

# **Performance Targets in Annual Bonus Plans During a Recession: Survey Evidence on the Discontinuity in Earnings Distributions**

Raffi Indjejikian

*Ross School of Business, University of Michigan*

Michal Matějka \*

*Ross School of Business, University of Michigan*

Kenneth A. Merchant

*Leventhal School of Accounting, University of Southern California*

Wim A. Van der Stede

*London School of Economics and Political Science*

October, 2009

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\* Corresponding author: 701 Tappan St., Ann Arbor, MI 48109. E-mail: [matejka@umich.edu](mailto:matejka@umich.edu).

We gratefully acknowledge the support of the American Institute of Certified Public Accountants (AICPA) in this research project as well as a grant from the KPMG and UIUC Business Measurement Research Program. We are also grateful for comments and suggestions of workshop participants at the Boston College, Free University Amsterdam, KU Leuven, and University of Toronto.

# **Performance Targets in Annual Bonus Plans During a Recession: Survey Evidence on the Discontinuity in Earnings Distributions**

## **Abstract**

We examine how firms set performance targets in annual bonus plans in response to the recession of 2008–2009. Using survey evidence from 793 entities, we find a very high frequency of earnings targets set at zero and low frequency of loss targets suggesting that the widely documented discontinuity at zero in the distribution of reported earnings extends to ex ante earnings targets. Moreover, earnings targets set at zero are more difficult to achieve than other targets suggesting that firms are reluctant to set negative earnings targets and prefer instead zero targets even if losses are far more likely. Next, we show that the average difficulty of earnings targets has increased as a result of the recession. Relative to non-recessionary periods, a greater proportion of our sample entities fail to meet their 2008 earnings targets and the average ex ante likelihood of meeting 2009 targets is lower as well. Finally, we compare bonus weights on financial performance targets (as opposed to nonfinancial targets and subjective evaluations) in 2007 and 2009 bonus plans and find that the weight on financial performance targets increased significantly from 2007 to 2009.

*Keywords:* Choice of Performance Targets; Earnings Distributions; Losses.

## 1. 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 the decisions and activities of an organization's employees and form the basis for performance evaluation and compensation (Zimmerman 2008, Merchant and Van der Stede 2007). Prior literature suggests that how firms set performance targets for their managers and other key employees and how they revise them over time affect managers' incentives to increase firm value (e.g., Indjejikian and Nanda 2002, Leone and Rock 2002). Nonetheless, evidence concerning firms' target-setting practices is scant since researchers rarely have access to such inherently firm-specific, internal information (Murphy 2000).

In this study, we provide such evidence based on a proprietary survey of how firms set (ex ante) earnings targets in their annual bonus plans during the recessionary period of 2008–2009. The recession presents a unique opportunity to examine whether and how firms revise earnings targets in response to an adverse business environment. While firms may revise earnings targets downward in response to lower expectations of performance during the recession, theory predicts that firms benefit if they can credibly commit to relatively “sticky” standards that do not fully incorporate information from past performance (Acharya et al. 2000, Laffont and Tirole 1993).<sup>1</sup> Nevertheless, it is an empirical question whether such commitment is feasible in practice.

Our data on incentive plans and earnings targets of 793 entities derives from a survey of AICPA members working in industry administered during May–July 2009. We find that zero (or small positive) earnings targets are far more prevalent in our sample than negative earnings targets.<sup>2</sup> We conjecture that

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<sup>1</sup> In the absence of commitment, managers anticipate that current favorable performance will be fully incorporated into future targets and consequently have weaker ex ante incentives to exert effort (Weitzman 1980). Similarly, if current unfavorable performance is fully incorporated into future targets, executives have weaker incentives to take actions preventing unfavorable outcomes.

<sup>2</sup> Prior studies show that distributions of (ex post) reported earnings exhibit a similar discontinuity at zero in that zero or small positive earnings are much more likely than small negative earnings (Burgstahler and Dichev 1997, Hayn 1995). The extent to which this discontinuity can be attributed to firms' budgeting and ex ante target setting practices remains an open question (Huddart 2008, Matsunaga and Park 2001).

this reflects firms' commitments to avoid negative earnings targets in order to give their executives strong ex ante incentives to avoid losses. Such commitments imply that firms set earnings targets at zero even if losses are far more likely, which therefore renders zero targets abnormally difficult to achieve. Therefore, our hypothesis is that zero targets are more difficult to achieve than other earnings targets.

To test this hypothesis, we estimate a model of the ex ante likelihood of meeting 2009 earnings targets as function of indicator variables for earnings targets set at zero and various control variables. Our estimates imply that the average likelihood of meeting a zero 2009 earnings target is only 26%, significantly less than the average of 45% for other target levels. These results are consistent with our hypothesis that firms commit not to set targets below zero even if as a consequence targets become very difficult to achieve.

Further, we find that meeting or exceeding an earnings target is associated with a much higher chance of meeting next years' targets. Specifically, the ex ante likelihood of meeting 2009 earnings targets is 59% in entities exceeding their 2008 target; 54% in entities exactly meeting the target; but only 33% in entities that failed to meet their 2008 target. We also find that the likelihood of meeting 2009 earnings targets is positively associated with sales growth and perceived concerns about managerial retention and negatively associated with firms' short-term needs for additional capital.

We also predict that firms increase the emphasis they place on financial performance targets during a recession because short-term financial results become crucial for survival and thus more "congruent" with organization-wide goals (Datar et al. 2001, Ittner et al. 1997). Specifically, we compare 2009 bonus weights on financial performance targets (percentage of bonus expected to be paid for meeting financial performance targets as opposed to bonuses based on nonfinancial targets and subjective evaluations) with 2007 bonus weights collected by means of a similar survey prior to the recession. We find that 2009 bonus weights on financial performance targets are significantly higher than in 2007 by about 10 percentage points.

In another set of tests, we compare average target difficulty during the recession with target difficulty in non-recessionary periods (using data from our prior surveys) and find that the ex post

difficulty of 2008 targets as well as the ex ante difficulty of 2009 earnings targets is significantly higher. For example, 55% of our sample entities failed to meet their earnings target in 2008 as compared to 28% in 2006, 25% in 2005, and 22% in 2004 (based on a survey of the same population from 2007). We find similar results based on a comparison of ex ante difficulty of earnings targets using a small sample of 90 entities from a different survey in 2005. Specifically, the average ex ante likelihood of meeting 2009 earnings targets is 48% whereas the ex ante likelihood in 2005 was significantly higher at 60%.

Our study contributes to prior literature in several ways. First, our findings imply that firms are reluctant to set negative earnings targets and instead set targets at zero even if it renders the targets more difficult to achieve. More generally, our evidence suggests that firms set targets in a manner that does not fully incorporate information from past performance and supports the theory highlighting the benefits of contractual commitments to relatively “sticky” standards.

Second, a wealth of prior studies document a discontinuity at zero in distributions of (ex post) *reported* earnings (e.g., Dechow et al. 2003, Burgstahler and Dichev 1997, Hayn 1995). Our study shows that this phenomenon extends to ex ante (beginning-of-period) earnings expectations. One of the main challenges in the literature on earnings distributions is constructing a benchmark free of any earnings management to gauge what constitutes an abnormally high/low frequency of earnings (Durtschi and Easton 2009, Jacob and Jorgensen 2007, Kerstein and Rai 2007).<sup>3</sup> A unique strength of our study is that it does not rely on the assumption that the distribution of earnings targets is smooth at zero. Instead, we infer that the frequency of zero earnings targets is “abnormally” high from the ex ante difficulty of zero earnings targets relative to other earnings targets.

Third, our evidence provides further support for the prediction in prior literature that firms in financial distress increase the emphasis on financial performance targets (Matějka et al. 2009, Ittner et al.

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<sup>3</sup> For example, it is problematic to assume that, without earnings management, the distribution of earnings would be “smooth” at zero because the discontinuity can also arise as a result of selection biases, scaling issues, and/or regular properties of earnings reflecting conservatism in GAAP or taxation issues (Durtschi and Easton 2009, Beaver et al. 2007, Durtschi and Easton 2005, Dechow et al. 2003).

1997). Our results suggest that the recession of 2008–2009, which abruptly severed access to financing for many firms, is associated with an increase in bonus weights on financial performance targets as well as with an increase in the difficulty of earnings targets. We also find that the difficulty of earnings targets is highest for firms most concerned about short-term capital adequacy.

In the next section, we review prior literature and state our hypotheses. Section 3 discusses our data and empirical measures. Section 4 presents detailed descriptive evidence on targets and incentive plans during a recession and tests our hypotheses. The last section concludes and highlights potential limitations of our study.

## **2. Prior Literature**

### *2.1 Performance Targets in Incentive Contracts*

There are two broad streams of contracting literature that have implications for how firms set performance targets during a recession. First, there are studies on the choice of performance measures in incentive contracts. Prior theoretical work shows that the incentive weight on a performance measure increases if the measure is more “congruent” with firm value or less noisy (Datar et al. 2001, Lambert 2001, Banker and Datar 1989). Ittner et al. (1997) provide empirical evidence consistent with this theory by examining incentive weights on financial and nonfinancial performance targets in CEO bonus contracts. Closely related to our study, Ittner et al. (1997) predict that firms experiencing financial distress place more weight on short-term financial performance targets (and less weight on nonfinancial targets) because short-term financial results are crucial for survival. Matějka et al. (2009) find support for this prediction by examining the choice of performance targets in CEO bonus plans of loss-making firms. In particular, firms in financial distress are less likely to use nonfinancial performance targets even though other firms with persistent losses are more likely to do so.

Second, another stream of work pertaining to how firms set and revise performance targets focuses specifically on the implications of renegotiation in contracting. It is well known that long-term contracts and commitment weakly dominate a series of short-term contracts that allow for renegotiation of

contractual terms including performance targets (Laffont and Tirole 1993). This is because commitment not to reset targets strengthens ex ante incentives to exert effort. For example, if executives know that current favorable performance will be fully incorporated into future targets, then they have little incentives to exert effort (Weitzman 1980). Similarly, if current unfavorable performance is fully incorporated into future targets, then executives have weaker incentives to take actions preventing unfavorable outcomes.

Some studies also address the issue of renegotiation in the context of market downturns and stock option repricing. Saly (1994) shows that if poor performance is due to market-wide factors, then a downward adjustment of performance targets (repricing) is optimal because otherwise executives would bear unnecessary risk. Acharya et al. (2000) find that if poor performance is at least partly due to executive actions then the anticipation of target resetting can have a substantial negative effect on initial incentives. Thus, compensation contracts have to balance the strength of ex ante incentives (maximized by commitment not to reset targets in case of downturns) and ex post incentives conditional on a downturn (maximized by fully reflecting past performance in a revised target).

Several empirical studies are consistent with the notion that firms do not fully adjust targets for past performance. Early field work by Merchant (1989) and Merchant and Manzoni (1989) shows that in good economic times firms set performance targets to be achievable 80–90% of the time by an effective management team. The finding that managers rarely miss their performance targets implies that good performance in one period is not fully reflected in the next period's target. Leone and Rock (2002) find that earnings targets adjust to a large extent for good prior year performance but only to a limited extent for poor prior year performance (as measured by an unfavorable earnings budget variance). Bouwens and Kroos (2007) find similar evidence of asymmetric adjusting in that earnings targets respond less to poor prior year performance than to good performance. Anderson et al. (2009) suggest that poor performance can sometimes even lead to an increased performance target for the next period. Other studies provide evidence that performance relative to an earnings target is highly serially correlated, which also is

inconsistent with targets fully adjusting for past performance (Indjejikian and Matějka 2006, Indjejikian and Nanda 2002).

In summary, prior theoretical and empirical literature suggests that an adverse shock to firm performance may affect performance targets in incentive contracts in two ways. First, firms have to decide whether to adjust relative emphasis on financial versus nonfinancial performance targets. Second, firms also have to decide whether and how current poor performance should be reflected in performance targets for the next period. Prior studies provide support for limited updating of performance targets and the value of commitment in the design of incentive plans. However, prior work does not predict what type of commitment is feasible in practice and which specific target setting policies firms are likely to adopt.

## *2.2 Discontinuity in Earnings Distributions*

A large stream of accounting literature shows that reported earnings exhibit a discontinuity at zero in the sense that there is a relatively high frequency of zero or small positive earnings and a relatively low frequency of small losses (Degeorge et al. 1999, Burgstahler and Dichev 1997, Hayn 1995). Most prior studies interpret this phenomenon as evidence that firms manage earnings to avoid reporting losses. However, several studies emphasize that it is difficult to infer earnings management solely from the shapes of the frequency distributions of earnings since it is not clear what the distribution of “pre-managed” earnings looks like. For instance, Beaver et al. (2007) argue that asymmetric effects of income taxes and special items for profit and loss firms give rise to the discontinuity at zero even in the absence of any earnings management. Similarly, Durtschi and Easton (2009, 2005) provide evidence that the discontinuity at zero is at least partly due to scaling effects, selection biases, and omitted variables.

Two recent studies attempt to construct benchmarks for pre-managed reported earnings. Jacob and Jorgensen (2007) compare fiscal year earnings to earnings aggregated for annual periods ending at interim quarter-ends and confirm prior findings of abnormally high frequencies of zero or small positive earnings at fiscal year end. Kerstein and Rai (2007) compare firms that have close to zero earnings at the end of the first three quarters (and thus are likely to manage earnings upward to avoid small annual losses) to a control group of firms that are in close proximity in the earnings distribution after three

quarters (and thus have a similar probability of shifting a given length and direction during the fourth quarter). Both studies conclude that upward earnings management at least partly explains the discontinuity at zero.

Nevertheless, it is still an open question to what extent incentive contracting contributes to the discontinuity at zero largely because there is very little evidence on how firms set earnings targets. Burgstahler and Dichev (1997: 122) “do not consider earnings management theories related to explicit contracts because we have little evidence that such contracts are sufficiently common to explain the pervasive avoidance of earnings decreases and losses.” Instead, they argue that decision making of stockholders and other investors (e.g., using heuristic cutoffs at zero or S-shaped value functions as predicted by prospect theory) can account for sharply increasing benefits of earnings management around both zero changes and zero levels in earnings. Similarly, Guttman et al. (2006) note that there is little evidence that managers are paid bonuses explicitly for exceeding zero earnings and propose a rational expectations theory where the discontinuity at zero can arise as a result of a pooling behavior of privately informed managers who minimize the cost of manipulating accounting reports.

### 2.3 Hypotheses

We rely on the above literature when making predictions about how firms revise performance targets in response to a recession. First, we expect an increase in the emphasis on (short-term) financial performance since it is crucial for survival and thus more congruent with the firm goal in times of recession (Matějka et al. 2009, Ittner et al. 1997).

H1: *The recession has increased bonus weights on financial performance (as opposed to nonfinancial performance and subjective evaluations).*

Second, following prior studies suggesting that targets do not fully reflect past performance (Indjejikian and Nanda 2002, Leone and Rock 2002), we expect that financial targets are not fully adjusted for the effects of the recession and consequently become more difficult to achieve.

H2: *The recession has made earnings and other financial targets more difficult to achieve.*

Third, given that many firms expect losses during a recession, we can also examine whether ex ante (beginning-of-period) earnings targets exhibit a discontinuity at zero similar to the phenomenon documented for reported earnings (see Section 2.2). A contracting explanation for target setting policies that give rise to such a discontinuity is that firms optimally commit not to set earnings targets below zero (see Section 2.1). Credibility of such commitment is reinforced by the potentially significant “outrage” costs of dealing with negative publicity and/or shareholder ire incurred by firms that set negative earnings targets and pay bonuses while shareholders suffer losses (e.g., Bebchuk et al. 2002). If firms’ are reluctant to set earnings targets below zero, then we expect zero targets to be more difficult to achieve than other targets because many of the zero targets are set by firms realistically expecting losses.

H3: *Earnings targets set at zero are more difficult to achieve than other earnings targets.*

### **3. Research Design**

#### *3.1 Data Collection*

Our main dataset comes from a survey of AICPA members which took place during May–July 2009; i.e., in times of one of the worst economic recessions in recent memory. The timing of our survey was critical since during non-recessionary periods it is difficult to obtain sufficiently large samples of companies expecting negative earnings. The survey targeted AICPA members working in industry at the corporate and business unit (BU) level with one of the following titles: CEO, CFO, COO, controller, VP finance, president, managing director, or manager. Targeted members received an e-mail invitation to participate in an online survey in May 2009 which was followed by two e-mail reminders. This procedure led to a participation of 1,517 AICPA members in our survey.<sup>4</sup>

We exclude nonprofit entities as well as small entities with sales less than \$10 million (unless they have more than 20 employees or are part of a company with more than 100 employees).<sup>5</sup> Further

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<sup>4</sup> We cannot directly assess the response rate because the contact database of 35,439 AICPA members is much larger than the targeted population (due to imprecise titles, invalid e-mail addresses, outdated addresses of current and former AICPA members who retired or no longer work in industry as top executives, etc.).

<sup>5</sup> We use the term “entity” to collectively refer to either companies or their business units.

excluding observations with missing data on 2008 actual or budgeted earnings yields a final sample of 793 entities (the sample available for some analyses is smaller due to missing values on other variables). Most respondents (69%) are CFOs or other financial executives reporting directly to a CFO (20%); CEOs account for 8% of our sample.

### 3.2 Measures

*Ex ante likelihood of meeting 2009 earnings target (T09PR).* Our question asks: “Given the current business environment, how likely is it that you will meet your 2009 bonus targets?” It also provides additional explanation: “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).” *T09PR* is the percentage entered next 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 “Objective nonfinancial targets” (*T09PR\_NFIN*).

*Actual and targeted earnings and sales.* We use three questions to collect data on actual/budgeted earnings and sales. The first question, “Profitability of your [entity] in 2008 was approximately (in \$ millions)?,” collects data on actual and targeted earnings. The second question, “Budgeted profit/loss of your [entity] in 2009 is approximately (in \$ millions);,” collects data on 2009 earnings targets. Finally, the third question, “Sales of your [entity] in 2008 were approximately (in \$ millions);,” obtains 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>

In addition, we construct the following indicator variables: (i) *TR08ZERO*, *TR09ZERO* if respondents state zero as the 2008 and 2009 earnings target, respectively; (ii) *TR2ZERO* if both 2008 and

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<sup>6</sup> A fourth question, “Budgeted profit/loss in 2009 as a percentage of sales?”, was used as a validity check to make sure that respondents entered earnings and sales in millions as instructed. To economize on space, we did not separately ask for 2009 sales.

2009 earnings targets are set at zero; (iii)  $\Delta TRZERO$  (zero target change) if 2008 and 2009 earnings targets are the same; (iv)  $TR08EXCD$  (target exceeded) if 2008 actual earnings are strictly greater than the 2008 earnings target; and (v)  $TR08MEET$  (target just met) if actual 2008 earnings are equal to the earnings target.

*Design of incentive compensation.* We use several questions to collect information about compensation plans. (See Appendix for the exact wording of these and all the other questions discussed below.) In particular, we ask respondents about the main components of 2008 compensation including (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 ( $OTHER$ ). 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 targets for BU-level entities ( $B09FIN$ ), (b) non-financial performance targets ( $B09NFIN$ ), and (c) performance evaluated subjectively and other ( $B09SUBJ$ ).

We use several control variables that may be associated with the emphasis on financial performance targets (e.g., Matějka et al. 2009, Indjejikian and Matějka 2006, Ittner et al. 1997). *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”) to five (“More than 20%”). *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., higher values indicate that financial performance measures do not reflect managerial performance and thus are noisier. *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”). Finally, we use a proxy for size as measured by the log of the number of employees (*SIZE*) and indicator variables for 18 different industry categories (see question 12 in Appendix).

### *3.3 Supplementary Data Sources*

In addition to the main dataset described above, we also use two additional data sources from earlier projects. First, we use data on the ex ante target difficulty of 2005 financial and nonfinancial performance targets as well as 2004 actual and targeted earnings for a sample of 90 entities. Matějka et al. (2009) describe these data in more detail. Here, we briefly note that it was collected by means of an online survey of business school graduates of the Universities of Michigan and Southern California with five or more years of experience. The e-mail invitation solicited primarily participation of loss-making companies but invited profitable entities to participate as a control group. The sample of 90 entities excludes nonprofit entities and observations with missing data on 2005 earnings targets or the likelihood of meeting these targets. Of these 90 entities, 49% are private companies, 6% are BUs of private companies, 33% are public companies, and 12% are BUs of public companies. The largest proportion of the sample are CEOs (27%) but other respondents with a variety of titles (including CFO, controller, director, or finance or human resource managers) participated as well.

Second, we also use data on the design of 2007 annual bonus plans and performance relative to budget in the period 2004–2006 for a sample of 1,353 entities. The population of this 2007 study and the data collection procedures are very similar to the present study (see Indjejikian and Matějka (2009) for a detailed description). We use these data as a control group to examine how the recession affected the emphasis on financial performance targets.

## **4. Descriptive Evidence and Analysis**

### *4.1 Sample Characteristics and Compensation Plans*

Table 1 presents descriptive evidence on our sample entities. About 74% of the 793 entities are private companies, 6% are BUs of private companies, 11% are public companies, and the remaining 9% are BUs of public companies. The median number of employees is 170 (median sales are \$50 million). Long-term

sales growth is measured on a five-point Likert scale (*GROWTH*) and the average value of 2.78 is between responses two (representing 0–5%) and three (6–12%). Only about 6% of our sample expects negative growth suggesting that a large majority has favorable growth prospects. Similarly, only 8% of the sample strongly disagrees with the statement that they have adequate capital for the near term. The average value on the five-item scale (*CAPITAL*) is close to two representing response “Somewhat agree” to the statement that they have adequate capital.

Further, the average of *NOISE* is 2.4 suggesting that financial performance measures reflect managerial performance to a medium to high extent. The results for *RETAIN* show that retention is not the key objective of 2009 bonus plans for the majority of sample respondents (the average of 2.3 is between responses “Somewhat disagree” and “Neither agree nor disagree” with the statement that retention is a key objective). Finally (un-tabulated), the largest industry groups in our sample are manufacturing (22%) and finance and insurance (16%) companies; all other groups individually comprise less than 10% of the sample.

The median annual base salary in 2008 is \$140,000 while the median bonus is \$20,000 and median values for all other compensation components are zero. Although the average equity award is valued at almost \$50,000 (similar to the average bonus), it is largely driven by big equity awards in a small fraction of our sample. Only about 18% (6%) of our sample receive equity awards (payouts from long-term cash bonus plans). Thus, annual bonuses are the primary source of incentive compensation for a large majority of our sample entities, which is not surprising given that private companies or their BUs represent 80% of our sample.

#### 4.2 *Financial Performance Targets During a Recession*

H1 predicts that bonus weights on financial performance increased following the recession. Table 2 presents average ex ante 2009 bonus weights on financial performance targets (assuming performance meets all targets) as well as ex ante bonus weights from a similar survey in 2007 (see Section 3.3 on supplementary data sources). We find that our sample respondents expect 60% of their 2009 annual bonus to be based on performance relative to financial targets; 11% based on performance relative to

nonfinancial targets; and 29% is based on subjective evaluations. We conduct two types of tests to examine whether bonus weights on financial performance targets increased relative to pre-recession bonus weights from our 2007 survey.

First, we compare average 2007 and 2009 bonus weights on financial performance targets holding constant job title and organizational level by limiting our samples to CFOs in private companies (the largest group of respondents; 259 entities in the 2009 sample and 585 in 2007). We further control for industry affiliation, sales, and tenure by employing a propensity score matching algorithm (Leuven and Sianesi 2003). We find that the difference between 2009 and 2007 bonus weights on financial performance targets is 7.8% ( $p < .01$ ) in unmatched samples and 9.6% ( $p < .01$ ) in matched samples (estimating average treatment effect on the treated). Second, we calculate the difference between 2009 and 2007 bonus weights for a sample of 48 respondents which we can identify as participating in both surveys and which have not recently changed their jobs. Consistent with the previous result, the mean difference is 10.9% suggesting that bonus weights on financial performance measures increased from 2007 to 2009 ( $p = .08$ ).

H2 predicts that the recession also increased the difficulty of earnings and other financial performance targets. We present information on the difficulty of performance targets in Table 3. Panel A shows that the median 2008 return on sales is 3.9%, which is well below the median target of 5.4% and likely reflects the effect of the recession. Panel B further shows that 31% of entities exceeded their 2008 earnings targets; 14% exactly met their target; while 55% failed to meet the target. The proportion of entities that fail to meet their target is much lower in pre-recession periods (using data from our 2007 survey) compared to the 55% in 2008: 28% in 2006; 25% in 2005; and 22% in 2004. The difference from 2008 is highly significant ( $p < .01$ ) for each of the three periods.<sup>7</sup>

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<sup>7</sup> The average proportion of entities that meet or exceed their target during 2004–2006 is 75% which is consistent with 76% during 1994–1996 reported by Leone and Rock (2002).

Earnings targets for 2009 also appear very difficult to achieve. Panel A shows that the median targeted return on sales is somewhat lower than in 2008 at 4.6%. Despite the decrease in targeted return on sales from 2008 to 2009, Panel C shows that the average ex ante likelihood of meeting 2009 earnings targets is only 48% as compared to 70% for nonfinancial performance targets. Also, the 48% is significantly lower ( $p < .01$ ) than the 60% average likelihood of meeting 2005 earnings targets from our earlier sample of 90 entities. Since this difference could be partly due to differences in samples (and populations) under study, we also conduct a difference-in-differences test using achievability of nonfinancial performance targets as a benchmark. Although sample sizes become much smaller (191 in 2009 and 24 in 2005 due to elimination of entities that do not use at least one objective nonfinancial performance target), we still find that the difference between achievability of earnings vs. nonfinancial targets in 2009 (53% vs. 69%) is significantly lower ( $p = .02$ ) than the difference in 2005 (70% vs. 67%).

Combined, our evidence suggests that firms increased bonus weights on financial performance targets as well as the difficulty of these targets in response to the recession. This evidence is consistent with H1 and H2 and underscores the importance of financial performance targets during a recession.

### *4.3 Distributions of Actual and Targeted Earnings*

H3 predicts that earnings targets set at zero are more difficult to achieve than other targets. A necessary condition for empirically supporting this prediction is that distributions of earnings targets exhibit a large number of zero targets (so that our tests have enough power to reject the null hypothesis). Therefore, we first present distributions of 2008 actual and targeted earnings as initial evidence related to H3. Figure 1 shows that targeted earnings exhibit a striking discontinuity at zero. For example, only 7 entities had their 2008 ex ante earnings target in the interval marked “-2%” (earnings equal or greater than -2% of sales and smaller than -1%) and 11 entities in the interval just below zero (equal or greater than -1% and smaller than 0%). In contrast, 83 entities had earnings targets in the interval just above zero and 45 of these entities set the target exactly at zero. Actual 2008 earnings exhibit a similar pattern, however, the discontinuity at zero is more pronounced for targeted earnings. First, we use a z-test for differences in proportions and find that the proportion of targets set at zero (6% of 793) is significantly greater ( $p = 0.01$ )

than the proportion of actual earnings (3%).<sup>8</sup> Second, the proportion of targets just below zero (in the -1% interval) is significantly lower ( $p=0.07$ ) than the proportion of actual earnings below zero.

For comparison, Figure 2 also presents the distribution of 2004 actual and targeted earnings from our 2005 study. Although the number of observations is small, Figure 2 does qualitatively corroborate that the discontinuity at zero is more pronounced for ex ante earnings targets than for actual reported earnings. In particular, whereas the discontinuity at zero is quite pronounced for targets it is not noticeable for actual earnings. Also, in the case of earnings targets, 7 of the 15 observations in the 0% interval are exactly zero while none of the 5 observations with actual earnings just above zero is exactly equal zero.

Finally, following prior literature suggesting that the discontinuity at zero arises both in levels and changes of earnings, we also examine the distribution of changes in earnings targets (differences between 2009 and 2008 targets). Figure 3 shows that zero is indeed by far the most common target change occurring in 133 (19%) of the 710 observations with non-missing data. In contrast to the previous figures, we cannot compare target changes to actual earnings changes since we only have data on 2008 actual earnings.

#### *4.4 Achievability of Zero Earnings Targets*

The previous section provides robust evidence that the discontinuity at zero is apparent not only in (ex post) reported earnings but also in ex ante earnings targets. On its own, however, the evidence does not establish that firms are reluctant to set negative earnings targets as implied by H3. To provide preliminary evidence that the frequency of zero targets is abnormally high and the frequency of negative earnings targets abnormally low, we compare difficulty of targets set at zero with the difficulty of other targets. In particular, we divide our sample observations into five groups based on their 2008 earnings targets as follows: (i) large losses; (ii) small losses; (iii) zero earnings; (iv) small profits; (v) large profits (where (i) and (ii) are about equally sized groups and so are (iv) and (v)). We compare entities with zero earnings

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<sup>8</sup> For this test we only require non-missing data on 2008 earnings targets. Figure 1 additionally requires sales data which reduces the total number of observations with non-missing data to 775.

targets to entities with earnings targets “around” zero (i.e., groups (ii) and (iv) with small loss and small profit targets, respectively). We create the five groups based on 2008 earnings targets because it allows for a comparison of ex ante as well as ex post difficulty of earnings targets.

Table 4 shows that the group with zero earnings targets has the lowest percentage (22%) of entities that exceeded their 2008 target. This proportion is significantly lower ( $p=.05$ ) than in the group with small losses (43%) although only insignificantly lower ( $p=.32$ ) than in the group with small profits (29%). At the same time, the group with zero targets has an unusually high proportion of entities (33%) that exactly meet their target and report zero actual earnings for 2008. It is significantly higher than the proportions in the small loss (10%,  $p=.02$ ) and small profit (12%,  $p<.01$ ) groups. Combined, this evidence suggests that entities with zero earnings targets are different from others, however, it is not necessarily clear how to measure target difficulty from an ex post comparison of actual and targeted earnings.

The remaining columns of Table 4 present the average likelihood of meeting future targets. Here, we find that the group with zero earnings targets has by far the lowest ex ante likelihood of achieving their 2009 targets (30%). It is significantly lower than 49% ( $p<.01$ ) in the small profit group and also lower than about 43% in the loss groups ( $p=.12$  when combining both loss groups). The ex ante likelihood of meeting other financial targets exhibits a very similar pattern. In contrast, the ex ante likelihood of meeting nonfinancial targets is around 70% for the three groups targeting zero or positive earnings and somewhat higher for the loss groups.

Table 5 examines whether the ex ante likelihood of meeting 2009 targets varies also with respect to earnings target *changes*. We divide our sample into five groups with large or small decreases in targets, zero changes, and small or large increases from 2008 to 2009. In contrast to Table 4, we find that the ex ante likelihood of meeting 2009 targets is monotonically increasing in earnings targets changes—32% for the group with large decreases; 47% for small decreases; 51% for zero changes; 58% for (small and large) increases. This evidence is consistent with performance targets not fully reflecting past performance since targets are more difficult in entities that reduced the targets more. However, we do not find that keeping earnings targets at prior year’s level makes them abnormally difficult to achieve.

Finally, in Table 6 we use our small sample evidence from 2005 to corroborate that the ex ante likelihood of achieving zero earnings targets is abnormally low. We divide the sample of 88 entities (after excluding 2 observations with missing data) into three groups based on their 2005 earnings target and compare the ex ante likelihood of meeting the target: (i) entities targeting losses estimate the chance of meeting their targets at 57%; (ii) entities with zero earnings targets estimate the chance at 31%, and (iii) entities targeting profits estimate the chance at 64%. The difference between (i) and (ii) is marginally significant at  $p=.11$  and the difference between (ii) and (iii) is significant at  $p=.01$ , thus corroborating our earlier result that earnings targets set at zero have a low ex ante likelihood of being achieved.

The above evidence that the ex ante likelihood of meeting 2009 targets ( $T09PR$ ) is low when earnings targets are set at zero is consistent with H3 but does not control for various characteristics potentially associated with target difficulty. To provide more comprehensive tests of H3, we estimate the following Tobit model of the ex ante likelihood of meeting 2009 targets (taking into account that it has a probability mass both at 0% and 100%):

$$\begin{aligned}
T09PR = & \beta_{00} + \beta_{01} \cdot PRIVATE\_CO + \beta_{02} \cdot PRIVATE\_BU + \beta_{03} \cdot PUBLIC\_BU + \\
& + \beta_1 \cdot ZERO + \beta_2 \cdot TR08EXCD + \beta_3 \cdot TR08MEET + \beta_4 \cdot NOISE + \beta_5 \cdot GROWTH + \\
& + \beta_6 \cdot CAPITAL + \beta_7 \cdot RETAIN + \beta_8 \cdot SIZE + \sum_{j=1}^{17} \beta_{9j} \cdot INDUSTRY + \varepsilon
\end{aligned} \tag{1}$$

We test for the effect of targets (represented by  $ZERO$  in the model above) using various combinations of zero targets in 2008, 2009, or both years and zero changes in targets (i.e., variables  $TR08ZERO$ ,  $TR09ZERO$ ,  $TR2ZERO$ , and  $\Delta TRZERO$ ). We estimate different intercepts for each of the different entity types (public and private entities both at the corporate and BU level). We further control for prior budget performance using indicator variables for meeting and exceeding the 2008 earnings target ( $TR08MEET$  and  $TR08EXCD$ , respectively), informativeness of earnings ( $NOISE$ ,  $GROWTH$ ,  $CAPITAL$ ), and retention concerns ( $RETAIN$ ). Finally, we include controls for size and industry fixed effects.

Table 7 presents the results of estimating model (1) in four columns using different variables for the zero earnings effect. The first column shows that entities with zero earnings targets in 2008 have a

significantly lower ( $p=.07$ ) probability of meeting next year's earnings targets. Specifically, holding all other covariates at their average values, the expected likelihood of meeting the 2009 target is about 19% lower in entities with zero 2008 earnings target than in all other entities. The second column shows a similar effect for the same year's targets. In particular, if the target set at the beginning of 2009 was zero, then the expected likelihood of meeting the target is 23% lower ( $p=.02$ ) than the average likelihood for all other targets. The third column is similar to the second one except that it adds an indicator variable for zero target changes. The results suggest that zero target levels have greater explanatory power than zero target changes (the latter effect being insignificant,  $p=.22$ ). Finally, the fourth column shows that entities with two consecutive years of zero earnings targets have a 35% lower ( $p=.02$ ) likelihood of meeting their 2009 target than other entities.

Consistent with H3, the above results show that earnings targets set exactly at zero have a lower likelihood of being achieved compared to other targets. We interpret these results as evidence that firms are reluctant to set negative earnings targets and instead prefer to set targets at zero even if it makes such targets difficult to achieve. In addition, Table 7 presents several other interesting results which we discuss below.

First, we find that the likelihood of meeting earnings targets in private companies is on average 14% higher ( $p=.05$  based on the last column) than in public companies. Second, consistent with prior literature suggesting that budgetary performance is serially correlated (Indjejikian and Matějka 2006, Indjejikian and Nanda 2002), we find that exceeding an earnings target in one period is associated with a 26% higher ( $p<.01$ ) likelihood of achieving next period's target compared to entities that fail to meet their target. In addition, it is noteworthy that barely meeting a target has an effect of similar magnitude. Entities that exactly meet their 2008 earnings target have about 21% higher ( $p<.01$ ) likelihood of achieving 2009 targets compared to entities that fail to meet their target.

Further, we find that growth is associated with easier earnings targets ( $p=.01$ ), whereas short-term need for additional capital is associated with more difficult targets ( $p<.01$ ). One plausible explanation is that these variables proxy for informativeness of earnings and, at the same time, greater difficulty of

earnings targets increases the emphasis on earnings as opposed to nonfinancial and other performance measures (Ittner et al. 1997). This explanation would also predict a positive relation between noise in earnings and target achievability. We find the opposite result instead—earnings targets tend to be more difficult in entities where earnings are a poor reflection of managerial performance (*NOISE*;  $p=.03$ ). With the benefit of hindsight, we conjecture that this result arises because of a reverse causality—when targets are overly difficult to achieve, managers may perceive that failure to meet an earnings target is not reflective of their performance and score high on *NOISE*.

Finally, we find that retention concerns are strong predictors of target difficulty. In particular, earnings targets tend to be easier when firms are more concerned about retention of their executives ( $p=.01$ ). We also find that size is positively associated ( $p=.02$ ) with target achievability. It is not clear, however, how to interpret this result given that size may proxy for information asymmetry, diversification, and/or informativeness of earnings and other competing explanations.

#### 4.5 Meeting and Beating Earnings Targets

The results in Table 7 corroborate the evidence in Table 4 that zero earnings targets are difficult to achieve. In addition, Table 4 shows an unusually high proportion of entities with zero earnings targets that exactly meet their target. Here, we examine whether this finding holds after controlling for individual characteristics. Specifically, we estimate the following Logit model:

$$\begin{aligned}
 TRO8MEET = & \gamma_{00} + \gamma_{01} \cdot PRIVATE\_CO + \gamma_{02} \cdot PRIVATE\_BU + \gamma_{03} \cdot PUBLIC\_BU + \\
 & + \gamma_1 \cdot TRO8ZERO + \gamma_2 \cdot NOISE + \gamma_3 \cdot GROWTH + \gamma_4 \cdot CAPITAL + \gamma_5 \cdot RETAIN + \\
 & + \gamma_6 \cdot SIZE + \sum_{i=1}^{17} \gamma_{7i} \cdot INDUSTRY + \eta
 \end{aligned} \tag{2}$$

Given that *TRO8MEET* is realized at the end of 2008, we only consider *TRO8ZERO* for the effect of zero earnings targets (all the other target variables use information on earnings targets from 2009). The control variables are the same as in model (1).

Table 8 presents the results of estimating model (2). We find that private companies ( $p=.08$ ) and smaller companies ( $p<.01$ ) have a high likelihood of exactly meeting their 2008 target. Regardless of entity type, however, when an earnings target is set at zero, the likelihood of exactly achieving the target

and reporting zero actual earnings is unusually high ( $p < .01$ ). For example, predicted values based on the estimated coefficients in Table 8 suggest that an entity with mean characteristics and a non-zero earnings target has an 11% chance of exactly meeting the target as compared to 29% if the earnings target is zero. To the extent that barely meeting a target is reflective of a difficult target, the significant effect of *TROZERO* in Table 8 is consistent with H3. Nevertheless, we acknowledge that it is not clear how to infer target difficulty from ex post data on meeting or exceeding targets. Thus, our conclusions below rely primarily on the findings in the previous section.

## 5. Summary and Conclusions

In this study we examine how firms set performance targets in annual bonus plans of their executives and how such targets respond to a recession. We find that firms explicitly motivate their executives to reallocate effort towards improving short-term financial performance which is critical for survival during a severe recession. Specifically, we find that the percentage weight on financial performance targets in 2009 bonus plans is significantly higher than the pre-recession weights in 2007 bonus plans (that put correspondingly more weight on nonfinancial targets and subjective evaluations). We also find that earnings targets are significantly more difficult to achieve than in non-recessionary periods.

The main focus of our study is on how firms revise ex ante (beginning-of-period) earnings targets to reflect lower expectations of performance during the recession. Our findings show that firms are reluctant to set earnings targets below zero. First, we examine distributions of earnings targets and find a very high frequency of zeros and low frequency of losses. Thus, we show that the well-established discontinuity at zero in distributions of reported earnings extends to ex ante earnings targets (Burgstahler and Dichev 1997, Hayn 1995). Second, we find that earnings targets set at zero are significantly more difficult to achieve than other targets. This implies that the high frequency of earnings targets set at zero is not merely an artifact of regular properties of earnings or research method choices (Durtschi and Easton 2009, Beaver et al. 2007). Instead, our results imply that firms that are likely to incur losses consciously stretch their earnings targets to zero even if such targets become very difficult to achieve as a result.

More generally, our evidence is consistent with firms not fully adjusting performance targets for prior year's performance (Indjejikian and Nanda 2002, Leone and Rock 2002). Firms' reluctance to set negative earnings targets implies that poor performance and/or unfavorable business environments lower next period's earnings target but only to some extent (as targets rarely are set lower than zero). Similarly, our evidence suggests that good performance is not fully incorporated in next year's target either since exceeding an earnings target is associated with a much higher likelihood of meeting next year's target. In other words, good performance in one period is rewarded with slack in next period's target. Interestingly, executives barely meeting their target enjoy slack of a similar magnitude as those exceeding a target.

Collectively, our results provide support for the theory that commitment not to renegotiate performance targets improves contracting. Although the value of commitment is well established theoretically (Laffont and Tirole 1993), it is an open empirical question what type of commitment is feasible in practice and which specific target setting policies firms are likely to adopt. A key contribution of our study is pointing out that commitment in contracting can give rise to a discontinuity at zero in earnings target distributions. We view this as a first step in establishing a link between incentive contracting and the well-documented discontinuity in reported earnings.

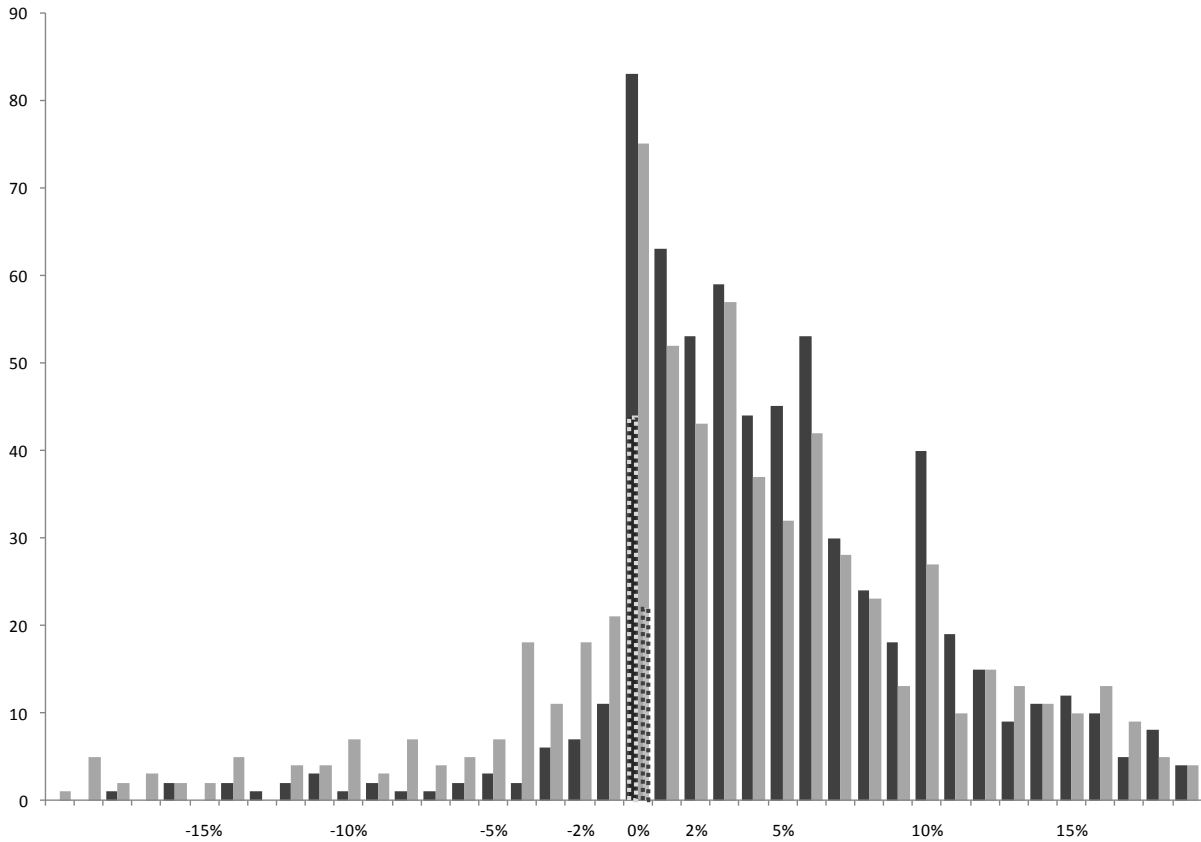
We acknowledge that our study has limitations. First, we rely on self-reported responses to our survey questions. This may give rise to measurement error particularly in case of potentially sensitive information such as actual or targeted earnings. To alleviate this concern, we guaranteed confidentiality to our respondents and did not collect data about their firm identity. Second, our sample includes a large number of smaller private companies. It is possible that our findings do not generalize to populations commonly considered in prior studies. Finally, given space constraints on our questionnaire, we could only collect a limited amount of information. We also cannot add publicly available data because of the anonymous participation of our respondents. Thus, we can alleviate concerns about potentially correlated omitted variables only to a limited extent. However, this limitation affects virtually all survey studies and we believe it is outweighed by our ability to collect data (e.g., on ex ante target difficulty) that has to date not been otherwise available.

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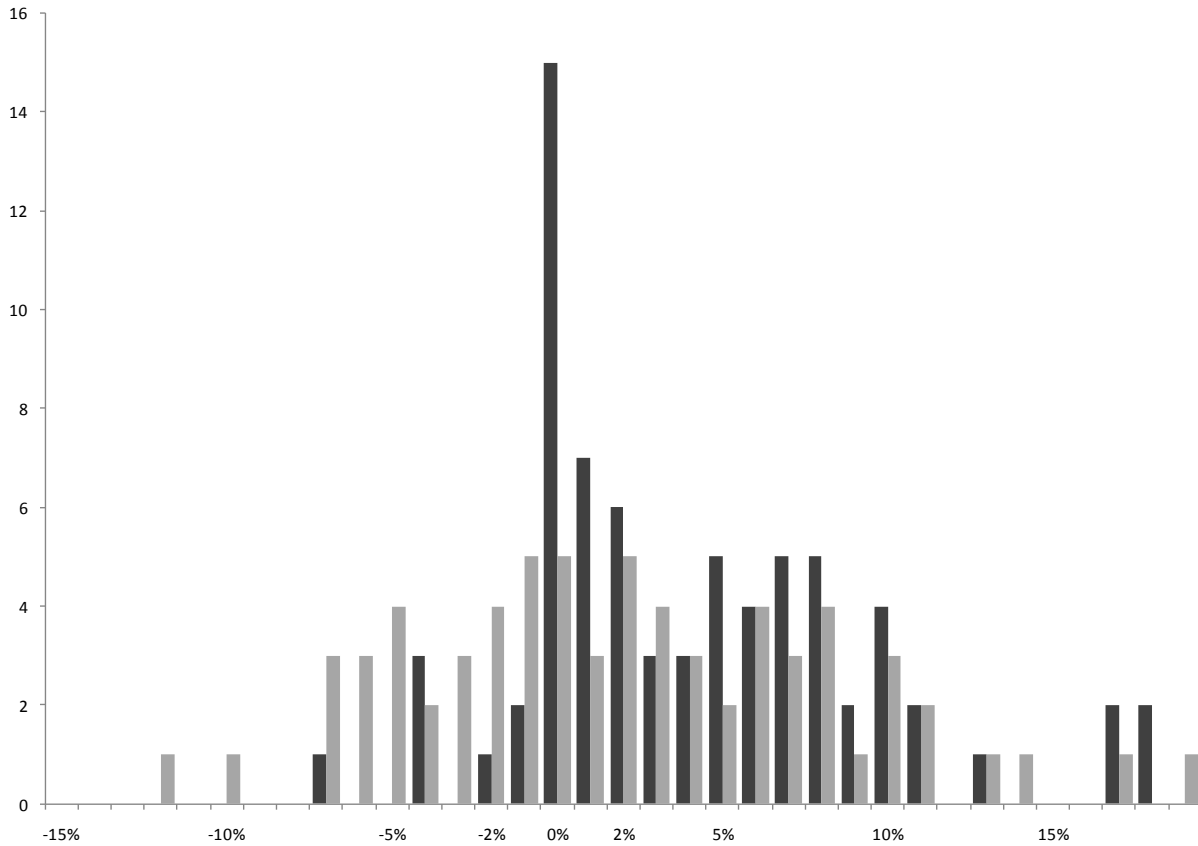
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**Figure 1**      **Distribution of 2008 Actual and Targeted Earnings**



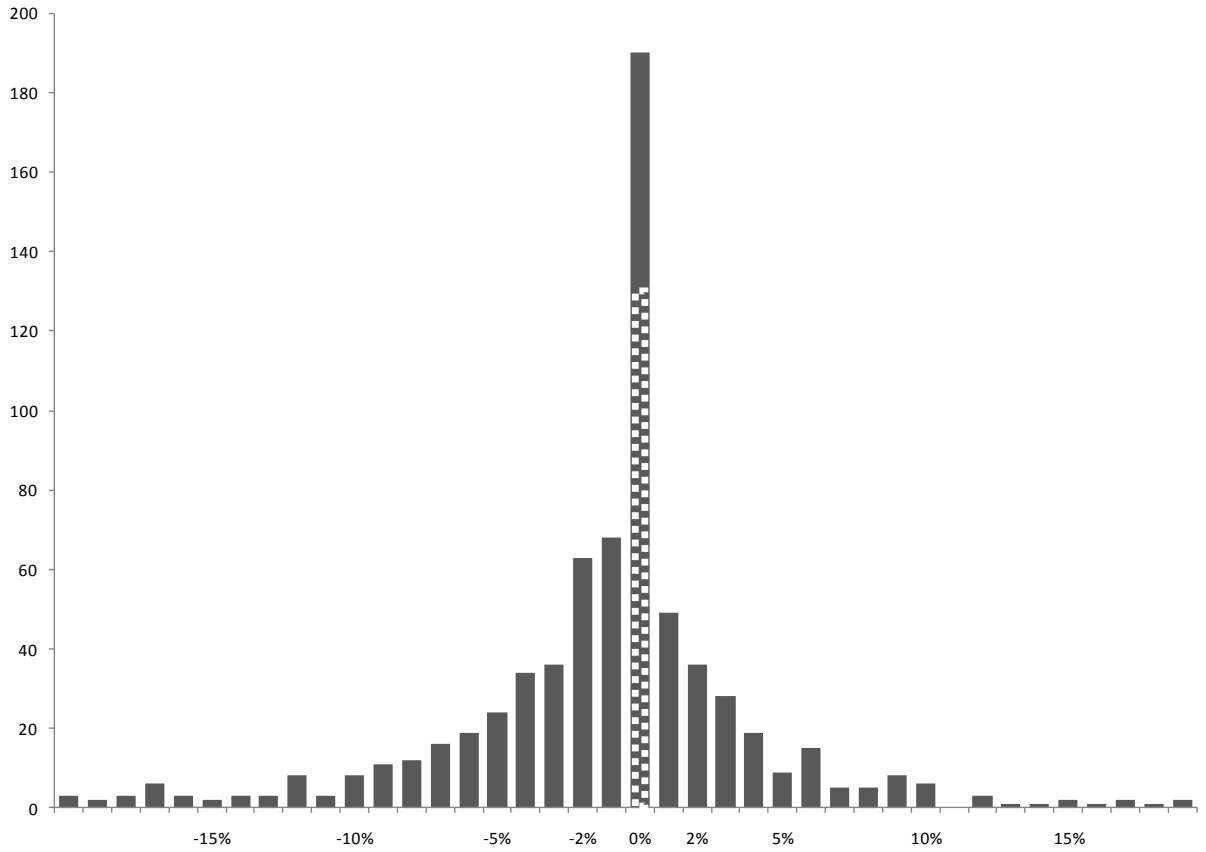
y-axis plots frequency (number of observations), x-axis plots return on sales in 1% intervals (e.g., 0% stands for returns equal or greater than 0% and smaller than 1%). Dark bars represent the number of entities with 2008 *earnings targets* falling in each of the return intervals. Light bars represent the number of entities with 2008 *actual reported earnings* falling in each of the return intervals. Dotted bars represent the number of entities with targeted/actual earnings exactly equal to zero (45/22 respectively). Total number of observations is 775 for earnings targets and 772 for actual earnings. Eliminating observations with returns less than -20% or more than 20% results into 652 (648) entities with non-missing targeted (actual) earnings plotted in Figure 1.

**Figure 2**      **Distribution of 2004 Actual and Targeted Earnings**



y-axis plots frequency (number of observations), x-axis plots return on sales in 1% intervals (e.g., 0% stands for returns equal or greater than 0% and smaller than 1%). Dark bars represent the number of entities with 2004 *earnings targets* falling in each of the return intervals. Light bars represent the number of entities with 2004 *actual reported earnings* falling in each of the return intervals. Of the 15 observations with earnings targets in the 0% interval 7 have targets exactly zero. None of the 5 observations with actual earnings in the 0% reports exactly zero earnings. Total number of observations is 88 for earnings targets and 89 for actual earnings. Eliminating observations with returns less than -20% or more than 20% results into 74 (70) entities with non-missing targeted (actual) earnings plotted in Figure 2.

**Figure 3**      **Distribution of Earnings Target Changes from 2008 to 2009**



y-axis plots frequency (number of observations), x-axis plots changes in return on sales in 1% intervals (e.g., 0% stands for a change equal or greater than 0% and smaller than 1%). Dark bars represent the number of entities with *earnings target change* (from 2008 to 2009) falling in each of the return intervals. Dotted bar represents 133 entities with target change exactly equal to zero. Total number of observations is 745; eliminating observations with target changes less than -20% or more than 20% of sales leaves 710 entities with non-missing targeted earnings in 2008 and 2009 plotted in Figure 3.

**Table 1 Entity Characteristics and Compensation Plans**

	N	Mean	Std. Dev.	25th Pct.	Median	75th Pct.
PRIVATE_CO	793	0.74	0.44	0	1	1
PRIVATE_BU	793	0.06	0.24	0	0	0
PUBLIC_CO	793	0.11	0.32	0	0	0
SIZE	793	1,133	4,083	65	170	650
GROWTH	782	2.78	1.03	2	3	3
CAPITAL	790	2.04	1.29	1	2	2
NOISE	786	2.42	0.93	2	2	3
RETAIN	731	2.32	1.17	1	2	3
SALARY	782	161,740	98,058	100,000	140,000	195,000
BONUS	697	47,035	80,261	5,000	20,000	50,000
LTBONUS	765	4,526	30,079	0	0	0
EQUITY	764	49,851	477,986	0	0	0
OTHER	755	6,240	43,129	0	0	0

*PRIVATE\_CO*—indicator variable for private companies (corporate level); *PRIVATE\_BU*—BUs of private companies; *PUBLIC\_CO*—public companies (corporate level); *SIZE*—number of employees (unlogged); *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.

**Table 2 Bonus Weights on Financial Performance Targets**

	N	Mean	Std. Dev.	25th Pct.	Median	75th Pct.
B09FIN	673	59.97	37.90	30	70	100
B09NFIN	673	11.10	20.78	0	0	20
B09SUBJ	673	28.93	37.31	0	10	50
B09FIN <sup>†</sup>	259	59.52	39.07	25	60	100
B09NFIN <sup>†</sup>	259	9.96	20.23	0	0	10
B09SUBJ <sup>†</sup>	259	30.52	38.46	0	10	50
B07FIN <sup>†</sup>	585	51.70	39.72	0	50	100
B07NFIN <sup>†</sup>	585	13.38	22.41	0	0	25
B07SUBJ <sup>†</sup>	585	34.92	40.67	0	20	75

*B09FIN*—expected percentage of 2009 bonus based on financial performance targets (if all targets are met); *B09NFIN*—expected percentage of 2008 bonus paid for meeting nonfinancial performance targets; *B09SUBJ*—expected percentage of 2008 bonus based on subjective evaluations. *B07FIN*, *B07NFIN*, and *B07SUBJ* are defined similarly for 2007 bonuses. <sup>†</sup> denotes subsamples of 2009 and 2007 data used for propensity score matching (CFOs of private corporate entities where information on sales, tenure, and industry affiliation is available).

**Table 3 Actual and Targeted Earnings**

	N	Mean	Std. Dev.	25th Pct.	Median	75th Pct.
<b>Panel A: Actual and Targeted Return on Sales</b>						
Y08ROS	772	5.21	17.95	0.25	3.88	10.00
T08ROS	775	8.54	14.98	1.75	5.39	11.43
T09ROS	749	7.78	14.89	1.00	4.55	10.91
<b>Panel B: Ex Post Difficulty of Earnings Targets</b>						
TR08EXCD	793	0.31	0.46	0.00	0.00	1.00
TR08MEET	793	0.14	0.35	0.00	0.00	0.00
TR08FAIL	793	0.55	0.50	0.00	1.00	1.00
TR06FAIL	1193	0.28	0.45	0.00	0.00	1.00
TR05FAIL	1193	0.25	0.43	0.00	0.00	0.00
TR04FAIL	1193	0.22	0.41	0.00	0.00	0.00
<b>Panel C: Ex Ante Difficulty of Earnings Targets</b>						
T09PR	700	48.29	37.00	0.00	50.00	80.00
T09PR_FIN	624	49.98	37.88	0.00	50.00	80.00
T09PR_NFIN	200	69.87	29.33	50.00	75.00	95.00
T05PR	90	60.41	31.09	40.00	75.00	80.00
T05PR_NFIN	24	67.26	31.15	50.00	80.00	90.00

*Y08ROS*—2008 return on sales; *T08ROS*—2008 targeted return on sales; *T09ROS*—2009 targeted return on sales; *TR08EXCD*—indicator variable for exceeding 2008 earnings target; *TR08MEET*—indicator variable for exactly meeting 2008 earnings target; *TR08FAIL*—indicator variable for failing to meet 2008 earnings target; *TR04FAIL*, *TR05FAIL*, *TR06FAIL*—indicator variables for failing to meet 2004, 2005, and 2006 earnings target, respectively (data from our 2007 survey, see Section 3.3); *T09PR*—the ex ante likelihood of meeting 2009 earnings target; *T09PR\_FIN*—the ex ante likelihood of meeting 2009 other financial performance targets; *T09PR\_NFIN*—the ex ante likelihood of meeting 2009 nonfinancial performance targets; *T05PR*, *T05PR\_NFIN*—the ex ante likelihood of meeting 2005 earnings target and 2005 nonfinancial performance targets, respectively (data from our 2005 survey).

**Table 4 Achievability of Earnings Targets in Different Target Groups**

2008 Target Group	2008 Earnings Relative to Target				Likelihood of Meeting 2009 Targets		
	Fail	Meet	Exceed	Total	T09PR	T09PR_FIN	T09PR_NFIN
Large Loss	15 51.7%	5 17.2%	9 31.0%	29 100%	22 43.6%	20 45.5%	8 76.9%
Small Loss	14 46.7%	3 10.0%	13 43.3%	30 100%	24 43.3%	24 52.7%	10 76.0%
Zero	20 44.4%	15 33.3%	10 22.2%	45 100%	35 30.1%	33 33.6%	7 67.9%
Small Profit	197 59.0%	39 11.7%	98 29.3%	334 100%	293 48.9%	255 50.1%	68 71.0%
Large Profit	182 54.0%	45 13.4%	110 32.6%	337 100%	311 50.2%	278 52.1%	100 68.8%
Total	428 55.2%	107 13.8%	240 31.0%	775 100%	685 48.2%	610 50.0%	193 70.2%

Observations are divided into five groups based on their 2008 earnings targets: large and small losses (about equally sized groups), zero earnings, small and large profits (about equally sized groups). “2008 Earnings Relative to Target” presents frequencies of failing to meet, exactly meeting, and exceeding 2008 earnings target in the five different groups. “Likelihood of Meeting 2009 Targets” presents the number of observations and averages of the following variables: *T09PR*—the ex ante likelihood of meeting 2009 earnings target; *T09PR\_FIN*—the ex ante likelihood of meeting 2009 other financial performance targets; *T09PR\_NFIN*—the ex ante likelihood of meeting 2009 nonfinancial performance targets.

**Table 5      Achievability of Earnings Targets in Different Target Change Groups**

2009–2008 Target Change	Likelihood of Meeting 2009 Targets		
	T09PR	T09PR_FIN	T09PR_NFIN
Large Decrease	153 32.1%	140 38.7%	45 66.3%
Small Decrease	154 46.5%	136 47.8%	36 76.3%
Zero Change	120 50.6%	103 50.2%	36 64.2%
Small Increase	122 58.2%	105 61.5%	31 77.3%
Large Increase	118 57.5%	110 55.1%	43 68.5%
Total	667 48.0%	594 49.8%	191 70.0%

Observations are divided into five groups based on the change in earnings targets from 2008 to 2009: large and small decreases (about equally sized groups), zero change, small and large increases (about equally sized groups). “Likelihood of Meeting 2009 Targets” presents the number of observations and averages of the following variables: *T09PR*—the ex ante likelihood of meeting 2009 earnings target; *T09PR\_FIN*—the ex ante likelihood of meeting 2009 other financial performance targets; *T09PR\_NFIN*—the ex ante likelihood of meeting 2009 nonfinancial performance targets.

**Table 6      Achievability of Earnings Targets in 2005 Sample**

2005 Target Group	Likelihood of Meeting 2005 Targets	
	T05PR	T05PR_NFIN
Loss	11 57.5%	4 32.9%
Zero	8 31.3%	3 61.7%
Profit	71 64.2%	17 76.3%
Total	90 60.4%	24 67.3%

Observations from the 2005 sample are divided into three groups based on their 2005 earnings target: loss, zero, and profit. “Likelihood of Meeting 2005 Targets” presents the number of observations and averages of the following variables: *T05PR*—the ex ante likelihood of meeting 2005 earnings target; *T05PR\_NFIN*—the ex ante likelihood of meeting 2005 nonfinancial performance targets.

**Table 7 Tobit Models of the Ex Ante Likelihood of Meeting 2009 Earnings Targets**

	(i)	(ii)	T09PR	(iii)	(iv)
Constant	16.770 (0.333)	22.884 (0.198)		23.738 (0.185)	19.888 (0.266)
PRIVATE_CO	12.628 * (0.056)	12.711 * (0.069)		12.861 * (0.066)	13.888 ** (0.047)
PRIVATE_BU	8.106 (0.431)	5.336 (0.613)		0.153 (0.988)	1.796 (0.862)
PUBLIC_BU	5.328 (0.519)	5.763 (0.508)		5.793 (0.505)	5.636 (0.515)
TR08EXCD	25.019 *** (0.000)	25.796 *** (0.000)		26.684 *** (0.000)	25.652 *** (0.000)
TR08MEET	22.352 *** (0.000)	22.558 *** (0.001)		20.516 *** (0.002)	20.540 *** (0.002)
TR08ZERO	-18.740 * (0.074)				
TR09ZERO		-23.165 ** (0.015)		-27.904 *** (0.004)	
ΔTRZERO				7.010 (0.218)	8.866 (0.137)
TR2ZERO					-35.617 ** (0.019)
GROWTH	5.453 *** (0.008)	5.182 ** (0.014)		4.911 ** (0.021)	5.307 ** (0.012)
CAPITAL	-6.242 *** (0.000)	-6.131 *** (0.000)		-6.079 *** (0.000)	-6.167 *** (0.000)
NOISE	-4.969 ** (0.048)	-4.936 * (0.051)		-5.510 ** (0.029)	-5.422 ** (0.032)
RETAIN	5.196 *** (0.003)	4.803 *** (0.007)		4.489 ** (0.011)	4.445 ** (0.012)
SIZE	3.474 *** (0.007)	3.051 *** (0.022)		2.956 *** (0.026)	3.102 *** (0.020)
Sigma	47.881	47.826		47.546	47.628
Pseudo R-squared	.026	.026		.027	.027
Observations	650	633		621	621

\*\*\*, \*\*, \* denotes significance at the .01, .05, and .1 level, respectively. Two-tailed *p*-values are reported in round brackets (based on White heteroskedasticity-adjusted standard errors). Industry fixed effects are included but not reported.

*T09PR*—the ex ante likelihood of meeting 2009 earnings target; *PRIVATE\_CO*—indicator variable for private companies (corporate level); *PRIVATE\_BU*—BUs of private companies; *PUBLIC\_BU*—BUs of public entities (BU level); *TR08EXCD*—indicator variable for exceeding 2008 earnings target; *TR08MEET*—indicator variable for exactly meeting 2008 earnings target; *TR08ZERO*—2008 earnings target equals zero; *TR09ZERO*—2009 earnings target equals zero; *ΔTRZERO*—earnings target change (from 2008 to 2009) equals zero; *TR2ZERO*—earnings targets both in 2008 and 2009 equal zero; *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); *SIZE*—log of the number of employees.

**Table 8      Logit Model of the Likelihood of Exactly Meeting  
2008 Earnings Target**

	TR08MEET
Constant	-1.871 * (0.066)
PRIVATE_CO	0.965 * (0.083)
PRIVATE_BU	0.665 (0.354)
PUBLIC_BU	0.836 (0.214)
TR08ZERO	1.179 *** (0.004)
GROWTH	0.024 (0.833)
CAPITAL	-0.125 (0.178)
NOISE	0.205 (0.112)
RETAIN	0.032 (0.747)
SIZE	-0.237 *** (0.004)
Pseudo R-squared	.083
Observations	698

\*\*\*, \*\*, \* denotes significance at the .01, .05, and .1 level, respectively. Two-tailed *p*-values are reported in round brackets (based on White heteroskedasticity-adjusted standard errors). Industry fixed effects are included but not reported.

*TR08MEET*—indicator variable for exactly meeting 2008 earnings target; *PRIVATE\_CO*—indicator variable for private companies (corporate level); *PRIVATE\_BU*—BUs of private companies; *PUBLIC\_BU*—BUs of public entities (BU level); *TR08ZERO*—2008 earnings target equals zero; *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); *SIZE*—log of the number of employees.

## Appendix—Survey Questions

### *Design of Incentive Compensation*

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

2. 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.

2a. *BONUS*: Annual bonus

2b. *LTBONUS*: Payout from long-term (multi-year) cash bonus plan

2c. *EQUITY*: Value of equity-based awards

2d. *OTHER*: Other

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

3a. *B09FIN*: Financial performance targets

3b. *B09NFIN*: Nonfinancial performance targets (e.g., market share, strategy milestones, customer satisfaction)

3c. *B09SUBJ*: Achievements evaluated subjectively (i.e., without objective targets)  
Other

### *Ex ante likelihood of meeting 2009 earnings target*

4. 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).

4a. *T09PR*: Earnings target

4b. *T09PR\_FIN*: Other financial performance targets

4c. *T09PR\_NFIN*: Objective nonfinancial targets

*Actual and Targeted Earnings and Sales*

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

5a. Actual profit/loss

5b. Budgeted profit/loss

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

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

*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 factors outside management's control?

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 2007 Survey*

13. If performance exactly meets targets on all measures, what percentage of your 2007 annual bonus do you expect to be based on the achievement of

13a. Financial performance targets

13b. Nonfinancial performance targets

13c. Achievements evaluated subjectively (i.e., without pre-set targets)

14. How well did the firm perform in the last three years relative to the budget?

14a. 2006 performance

14b. 2005 performance

14c. 2004 performance

Scale: Far below budget / Below Budget / About the same as budget / Above budget / Far above budget / N/A

*Questions from 2005 Survey*

15. Sales of the entity in 2004 (in \$000)?

16. 2004 Actual profit/loss of your entity (in \$000)

17. 2004 Budgeted profit/loss of your entity (in \$000)

18a. 2005 Budgeted profit/loss of your entity (in \$000)

18b. 2005 Probability of meeting the budget (0-100%)

19a. 2005 Budgeted performance on this non-financial measure

19b. 2005 Probability of meeting the bonus target (0-100%)