

## **Earnings Targets and Annual Bonus Incentives**

**Raffi J. Indjejikian**

*Ross School of Business, University of Michigan*

**Michal Matějka**\*

*W.P. Carey School of Business, Arizona State University*

**Kenneth A. Merchant**

*Leventhal School of Accounting, University of Southern California*

**Wim A. Van der Stede**

*London School of Economics and Political Science*

January 12th 2012

\* Corresponding author: PO Box 873606, Tempe, AZ 85287-3606. E-mail: [Michal.Matejka@asu.edu](mailto:Michal.Matejka@asu.edu).

We gratefully acknowledge the support of the American Institute of Certified Public Accountants (AICPA) in this research project. We appreciate comments from Frank Hartmann as well as conference and workshop participants at Arizona State University, Boston College, Vrije Universiteit Amsterdam, Harvard Business School, KU Leuven, Michigan State University, Rice University, Texas Christian University, University of Iowa, University of Toronto, University of Virginia, the 2011 AAA Management Accounting Section Research and Case Conference, 2011 University of Alberta Accounting Research Conference, 2010 University of Michigan Kapnick Accounting Conference, and 4<sup>th</sup> Tel Aviv International Conference in Accounting.

## Earnings Targets and Annual Bonus Incentives

### ABSTRACT

We examine the extent to which firms use past performance as a basis for setting earnings targets in their executive bonus plans, and assess the implications of such targets for managerial incentives. We find that well-performing firms commonly reduce earnings targets when executives fail to meet their prior-year target but rarely increase targets. Conversely, we find that poorly-performing firms commonly increase earnings targets when executives meet or exceed their prior-year target but rarely decrease targets. In other words, well-performing managers appear to enjoy targets that discount good news, while poorly-performing managers face targets that discount bad news in current performance. We also find that firms are reluctant to revise earnings targets below zero resulting in an unusually high frequency of zero earnings targets that are abnormally difficult to achieve. Collectively, our findings suggest a serial correlation in target difficulty over time consistent with theoretical arguments that highlight the benefits of contractual commitments.

**Keywords:** *performance targets; earnings distributions; losses.*

**Data availability:** *Data used in this study cannot be made public due to confidentiality agreement with the sponsoring organization.*

## INTRODUCTION

An important element of firms' management control systems is the practice of establishing targets for future performance. Such practices serve to organize and coordinate firms' decisions and form the basis for performance evaluations and compensation (Maher et al. 2007; Merchant and Van der Stede 2012). Although the importance of performance targets in managing organizations is immutable, evidence on how firms set performance targets and revise them over time is scant because researchers rarely have access to such internal information (Murphy 2001). In this study, we provide novel empirical evidence about firms' target setting practices based on a confidential survey of executive compensation practices of 666 entities. In particular, we examine the extent to which firms use past performance as a basis for setting earnings targets in their executive bonus plans and assess the implications of such targets for managerial incentives.

Our empirical analyses proceed along four lines. First, we describe the cross-sectional distribution of earnings targets (measured as return on sales). A key highlight is our finding of a relatively high frequency of zero (or slightly positive) earnings targets and a low frequency of loss targets. This suggests that the widely-documented discontinuity at zero in distributions of *ex post* reported earnings (Hayn 1995; Burgstahler and Dichev 1997) also extends to *ex ante* earnings targets. In fact, we show that this discontinuity is more pronounced in *ex ante* earnings targets than in *ex post* reported earnings.

Second, we examine the extent to which earnings targets reflect information from past performance. This is important because using past performance as a criterion in determining performance targets can adversely affect incentives (Weitzman 1980). Prior studies find that firms commonly revise earnings targets upwards when their managers exceed prior-year targets yet do not revise targets downwards (or revise targets less) when managers fail to meet prior-year targets (Leone and Rock 2002; Zimmerman 2008; Anderson et al. 2010). In this study, we find a similar result for poorly-

performing firms, but quite the opposite for well-performing firms. In particular, we find that well-performing firms commonly reduce earnings targets if their managers fail to meet prior-year targets and rarely increase earnings targets even if their managers exceed prior-year targets. These findings are consistent with contracting theories suggesting that firms can alleviate incentive conflicts if they can commit to longer-term contracts that allow managers of well-performing firms to earn rents that persist through time while managers of poorly-performing firms earn little or no rents (Baron and Besanko 1984).

Third, we examine the implications of target setting practices for managerial incentives as reflected in managers' perceptions of target difficulty (or the estimated likelihood that targets will be achieved). We note that the incentive consequences of targets based on past performance depend in part on whether the revised targets are harder or easier to achieve than before. For example, it is well established theoretically that managers have weak *ex ante* incentives to be productive if they anticipate that current performance will be incorporated into future targets in a way that renders future targets more difficult to achieve (Milgrom and Roberts 1992). Incentive conflicts of this sort can be overcome, and managerial incentives strengthened, if firms use past performance information judiciously in a way that continually rewards good past performance. On balance, such performance evaluation practices effectively imply commitments to make future targets easier for managers who have performed well in the past, and harder for managers who have performed poorly.

Consistent with this commitment perspective, we find evidence that the difficulty of performance targets depends on prior-year performance. Specifically, we find that the likelihood of meeting 2009 earnings targets for managers who exceeded their 2008 target is 22% higher than for managers who failed to meet their 2008 target. In addition, the likelihood of meeting 2009 targets for well-performing managers is 11% higher than for poorly-performing managers, even after controlling for prior-year performance relative to target.

Fourth, we examine whether this commitment perspective helps explain the relatively high frequency of zero (or slightly positive) earnings targets and a low frequency of loss targets. A high frequency of zero targets could arise if firms are reluctant to set negative targets during economic downturns such as the 2008-2009 recession when expectations of performance are undoubtedly low. If firms set zero earnings targets even when negative targets would be far more appropriate, then we expect zero earnings targets to be harder to achieve than other targets. Consistent with this prediction, we find that the likelihood of achieving zero earnings targets in 2009 is 24% lower than the likelihood of achieving other earnings targets. This finding implies that the frequency of zero earnings targets is abnormally high rather than merely an artifact of, say, the distributional properties of earnings (Beaver et al. 2007; Durtschi and Easton 2009).

Our study contributes to the literature by analyzing unique new data on how firms set and revise earnings targets in their bonus plans. Given data availability constraints, prior studies in this area typically use a sample of business units from a single firm. In contrast, our study examines a wide cross-section of 666 entities including private and public companies as well as entities at the business unit level. Additionally, most prior studies examine target setting in good economic times.

Appositely, our survey takes place during a major recession, which greatly increases variation in actual and targeted earnings, increases the power of our tests, and allows us to generate pertinent insights that are otherwise hard to obtain in naturally-occurring settings. As such, we find that zero (or slightly positive) earnings targets are more prevalent in practice than other targets, and are more difficult to achieve than other targets. Given that earnings targets are an important dimension of most bonus plans in practice, our finding suggests that incentive contracting can potentially contribute to our understanding of the observed discontinuities in earnings distributions (Matsunaga and Park 2001; Huddart 2008).

Our study is also the first to empirically document that using past performance as a criterion in setting performance targets need not have an adverse effect on incentives. Indeed, we find no evidence that good performance in one period renders future targets more difficult to achieve for well-performing managers. We interpret these results as generally consistent with theoretical arguments that highlight the incentive benefits of contractual commitments (Laffont and Tirole 1993).

In the next section, we review the prior literature and motivate our analyses. In Section 3, we describe our survey, our data, and empirical measures. In Section 4, we present descriptive evidence on earnings targets and bonus plans during the 2008-2009 period. In Section 5, we test our predictions. In the last section, we conclude and discuss potential limitations of our study.

## **THEORY AND HYPOTHESES**

Executive bonus plans are a key component of management control systems. In practice, these plans are often described in terms of three basic elements: (1) a relation between pay and performance; (2) performance measures, most of which are annual accounting-based metrics; and (3) targets or standards of performance (Murphy 2001). A large body of literature in accounting, finance, and economics focuses primarily on the first element of executive bonus plans. For example, studies in this literature often estimate executive pay-for-performance sensitivities and propose them as indicators of the efficacy of incentive compensation plans including bonus plans (e.g., Jensen and Murphy 1990; Hall and Liebman 1998). There is also a large body of accounting literature that examines the second element of executive bonus plans. For instance, studies in this literature suggest that firms' choices of accounting-based performance measures reflects the informational properties of accounting measures relative to nonfinancial or equity-based measures (e.g., Lambert and Larcker 1987; Bushman et al. 1996; Ittner et al. 1997).

In this paper, we focus on the third element of executive bonus plans—performance targets. Prior research on performance targets is limited in part because researchers rarely have access to

information about firms' target-setting practices. Nevertheless, it is well understood that firms can use performance targets to provide high-powered incentives in a cost effective manner (Milgrom and Roberts 1992; Raju and Srinivasan 1996; Murphy 2001). An important incentive design choice in this regard is how to set target difficulty or calibrate the ease with which managers achieve their performance targets (e.g., Merchant and Manzoni 1989; Kim and Yang 2010). Central to the problem of how firms set target difficulty is the question of how firms revise targets in response to prior-year performance. While large-sample evidence concerning firms' target revision processes is scant, several studies based on single-firm data suggest that targets *ratchet* over time; i.e., targets are increased when actual performance exceeds the prior-year target, but are not decreased (or decreased less) when actual performance falls short of the target (e.g., Leone and Rock 2002; Leone et al. 2004; Bouwens and Kroos 2011). Hence, we begin our analysis of performance targets by reexamining this target ratcheting hypothesis for our cross-sectionally diverse sample.

**H1: *Earnings targets are revised upwards following prior-year performance that exceeds its target, but are not revised downwards (or revised downwards less) following prior-year performance that falls short of its target.***

It is well known that the target revision process described in H1 may adversely affect managerial incentives. If targets ratchet, managers may intentionally withhold productive effort when they anticipate that good current performance renders future targets more difficult to achieve (e.g., Weitzman 1980). Moreover, when manager's earnings targets are based in part on their private information, managers may intentionally withhold information to avoid future target increases.

Contracting theory predicts that agency conflicts of the sort described above can be overcome, and overall incentives strengthened, if firms' *commit* to a more tempered use of information in their performance evaluation practices (e.g., Milgrom and Roberts 1992; Laffont and Tirole 1993). For example, in a moral hazard context, it is often suggested that firms' commitments to disregard or deemphasize past performance in setting future targets strengthens managerial incentives to be

productive because good current performance is not penalized with more difficult future targets. Such commitments would then appear empirically in the form of a positive serial correlation in performance relative to a target.<sup>1</sup> The reason is that commitments to deemphasize prior-year performance are effectively commitments to make future targets easier for managers who met or exceeded their prior-year target and harder for managers who failed to meet their prior-year target.

**H2a: *Earnings targets are more difficult to achieve for managers who failed to meet their prior-year target than for managers who met or exceeded their prior-year target.***

Commitments to deemphasize past performance information also facilitate communication of information in settings where managers are privately informed about the economic environment in which they operate. Contracting theory suggests that agency conflicts due to managers' private information can be alleviated if firms temper the use of interim performance information and commit to long-term contracts. Such contracts then reward well-performing managers with economic rents (in this case, relatively easy-to-achieve targets) that persist through time, while poorly-performing managers earn little or no rents (e.g., Baron and Besanko 1984). Thus, when empirically proxying for economic rents as in Indjejikian and Matějka (2006), this translates into the following hypothesis:

**H2b: *Earnings targets are more difficult to achieve for poorly-performing managers than for well-performing managers.***

The preceding discussion suggests that contractual commitments that facilitate communication of private information translate to easy targets for well-performing managers and difficult targets for poorly-performing managers. In turn, this has implications for how firms revise performance targets

---

<sup>1</sup> In contrast, if firms refrain from such commitments and incorporate prior-year performance fully in setting future targets, then performance relative to a target is likely serially uncorrelated. Consistent with the commitment perspective, Indjejikian and Nanda (2002) find that when executives earn abnormal bonuses (i.e., actual bonuses that exceed target bonuses) in one year, they are more likely to earn abnormal bonuses in the subsequent year.



over time. Indeed, for well-performing managers, we predict that when prior-year performance exceeds target, the current target is not revised upwards appreciably. Equally, when well-performing managers fail to meet their prior-year target, we predict that the current target is revised downwards in order to maintain managers' ability to earn future rents.

**H3a: *For well-performing managers, earnings targets are not revised upwards (or revised upwards less) following prior-year performance that exceeds its target, but are revised downwards following prior-year performance that falls short of its target.***

We predict the opposite for poorly-performing managers because subpar performance denies the managers to earn rents.

**H3b: *For poorly-performing managers, earnings targets are revised upwards following prior-year performance that exceeds its target, but are not revised downwards (or revised downwards less) following prior-year performance that falls short of its target.***

Our final hypothesis relates to how firms revise earnings targets during economic downturns such as the 2008–2009 recession. Consistent with our arguments above, managers' *ex ante* incentives to protect their firms from the adverse effects of economic downturns are stronger when firms commit not to fully revise targets downwards to reflect recessionary expectations (Acharya et al. 2000). H3b implies that this reluctance to revise targets downwards is even more pronounced for managers who performed poorly even prior to the recession. Because many of these managers are likely to report negative earnings during a severe recession, we predict that firms are less likely to adopt negative earnings targets than warranted by recessionary expectations. Of course, during economic downturns, such target-setting practices also conserve cash and potentially minimize shareholder complaints of unwarranted executive compensation arrangements (e.g., Bebchuk et al. 2002).

If firms are reluctant to adopt negative earnings targets during economic downturns, then we expect to observe not only zero (or slightly positive) earnings targets even in situations where firms expect losses, but also that such zero (or slightly positive) targets are unlikely to be achieved. This

implies that, in recessionary times, the distribution of earnings targets should be characterized by a relatively high frequency of zero/slightly-positive targets and a low frequency of loss targets. Empirically, we infer that the frequency of zero/slightly-positive earnings targets is *abnormally* high by comparing the degree of target difficulty across the distribution of earnings targets. In particular, we test the hypothesis that zero/slightly-positive earnings targets are more difficult to achieve than other earnings targets.

**H4: *Earnings targets set at, or slightly above, zero are more difficult to achieve than other earnings targets.***

## **RESEARCH DESIGN**

### **Sample and Data**

Our data come from a survey of AICPA members who work in industry at the corporate or business unit (BU) level with one of the following titles: CEO, CFO, COO, controller, VP finance, president, managing director, or manager.<sup>2</sup> The survey was conducted during May–July 2009 and designed to elicit information about performance targets in executive incentive plans. Selected AICPA members received an e-mail invitation to participate in an online survey in May 2009 which was followed by two e-mail reminders shortly thereafter. This procedure yielded an initial sample of respondents consisting of CEOs (10%), CFOs (63%) or other financial executives reporting directly to a CFO (23%).<sup>3</sup>

From this initial sample, we exclude nonprofit entities, entities with sales less than \$10 million, and entities with no or invalid data on sales, actual or targeted earnings. We also exclude seven entities

---

<sup>2</sup> We use the term “entity” to collectively refer to either companies or their business units.

<sup>3</sup> We cannot directly assess the response rate for our survey because the contact database of 35,439 selected AICPA members is much larger than the targeted population of executives (due to imprecise titles, invalid e-mail addresses, outdated addresses of current and former AICPA members who are retired or no longer work in industry as senior executives, etc.).

with extreme losses (defined as entities where the absolute value of losses exceeds sales).<sup>4</sup> Our final sample includes 666 entities although the sample available for some of our analyses is smaller due to missing values for some variables.<sup>5</sup>

In addition, for some of our tests we use supplementary data on actual and targeted earnings as well as performance target difficulty drawn from a 2005 survey of 90 entities. Although this sample of 90 firms is also analyzed in Matějka et al. 2009, the data items we use from this survey are unique to our study.

### **Measures**

*Actual and targeted earnings and sales.* We use three survey items to collect information about actual and budgeted earnings and sales. The first item, “Profitability of your [entity] in 2008 was approximately (in \$ millions),” elicits information about both actual 2008 earnings and targeted 2008 earnings. The second item, “Budgeted profit/loss of your [entity] in 2009 is approximately (in \$ millions),” elicits information about 2009 earnings targets. The third item, “Sales of your [entity] in 2008 were approximately (in \$ millions),” elicits information about 2008 sales. To allow for a comparison across different entities we scale actual and targeted earnings by 2008 sales and calculate 2008 actual return on sales (*Y08ROS*) as well as targeted return on sales in 2008 and 2009 (*T08ROS* and *T09ROS*).<sup>6</sup>

---

<sup>4</sup> Several of the entities with extreme losses missed their 2008 earnings target by a wide margin and at the same time substantially increased the earnings target for next year. These entities must have experienced dramatic changes in their business environment or in their reporting practices, and thus, add noise rather than information to our estimations. We consider alternative definitions of “extreme losses” (e.g., absolute value of losses exceeding 50% or 150% of sales) which yield qualitatively similar results.

<sup>5</sup> Most of the entities in our sample are private companies and the median percentage of shares owned by the CEO is 8%. For our main analysis, we include entities where the CEO is the majority shareholder because other top executives typically have the same earnings target as the CEO and agency problems persist even if the CEO’s interests are aligned with those of the company. Excluding all entities where the CEO owns more than 25% (50%) of company shares leaves our results qualitatively unchanged.

<sup>6</sup> We use a fourth survey item, “Budgeted profit/loss in 2009 as a percentage of sales,” as a validity check to ensure that respondents entered earnings and sales in millions as instructed. To economize on space, we did not separately ask for 2009 sales.

We define earnings target revisions ( $T09-T08$ ) as the difference between  $T09ROS$  and  $T08ROS$ . We define performance relative to a target ( $Y08-T08$ ) as the difference between  $Y08ROS$  and  $T08ROS$ . In addition, we construct three indicator variables based on actual and targeted earnings: (i)  $T08FAIL$  for failure to meet 2008 earnings targets, (ii)  $Y08ROS\_LO$  for entities with 2008 return on sales below sample median which is our proxy for poorly-performing entities, and (iii)  $T09ZERO$  for zero 2009 earnings targets.

*Difficulty of performance targets.* We measure performance target difficulty as respondents' estimates of the likelihood that they meet their earnings targets. (For comparison, we also report the likelihood of meeting other financial targets and objective nonfinancial targets.) In particular, we measure earnings target difficulty using the following survey question (see question 1 in the Appendix): "Given the current business environment, how likely is it that you will meet your 2009 bonus targets?" We define "bonus target" in the survey to be the performance level necessary to earn the full targeted bonus (as opposed to some minimum performance level below which no bonuses are paid or some maximum performance level at which bonuses may be capped).  $T09PR$  is the percentage reported that corresponds to the first response item "Earnings target." The remaining two response items pertain to the likelihood of meeting "Other financial performance targets" ( $T09PR\_FIN$ ) and to the likelihood of meeting "Objective nonfinancial targets" ( $T09PR\_NFIN$ ), respectively.

*Incentive compensation.* We use several survey items to collect information about executives' 2008 incentive compensation plans. In particular, we ask executives to report their (i) salary ( $SALARY$ ); (ii) annual bonus ( $BONUS$ ); (iii) payout from a long-term cash bonus plan ( $LTBONUS$ ); (iv) equity awards ( $EQUITY$ ); and (v) other components of compensation ( $OTHER$ ). We also collect information on the ex ante 2009 bonus weights (assuming performance meets all targets); i.e., the percentage of 2009 annual bonus based on (a) financial performance targets including higher-level financial targets for BU-level

entities (*B09FIN*), (b) non-financial performance targets (*B09NFIN*), and (c) performance evaluated subjectively (*B09SUBJ*).

*Other variables.* We use several control variables identified in the literature as potential determinants of firms' target-setting practices (e.g., Ittner et al. 1997; Indjejikian and Matějka 2006; Matějka et al. 2009). *Sales growth (GROWTH)* is measured using a five-item scale asking respondents to characterize the long-term prospects of their entity in terms of expected annual sales growth. Responses range from one ("Negative" growth) to five ("More than 20%" growth). *Need for capital (CAPITAL)* is measured based on a five-item scale asking respondents to what extent they agree that "Our [entity] has adequate (access to) capital for the near term." Responses range from one ("Strongly agree") to five ("Strongly disagree"). *Noise in financial performance measures (NOISE)* is measured by asking about the extent to which financial performance measures "reflect management's overall performance" using a five-item fully-anchored Likert scale. Reverse-coded responses range from one ("Very high") to five ("Not at all"); i.e., high values indicate that financial performance measures poorly reflect managerial performance. *Retention concerns (RETAIN)* are measured based on responses to the statement "Retention of executives is the key objective of our 2009 bonus plan." Reverse-coded responses range from one ("Strongly disagree") to five ("Strongly agree"); i.e., higher values indicate greater retention concerns. Finally, we use a proxy for size measured by the log of the number of employees (*SIZE*), and indicator variables for 18 different industry categories (see question 12 in the Appendix).

## **DESCRIPTIVE EVIDENCE**

### **Sample Characteristics**

Table 1 presents descriptive evidence on our sample entities. About 73% of the 666 entities are private companies, 7% are BUs of private companies, 11% are public companies, and the remaining 9% are BUs of public companies. The median number of employees is 213 and median sales are \$67 million. The

distributions of responses for *GROWTH* and *CAPITAL*, both of which are measured using a five-point Likert scale, suggest that most entities in our sample expect some positive growth (the median response is “6–12%”) and have adequate capital for their operations. For instance, only about 6% of our sample entities expect negative growth and only about 7% of our sample entities strongly disagree with the statement that they have adequate capital for the near term.

The median of *NOISE* implies that respondents perceive that financial performance measures reflect managerial performance to a high extent. The median of *RETAIN*, representing the response “Somewhat disagree” with the statement that retention is a key objective of 2009 bonus plans, suggests that executive retention is not the primary concern of most sample entities. Finally, untabulated statistics indicate that our sample entities represent a variety of industries with the largest concentrations in manufacturing (22% of sample) and finance and insurance (15% of sample).

Panel B of Table 1 describes the compensation plans of our respondents. The median annual base salary for 2008 is \$144,000 while the median bonus is \$24,000 and median values for all other compensation components are zero. Although the average equity award is valued at \$56,502 (slightly larger than the average bonus), it is due to large equity awards in a small fraction of our sample. Only about 17% (6%) of our sample receive equity awards (payouts from long-term cash bonus plans). Thus, most entities in our sample rely on annual cash bonuses as the primary source of incentive compensation for their executives. Panel B of Table 1 also shows that annual bonuses in our sample are largely based on performance relative to financial targets. Specifically, our sample respondents expect on average 61% of their 2009 annual bonus to be based on performance relative to financial targets (*B09FIN*), 11% to be based on performance relative to nonfinancial targets (*B09NFIN*), and 28% to be based on subjective evaluations (*B09SUBJ*).

Table 2 presents summary statistics on actual and targeted performance of our sample entities. The average 2008 return on sales (*Y08ROS*) is 6.0%, well below the average target (*T08ROS*) of 8.8%.

Correspondingly, the average performance relative to target ( $Y08-T08$ ) is -2.8% and 54% of our sample entities failed to meet their 2008 earnings target ( $T08FAIL$ ). The effects of the recession are also evident through lower 2009 earnings targets relative to 2008 earnings targets. The average 2009 earnings target ( $T09ROS$ ) is 8% so that the average change relative to prior year ( $T09-T08$ ) is -0.8%. Despite this nominal decrease in 2009 earnings targets, they still appear very difficult to achieve. For example, the likelihood of meeting 2009 earnings targets ( $T09PR$ ) is only 49%; which is significantly ( $p < 0.01$ ) and comparatively lower than 69% in case of 2009 nonfinancial targets ( $T09PR\_NFIN$ ).

### **Distribution of Earnings Targets**

This section presents the frequency distribution of actual and targeted earnings. First, Panel A of Figure 1 shows the distribution of 2008 actual earnings and replicates a well-established finding that *ex post* reported earnings exhibit a “discontinuity at zero” (e.g., Hayn 1995; Burgstahler and Dichev 1997). In particular, only 17 of the 666 sample entities reported earnings in the interval marked “-2%” (earnings equal or greater than -2% of sales and smaller than -1%) and 18 entities in the interval just below zero (equal or greater than -1% and smaller than 0%).<sup>7</sup> In contrast, 60 entities reported earnings in the interval just above zero and 12 of these entities reported zero earnings.

Second, Panel B of Figure 1 presents the distribution of 2008 earnings targets. While distributions of *ex post reported earnings* are widely known, our study is the first to present distributions of *ex ante earnings targets*. Panel B shows that the discontinuity at zero exists for earnings targets as well. Furthermore, a comparison of Panel A and B suggests that the discontinuity at zero is more pronounced for targeted than for actual earnings. In particular, we use a z-test for differences in proportions and find that the proportion of targets set at zero (4.5% of 666) is significantly greater

---

<sup>7</sup> As an alternative to 1%-wide bins, we also consider 2%-wide bins constructed following the algorithm in Silverman 1986 and obtain qualitatively similar results.

( $p < 0.01$ ) than the proportion of zero actual earnings (1.8%). Moreover, comparing the frequency of just below zero (defined as the -2% and -1% intervals) targeted and actual earnings, we find that the proportion of targets just below zero (2.3%) is significantly lower ( $p < 0.01$ ) than the proportion of actual earnings below zero (5.3%).

Third, Panel C of Figure 1 corroborates that earnings targets exhibit a discontinuity at zero using data on 2009 targets. Panel C shows that only 10 of the 666 sample entities had their earnings targets in the “-2%” interval and 9 entities had their earnings targets in the interval just below zero. In contrast, 93 entities had earnings targets in the interval just above zero and 38 of these entities set the target exactly at zero.

Fourth, Panel A and B of Figure 2 compare distributions of 2004 actual and targeted earnings using our supplementary dataset. We find no discontinuity at zero in actual earnings yet a strong discontinuity in earnings targets. For instance, the proportion of targets set at zero (8.0% of 87) is significantly greater ( $p < 0.01$ ) than zero (none of the 87 entities reported zero actual earnings). Also, the proportion of negative targets (12.6%) is significantly lower ( $p < 0.01$ ) than the proportion of reported losses (35.6%). This is consistent with our earlier finding that the discontinuity at zero in the distribution of earnings targets is more pronounced than in the distribution of actual earnings.

Finally, Figure 3 plots the distribution of earnings target changes relative to prior-year actual earnings (Panel A) and prior-year earnings target (Panel B). We find that 48% of our sample entities set their 2009 earnings target lower than in 2008, which likely reflects the severity of the 2008–2009 recession. Thirty-five percent (65%) of the entities set their 2009 earnings target below (above) 2008 actual earnings. We also find that about a quarter of the entities use prior-year earnings targets or actual earnings as their minimum for next year’s target and are reluctant to reduce 2009 earnings targets below these benchmarks. Specifically, 86 of the 666 entities (13%) set the same earnings target in 2009 as in 2008, 45 (7%) set 2009 earnings target equal to 2008 actual earnings, and 26 (4%) do both



(2009 as well as 2008 earnings targets are equal to 2008 actual earnings). All told, these descriptive statistics suggest that whereas prior targets and prior performance may be a “point of departure for next period’s target” (Weitzman 1980: 303), there is variation in the extent to which this occurs, with past targets and past performance not appearing to be the “minimum threshold by default” in many entities.

### **Earnings Targets and Target Difficulty**

To assess implications of earnings target revisions for managerial incentives, it is also important to understand how revisions affect target difficulty. Our measure of target difficulty is based on respondents’ estimates of the likelihood of meeting their 2009 earnings targets (*T09PR*). In this section, we first provide descriptive evidence on the relation between target difficulty and different earnings target levels (Table 3) and subsequently examine the relation between target difficulty, target revisions, and past performance (Table 4).

Panels A and B of Table 3 show average target difficulty for entities with positive, zero, and negative earnings targets in 2009 and 2008, respectively. Specifically, in Panel A of Table 3 we divide our sample observations into three groups based on the sign of their 2009 earnings targets; i.e., groups with loss, zero, or profit targets. We find that the average likelihood of achieving 2009 targets is 31% for the group with zero 2009 earnings targets, which is significantly lower than 52% reported for the profit group ( $p < 0.01$ ) and not significantly different from 22% reported for the loss group. The average likelihood of meeting other 2009 financial targets exhibits a similar pattern—34% for the zero target group versus 54% for the profit target group and 35% for the loss target group. In contrast, the average likelihood of meeting nonfinancial targets is around 70% regardless of 2009 earnings targets.

Panel B of Table 3 divides our sample observations into three groups based on the sign of their 2008 earnings targets. This is of interest because zero targets at some point in the past may signal commitment not to pay bonuses for losses or for poor performance in general. Similar to Panel A, we

find that the average likelihood of achieving 2009 targets is 29% for the group with zero 2008 earnings targets, which is significantly lower than 50% reported for the profit group ( $p < 0.01$ ) and not significantly different from 43% reported for the loss group. The likelihood of meeting other 2009 financial targets exhibits a similar pattern.

In Panel C of Table 3 we use our supplementary data from 2005 to examine whether we obtain similar results in a different time period. Consistent with the evidence in Panel A and B, we find that the average likelihood of achieving 2005 targets is 31% for the group with zero 2005 earnings targets, which is significantly lower than 64% for the profit group ( $p < 0.01$ ) and also lower than 57% for the loss group ( $p = 0.11$ ).

Table 4 provides preliminary evidence on how earnings target revisions and the resulting target difficulty depend on past performance. We divide our sample into well-performing entities with above-median 2008 return on sales and poorly-performing entities with below median returns. We further subdivide each of the groups based on whether they met or failed to meet their 2008 target. For each of the four groups, we present median (i) performance relative to 2008 earnings target ( $Y08-T08$ ), (ii) earnings target revision ( $T09-T08$ ), and (iii) likelihood of meeting 2009 earnings target ( $T09PR$ ). We report medians rather than averages to minimize the influence of outliers.

We find that well-performing entities commonly exceed their prior-year target by a wide margin—conditional on meeting a target, median earnings above the target are 1.33% of sales in well-performing as compared to 0.26% in poorly-performing firms. However, earnings targets in well-performing entities are not revised upwards most of the time—conditional on meeting the prior-year target, the median revision is 0% in well-performing and 0.05% in poorly-performing entities, despite the fact that well-performing entities exceed their target by a much wider margin than poorly-performing entities. We find similar differences in entities that fail to meet their targets. Conditional on failure to meet the prior-year's target, median earnings shortfall is 2.78% of sales in well-performing and

2.72% in poorly-performing entities. In response, well-performing entities revise targets downwards considerably (2.08%) while poorly-performing entities only to a limited extent (0.42%).

The last two columns of Table 4 provide additional evidence that earnings target revisions in poorly-performing entities render the resulting targets more difficult to achieve than in well-performing entities. In particular, while the overall sample median likelihood of achieving 2009 earnings targets is 50%, the median in poorly-performing entities that met their prior-year target is 62.5% whereas in those that failed to meet the target it is 40%. In contrast, the median in well-performing entities that met their prior-year target is 70%, whereas in those that failed to meet the target it is 50%.

In conclusion, Table 4 provides preliminary evidence consistent with H2–H3 predicting that good past performance is associated with easy targets in the future. In addition, the evidence in Table 3 is consistent with H4 predicting that zero earnings targets are more difficult to achieve than other earnings targets. This corroborates earlier findings in Figures 1 and 2 that the distribution of earnings targets exhibits a discontinuity at zero and that the frequency of zero targets is abnormally high.<sup>8</sup> The next section builds on this preliminary evidence and presents formal tests of our hypotheses.

## MAIN ANALYSIS

### Earnings Target Revisions

In this section, we examine how firms revise earnings targets based on information about prior-year performance relative to target. We follow prior literature (Leone and Rock 2002; Bouwens and Kroos 2011) and model earnings target revisions ( $T09 - T08$ ) as follows:

$$T09 - T08_i = \beta_0 + \beta_1 T08FAIL_i + \beta_2 Y08 - T08_i + \beta_3 T08FAIL_i \cdot Y08 - T08_i + \varepsilon_i, (1)$$

---

<sup>8</sup> On its own, the evidence in Figures 1 and 2 does not necessarily imply that the frequency of zero targets is *abnormally* high. For example, such discontinuity could also arise mechanically due to scaling or other factors (e.g., Durtschi and Easton 2009). Therefore, it is important to demonstrate that zero earnings targets are somehow different from other earnings targets, such as in their degree of achievability.

i.e., we allow the association between earnings target revisions and performance relative to target (*Y08-T08*) to vary depending on whether the prior-year target was met or not (*T08FAIL*).

The unique feature of our sample is that it consists of highly diverse entities as opposed to single-firm data used in prior studies. This heterogeneity also implies a common occurrence of highly influential outliers in our sample which can render standard OLS estimations unreliable. Therefore, to estimate model (1), we rely on the least absolute deviations estimator, also referred to as median regression, which is less sensitive to the problem of outliers (Greene 2008).<sup>9</sup>

Table 5 presents our estimation results. Column (1) provides little or no evidence of target ratcheting in the sample pooling all observations. One side of H1 predicts that  $\beta_2 > 0$  yet we find that target revisions upwards are only weakly related ( $p=0.15$ ) to performance in excess of prior-year targets. Similarly, the other side of H1 predicts that  $\beta_3 < 0$  yet the estimate in column (1) is negative but insignificant, suggesting little or no difference in the sensitivity of target revisions to past performance regardless of whether prior-year performance exceeds or falls short of its target.

We test H3a and H3b by separately estimating model (1) for well-performing entities with above-median 2008 return on sales and poorly-performing entities with below-median returns.<sup>10</sup> The results in Column (2) of Table 5 are consistent with H3a, which predicts that  $\beta_2 = 0$  and  $\beta_2 + \beta_3 > 0$  in the sample of well-performing entities. Specifically, we find that target revisions upwards in well-performing entities are not significantly related to performance in excess of prior-year targets ( $p=0.54$ ). In contrast, target revisions downwards are positively related ( $p<0.01$ ) to performance falling short of

---

<sup>9</sup> We obtain qualitatively similar results when we estimate model (1) by means of OLS after excluding outliers. We consider alternative thresholds to identify outliers (e.g., absolute values of *T09-T08* or *Y08-T08* exceeding 15%, 20%, or 25% of sales).

<sup>10</sup> We obtain qualitatively similar results if well-performing entities are defined as the top-third performers in terms of 2008 return on sales and poorly-performing entities as the bottom-third performers.

prior-year targets; i.e., the greater the unfavorable deviation from the 2008 target, the greater the downwards revision of the 2009 target.

Column (3) presents the results of testing H3b, which predicts that  $\beta_2 > 0$  and  $\beta_2 + \beta_3 = 0$  in the sample of poorly-performing entities. Consistent with this hypothesis, we find that target revisions upwards in poorly-performing entities are positively related ( $p=0.02$ ) to performance in excess of prior-year targets. In contrast, target revisions downwards are only weakly related to performance falling short of prior-year targets ( $p=0.07$ ).

In summary, we find that well-performing entities are willing to revise earnings targets downwards but are reluctant to revise targets upwards in response to prior-year performance relative to target. The opposite result holds for poorly-performing entities. In other words, when setting targets for next year, poorly-performing entities discount bad news in current performance while well-performing entities discount good news. These results underscore the importance of controlling for performance when estimating models of target revisions. More generally, these results support the theory highlighting the benefits of target-setting practices that incorporate information about past performance only to a limited extent.

### **Tobit Models of Earnings Target Difficulty**

As discussed before, the incentive consequences of target revisions largely depend on the extent to which such revisions render the resulting targets easy or hard to achieve. To better understand the drivers of earnings target difficulty, this section models the likelihood of meeting 2009 earnings targets (*T09PR*) and presents tests of H2 and H4.

H2a predicts that failure to meet prior-year targets renders them more difficult to achieve next year. H2b predicts a higher target difficulty in poorly-performing than in well-performing entities (regardless whether they met the prior-year target or not). We note that the indicator variable for poorly-performing entities is correlated with the indicator variable for failure to meet prior-year targets

as well as with most of the control variables and industry fixed effects. Therefore, we first estimate models of target difficulty with a limited number of control variables as well as models which include only one of the two indicator variables.

In particular, our baseline model includes *T08FAIL*, *Y08ROS\_LO*, and indicator variables for the different types of entities in our sample (public vs. private, corporate vs. BU level) which are unlikely to change over time, and thus, are uncorrelated with past performance. We take into account that our dependent variable has a probability mass both at 0% and 100% and estimate the following Tobit model:

$$T09PR_i = \beta_1 + \beta_2 PRIVATE\_CO_i + \beta_3 PRIVATE\_BU_i + \beta_4 PUBLIC\_BU_i + \beta_5 T08FAIL_i + \beta_6 Y08ROS\_LO_i + \varepsilon_i. \quad (2)$$

H2a implies that  $\beta_5 < 0$  and H2b implies that  $\beta_6 < 0$ . Consistent with both hypotheses, column (1) of Table 6 shows that the likelihood of meeting 2009 targets in entities that failed to meet their 2008 targets is 22% lower ( $p < 0.01$ ) than in entities that met or exceeded their targets. In addition, the likelihood of meeting 2009 targets in poorly-performing entities is 11% lower ( $p = 0.03$ ) than in well-performing entities, even after controlling for past performance relative to target. These estimates are similar to those in the last two columns of Table 4 as well as those in columns (2) and (3) of Table 6, which include the remaining control variables and industry fixed effects.<sup>11</sup>

Column (2) of Table 6 also shows that most of our control variables are significantly associated with *T09PR*. In particular, the likelihood of meeting 2009 targets is about 15% higher ( $p = 0.04$ ) in private than in public companies. Earnings targets are also relatively easy (more likely to be achieved) in entities with high growth ( $p < 0.01$ ), sufficient amount of capital for the short term ( $p < 0.01$ ), entities that are large ( $p < 0.01$ ) and those concerned about executive retention ( $p = 0.03$ ).

---

<sup>11</sup> As discussed earlier, the last column of Table 6 shows that the explanatory power of *Y08ROS\_LO* is subsumed by *T08FAIL*, our control variables, and industry fixed-effects.

To test H4, we control for all the above effects and additionally include an indicator variable for 2009 earnings targets equal to zero (*T09ZERO*). Note that *T09ZERO* is neither exogenous nor predetermined and we estimate our model as an auxiliary regression testing the strength of the association between *T09PR* and *T09ZERO* controlling for other effects. Consistent with H4, column (4) of Table 6 shows that the likelihood of achieving 2009 targets in entities with zero 2009 earnings targets is 24% lower ( $p=0.01$ ) than in entities with other targets. This suggests that, instead of setting achievable but negative earnings targets, many firms prefer to stretch their target to zero even if the resulting target becomes very difficult to achieve. Thus, earnings targets may get revised downwards but rarely below zero which is consistent with our theory that firms commit not to fully update targets in response to poor past performance.

#### **SUMMARY AND CONCLUSION**

How firms set and revise earnings targets in their incentive plans has long been an important topic in accounting research. Theoretically, it is well recognized that performance targets can have important incentive effects, particularly through time as managers anticipate that their current performance may be used as a basis for setting future targets. However, empirical evidence in this area is limited due to the difficulty of obtaining confidential data on how firms set internal targets. Consequently, little is known about the incentive implications of firms' target-setting practices. In this paper, we use data about the target setting practices of 666 entities obtained via a confidential survey conducted during the 2008–2009 economic recession.

Overall, our findings suggest that firms use past performance information in setting targets, yet they do so only in a limited, tempered manner. In particular, we find that the target revision process in well-performing firms differs from the process in poorly-performing firms. For instance, we find that well-performing firms commonly reduce earnings targets if their managers fail to meet their prior-year targets but rarely increase earnings targets even if their managers exceed prior-year targets. In contrast,

poorly-performing firms commonly revise targets upwards if their managers exceed their prior-year targets but rarely decrease earnings targets otherwise. These findings are consistent with contracting theories suggesting that firms can alleviate incentive conflicts if they can commit to longer-term contracts that reward managers of well-performing firms with easier targets and economic rents that persist through time.

We also find that the cross-sectional distribution of *ex ante* earnings targets in our sample is characterized by a high frequency of zero (or slightly positive) earnings targets and a low frequency of loss targets despite the recessionary time period in which our survey was conducted. This suggests a target-revision process that deliberately avoids negative earnings targets in favor of zero (or just above zero) targets even if such practices translate to harder to achieve targets. We note that this finding mirrors the widely-documented discontinuity at zero in the cross-sectional distribution of *ex post* reported earnings but defer an analysis of how *ex ante* target earnings distributions translate to *ex post* actual earnings distributions to future research.

Finally, we note that our study is subject to some limitations. First, by the very nature of survey data, we rely on our respondents to recall information from the past and to accurately communicate potentially sensitive compensation and performance information. This concern is alleviated somewhat by our guarantee of confidentiality and our commitment to refrain from collecting information about individual or firm identity. Second, because of space constraints on the survey questionnaire and the anonymity of the respondents, we have little additional information about the broader compensation practices and other characteristics of our sample entities. These limitations notwithstanding, we believe our study provides important new evidence on how firms set and revise earnings targets.



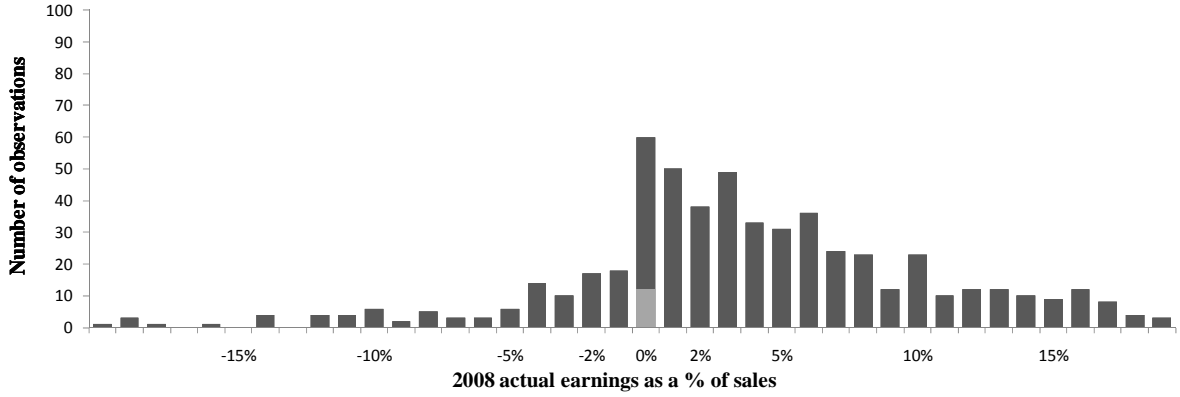
## REFERENCES

- Acharya V. V., K. John, and R. K. Sundaram. 2000. On the optimality of resetting executive stock options. *Journal of Financial Economics* 57 (1): 65–101.
- Anderson S. W., H. C. Dekker, and K. L. Sedatole. 2010. An empirical examination of goals and performance-to-goal following the introduction of an incentive bonus plan with participative goal-setting *Management Science* 56 (1): 90–109.
- Baron D. P., and D. Besanko. 1984. Regulation and information in a continuing relationship. *Information Economics and Policy* 1 (3): 267–302.
- Beaver W. H., M. F. McNichols, and K. K. Nelson. 2007. An alternative interpretation of the discontinuity in earnings distributions. *Review of Accounting Studies* 12 (4): 525–556.
- Bebchuk L. A., J. M. Fried, and D. I. Walker. 2002. Managerial power and rent extraction in the design of executive compensation. *University of Chicago Law Review* 69 (3): 751–846.
- Bouwens J., and P. Kroos. 2011. Target ratcheting and effort reduction. *Journal of Accounting and Economics*.
- Burgstahler D., and I. Dichev. 1997. Earnings management to avoid earnings decreases and losses. *Journal of Accounting & Economics* 24 (1): 99–126.
- Bushman R. M., R. J. Indjejikian, and A. Smith. 1996. CEO compensation: The role of individual performance evaluation. *Journal of Accounting & Economics* 21 (2): 161–193.
- Durtschi C., and P. Easton. 2009. Earnings management? Erroneous inferences based on earnings frequency distributions. *Journal of Accounting Research* 47 (5): 1249–1281.
- Gaver J. J., K. M. Gaver, and J. R. Austin. 1995. Additional evidence on bonus plans and income management. *Journal of Accounting & Economics* 19 (1): 3–28.
- Greene W. H. 2008. *Econometric analysis*. Sixth ed. London: Prentice-Hall International.
- Hall B. J., and J. B. Liebman. 1998. Are CEOs really paid like bureaucrats? *Quarterly Journal of Economics* 113 (3): 653–691.
- Hayn C. 1995. The information-content of losses. *Journal of Accounting & Economics* 20 (2): 125–153.
- Healy P. M. 1985. The effect of bonus schemes on accounting decisions. *Journal of Accounting & Economics* 7 (1-3): 85–107.
- Huddart S. J. 2008. Three patterns in need of a unified theory. *Accounting Horizons* 22 (4): 441–444.
- Indjejikian R. J., and M. Matějka. 2006. Organizational slack in decentralized firms: The role of business unit controllers. *The Accounting Review* 81 (4): 849–872.
- Indjejikian R. J., and D. Nanda. 2002. Executive target bonuses and what they imply about performance standards. *The Accounting Review* 77 (4): 793–819.
- Ittner C. D., D. F. Larcker, and M. V. Rajan. 1997. The choice of performance measures in annual bonus contracts. *The Accounting Review* 72 (2): 231–255.
- Jensen M. C., and K. J. Murphy. 1990. Performance pay and top-management incentives. *Journal of Political Economy* 98 (2): 225–264.

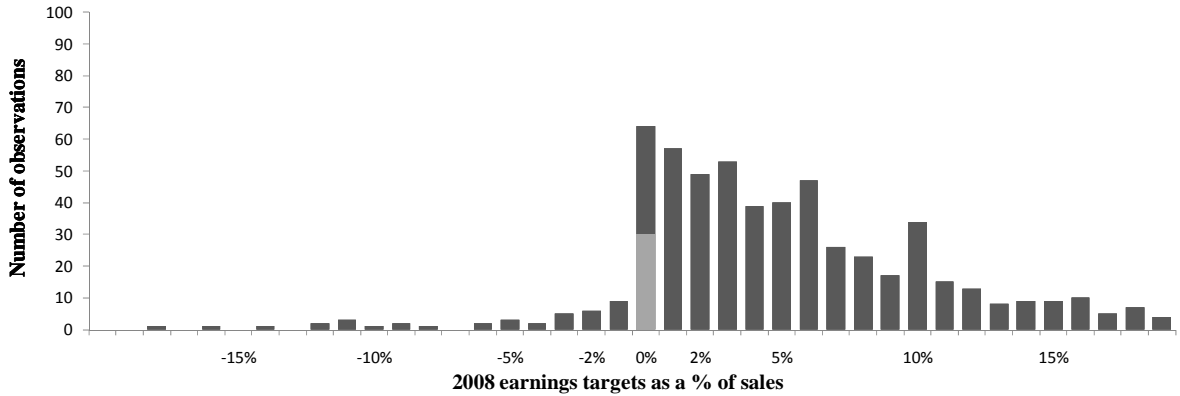
- Kim D. S., and J. Yang. 2010. Beating the target: A closer look at annual incentive plans. Working paper, Indiana University.
- Laffont J. J., and J. Tirole. 1993. *A theory of incentives in procurement and regulation*. Cambridge, Massachusetts: The MIT Press.
- Lambert R. A., and D. F. Larcker. 1987. An analysis of the use of accounting and market measures of performance in executive compensation contracts. *Journal of Accounting Research* 25: 85–129.
- Leone A., S. Misra, and J. L. Zimmerman. 2004. Investigating dynamic sales quotas. Working paper, University of Rochester.
- Leone A. J., and S. Rock. 2002. Empirical tests of budget ratcheting and its effect on managers' discretionary accrual choices. *Journal of Accounting & Economics* 33 (1): 43–67.
- Maher M. W., C. P. Stickney, and R. L. Weil. 2007. *Managerial accounting: An introduction to concepts, methods and uses*: South-Western.
- Matějka M., K. A. Merchant, and W. A. Van der Stede. 2009. Employment horizon and the choice of performance measures: Empirical evidence from annual bonus plans of loss-making entities. *Management Science* 55 (6): 890–905.
- Matsunaga S. R., and C. W. Park. 2001. The effect of missing a quarterly earnings benchmark on the CEO's annual bonus. *The Accounting Review* 76 (3): 313–332.
- Merchant K. A., and J. F. Manzoni. 1989. The achievability of budget targets in profit centers - a field-study. *The Accounting Review* 64 (3): 539–558.
- Merchant K. A., and W. A. Van der Stede. 2012. *Management control systems: Performance measurement, evaluation and incentives*. 3rd ed: Prentice Hall.
- Milgrom P., and J. Roberts. 1992. *Economics, organization and management*. Englewood Cliffs: Prentice Hall.
- Murphy K. J. 2001. Performance standards in incentive contracts. *Journal of Accounting & Economics* 30 (3): 245–278.
- Raju J. S., and V. Srinivasan. 1996. Quota-based compensation plans for multiterritory heterogeneous salesforces. *Management Science* 42 (10): 1454-1462.
- Silverman B. W. 1986. *Density estimation for statistics and data analysis*. New York, NY: Chapman and Hall.
- Weitzman M. L. 1980. The ratchet principle and performance incentives. *Bell Journal of Economics* 11 (1): 302–308.
- Wooldridge J. M. 2002. *Econometric analysis of cross section and panel data*. Cambridge: The MIT Press.
- Zimmerman J. L. 2008. *Accounting for decision making and control*. 6th ed. Irwin: McGraw-Hill.

**FIGURE 1: Distribution of Actual and Targeted Earnings**

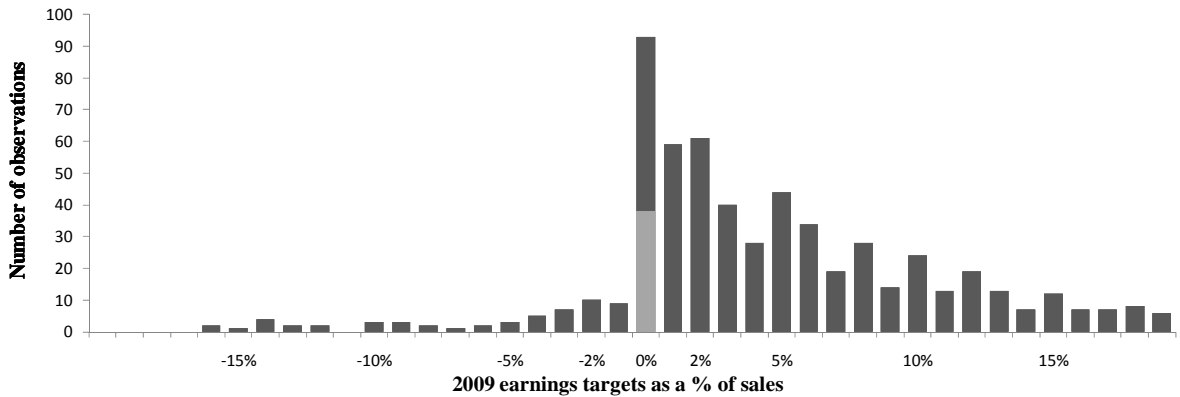
**Panel A: Distribution of 2008 Actual Earnings**



**Panel B: Distribution of 2008 Earnings Targets**



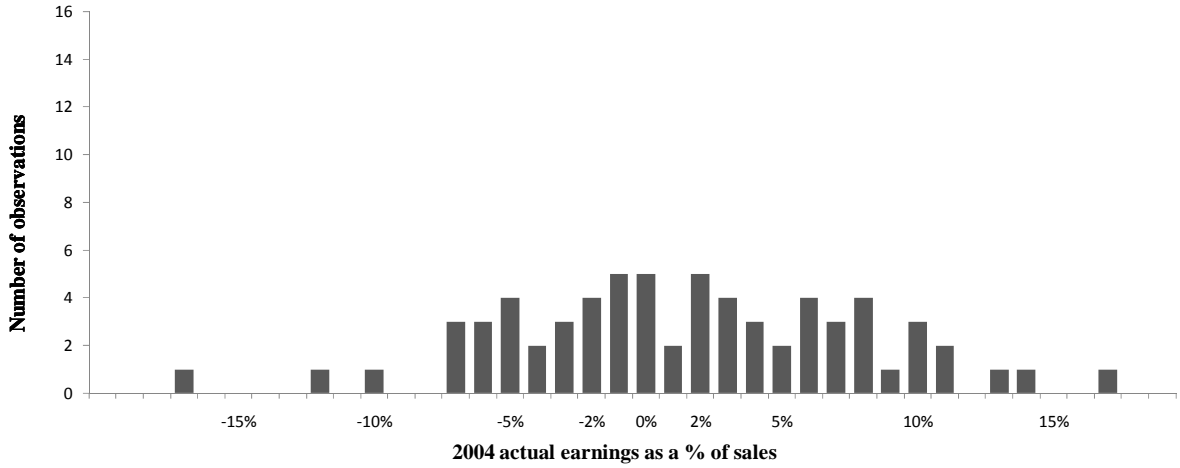
**Panel C: Distribution of 2009 Earnings Targets**



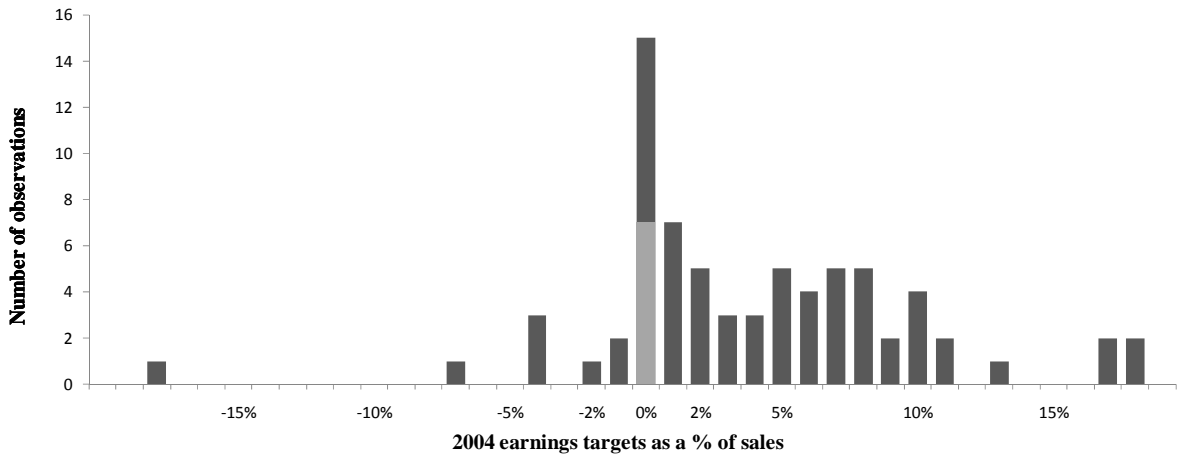
Earnings scaled by sales are plotted in 1% intervals (e.g., 0% stands for return on sales equal or greater than 0% and smaller than 1%). The total number of observations is 666 in all panels. Panel A shows 561 entities with 2008 actual earnings between -20% and 20% of sales. The lighter bar at 0% represents 12 entities with 2008 actual earnings exactly equal to zero. Panel B shows 568 entities with 2008 earnings targets between -20% and 20% of sales. The lighter bar at 0% represents 30 entities with 2008 earnings targets exactly equal to zero. Panel C shows 592 entities with 2009 earnings targets between -20% and 20% of sales. The lighter bar at 0% represents 38 entities with 2009 earnings targets exactly equal to zero.

**FIGURE 2: Distribution of 2004 Actual and Targeted Earnings**

**Panel A: Distribution of 2004 Actual Earnings**



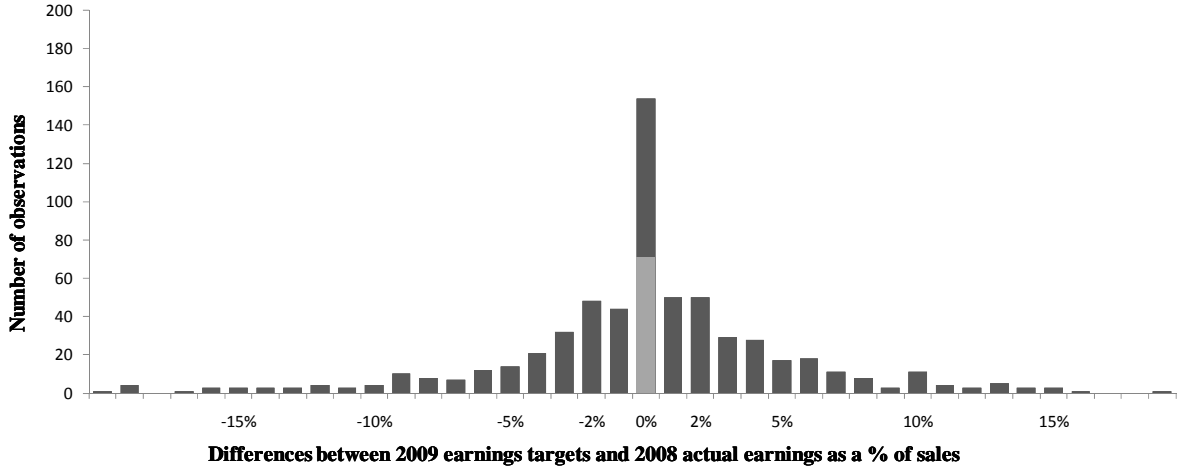
**Panel B: Distribution of 2004 Earnings Targets**



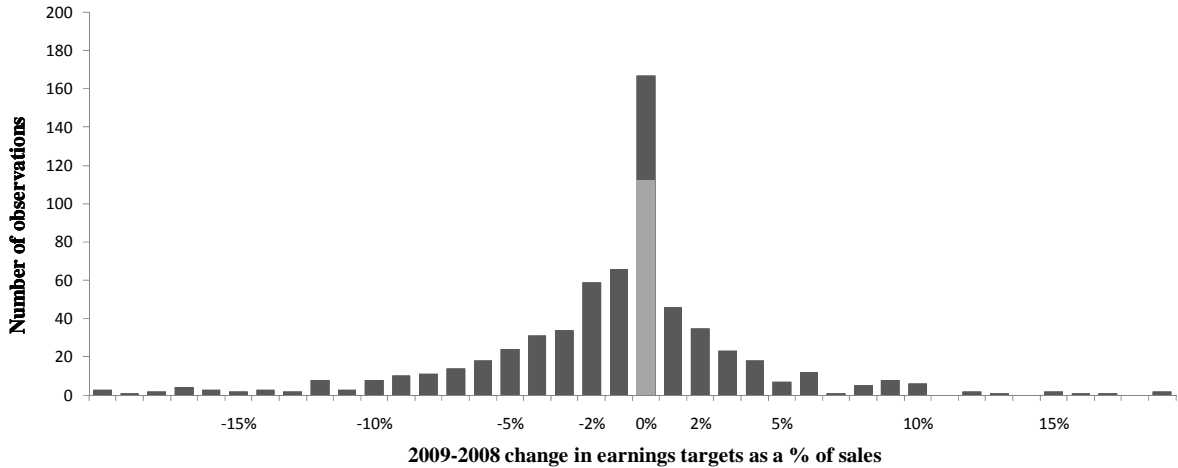
Earnings scaled by sales are plotted in 1% intervals (e.g., 0% stands for return on sales equal or greater than 0% and smaller than 1%). The total number of observations is 87 in both panels. Panel A shows 68 entities with 2004 actual earnings between -20% and 20% of sales. None of the 5 observations with actual earnings in the 0% interval reports exactly zero earnings. Panel B shows 73 entities with 2004 earnings targets between -20% and 20% of sales. The lighter bar at 0% represents 7 entities with 2004 earnings targets exactly equal to zero.

**FIGURE 3: Distribution of Earnings Target Revisions**

**Panel A: Differences Between 2009 Earnings Targets and 2008 Actual Earnings**



**Panel B: Earnings Target Changes from 2008 to 2009**



Earnings target changes relative to prior-year actual earnings (Panel A) and prior-year earnings target (Panel B) scaled by sales are plotted in 1% intervals (e.g., 0% stands for a change equal or greater than 0% and smaller than 1%). The light bar represents the number of entities with a target change exactly equal to zero. Panel A shows 624 entities with earnings target change relative to prior-year actual earnings between -20% and 20% of sales. The total number of observations is 666 out of which 236 entities (35%) set their 2009 earnings target lower than prior-year actual earnings, 359 entities (54%) set their target higher, and 71 (11%) entities set their target equal to prior-year actual earnings. Panel B shows 643 entities with 2009-2008 target changes between -20% and 20% of sales. The total number of observations is 666 out of which 320 entities (48%) reduced their 2009 earnings target relative to prior year, 234 entities (35%) increased their target, and 112 (17%) entities left their target unchanged.

**TABLE 1: Sample Characteristics**

Variable	<i>N</i>	Mean	Std. Dev.	25th Pct.	Median	75th Pct.
<b>Panel A: General Characteristics</b>						
PRIVATE_CO	666	0.73	0.44	0.00	1.00	1.00
PRIVATE_BU	666	0.07	0.25	0.00	0.00	0.00
PUBLIC_CO	666	0.11	0.31	0.00	0.00	0.00
PUBLIC_BU	666	0.09	0.28	0.00	0.00	0.00
SIZE	666	1,095	3,301	80.0	213	800
SALES	666	671	4,457	25.0	67.0	250
GROWTH	659	2.77	1.00	2.00	3.00	3.00
CAPITAL	663	1.98	1.26	1.00	2.00	2.00
NOISE	660	2.38	0.91	2.00	2.00	3.00
RETAIN	616	2.31	1.16	1.00	2.00	3.00
<b>Panel B: Compensation Plan Characteristics</b>						
SALARY	656	167,427	101,125	105,000	144,000	200,000
BONUS	595	49,770	83,293	6,000	24,000	50,000
LTBONUS	643	4,610	29,877	0	0	0
EQUITY	642	56,502	520,205	0	0	0
OTHER	635	6,698	46,437	0	0	0
B09FIN	581	61.17	37.34	33	70	100
B09NFIN	581	11.21	20.79	0	0	20
B09SUBJ	581	27.62	36.60	0	10	50

*PRIVATE\_CO*—indicator variable for private companies (corporate level); *PRIVATE\_BU*—BUs of private companies; *PUBLIC\_CO*—public companies (corporate level); *PUBLIC\_BU*—BUs of public companies; *SIZE*—number of employees (unlogged); *SALES*—annual sales; *GROWTH*—growth in sales (five-point Likert scale); *CAPITAL*—need for capital (five-point Likert scale); *NOISE*—the extent to which financial performance measures reflect management’s performance (five-point Likert scale); *RETAIN*—concerns about retention of executives (five-point Likert scale); *SALARY*—2008 annual base salary; *BONUS*—annual cash bonus; *LTBONUS*—long-term cash bonus plan; *EQUITY*—equity plan; *OTHER*—other compensation; *B09FIN*—expected percentage of 2009 bonus based on financial performance targets (if all targets are met); *B09NFIN*—expected percentage of 2009 bonus paid for meeting nonfinancial performance targets; *B09SUBJ*—expected percentage of 2009 bonus based on subjective evaluations.

**TABLE 2 : Summary Statistics on Actual and Targeted Performance**

Variable	<i>N</i>	Mean	Std. Dev.	25th Pct.	Median	75th Pct.
Y08ROS	666	6.03	15.63	0.50	4.04	10.53
T08ROS	666	8.80	13.41	2.00	5.50	11.32
T08FAIL	666	0.54	0.50	0.00	1.00	1.00
Y08-T08	666	-2.77	10.10	-3.00	-0.51	0.64
T09ROS	666	7.96	13.28	1.18	4.56	10.57
T09-T08	666	-0.84	9.53	-3.00	0.00	1.17
T09PR	594	48.52	36.84	5.0	50.0	80.0
T09PR_FIN	527	51.01	37.70	0.0	50.0	80.0
T09PR_NFIN	172	69.32	29.59	50.0	75.0	92.5

*Y08ROS*—2008 return on sales; *T08ROS*—2008 targeted return on sales; *T08FAIL*—indicator variable for entities that failed to meet 2008 earnings target; *Y08-T08*—performance relative to 2008 earnings target (difference between *Y08ROS* and *T08ROS*); *T09ROS*—2009 targeted return on sales; *T09-T08*—earnings target revision (difference between *T09ROS* and *T08ROS*); *T09PR*—the likelihood of meeting 2009 earnings targets; *T09PR\_FIN*—the likelihood of meeting 2009 other financial performance targets; *T09PR\_NFIN*—the likelihood of meeting 2009 nonfinancial performance targets.

**TABLE 3 : Earnings Targets and Target Difficulty, Descriptive Evidence**

<b>Panel A</b>		Average Likelihood of Meeting 2009 Targets					
2009 Target	T09PR	N	T09PR_FIN	N	T09PR_NFIN	N	
Loss	22.0%	46	34.7%	44	70.4%	13	
Zero	30.8%	32	34.3%	27	66.9%	8	
Profit	52.0%	516	53.6%	456	69.4%	151	
<b>Total</b>	<b>48.5%</b>	<b>594</b>	<b>51.0%</b>	<b>527</b>	<b>69.3%</b>	<b>172</b>	

<b>Panel B</b>		Average Likelihood of Meeting 2009 Targets					
2008 Target	T09PR	N	T09PR_FIN	N	T09PR_NFIN	N	
Loss	42.6%	33	50.0%	31	73.0%	15	
Zero	29.0%	24	36.8%	22	66.7%	6	
Profit	49.8%	537	51.7%	474	69.1%	151	
<b>Total</b>	<b>48.5%</b>	<b>594</b>	<b>51.0%</b>	<b>527</b>	<b>69.3%</b>	<b>172</b>	

<b>Panel C</b>		Average Likelihood of Meeting 2005 Targets				
2005 Target	T05PR	N	T05PR	N	T05PR_NFIN	N
Loss	57.5%	11			32.9%	4
Zero	31.3%	8			61.7%	3
Profit	64.2%	71			76.3%	17
<b>Total</b>	<b>60.4%</b>	<b>90</b>			<b>67.3%</b>	<b>24</b>

Observations are split into three groups based on the sign of earnings targets in 2009 (Panel A), 2008 (Panel B), and 2005 (Panel C). *T09PR*—the likelihood of meeting 2009 earnings targets; *T09PR\_FIN*—the likelihood of meeting 2009 other financial performance targets; *T09PR\_NFIN*—the likelihood of meeting 2009 nonfinancial performance targets; *T05PR*—the likelihood of meeting 2005 earnings target; *T05PR\_NFIN*—the likelihood of meeting 2005 nonfinancial performance targets.



**TABLE 4: Earnings Target Revisions and Past Performance, Descriptive Evidence**

Y08ROS	T08FAIL	Median Perf. Relative to 2008 Target		Median 2009 Target Revision		Median Likelihood of Meeting 2009 Target	
		Y08-T08	N	T09-T08	N	T09PR	N
Above-median (Y08ROS_LO = 0)	Met	1.33%	204	0.00%	204	70.0%	193
	Failed	-2.78%	129	-2.08%	129	50.0%	119
Below-median (Y08ROS_LO = 1)	Met	0.26%	101	0.05%	101	62.5%	82
	Failed	-2.72%	232	-0.42%	232	40.0%	200
Total		-0.51%	666	0.00%	666	50.0%	594

Observations are split into four groups based on different value combinations of *Y08ROS\_LO* (indicator variable for entities with 2008 return on sales below sample median) and *T08FAIL* (indicator variable for entities that failed to meet 2008 earnings target). *Y08-T08*—performance relative to 2008 earnings target (difference between actual and targeted return on sales); *T09-T08*—earnings target revision (difference between 2009 and 2008 targeted return on sales); *T09PR*—the likelihood of meeting 2009 earnings targets.

**TABLE 5 : OLS Models of Target Revisions**

Variable	Dependent Variable: T09-T08		
	Full sample (1)	Y08ROS_LO = 0 (2)	Y08ROS_LO = 1 (3)
Constant	0.000 (1.000)	0.000 (1.000)	0.000 (1.000)
T08FAIL	-0.003 * (0.056)	0.004 (0.621)	-0.003 (0.359)
Y08-T08	0.333 (0.155)	0.141 (0.542)	1.000 ** (0.023)
T08FAIL · Y08-T08	-0.200 (0.407)	0.716 ** (0.031)	-0.884 ** (0.046)
Pseudo R <sup>2</sup>	.030	.069	.055
Observations	666	333	333

All columns report results based on median regression estimations. Standard errors are estimated by means of bootstrap resampling. Corresponding two-tailed *p*-values are reported in parentheses. \*\*, \* indicate significance at the 5% and 10% levels, respectively.

*T09-T08*—earnings target revision (difference between 2009 and 2008 targeted return on sales); *Y08ROS\_LO*—indicator variable for entities with 2008 return on sales below sample median; *T08FAIL*—indicator variable for entities that failed to meet 2008 earnings target; *Y08-T08*—performance relative to 2008 earnings target (difference between actual and targeted return on sales).

**TABLE 6: Tobit Models of Earnings Target Difficulty**

	The likelihood of meeting 2009 earnings targets (T09PR)			
	(1)	(2)	(3)	(4)
Constant	62.181 (0.000)	23.739 (0.192)	23.234 (0.212)	28.808 (0.118)
PRIVATE_CO	0.618 (0.929)	14.689 ** (0.037)	15.732 ** (0.026)	13.374 * (0.057)
PRIVATE_BU	-10.536 (0.331)	-0.198 (0.985)	-0.600 (0.957)	-1.815 (0.867)
PUBLIC_BU	-7.550 (0.410)	7.195 (0.426)	3.918 (0.671)	6.496 (0.473)
T08FAIL	-21.718 *** (0.000)	-20.675 *** (0.000)		-21.320 *** (0.000)
Y08ROS_LO	-10.543 ** (0.034)		-10.441 ** (0.027)	-2.555 (0.593)
T09ZERO				-23.560 ** (0.015)
GROWTH		7.433 *** (0.001)	7.402 *** (0.002)	7.372 *** (0.001)
NOISE		-3.146 (0.236)	-4.261 (0.107)	-2.796 (0.292)
CAPITAL		-5.207 *** (0.004)	-5.604 *** (0.002)	-4.974 *** (0.005)
RETAIN		4.119 ** (0.031)	3.896 ** (0.046)	3.970 ** (0.037)
SIZE		4.124 *** (0.003)	3.615 ** (0.011)	3.859 *** (0.006)
Industry fixed effects	No	Yes	Yes	Yes
Sigma	52.845	47.321	48.160	47.005
R <sup>2</sup>	.059	.176	.149	.185
Observations	594	553	553	553

Two-tailed  $p$ -values (based on White heteroskedasticity-adjusted standard errors) are reported in parentheses. \*\*\*, \*\*, \* indicate significance at the 1%, 5%, and 10% levels, respectively. R<sup>2</sup> is the square of the correlation between actual and fitted values of the dependent variable (Wooldridge 2002).

*T09PR*—the likelihood of meeting 2009 earnings targets (0-100%); *PRIVATE\_CO*—private companies (corporate level); *PRIVATE\_BU*—BUs of private companies; *PUBLIC\_BU*—BUs of public entities (BU level); *T08FAIL*—indicator variable for entities that failed to meet 2008 earnings target; *Y08ROS\_LO*—indicator variable for entities with 2008 return on sales below sample median; *T09ZERO*—entities with 2009 earnings target equals zero; *GROWTH*—growth in sales; *NOISE*—the extent to which financial performance measures reflect management's performance; *CAPITAL*—need for capital; *RETAIN*—concerns about retention of executives; *SIZE*—log of the number of employees.

## APPENDIX—SURVEY QUESTIONS

### Likelihood of Meeting 2009 Earnings Targets

1. Given the current business environment, how likely is it that you will meet your 2009 bonus targets?

Bonus target refers to the performance level that earns you the full targeted bonus (as opposed to some minimum performance level below which no bonuses are paid or some maximum performance level at which bonuses may be capped).

1a. *T09PR*: Earnings target

1b. *T09PR\_FIN*: Other financial performance targets

1c. *T09PR\_NFIN*: Objective nonfinancial targets

### Actual and Targeted Earnings and Sales

2. Profitability of your [entity] in 2008 was approximately (in \$ millions)?

2a. Actual profit/loss

2b. Budgeted profit/loss

3. Budgeted profit/loss of your [entity] in 2009 is approximately (in \$ millions):

4. Sales of your [entity] in 2008 were approximately (in \$ millions):

### Design of Incentive Compensation

5. *SALARY*: Your annual base salary in 2008 was approximately

6. How much did you earn through the following compensation components for 2008 performance?

Fill in "0" if an incentive opportunity was offered but did not pay out in 2008; leave blank if no such incentive opportunity was offered.

6a. *BONUS*: Annual bonus

6b. *LTBONUS*: Payout from long-term (multi-year) cash bonus plan

6c. *EQUITY*: Value of equity-based awards

6d. *OTHER*: Other

7. If 2009 performance meets all targets, what percentage of [2009 annual cash] bonus will you earn based on

7a. *B09FIN*: Financial performance targets

7b. *B09NFIN*: Nonfinancial performance targets (e.g., market share, strategy milestones, customer satisfaction)

7c. *B09SUBJ*: Achievements evaluated subjectively (i.e., without objective targets)  
Other

### Sales Growth

8. *GROWTH*: How would you characterize the long-term (5-10 years) business prospects of your [entity]?

Expected annual growth in sales

Scale: Negative / 0-5% / 6-12% / 13-20% / More than 20% / N/A

### Need for Capital and Retention Concerns

9. To what extent do you agree with the following statements?

9a. *CAPITAL*: Our [entity] has adequate (access to) capital for the near term

9b. *RETAIN*: Retention of executives is the key objective of our 2009 bonus plan

Scale: Strongly agree / Somewhat agree / Neither agree nor disagree / Somewhat disagree / Strongly disagree / N/A

### Noise in Financial Performance Measures

10. *NOISE*: To what extent do financial performance measures reflect management's overall performance?

Scale: Not at all / Low / Medium / High / Very high / Don't know

### Size

11. *SIZE*: Number of employees in 2008?

### **Industry Categories**

12. Please describe your industry. Select from the list below

Manufacturing / Finance and Insurance / Wholesale Trade / Retail Trade / Transportation and Warehousing / Construction / Real Estate / Professional, Scientific and Technical Services / Hospitality and Food Services / Healthcare / Information and Media / Education / Arts, Entertainment and Recreation / Utilities / Mining and Oil & Gas / Agriculture, Forestry, Fishing and Hunting / Holding Company or Conglomerate / Other

### **Questions from 2005 Survey**

13. Sales of the entity in 2004 (in \$000)?
14. 2004 Actual profit/loss of your entity (in \$000)
15. 2004 Budgeted profit/loss of your entity (in \$000)
16. 2005 Budgeted profit/loss of your entity (in \$000)
17. 2005 Probability of meeting the bonus target (0-100%)