels required for each metric.

Table A.4: Sunco payout levels

	Threshold	Target	Maximum	Actual 2006 Performance
Base Earnings per Share				
Amount	1.89	1.98	2.12	2.13
Percent of Prior Year	1	1.048	1.122	1.127
Revenue (Excluding Acquisitions)				
Amount (millions)	3528.6	3652.1	3705.3	3648.4
Percent of Prior Year	1	1.035	1.05	1.034
	Working capital - cash gap days			
Reduction from Prior Year	0	3.25 days	6.5 days	7.2 days

Table 1: **Summary characteristics**

This table reports the summary statistics of the key variables used in our analysis. Panel (a) reports the summary characteristics of grants broken down based on the metric employed. Panel (b) reports the summary statics of the variables that compare actual performance outcomes to corresponding performance goals in the compensation contract. All variables are defined in detail in appendix A. The data covers the period 2006-2012. The compensation data is from Incentive Lab (IL), Compustat, CRSP and ExecuComp.

(a) Summary grant characternstics

	EPS	Earnings	Sales	EBIT	EBITDA	EBT	FFO	Operating Income	Total
Number of firms	324	144	259	56	107	69	22	223	653
Number of executives	2,097	793	1,564	294	548	366	132	1,327	4,534
Number of grants	5,640	1,957	3,963	626	1,215	910	358	3,342	13,895
Number of grants that involve									
Cash payout	3,408	1,518	2,858	498	803	679	244	2,876	12,884
Stock payout	3,272	888	1,765	201	547	343	135	1,307	8,458
Option payout	285	47	107		47		1	7	494
Long-term vesting	.430	.242	.296	.326	.208	.185	.161	.272	.316
Interpolation	.298	.214	.324	.227	.344	.365	.444	.339	.309
Number of metrics	1.61	1.63	2.04	1.62	1.59	1.43	1.48	1.74	1.72

(b) **Performace goals and actual performance**

Variable	**N**	**Mean**	**SD**	**P25**	**Median**	**P75**
Actual less target EPS	5643	-0.175	0.745	-0.336	0	0.15
Actual less threshold EPS	3316	0.049	0.813	-0.17	0.1	0.42
Actual less target sales	3022	0.024	0.1	-0.02	0.006	0.042
Actual less threshold sales	1664	0.077	0.112	0.014	0.046	0.113
Actual less target profit	4149	0.01	0.03	-0.007	0.004	0.021
Actual less threshold profit	2562	0.017	0.028	0	0.012	0.032

Table 2: **Summary firm characteristics**

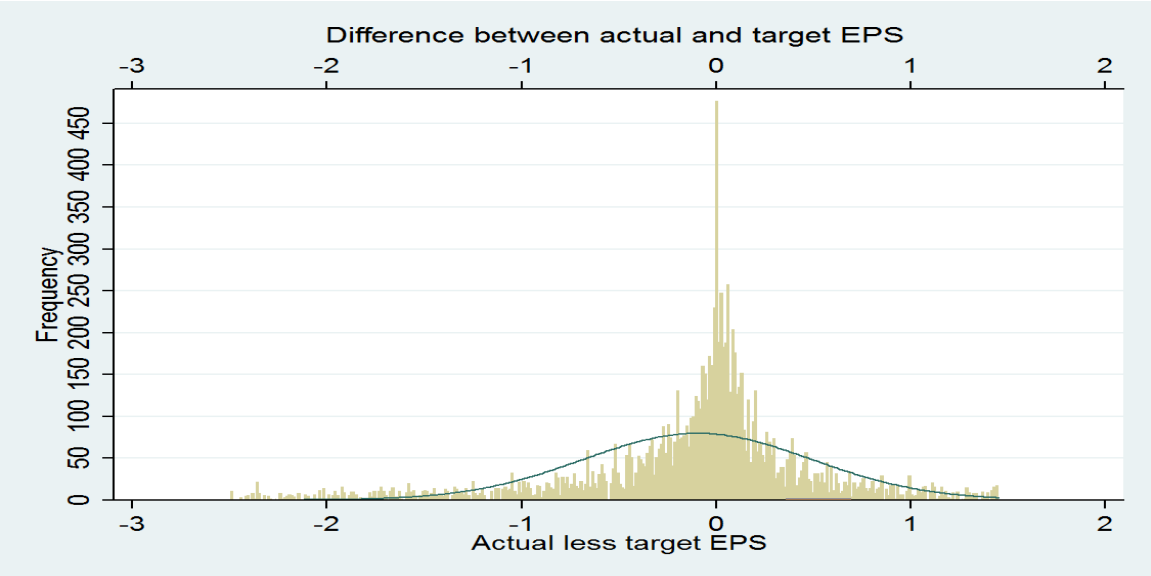
Table A.6 reports firm characteristics for our sample. All variables are defined in detail in appendix A. The data covers the period 2006-2012. The compensation data is from Incentive Lab (IL), Compustat, CRSP and ExecuComp.

Variable	**N**	**Mean**	**SD**	**P25**	**Median**	**P75**
Log(Total assets)	32120	8.843	1.496	7.817	8.703	9.754
Market to book	32111	1.772	0.955	1.125	1.459	2.056
Stock return	31060	0.113	0.416	-0.124	0.086	0.301
Volatility	31694	0.204	0.254	0.063	0.117	0.234
Debt/Total assets	32017	0.249	0.188	0.106	0.224	0.36
Spread	32120	0.104	0.111	0.044	0.078	0.123

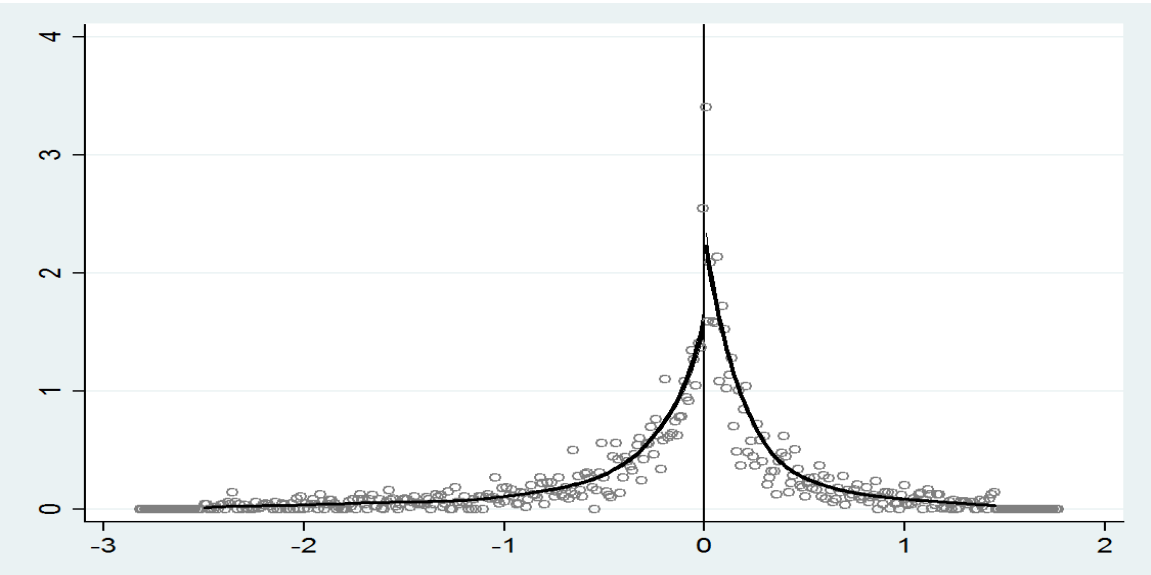
Figure 1: Difference between actual and target EPS

This figure tests for discontinuity in the density of *Actual less target EPS*. In Figure (a) we present the histogram of *Actual less target EPS* along with a smooth density. The bin width for this histogram is 0.0118. Figure (b) presents the results of McCrary (2008) test for the presence of a discontinuity in the empirical density at zero. Figure (c) presents the result of a test for the presence of a discontinuity in the density at points other than zero. These tests are similar to those in Bollen and Pool (2009).

(a) Histogram of difference between actual and target EPS



(b) Test of dicontinuity at zero



(c) Results of t-test of difference between actual and estimated density

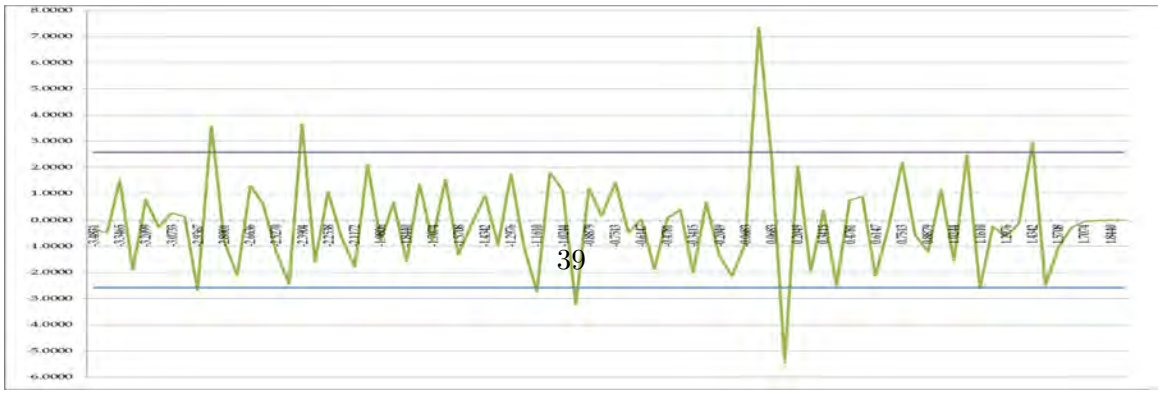
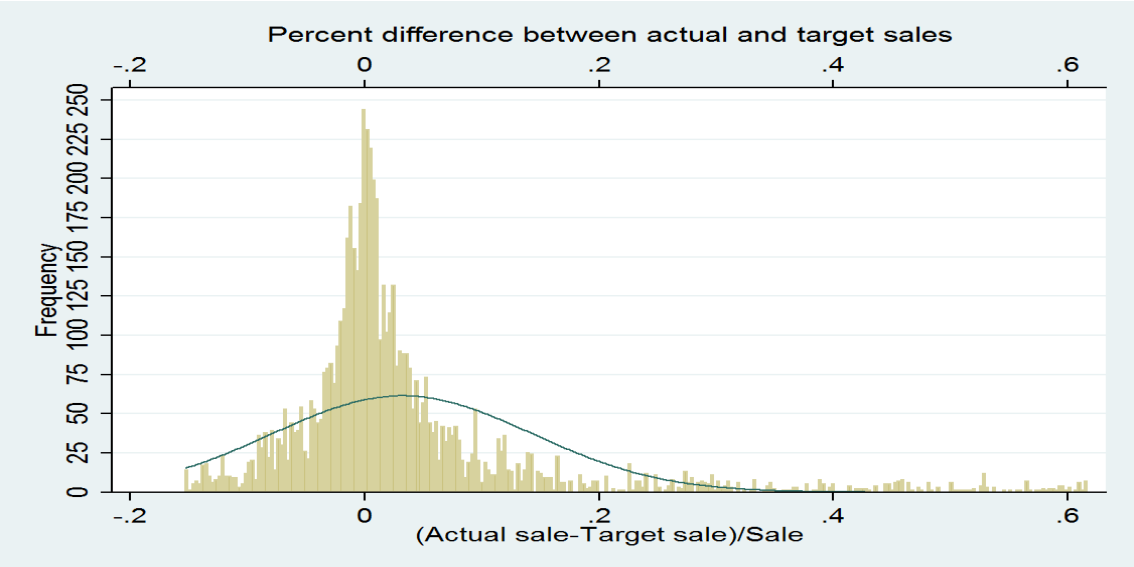


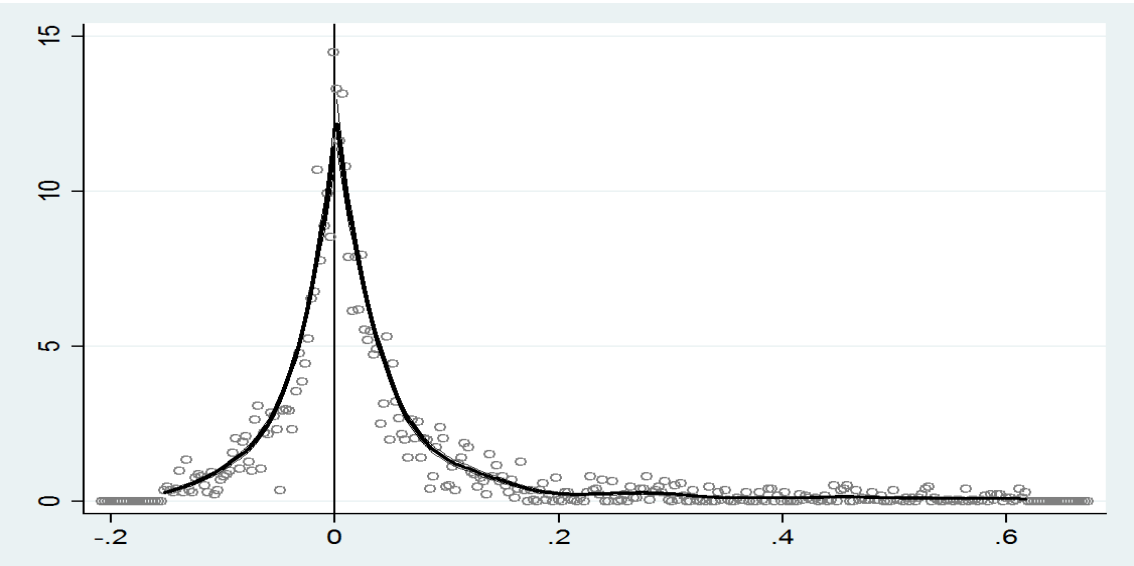
Figure 2: Difference between actual and target sales

This figure tests for discontinuity in the density of *Actual less target* sales. In Figure (a) we present the histogram of *Actual less target sales* along with a smooth density. The bin width for this histogram is 0.0028. Figure (b) presents the results of McCrary (2008) test for the presence of a discontinuity in the empirical density at zero. Figure (c) presents the result of a test for the presence of a discontinuity in the density at points other than zero. These tests are similar to those in Bollen and Pool (2009).

(a) Histogram of difference between actual and target sales growth



(b) Test of dicontinuity at zero



(c) Results of t-test of difference between actual and estimated density

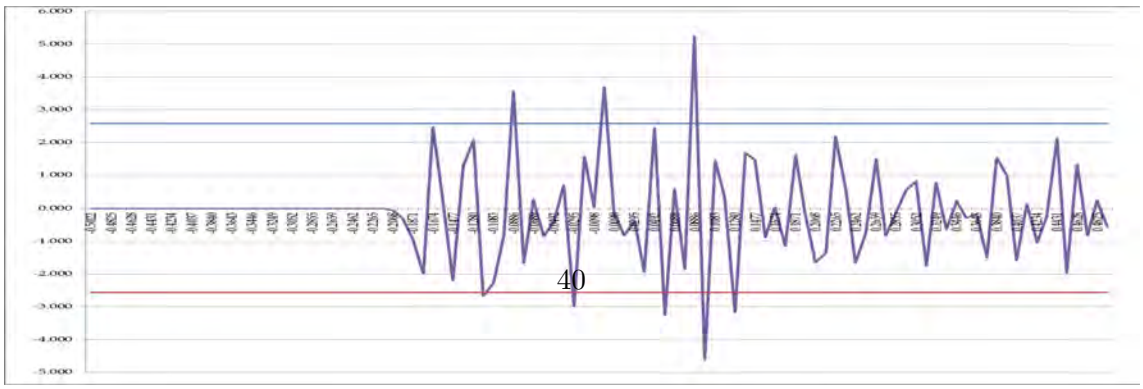
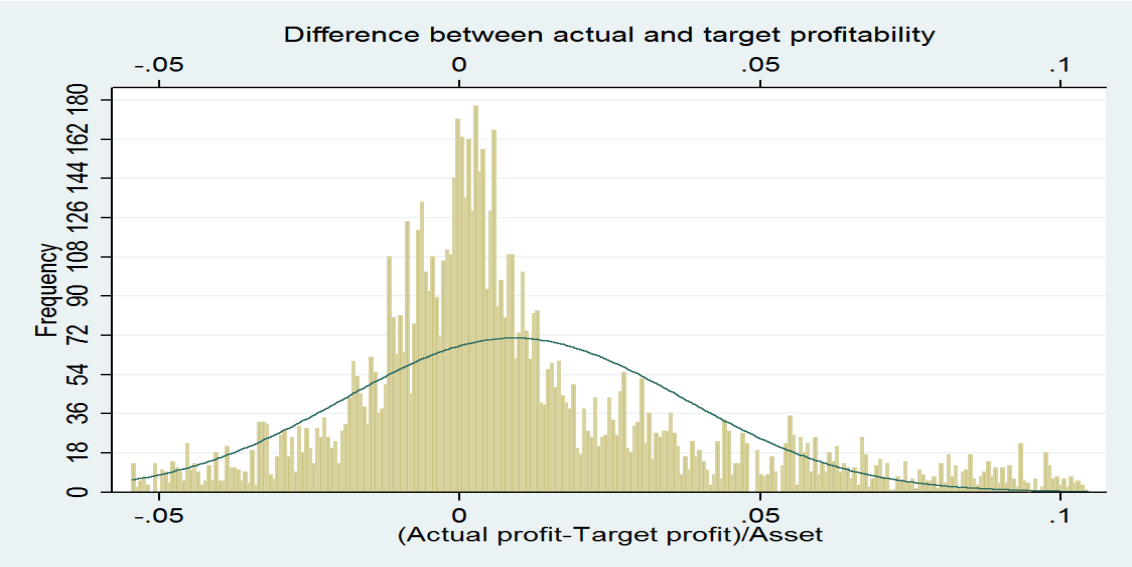


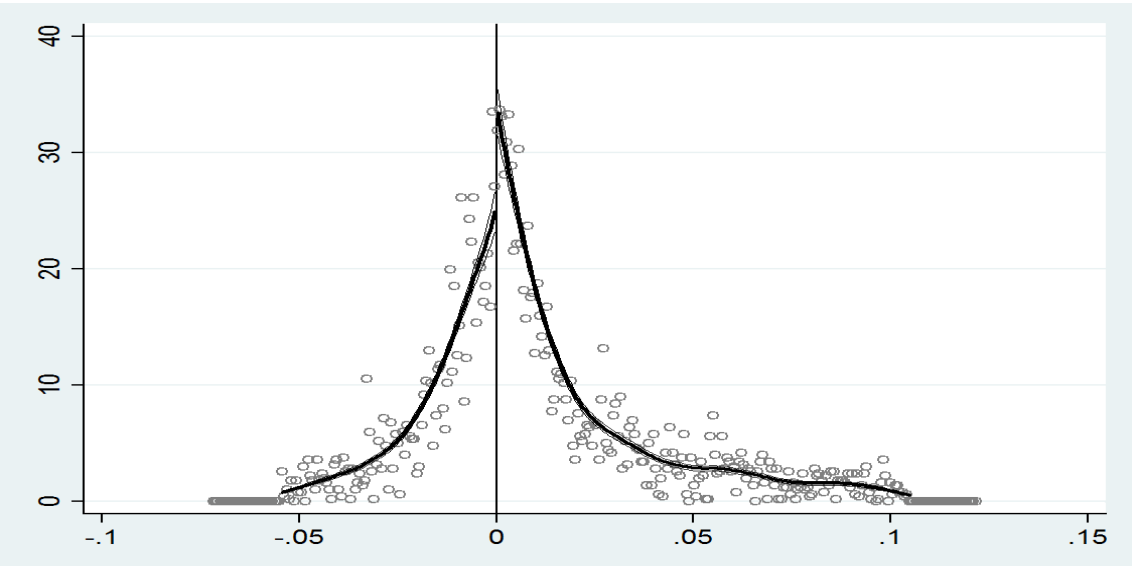
Figure 3: Difference between actual and target profit

This figure tests for discontinuity in the density of *Actual less target* profit. In Figure (a) we present the histogram of *Actual less target profit* along with a smooth density. The bin width for this histogram is 0.0006. Figure (b) presents the results of McCrary (2008) test for the presence of a discontinuity in the empirical density at zero. Figure (c) presents the result of a test for the presence of a discontinuity in the density at points other than zero. These tests are similar to those in Bollen and Pool (2009).

(a) Histogram of difference between actual and target sales growth



(b) Test of dicontinuity at zero



(c) Results of t-test of difference between actual and estimated density

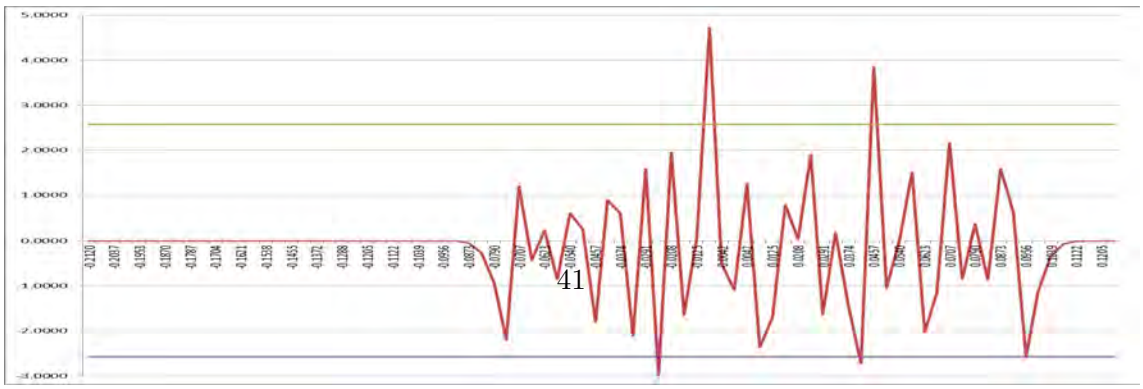
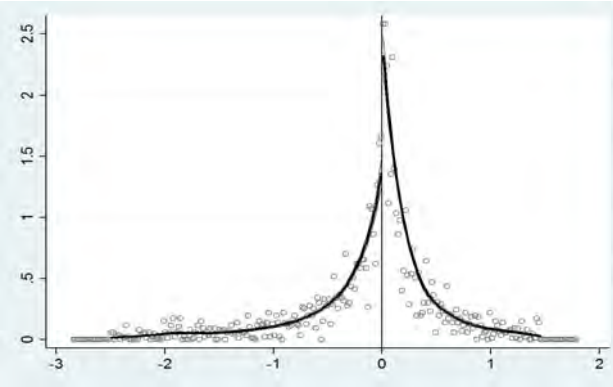


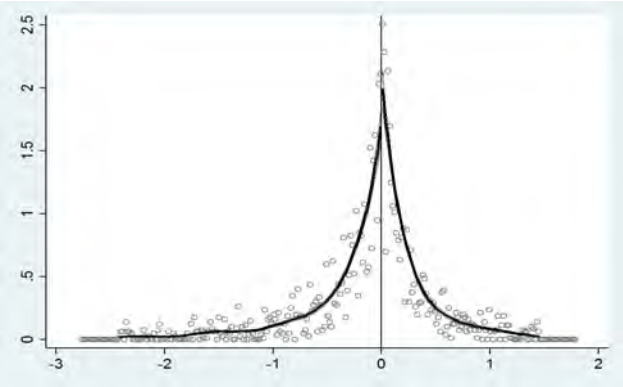
Figure 4: Actual performance and targets: Single versus multiple metrics

This figure presents the results of a test for a discontinuity at zero in the density of *Actual less target EPS* (panels (a-b)), *Actual less target sales* (panels (c-d)) and *Actual less target profit* (panels (e-f)). In the left-hand-side panel we focus on grants that involve a single metric while in the right-hand-side panel we focus on grants that involve multiple metrics.

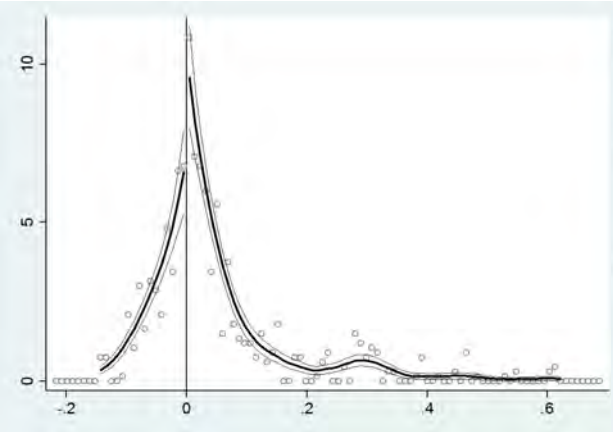
(a) Actual versus target EPS: Single metric



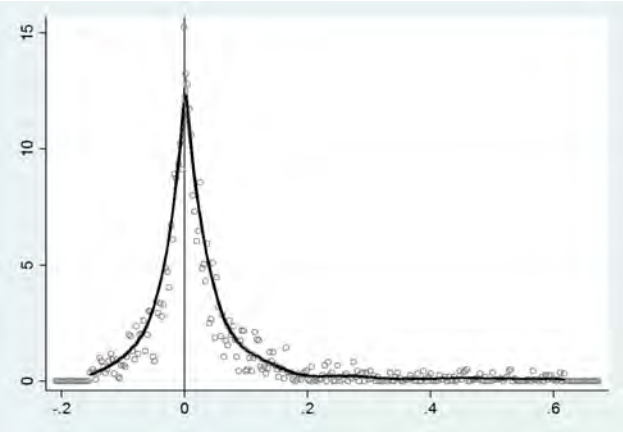
(b) Actual versus target EPS: Multiple metrics



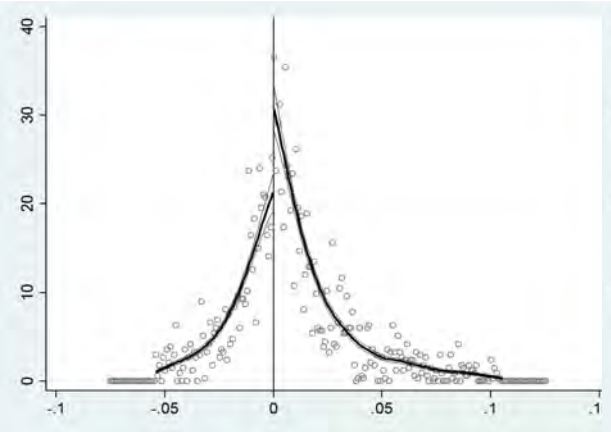
(c) Actual versus target Sales: Single metric



(d) Actual versus target Sales: Multiple metrics



(e) Actual versus target Profit: Single metric



(f) Actual versus target EPS: Short grants

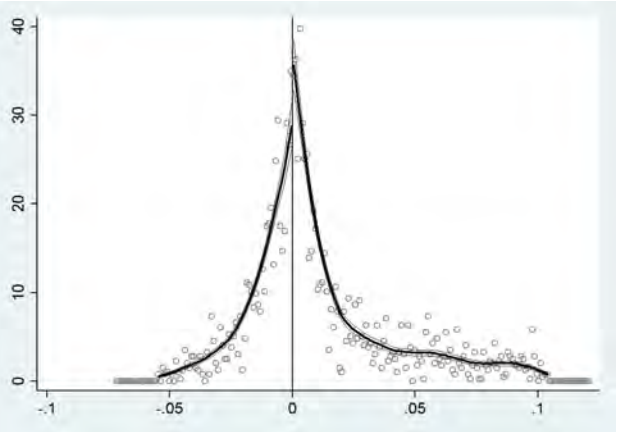
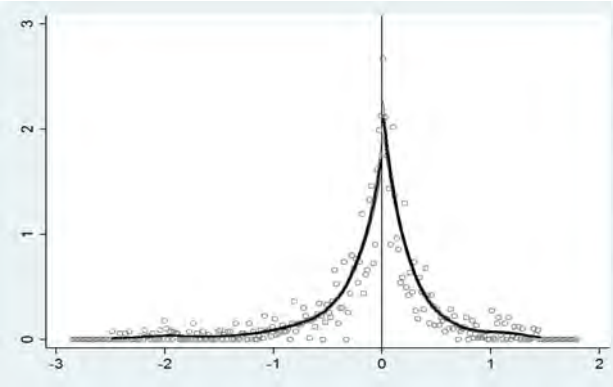


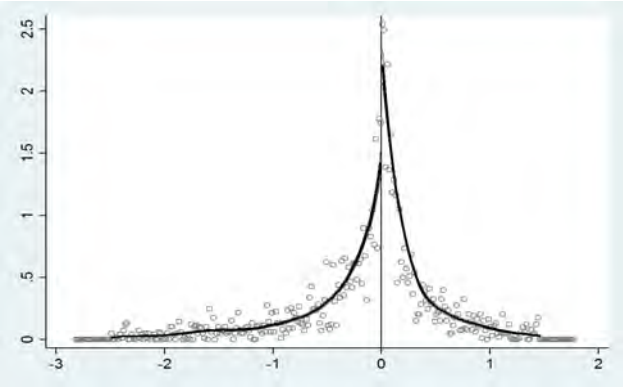
Figure 5: Actual performance and targets: Interpolated versus non-interpolated grants

This figure presents the results of a test for a discontinuity at zero in the density of *Actual less target EPS* (panels (a-b)), *Actual less target sales* (panels (c-d)) and *Actual less target profit* (panels (e-f)). In the left-hand-side panel we focus on grants that involve interpolation between the threshold and target value while in the right-hand-side panel we focus on grants that do not involve interpolation.

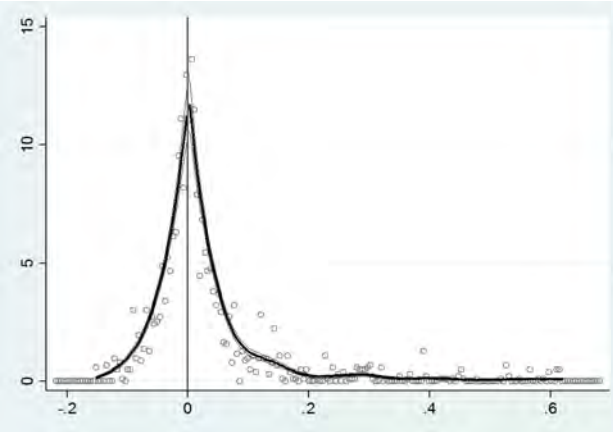
(a) Actual versus target EPS: Interpolated grants



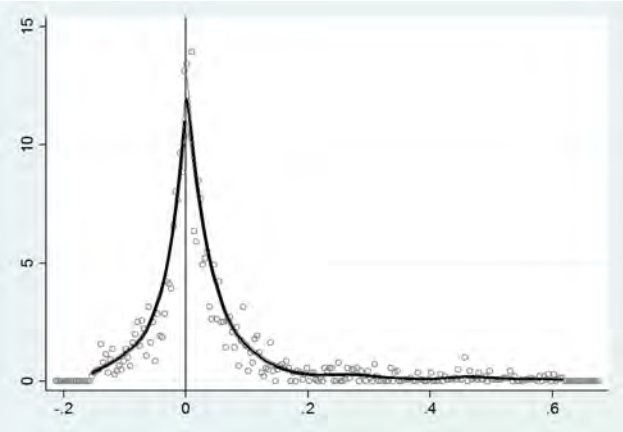
(b) Actual versus target EPS: Non-interpolated grants



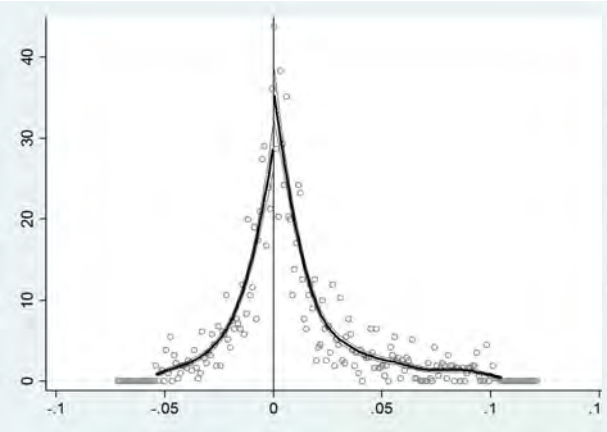
(c) Actual versus target Sales: Interpolated payoffs



(d) Actual versus target Sales: Non-interpolated payoffs



(e) Actual versus target Profit: Interpolated grants



(f) Actual versus target Profit: Non-interpolated grants

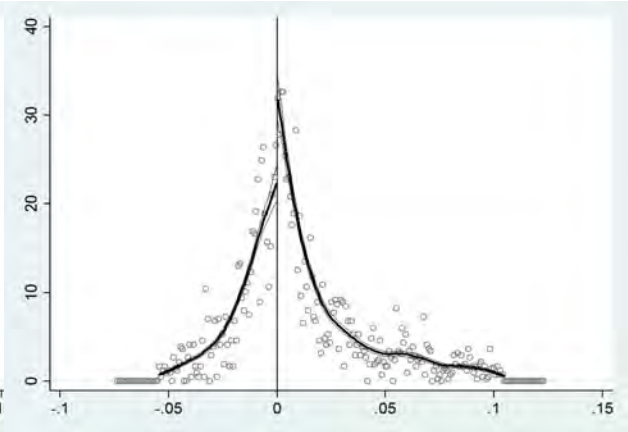
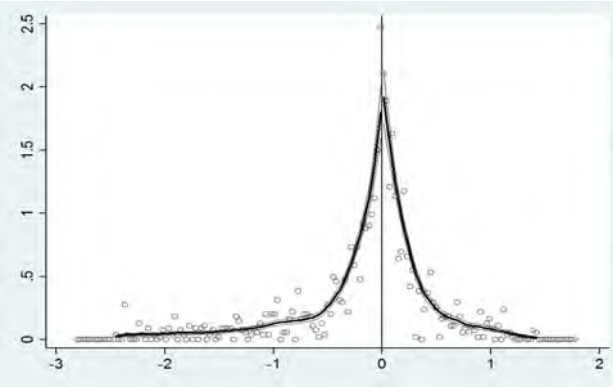


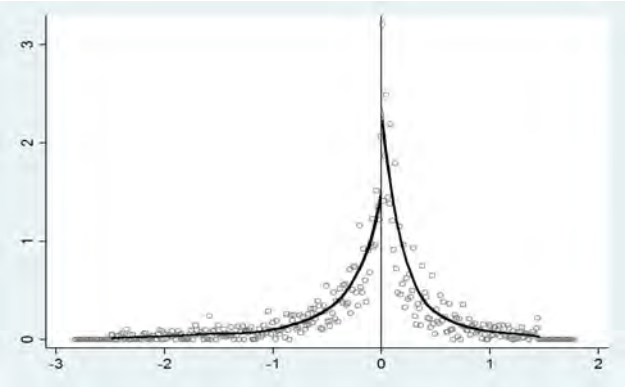
Figure 6: Actual performance and targets: Long versus short grants

This figure presents the results of a test for a discontinuity at zero in the density of *Actual less target EPS* (panels (a-b)), *Actual less target sales* (panels (c-d)) and *Actual less target profit* (panels (e-f)). In the left-hand-side panel we focus on long-term grants while in the right-hand-side panel we focus on short-term grants. We classify any grant with a final vesting longer than 11 months as long-term.

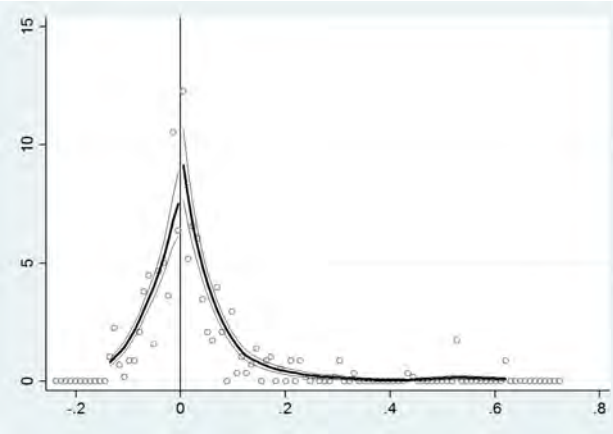
(a) Actual versus target EPS: Long grants



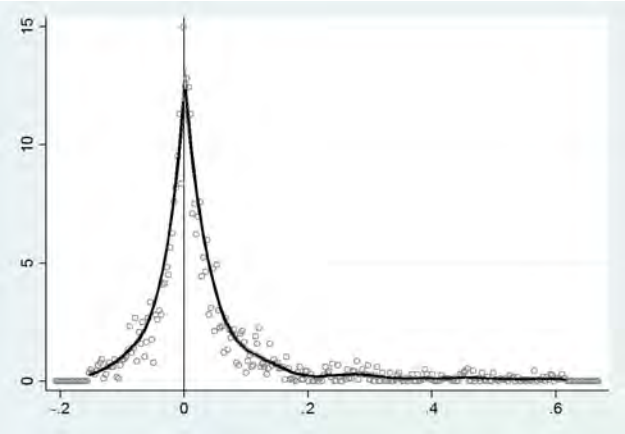
(b) Actual versus target EPS: Short grants



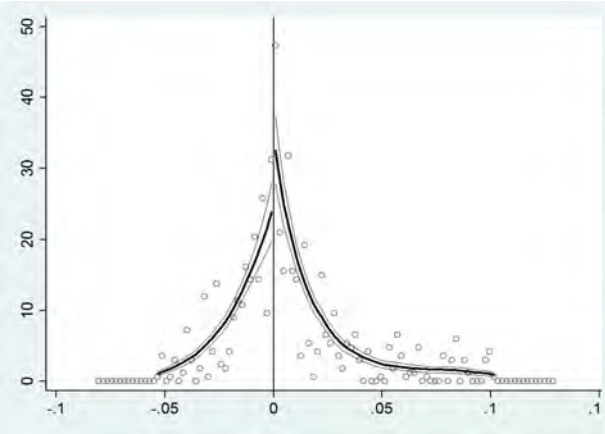
(c) Actual versus target Sales: Long grants



(d) Actual versus target Sales: Short grants



(e) Actual versus target Profit: Long grants



(f) Actual versus target Profit: Short grants

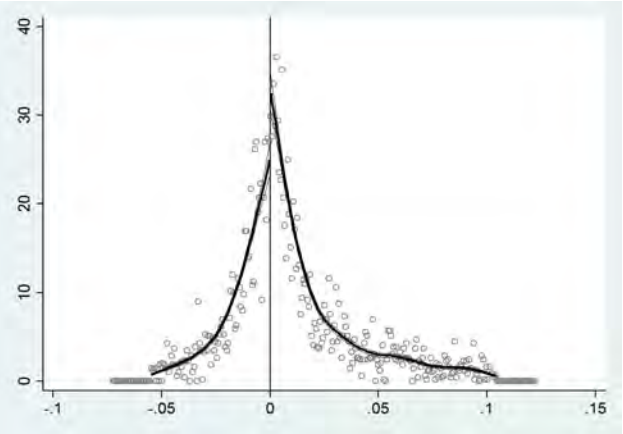


Table 3: **Reported performance and earnings based pay targets**

Table 3 reports the results of an OLS regression relating number of firms whose performance (earnings, sales or profit) falls within a bin to the bin mid-pint and the number of firms with a performance goal in the same bin. Standard errors reported in parentheses are robust to heteroskedasticity and are clustered at the bin level. All variables are defined in detail in appendix A. The data covers the period 2006-2012. The compensation data is from Incentive Lab (IL), Compustat, CRSP and ExecuComp. (***); (**); (*) denote statistical signifcance at 1%, 5%, and 10% levels respectively.

	Number of Firms			
	(1)	(2)	(3)	(4)
Number of goals	.294			
	(.066)***			
Number of goals - Single metric		.485		
		(.155)***		
Number of goals - Multiple metrics		.129		
		(.044)***		
Number of goals - Interpolated			.089	
			(.075)	
Number of goals - Not-interpolated			.292	
			(.074)***	
Number of goals - Long-term				.669
				(.132)***
Number of goals - Short-term				.055
				(.047)
Const.	2.387	2.392	2.398	2.419
	(.098)***	(.098)***	(.097)***	(.098)***
Obs.	7315	7315	7315	7315
R^2	.627	.629	.627	.632
Δ Coefficient		.356	.203	.614
		(.165)**	(.111)*	(..146)***

Table 4: Univariate comparison of firms that exceed and miss performance goals

This table compares the mean values of the key variables across the subsamples of firms that just exceed and just miss their performance goals. Performance metrics investigated are EPS, sales and profit. The data covers the period 2006-2012. The compensation data is from Incentive Lab (IL), Compustat, CRSP and ExecuComp. (***); (**); (*) denote statistical signifcance at 1%, 5%, and 10% levels respectively.

	Exceed EPS goals		**Miss EPS goal**		
	N	**Mean**	**N**	**Mean**	**Difference**
Size	175	8.708	151	8.848	-0.14
ROA	175	0.111	151	0.118	-0.007
Market to book	175	1.816	151	1.905	-0.089
Leverage	175	0.265	151	0.232	0.033*
Sales growth	175	0.049	151	0.054	-0.005
Accruals	156	0.011	139	0.008	0.003
Repurchase	175	12.343	151	20.848	-8.505**
Change R&D	175	0.825	151	1.849	-1.024
Change SG&A	175	8.741	151	10.37	-1.629

	Exceed sales goal		**Miss sales goal**		
	N	**Mean**	**N**	**Mean**	**Difference**
Size	139	9.08	90	9.353	-0.273
ROA	139	0.097	90	0.095	0.002
Market to book	139	1.781	90	1.683	0.098
Leverage	136	0.216	89	0.228	-0.012
Sales growth	139	0.085	90	0.06	0.025
Accruals	119	0.011	76	0.012	-0.001
Repurchase	139	19.013	90	17.485	1.528
Change R&D	139	2.535	90	1.03	1.505
Change SG&A	139	11.452	90	12.078	-0.626

	Exceed profit goal		**Miss profit goal**		
	N	**Mean**	**N**	**Mean**	**Difference**
Size	131	8.966	104	8.987	-0.021
ROA	131	0.084	104	0.083	0.001
Market to book	131	1.651	104	1.69	-0.039
Leverage	131	0.305	104	0.239	0.066**
Sales growth	130	0.025	103	0.055	-0.03
Accruals	106	0.007	77	-0.003	0.01
Repurchase	131	12.703	104	11.79	0.913
Change R&D	131	0.004	104	2.077	-2.073**
Change SG&A	131	1.113	104	9.921	-8.808

Table 5: **Multivariate difference between firms that exceed and miss performance goals**

This table reports the results of multivariate tests that compare firms that exceed and miss their performance goals. The dependent variables are *Accruals, Repurchase, Change in R&D, Change in SG&A*. The main independent variables are *Exceed EPS* (panel (a)), *Exceed sales* (panel (b)), and *Exceed profit* (panel (c)). These variables take a value one for firms whose performance is in the bin just above the performance goal and zero for firms whose performance is in the two bins below the performance goal. Details on the definition of the variables in this table are provided in the Appendix A. Standard errors reported in parentheses are robust to heteroskedasticity and are clustered at the two-digit SIC industry level. The data covers the period 2006-2012. The compensation data is from Incentive Lab (IL), Compustat, CRSP and ExecuComp. (***); (**); (*) denote statistical signifcance at 1%, 5%, and 10% levels respectively.

(a) Exceed EPS goal and firm performance

	Accruals	Repurchase	ΔR&D	ΔSG&A
	(1)	(2)	(3)	(4)
Exceed EPS	.012	-220.063	-1.226	1.264
	(.005)**	(300.902)	(.851)	(2.570)
Size	-.0009	569.406	-.255	.923
	(.003)	(201.719)***	(.349)	(1.141)
Market to book	-.006	276.013	.758	7.878
	(.004)*	(227.492)	(.788)	(1.857)***
Const.	.038	-3489.357	3.849	-11.797
	(.026)	(1924.394)*	(3.791)	(11.786)
Obs.	290	326	326	326
R^2	.303	.281	.188	.476

(b) Exceed sales goal and firm performance

	Accruals	Repurchase	ΔR&D	ΔSG&A
	(1)	(2)	(3)	(4)
Exceed sale	-.010	-322.594	1.517	1.136
	(.007)	(447.558)	(1.676)	(3.079)
Size	.009	553.313	.459	-3.120
	(.004)**	(217.869)**	(.905)	(2.239)
Market to book	.004	254.057	8.715	9.620
	(.005)	(321.755)	(4.117)**	(3.488)***
Const.	-.063	-3423.986	-21.441	7.457
	(.038)*	(2136.453)	(20.367)	(26.116)
Obs.	188	229	229	229
R^2	.236	.251	.117	.479

(c) Exceed profit goal and firm performance

	Accruals	Repurchase	ΔR&D	ΔSG&A
	(1)	(2)	(3)	(4)
Exceed profit	.006	655.655	-3.114	-12.520
	(.010)	(363.000)*	(1.572)**	(6.755)*
Size	.006	647.504	-.611	-1.363
	(.005)	(181.419)***	(.471)	(2.487)
Market to book	-.006	223.166	2.064	22.780
	(.004)	(209.554)	(1.773)	(8.307)***
Const.	-.037	-4483.415	4.322	-20.990
	(.048)	(1849.031)**	(5.678)	(24.996)
Obs.	176	235	235	235
R^2	.392	.429	.165	.343

Table 6: **Multivariate difference between firms that exceed and miss performance goals**

This table reports the results of multivariate tests that compare subsequent stock performance for firms that exceed and miss their performance goals. The dependent variables are either the one or three year industry or Fama-French 4-factor adjusted abnormal returns. The main independent variables are *Exceed EPS* (panel (a)), *Exceed sales* (panel (b)), and *Exceed profit* (panel (c)). These variables take a value one for firms whose performance is in the bin just above the performance goal and zero for firms whose performance is in the two bins below the performance goal. Details on the definition of the variables in this table are provided in the Appendix A. Standard errors reported in parentheses are robust to heteroskedasticity and are clustered at the two-digit SIC industry level. The data covers the period 2006-2012. The compensation data is from Incentive Lab (IL), Compustat, CRSP and ExecuComp. (***); (**); (*) denote statistical signifcance at 1%, 5%, and 10% levels respectively.

(a) Exceed EPS goal and firm performance

	Ind. adjusted-1 yr.	Abnormal-1 yr.	Ind. adjusted-3 yr.	Abnormal-3 yr.
	(1)	(2)	(3)	(4)
Exceed EPS	.017	.034	.047	.050
	(.036)	(.036)	(.089)	(.088)
Size	-.037	-.022	-.107	-.050
	(.016)**	(.016)	(.037)***	(.037)
Market to book	-.055	-.054	-.162	-.159
	(.024)**	(.023)**	(.063)**	(.062)**
Const.	.455	.318	1.337	.880
	(.172)***	(.171)*	(.390)***	(.385)**
Obs.	317	317	210	210
R^2	.218	.254	.284	.281

(b) Exceed sales goal and firm performance

	Ind. adjusted-1 yr.	Abnormal-1 yr.	Ind. adjusted-3 yr.	Abnormal-3 yr.
	(1)	(2)	(3)	(4)
Exceed sale	-.012	-.001	.107	.181
	(.046)	(.047)	(.140)	(.140)
Size	-.004	.013	-.205	-.147
	(.020)	(.020)	(.060)***	(.060)**
Market to book	-.062	-.071	-.119	-.132
	(.035)*	(.035)**	(.097)	(.097)
Const.	.065	-.079	1.894	1.364
	(.234)	(.238)	(.681)***	(.683)**
Obs.	228	228	130	130
R^2	.191	.157	.286	.24

(c) Exceed profit goal and firm performance

	Ind. adjusted-1 yr.	Abnormal-1 yr.	Ind. adjusted-3 yr.	Abnormal-3 yr.
	(1)	(2)	(3)	(4)
Exceed profit	.007	.007	-.286	-.286
	(.054)	(.053)	(.144)**	(.146)*
Size	-.030	-.011	-.209	-.152
	(.026)	(.026)	(.067)***	(.068)**
Market to book	-.037	-.027	.139	.134
	(.034)	(.033)	(.093)	(.094)
Const.	.897	.717	1.517	1.138
	(.302)***	(.294)**	(.779)*	(.790)
Obs.	225	225	129	129
R^2	.227	.24	.457	.418

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