Are long-term earnings targets forecasts?

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Abstract

This paper examines whether earnings targets used in long-term performance-based compensation plans predict future performance. Using a sample of targets from long-term grants made to CEOs from 2007 to 2011, I find that earnings targets predict earnings outcomes, suggesting that firms rely on their internal budgeting at the time of grant to set targets. Later, upon disclosure, long-term performance targets provide new information to outsiders about future cash flows. I further find analysts revise their forecasts according to the information disclosed in targets. These findings are robust to variation in cross-sectional factors such as monitoring, agency conflicts, financial reporting concerns, and the availability of traditional management forecasts. To my knowledge, this analysis is the first to document a forecasting role for the long-term targets used in earnings-based compensation plans.

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1. Introduction

This paper examines whether earnings targets used in long-term performance-based compensation plans predict future performance. Before FAS 123R required options expensing, time-vesting restricted stock and options dominated executive pay packages. Both the value of these awards at grant date and their ultimate payouts were based on objective, market-based measures of price performance. Now, long-term pay is increasingly in the form of accounting-based performance awards (Li and Wang, 2016; Bettis et al, 2016; Core and Packard, 2017). These awards pay according to internally-generated earnings or other accounting benchmarks rather than market expectations of price. To the extent that long-term accounting targets reflect a firm's internal budgeting, I predict they can be informative about long-term future performance.

The goal-setting literature (e.g., Locke, et al., 1981; Merchant and Manzoni, 1989), along with conventional wisdom, suggests targets must be achievable in order to provide incentives. The range of achievability is best known to the firm, as it depends on projections of revenue growth, expenses, and planned investments. Murphy (2000) suggests targets are equivalent to firm expectations; i.e. they are designed to be achieved with 50 percent probability. Indeed, firms amortize compensation expense for long-term accounting-based awards at target payout levels, suggesting target-level performance is the firm's best expectation of actual performance.

Still, plenty of evidence suggests targets do not reflect internal forecasting so directly. Research argues for targets that are expected to be achieved with probabilities both well below and well above 50 percent. Some argue that more difficult targets lead to higher performance outcomes (Stedry and Kay, 1966; Locke, 1968), while other research suggests easier targets provide benefits such as improved reporting and resource allocation (Merchant and Manzoni, 1989). Furthermore, firms use a variety of bases, including past performance and external benchmarks such as analyst

forecasts, to set targets (Murphy, 2000; Martin et al., 2017). These benchmarks may only be weakly related to private, forward-looking budgeting. Alternatively, compensation targets may not be used to incentivize performance at all. Section 162(m) of the tax code, which limits deductibility of non-performance-based pay, provides a tax incentive to condition awards to top executives on performance targets. "Easy" targets used to disguise cash or other lower-risk compensation are not likely to be related to firms' internal projections. Taken together, the arguments for and against targets' ability to forecast performance amount to an empirical question that I investigate in this paper.

An important feature of my analysis is that I focus on long-term targets. Previous studies on compensation targets almost exclusively consider annual incentive, i.e. bonus, plans. I argue that long-term targets provide a better setting to analyze the role of internal forecasting in determining targets. Conceptually, in the long term there is a wider disparity between what the firm expects and what outsiders can feasibly forecast. The firm has information about the nature and timing of its future investments, personnel decisions, or other strategic actions that determine performance in the long run, but may not be public. As a result, management's long-term projections are especially valued by outsiders. More practically, while both long- and short-term targets are disclosed in the annual proxy, the timing of the proxy disclosure (3-4 months following fiscal year-end) means short-term targets are disclosed *ex post*, or after the fiscal year performance period has concluded. The performance period is still ongoing when long-term targets are made public. Thus, the information in long-term targets is potentially useful to outsiders as a forecast once the proxy is filed.

A second purpose of this paper is to determine whether firms, in effect, provide long-term guidance to market participants when they disclose long-term targets in the annual proxy. While

they may both contain forecasting information, long-term performance targets are distinct from traditional guidance in several ways. First is the horizon. While guidance usually projects out to one or two quarters, long-term compensation targets refer to performance years into the future. Second, compensation benchmarks have direct contractual and accounting consequences, in the form of executive compensation payouts and estimated expenses, which other guidance disclosures do not carry. Last, while targets are typically set in the first months of a fiscal year, they are not usually disclosed until much later, when the proxy pertaining to that fiscal year is filed. For outsiders hoping for a glimpse into the firm's internal projections, the target is somewhat stale. Even if firms set targets to perfectly correspond to expectations of future performance at the time of grant, by the time of disclosure the information could be irrelevant to outsiders.

Focusing on long-term performance plans, I test a) whether targets are a function of internal budgeting at the time they are set and b) whether they provide forward-looking projections to outsiders upon disclosure. My analysis uses target-level data from ISS Incentive Lab. The targets in my sample are granted to CEOs as part of long-term performance-vesting cash, restricted stock, and option awards over the years 2007-2011. I focus my sample on earnings-based targets (e.g. EPS, ROA) because they are both ubiquitous (relative to other types of benchmarks) and relevant to predicting future cash flows. I further focus on targets that pertain to the third year of a multi-year plan. I use third-year targets because three years is the most common performance horizon in my sample. Also, when three-year targets are disclosed, the performance period end date is still almost two years away.

In my setting, I do not observe the internal budgeting process or the process used to set targets. I therefore analyze the relation between long-term targets and internal forecasts by examining the relation between targets and external, e.g. analyst, forecasts. Absent *any* forward-

looking information, targets will be unrelated to consensus analyst forecasts. Absent any *private* forward-looking information, differences between targets and analyst forecasts will be unrelated to future performance outcomes. Instead, I find that, as of the award grant date, targets and consensus analyst forecasts are significantly correlated and that a one standard deviation positive difference between targets and the analyst consensus predicts a mean 0.11 standard deviation positive earnings surprise. By showing long-term targets predict future performance, these results suggest firms rely on their internal budgeting processes to set long-term targets.

To examine whether targets actually convey relevant forecasting information to outsiders, I compare the target to the analyst expectation at the time of the proxy filing, as opposed to the time of grant. Over the more than year-long period between grant date and disclosure in the annual proxy, any private information contained in targets when they were set may have already been released through guidance or other disclosures. I rely on the updated consensus analyst forecast to capture information from prior disclosures. If all of the private information contained in targets is public as of the proxy filing, I expect differences between targets and updated analyst forecasts will be unrelated to the earnings surprises that occur two years post-disclosure. Consistent with some but not all of the private information having been disclosed, I find that targets continue to predict future earnings surprises at the time of disclosure with a reduced magnitude. A one standard deviation positive difference between targets and the updated analyst consensus predicts a mean 0.06 standard deviation positive earnings surprise. Even a year after they are set, targets provide new information to outsiders about future earnings.

Having established that targets predict performance, I next examine whether analysts adjust their forecasts according to target disclosures. I find that they do. From the month preceding to the month following the proxy disclosure, the consensus analyst forecast adjusts by a 0.04 standard

deviation for a one standard deviation difference between the target and analyst forecast at the time of disclosure. These results not only support the role of long-term targets as forecasts, but also suggest analysts use compensation disclosures to make their projections.

Finally, for robustness, I examine whether my main results, showing the predictive nature of targets at the time of grant, hold when I control for potentially confounding cross-sectional factors. The factors I consider may relate to either the forecast content of targets, or my ability to measure such content, and to future earnings surprises. These include agency conflicts, monitoring, financial reporting concerns, and long-range guidance practices. My results are robust to including proxies for these characteristics as controls, and I find no significant interactive effect between their proxies and the relation between targets and future earnings.

This research is important to a broad class of researchers in accounting and finance. As long-term earnings-based plans have become more prevalent, compensation research has progressed with little knowledge of how long-term targets are designed or how they differ from short-term targets. Prior research finds short-term targets are set according to factors such as short-term analyst projections (Martin et al., 2017) and recent performance (Indjejikian et al., 2014). In contrast, by considering long-term targets I find evidence that targets are predictive of future performance, consistent with targets reflecting a firm's internal budgeting. This finding also suggests that long-term targets provide actual incentives, rather than mere window dressing.

A second contribution is that my findings show long-term targets are, in essence, a two- to three-year-ahead forecast, whereas management forecasts typically forecast only a few quarters ahead. These long-range forecasts can be used to estimate measures that rely on accurate long-term projections, such as cost of capital or target prices. As a measure of budgeting quality, long-

term targets can help researchers to assess more accurately cross-sectional characteristics such as investment efficiency or internal information flows.

This paper further highlights the joint nature of compensation design and voluntary disclosure (see Core, 2001). An important implication of long-term targets as forecasts is that targets have the potential to either align or conflict with other forward-looking disclosures. In related work (Packard, 2017), I show that traditional disclosure costs determine whether firms disclose long-term targets in a forward-looking manner. Given that targets are disclosed well before most firms issue guidance for the same period, it raises the question of whether targets determine the availability or content of future guidance. Likewise, assuming firms are aware that they disclose forecasts with their long-term targets, the target's expectation signal may directly affect the terms and the disclosure of the incentive contract. All in all, the findings in these two papers suggest that disclosure and compensation decisions are comingled; specifically, that the design and disclosure of long-term accounting-based plans are a part of the firm's overall disclosure policy.

The remainder of this paper proceeds as follows. Section 2 provides background information and a review of the relevant literature. Section 3 develops and presents my hypotheses. Section 4 details my research design and Section 5 the data and sample selection. Section 6 presents the results of my primary analysis and Section 7 has results of robustness tests. Section 8 concludes.

2. Background and Literature Review

In late 2005, FAS 123R eliminated the zero-expense accounting advantage of executive stock options. Subsequently, the majority of firms reduced their use of time-vesting stock options

(Hayes et al., 2012) and increasingly granted cash, restricted stock, or options with performance conditions attached (Li and Wang, 2016; Bettis et al, 2016; Core and Packard, 2017). By 2012, according to Bettis et al. (2016), a majority of firms were conditioning grants to executives on performance objectives. Concurrently, in 2006 the Securities and Exchange Commission updated its compensation disclosure requirements with the aim of increasing transparency of executive pay for performance. The new rules required a Compensation Discussion and Analysis ("CD&A") section, in which firms were to include specific performance target levels used to arrive at payout amounts. Thus, at the same time that more firms began to use earnings or other accounting-based targets in their long-term incentive plans, they were required to disclose much more about them.

Despite the CD&A objectives, not all firms disclose performance targets. As stated in Instruction 4 to Item 402(b) of Regulation S-K, registrants are not required to provide "specific quantitative or qualitative performance-related factors… involving confidential trade secrets or confidential commercial or financial information, the disclosure of which would result in competitive harm for the registrant." Presumably due to such competitive harm, almost half (or 44%) of targets are not disclosed. In addition to the choice of whether to disclose targets, firms also exhibit discretion regarding when to disclose them. While most firms choose to disclose targets in the proxy following the year in which the performance target was decided, but before the end of the performance period, some firms (around 20%) choose to wait until after the multi-year performance period is over (Packard, 2017).

Those firms that disclose their targets in an *ex ante* fashion, may inadvertently disclose details about earnings expectations. The following is a footnote to the Grants of Plan-Based Awards table included in UnitedHealth Group Incorporated's proxy filed April 30, 2007. In it, the

company states that it has set a 15% EPS growth target for the second and third years of its three-year plan.

> *In 2006, upon recommendation by management, the Compensation Committee approved a minimum EPS goal of $8.57 for the 2006-2008 performance period that must be achieved before the target amount shown above becomes earned and payable. The $8.57 EPS goal was 85% of the sum of the EPS guidance we provided to investors for the first year of the performance period and EPS figures for the second and third years of the performance period that represent target annual EPS growth of 15%. In 2009, the Committee will determine whether or not the performance goal has been achieved.*

Similarly, Nu Skin Enterprises, Inc., in its proxy filing dated June 24, 2014 describes the payout policy for one of its 2013 executive grants using specific performance targets.

> *Two equal tranches become eligible for vesting based on the achievement of earnings per share performance levels, measured in terms of diluted earnings per share excluding certain predetermined items. The portion of the first tranche that becomes eligible for vesting is determined by earnings per share achieved in 2013, ranging from 100% for earnings per share of $3.95 to 50% for earnings per share of $3.70. The portion of the second tranche that becomes eligible for vesting is determined by earnings per share achieved in 2014, ranging from 100% for earnings per share of $4.50 to 50% for earnings per share of $4.15.*

Some firms acknowledge the forecasting nature of target disclosures. PVH Corp., in its May 16, 2014 proxy, provides a disclaimer after explicitly providing threshold, target, and maximum EPS targets: "These goals are presented solely for the purpose of describing our compensation program. They are not management's estimates of results or other guidance. Investors should not apply these goals to other contexts." This research, in part, asks whether it is valuable for outsiders to use these targets, beyond the compensation context, to make their performance projections.

My paper relates to previous research on the determinants of performance targets. Past research has long thought of optimal budgets in terms of difficulty, or achievability. While the management accounting literature had for years recommended more difficult targets as optimal for performance outcomes, Merchant and Manzoni (1989) find managers prefer to set targets at more

achievable levels. In their field study, 89 percent of surveyed managers said they hoped their targets would be met with 75 percent or more probability. Managers cite more consistent performance, better reporting, and efficient resource allocation as reasons to use achievable targets.

As Murphy (2000) describes in his sample of annual bonus plans, both budgeting and past performance represent the most common bases for setting target levels. Past performance as a basis in the short-term budgeting or compensation context has been examined quite extensively (e.g. Leone and Rock, 2002; Bouens and Kroos, 2011; Indjejikian et al., 2014; Aranda et al., 2014). Some fairly recent empirical papers have looked at the role of external forecasts or benchmarks in setting annual targets. Kim and Yang (2014) analyze short-term EPS targets vis-à-vis analyst forecasts and show that bonus targets are typically set below analyst forecasts. Armstrong et al. (2017) show firms are more likely to consistently meet external analyst forecasts than their internal annual bonus targets. Martin et al. (2017) examine a scenario where compensation committees set targets based on analyst forecasts. They show that managers, in order to obtain lower targets, use guidance to walk down analyst projections in advance of the compensation committee meetings where performance targets are determined.

Since internal budgets are largely private, we know relatively little about how they get incorporated into CEO and other executive compensation targets. Bouwens and Kroos (2016) find in their analysis of a large retailer that when forward-looking *non*-financial information is used to set targets, performance improves and targets are more accurate. In terms of long-term financial projections such as earnings forecasts, I know of no study that examines how they are used to set targets.

Due in part to data availability, the bulk of past research on target setting has been conducted on annual bonus plans, i.e. short-term targets. I argue that long-term targets provide a

better setting for understanding the role budgets play in determining performance standards. First, there is a greater disparity between the market's and the firm's information over a longer term. Firms are less likely to rely solely on public expectations such as analyst forecasts to set targets because they are not as accurate. Likewise, given changing environmental factors and long-term investment decisions by the firm, recent performance by itself is a less efficient proxy for future expected outcomes in the long term than it is in the short term.

Second, incentive environments differ with horizon. Theoretical distinctions between short- versus long-term incentives show that perverse intertemporal incentives are mitigated in the long term with committed contracts (Laffont and Tirole, 1993). In practice, the majority of long-term awards pay in restricted stock and have much larger payouts than short-term awards, which pay in cash. Given these incentive differences alone, researchers should not assume the same ingredients used to set short-term targets are used for long-term.

Last, long-term targets are better for analyzing long-term budgeting expectations because, when disclosed, they potentially convey these expectations to outsiders. Unlike short-term targets, the majority of disclosed long-term targets are made public before the performance period has passed. Any budgeting information they contain has the potential to provide valuable forecasting information to market participants. Beyond the target setting literature, my paper relates to the literature on the information content of management forecasts. Despite their endogenous origins, previous research suggests management forecasts are as accurate as audited statements (Pownall and Waymire, 1989) and perhaps more accurate than analysts' forecasts (Hassell and Jennings, 1986; Waymire, 1986) in predicting performance. While there is evidence that markets respond to management forecast disclosures (Foster, 1973; Patell, 1976), Ng, et al. (2013) find markets tend to underreact to their cash flow news. In general, the valuation role for accounting information

(Beaver, 1968; Ball and Brown, 1968) is well-documented, as is a sometimes tendency for that information to be incorporated by markets and analysts with a lag (Bernard and Thomas, 1989; Sloan, 1996; Bradshaw, Richardson, and Sloan, 2001). All told, previous research suggests a precedent for analyst and/or investor reaction to forecasts in the form of performance target disclosure, even if it is not timely or full.

This research would not be possible absent the SEC's enhanced disclosure requirements of 2006. Beyond initial compliance (Robinson et al., 2011), a few recent papers have researched contracting and capital market effects following this disclosure change. Gipper (2016) exploits the rules' staggered introduction to find that executive compensation levels rise following disclosure. Bloomfield (2017) finds that firms, under the mandatory CD&A regime, use revenue targets to further their competitive product market strategies. One paper close to my study is Ferri et al. (2017), who find the required increase in compensation disclosure enhances investors' ability to interpret financial statements. They argue that knowing how managers are compensated lends credibility to subsequent earnings reports. In contrast, I suggest a predictive, and also more direct, role between compensation disclosures and earnings performance news. That is, whereas Ferri et al. (2017) find that knowing the type of contract (e.g. earnings-based or non-earnings-based) is useful for *interpreting* subsequent earnings reports, I argue the performance target itself is useful for *predicting* performance. To my knowledge, my paper is the first to show that compensation target disclosure can provide investors with a primary source of information about future earnings.

3. Hypothesis Development

3.1 Internal forecast content of targets

In my primary analysis, I examine whether firms base targets on internal performance projections. In standard agency models (Holmstrom, 1979; Grossman and Hart, 1983; Holmstrom

& Milgrom, 1987), performance payouts are determined based on the statistical properties of output. As Murphy (2000) describes, devising an optimal target under this framework amounts to predicting outcomes for the factors that determine future performance.

Standard agency predictions relate to the entire contract. In my setting, performance targets only refer to a portion of a CEO's overall incentives. A long history of field and empirical studies in the accounting literature, however, provide a basis for thinking of targets in terms of expectations. The concept of target difficulty, or achievability, relates a target to a benchmark known to the firm (e.g. Merchant and Manzoni, 1989). Empirical papers (e.g. Kim and Yang, 2014; Martin et al., 2017; Armstrong et al., 2017) compare EPS targets directly to analyst and/or management forecasts for the same period.

Bettis et al. (2016) consider both long- and short-term performance targets as they measure, using simulations, the average *ex ante* probability of an accounting target being achieved at 51% They also find that, *ex post*, targets are achieved with a frequency of 48.4%. Given the proximity of these figures to 50%, and the theoretical relation between forecasts and targets, I predict:

Hypothesis 1: Firms set long-term performance targets according to their expectations of future performance.

Of course, there are reasons long-term targets may not be based on internal forecasts. First, some firms may not budget so far in the future, so there may not be internal forecasting information on which to base targets. Second, long-term targets may be used for non-incentive reasons. For instance they may be used to meet tax deductibility requirements. Perhaps due to idiosyncrasies of stakeholder pressure, firms may not desire to incentivize a performance expectation until closer to the date, and so save their more efficient incentives for shorter-term targets.

Even where long-term targets are based on internal expectations, it may be difficult to document the relation. If targets deviate substantially from other forecasts, it is impossible to know if the deviations are due to private information regarding performance expectations, which is unobservable, or other factors. For instance, firms with high agency conflicts may set artificially easy targets. Alternatively, targets that are based on internal forecasts at the time may not predict eventual performance realizations *ex post*. The long horizon allows time for unforeseen events to distort or add noise to the relation. Such factors will inhibit my ability to find support for H1.

3.2 Information value of targets at the time of disclosure

Assuming H1 holds, I next consider whether targets, at the time of disclosure, can inform outsiders about those expectations. Since long-term management forecasts are relatively rare, I expect the information provided by targets about performance over a year into the future will be valuable to outsiders. Furthermore, long-term forecasts are even more sensitive than short-term forecasts to the investment, personnel, or other decisions that firms may not immediately publicize. Given their long-term nature and forecast basis, I expect these targets to be valuable predictors of future outcomes at the time that they are disclosed. That is, I predict:

> *Hypothesis 2: At the time of disclosure, long-term performance targets provide information about firms' expectations of future performance.*

There are reasons targets, even if they are predictive at the time they are set, may not be valuable to those outside the firm upon disclosure. Chiefly, targets are generally set at the beginning of a fiscal period and not disclosed until the proxy is filed in the beginning of the next fiscal period. Figure 1 charts the distribution of months between grant and disclosure dates. The most common length of time is 13 months. Over that time, the target may become stale or irrelevant. Alternatively, the firm may make the information known in other ways, through

management forecasts or other public disclosures. Under such circumstances, I would not find support for H2.

4. Research Design

I focus on earnings targets in this analysis because earnings targets represent a substantial portion of the targets used in long-term compensation plans. Of my sample of targets granted to CEOs over the period 2007-2011, 64.6% of all long-term targets disclosed on Incentive Lab are earnings-based.

Even firms that use earnings targets in their long-term compensation plans use different earnings measures, in different types of plans, over different horizons. While some long-term plans pay according to a cumulative, multi-year performance measures, several plans pay according to distinct annual measures over several years. Others base payouts according to performance for a single fiscal year at the end of the performance period, perhaps three to four years in the future. Appendix A outlines the types of long-term plans these targets belong to in more detail. To standardize the analysis, I focus on targets for performance in the third year of a multi-year plan. Three years is by far the most common performance horizon for long-term incentive plans, and third-year measures encompass both cumulative and last-year only performance horizons.

Firms also use different scalars (e.g., assets, equity, investment) and adjustments (e.g. taxes, depreciation) to determine earnings-based targets. I address this by converting all targets into a measure of net income. In Appendix B, I describe this conversion process in more detail. In general, I make adjustments for items such as depreciation or interest expense based on values in the most recent fiscal year, prior to the grant date of the target-based award. Once I have a measure of net income, I scale by total assets recorded at the beginning of the year the award is granted.

The purpose of the temporal and adjustment-based conversion process is to reduce the noise introduced by heterogeneity in types of earnings-based performance plans. This process is imperfect and my sample of targets will likely still be measured with error. I expect the primary effect of this error will be attenuation bias, which will make any relation between targets and performance outcomes harder to document. In supplemental analysis I address the possibility that the error is correlated with other factors, by examining how a variety of cross-sectional characteristics affect my main analysis.

Using my measure of the target-implied expected earnings for the third year (*Y_3 Target*), I test my first hypothesis, that the target is based on the firm's internal forecast for income in the third year of the plan. I use both an *ex ante* and *ex post* approach to test the relation between targets and income expectations. In the *ex ante* approach, I test whether targets are related to outsider expectations. I proxy for outsider expectations ($E_0[Y_3]$) using the consensus analyst forecast for the third year of the plan as of the award grant date, denoted with subscript $t = 0$. I use analyst consensus EPS forecasts, converted to ROA using share and asset data at the time of consensus. Since three-year annual EPS forecasts are relatively rare, I impute the forecast where necessary using a two- or one-year EPS forecast and the analyst consensus long-term growth forecast. A significant positive correlation between *Y_3 Target* and $E_0[Y_3]$ suggests the earnings performance target is based on expectations as of grant date.

The drawback of the *ex ante* approach is it only assesses the forecast content of targets insofar as the firm's forecast corresponds to the analysts' consensus. It does not capture private forecasting information on which firms may base targets. To capture this, I measure the forecasting content of targets using an *ex post* approach. Under the *ex post* approach, I measure whether targets

predict actual performance outcomes. Specifically, I test whether deviations between the target and analyst expectations predict earnings surprises with the following OLS regression:

$$\left[\frac{Y_3 Actual - E_0[Y_3]}{\sigma_3}\right]_{it} = \beta_0 + \beta_1 \left[\frac{Y_3 Target - E_0[Y_3]}{\sigma_3}\right]_{it} + \gamma Controls_{it} + \varepsilon_{it} \qquad (1)$$

where $Y_3 Actual$ represents actual income before extraordinary items, scaled by beginning-of-year assets, in the third year of the performance plan. Since performance is easier to predict for some firms than others, and analyst forecast quality varies across firms, I scale forecast variables by $\sigma_{3_{it}}$, which is equal to the standard deviation of analyst three-year forecast error for the firm, calculated over the 10 years prior to grant date.[1] I include year and industry (Fama-French 12) fixed effects and controls which are shown to affect analyst forecast errors, including book-to market (Frankel and Lee, 1998), size as measured by log market capitalization (e.g., Brown, Richardson, and Schwager, 1987; Gu and Wu, 2003), volatility (Bushan, 1989), and an indicator for whether the prior year was a loss year (Hwang, Jan, and Basu, 1996). A coefficient of β_1>0 indicates support for H1.

Next I test my second hypothesis, that targets provide relevant information to market participants at the time they are disclosed. The strongest argument for why targets do not provide new information is that they typically are not disclosed until a year or more after the target was set. In this time the firm may have disclosed the private forecasting information in targets through other means (e.g. guidance). Thus, to test targets' information relevance at the time of disclosure, I re-run Eq. (1) using OLS with $E_1[Y_3]$, or analyst expectations as of disclosure date (denoted with subscript *t = 1*). Since, by the time of disclosure, *Y₃ Targets* predict a performance period ending

[1] I scale using the standard deviation of analyst forecast error instead of target forecast error because of availability of historical data used to calculate the standard deviation. Targets were not generally disclosed until 2006.

in two years rather than three, variables in Eq. (1) are scaled by the two-year forecast error standard deviation, σ_2, as opposed to the three-year. In addition to the controls in Eq. (1), I include the Y_1 earnings surprise scaled by the one-year forecast error standard deviation ($(Y_1 Actual - E_0[Y_1])/\sigma_1$) to control for earnings news in the first year. If, at the time of disclosure, targets can predictive future performance surprises, I expect β_1>0 for both tests.

Last, I examine whether outsiders, specifically analysts, respond to the information targets provide. If targets do not contain private information at the time of disclosure because the information has already been made public, then I do not expect analysts to revise their expectations when the target is disclosed. On the other hand, if targets contain new information about future performance at the time of disclosure, I expect analysts to respond accordingly. I test this using the following OLS regression:

$$Analyst\ Response_{it} = \beta_0 + \beta_1 \left[\frac{Y_3 Target - E_1[Y_3]}{\sigma_2}\right]_{it} + \gamma Controls_{it} + \varepsilon_{it} \quad (2)$$

$Analyst\ Response_{it}$ is the consensus analyst forecast change from the month prior to the target disclosure to the month following, scaled by σ_2. I include controls and fixed effects as in Eq. (1). In general, $\beta_1 > 0$ indicates support for H2, that targets provide information to outsiders at the time of disclosure.

5. Data, Sample Selection, and Descriptive Statistics

I conduct this analysis using target data from ISS Incentive Lab. Incentive Lab tracks data on the largest 750 firms by market value starting in 1998. Unlike other compensation data sources, Incentive Lab captures information on the performance measures used in short-and long-term incentive plans granted to top executives. Summary analyst forecast consensus data are from Institutional Brokers' Estimate System (I/B/E/S). All accounting data are from Compustat, and

price and return data from the Center for Research in Security Prices (CRSP). While earnings announcement and proxy filing dates are available on Compustat and Incentive Lab, respectively, Incentive Lab does not track disclosure dates for specific targets. Not all firms disclose targets before the conclusion of the performance period. To verify disclosures are made at a time when they still have predictive potential, I use hand-collected disclosure dates for the individual earnings targets in my sample from Packard (2017).

Table 1 describes the sample used in this analysis. I begin my sample in 2007, the first year in which all firms were required by the SEC to disclose performance targets in their annual proxy. As Panel A outlines, from the years 2007-2011, I calculate 1,063 firm-level (i.e. not business or geographic unit) earnings-based targets used to assess performance in the third year of long-term performance plans granted to CEOs. I am unable to calculate market and book values, or other controls, for 25 of these. A further 264 are not disclosed in the proxy corresponding to the first year of the performance plan period. This leaves 774 targets. Of these, 32 do not have third-year income data on Compustat. Thus, *ex post* tests are limited to the 742 targets that have income data for year three of the plan.

Panel B compares sample firm characteristics to characteristics of other Incentive Lab firms. The average log of market capitalization for sample firms is 8.8, and the average firm is 75% owned by institutional investors. On average, firms in my sample are larger and more profitable, with lower growth opportunities and lower price return volatility. In general, far fewer sample and out-of-sample firms issued long-term, as opposed to short-term, guidance in the prior year; however, sample firms are more likely to have done so. Thirty-six percent of sample firms gave long-range forecasts in the previous year, as opposed to 29% of out-of-sample firms. These statistics indicate that my sample contains more stable, easier-to-forecast firms. While such firms

seem more likely to produce and use reliable budgeting information to set targets, the same information is potentially less valuable to outsiders.

Table 2 reports descriptive statistics for target characteristics. The mean Y_3 *Target*, in terms of ROA, is about 5.6%. This is one full standard deviation below the mean consensus analyst forecasts of 8.6%. Note that analyst forecasts are more optimistic and less precise in the three-year horizon. Thus, some of the negative difference between targets and forecasts is driven by analyst over-optimism.

6. Results

Table 3 presents results of tests of H1, that long-term targets are based on the firm's forecasted earnings. In Panel A are the results from the univariate *ex ante* test. The panel shows that the Y_3 *Target* is highly correlated with the prevailing analyst expectation for the same period. The Pearson correlation coefficient is 0.426, with a p-value < 0.00001, and the Spearman coefficient is 0.523. This supports H1, that in general targets contain forecast content.

Next I test for long-term targets' forecast content in an *ex post* fashion, by estimating their ability to predict earnings. Panel B shows OLS results from regressing the measure of unexpected earnings, $(Y_3 \text{ Actual} - E_0[Y_3]) / \sigma_3$, on the target deviation, or $(Y_3 \text{ Target} - E_0[Y_3]) / \sigma_3$. Consistent with the results in Panel A, deviations between Y_3 *Targets* and relative analyst consensus predict earnings surprises. A one standard deviation difference between targets and analyst forecasts results in a 0.11 standard deviation positive earnings surprise, or around a one-half percentage point increase in ROA. Columns 2 and 3 show this result is robust to including controls for analyst forecast accuracy and fixed effects. Taken together, the results in Panels A and B, that performance

targets are *ex ante* correlated with analyst expectations and positively predict *ex post* earnings surprises, support H1.

Table 4 presents results from H2, that targets provide information to market participants upon disclosure. The regressions in Panel A are similar to those in Panel B of Table 3. Importantly, I update the earnings surprise and target variable to reflect the analyst forecast consensus just prior to target disclosure. I expect analysts expectation as of the disclosure date of the target, $E_1[Y_3]$, will reflect information that has been previously made public. If targets contain no new information because the information is already public, $(Y_3\ Target - E_1[Y_3]) / \sigma_2$, will not predict future earnings surprises. In line with my hypothesis, the results in Panel A show targets as of disclosure are informative, and positively predict future earnings surprises. As one would expect, the effect compared with Table 3, Panel B is lessened. As of disclosure, a target set one standard deviation above the consensus forecast results in a 0.06 positive standard deviation earnings surprise, or a one-tenth percentage point increase in ROA. This result is robust to the inclusion of analyst forecast error controls and year and industry fixed effects.

Next I test H2 by analyzing whether analysts respond to targets. Panel B has results from this test. In Column 1 the coefficient on the difference between targets and analyst expectations ($(Y_3\ Target - E_1[Y_3]) / \sigma_2$) is positive and significant at the 1% level, and is robust to the inclusion of year and industry fixed effects (Column 2). Columns 3 and 4 examine whether analysts react differently when firms give guidance for a similar performance period. That is, I interact $(Y_3\ Target - E_1[Y_3]) / \sigma_2$ with an indicator variable ($Y_3\ Management\ Forecast$) equal to 1 if the firm provided a forecast for the Y_3 performance period prior to target disclosure, 0 otherwise. The coefficient on the interaction is not significant. Thus I find no significant difference between the analyst reaction

for those firms that provide forecasts versus those that do not. Together these results support H2, that targets provide information to outsiders about future performance.

7. Robustness Tests

To provide robustness, I consider other factors that may affect targets or the way forecast information is used in setting them. To the extent such factors are correlated with the target vis-à-vis prevailing analyst expectations and future earnings surprises, their omission could bias my results. The factors I consider include: 1) agency conflicts, 2) monitoring, 3) financial reporting concerns, and 4) long-range guidance.

Firms that use targets under weak governance or monitoring may do so for window-dressing purposes rather than to incentivize performance. If these targets are set low in relation to market expectations and these firms also perform below expectations, then the factor could drive my previous results. Firms that have high earnings or financial reporting concerns have incentives to beat analyst expectations. If targets are meant to incentivize earnings in a particular direction vis-à-vis the analyst consensus for such firms, this motivation, rather than the pure expectation, may drive my results. Last, the predictive nature of target may only be present for those firms that give long-range guidance. In this case, the forecast information of targets would be less useful, since the firm regularly provides the long-term forecast information through other means.

I use the residual for a cross-sectional model of CEO pay (*Pay Residual*) to proxy for agency conflicts.[2] I use the percent of equity held by institutional investors (*%Institutional*

[2] Per prior research (e.g., Smith and Watts, 1992; Core, Holthausen, and Larcker, 1999; Murphy, 1999), I measure excess compensation as the residual from the following cross-sectional CEO pay regression:

$$CEO\ Total\ Pay_{it} = b_0 + b_1 \log(Tenure_{i,t}) + b_2 \log(Sales_{i,t-1}) + b_3 Book\ to\ Market_{i,t-1} + b_4 RET_{i,t} + b_5 RET_{i,t-1} + b_6 ROA_{i,t} + b_7 ROA_{i,t-1} + Year_t + Industry_i + e_{it}$$

Ownership) to proxy for enhanced monitoring. Following Carter et al. (2007), I proxy for earnings, or financial reporting, concerns using a composite of three variables a) the extent to which firms meet or beat quarterly analyst EPS forecasts (*Beat Forecast*), b) the extent to which firms meet or beat last year's quarterly EPS performance (*EPS Increase*), and c) the percent of long-term financing in the form of equity (*% Equity Financing*). *Financial Reporting Concerns* is equal to the firm mean of the standardized values of these three variables. Last, I proxy for forecast behavior with an indicator variable equal to one if the firm issued a forecast in the previous fiscal year for a performance period ending one year or more in the future, zero otherwise.

I control for these cross-sectional factors in two ways. First, I re-run the specification in Table 3, Panel B, Column 3 and include proxies for these four variables. Results in Table 5, Panel A show results from this test. The inclusion of these variables, separately (Columns 1-4) or together (Column 5) does not affect the coefficient on $(Y_3\ Target - E_0[Y_3]) / \sigma_3$. Second, I test for an interactive effect between these variables and targets in predicting earnings surprises. To test the interaction, I create an indicator variable *(Cross-Sectional Indicator*) equal to +0.5 if it is above the median for a given fiscal year, -0.5 otherwise, and add both the indicator and the indicator interacted with $(Y_3\ Target - E_0[Y_3]) / \sigma_3$ to the main specification. I set the indicator variable equal to +/- 0.5 in order to attain an effect on $(Y_3\ Target - E_0[Y_3]) / \sigma_3$ that is comparable in interpretation to that in Table 2. As shown in Panel B, the main inference regarding $(Y_3\ Target - E_0[Y_3]) / \sigma_3$ is unchanged. Coefficients and t-statistics are not substantively different, regardless of the cross-

where $CEO\ Total\ Pay_{it}$ is the amount of total compensation reported in the summary compensation table for the CEO of firm *i* in year *t*. $Tenure_{it}$ is the number of years from the CEO's start date to the fiscal year end date. $Sales_{i,t-1}$ is total sales of firm *i* during the previous fiscal year. $ROA_{i,t}$ is net income divided by the average of the beginning and ending total assets and $Book\text{-}to\text{-}Market_{i,t-1}$ is the book value of assets divided by the sum of book value of debt and market value of equity at the end of the previous fiscal year. *RET* is the annual buy-and-hold return of the stock of firm *i* during the year. Year and industry indicators (based on the Fama-French 48) are also included.

sectional variable considered. Moreover, in no case is either the main effect on the cross-sectional indicator or the cross-sectional indicator interacted with $(Y_3\ Target - E_0[Y_3]) / \sigma_3$ significant.

Finally, in untabulated analysis I repeat the main analysis while including the consensus forecast (either $E_0[Y_3] / \sigma_3$ or $E_1[Y_3] / \sigma_2$, depending on the specification) as an additional control.[3] I find the main results are substantively unchanged.

8. Conclusion

This paper analyzes the internal forecasting content of the earnings targets used in long-term executive compensation plans. I find that long-term targets contain forecasting information, and that this information is useful to outsiders upon disclosure. These results suggest firms rely on their internal budgeting to set earnings targets for long-term performance awards. I further find that, upon disclosure, long-term targets provide information about cash flow projections to outsiders. Indeed, analyst forecast revisions around disclosure align with target content. For robustness, I show the target forecast content result is unaffected by cross-sectional variation in agency conflicts, monitoring, financial reporting concerns, or long-range guidance behavior.

This work has the potential to influence many streams of accounting and finance research. I contribute to the compensation literature by establishing a basis for considering firms' idiosyncratic beliefs about future earnings with regard to performance awards. To the extent researchers value compensation awards *ex ante* based on the target vis-à-vis external benchmarks,

[3] Prior specifications using the deviation between targets and analyst forecasts as a main explanatory variable implicitly restricts the relation between targets, analyst forecasts, and future performance. Suppose a model where a target predicts actual earnings with a coefficient β_1. That is:

$$Y_3 Actual_{it} = \beta_0 + \beta_1 Y_3 Target + \varepsilon_{it}.$$

Expressing in terms of deviations from the analyst consensus yields:

$$Y_3 Actual_{it} - E_0[Y_3]_{it} = \beta_0 + \beta_1 [Y_3 Target_{it} - E_0[Y_3]_{it}] + (\beta_1 - 1) E_0[Y_3]_{it} + \varepsilon_{it}$$

Thus, $E_0[Y_3]_{it}$ belongs in the model as long as $\beta_1 \neq 1$.

without considering that the firm's information may be superior to the external expectation, values are measured with error.

Given that firms have discretion over whether to disclose targets, the predictions targets contain may be a factor in the disclosure decision (see Packard, 2017). Similarly, targets, once given, may influence the content and frequency of future firm disclosures. Another important finding is that analysts update their forecasts according to target disclosures. This raises the question of whether analysts' forecast characteristics are affected by target disclosure practices. In general, the findings in this paper justify further research into the intricacies of how forecasting, disclosure, and compensation relate to one another.

Finally, this paper has opened a window into understanding the firm's budgeting process. Previous research has relied on measures such as guidance accuracy to proxy for internal forecast quality (e.g. Goodman et al., 2013). Given their long-term horizon, targets are potentially a better proxy.

This research is not complete, and I have several improvements to make and extensions to include in future iterations. For instance, I have yet to exploit the potential expectation information contained in the difference between and payouts associated with "threshold," "target", and "maximum" performance levels. The combination of payout and performance level information provides outsiders with a better sense of the distribution of expected performance than a simple mean provides. Future iterations of this paper will almost certainly examine whether this information enhances forecasting or affects outsiders' interpretation of target forecasts.

Although it requires hand-collection of disclosure dates, my analysis would benefit from a sample that stretches past 2011. Beyond adding power, these additional years would allow me to

exploit within-firm time-series variation in targets. This variation is potentially correlated with changes in internal beliefs about future performance.

Appendix A: Timing of Plan Design and Disclosure, by Type of Long-term Performance Plan

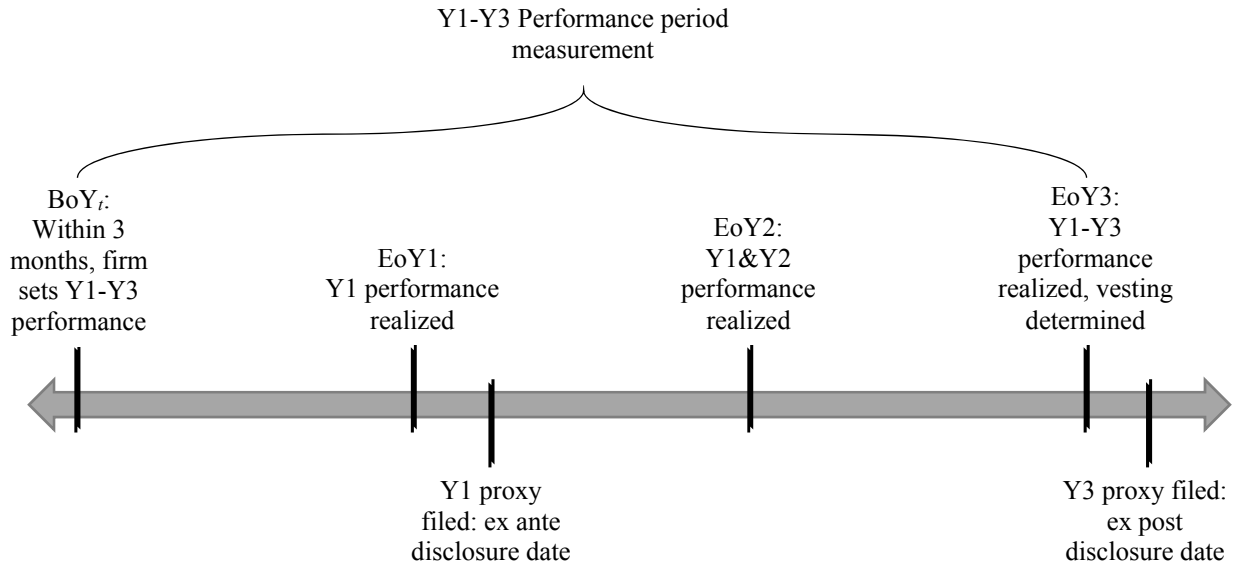
A.1 Cumulative or Total Average plan

With this type of plan, performance targets are set at the beginning of the three-year period, and payouts are based on aggregate performance over several years (see Figure A1). There is usually a single performance target for the entire period, e.g. aggregate income per share over three years or average ROA over 5 years. Disclosure typically occurs after the first-year of performance is realized (*ex ante* disclosure) or after the vesting is determined at the end of the last year (*ex post* disclosure). Since only *ex ante* disclosures serve as forecasts to outsiders, only *ex ante* targets are included in my sample.

Incentive Lab will record the vesting period for the particular target. The vesting period by and large corresponds to the performance period the target speaks to. That is, if the vesting period ("VESTLOW" to "VESTHIGH") associated with a particular target is for the entire 36 months of a three-year plan, then the relevant performance period is over the whole 36 months, indicating a cumulative or total average target. Occasionally Incentive Lab will additionally note in the comments ("METRICOTHER") that the target is cumulative or average; however, when I spot-checked proxies for 118 multi-year absolute EPS targets that did not have such a comment, I found that 75% were in fact cumulative targets.

For these plans, I scale the given target by the number of months in the vesting period, divided by 12, to arrive at an annual target. I apply this average to the second year of the performance plan. To arrive at the first and third year targets, I apply the constant annual growth rate calculated using the difference between actual earnings in the year prior to the grant, and estimated Year 2 target.

Figure A1: 3-year Cumulative Performance Plan Timeline



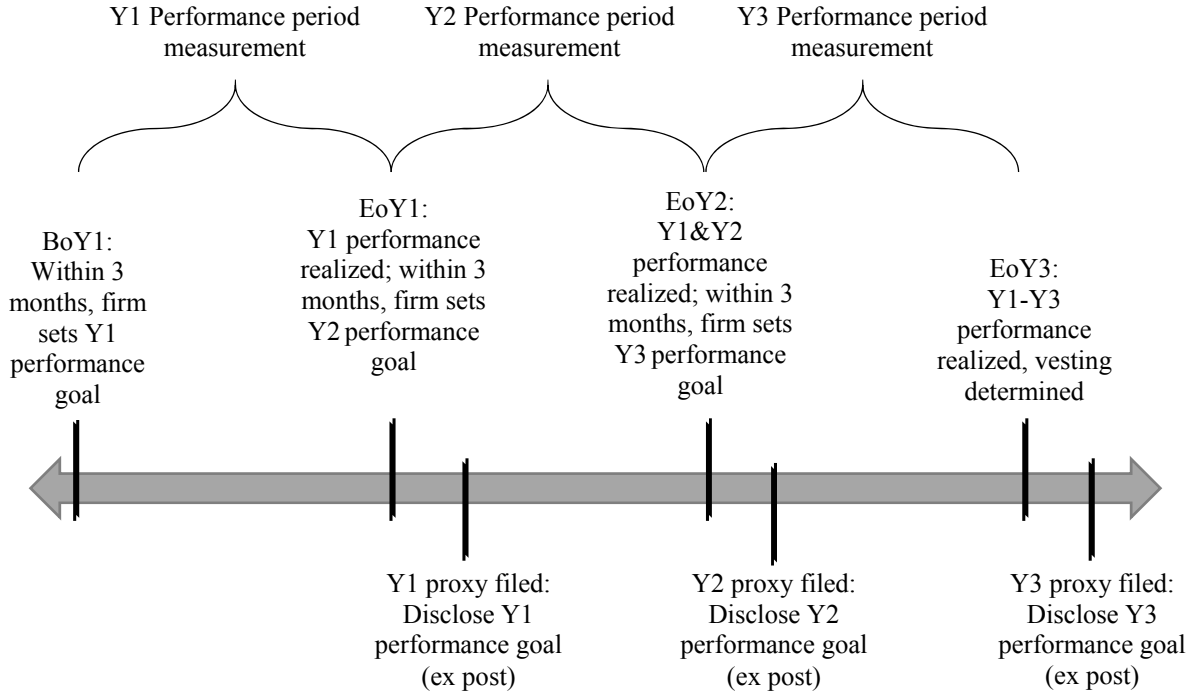
A.2 Consecutive Annual plans

Under this type of plan, the firm sets unique performance goals for each year (or quarter) in the multi-year plan. If the firm also has an annual cash incentive plan, often the targets are identical. In this case, the firm sets a unique target at the beginning of each fiscal year, and discloses after the single-year performance period has ended. All of the targets in this case are disclosed *ex post* (see Figure A2). Vesting terms vary. In some cases, a certain proportion of the grant vests according to each performance period (ratable vesting). For instance, 33% of shares will vest if target performance is achieved in the first year. In other cases, vesting is determined at the end based on whether targets are met in some proportion or all of the annual performance periods (cliff vesting).

The targets in these plans are associated with vesting terms that are 12 months or shorter. Moreover, the disclosure dates for each target in the same plan are different: disclosure is in the proxy corresponding to the respective performance period.

Since these targets are not made while considering long-term (i.e. greater than one year) performance, I do not included these targets in my sample.

Figure A2: 3-year Consecutive Annual Plans Timeline



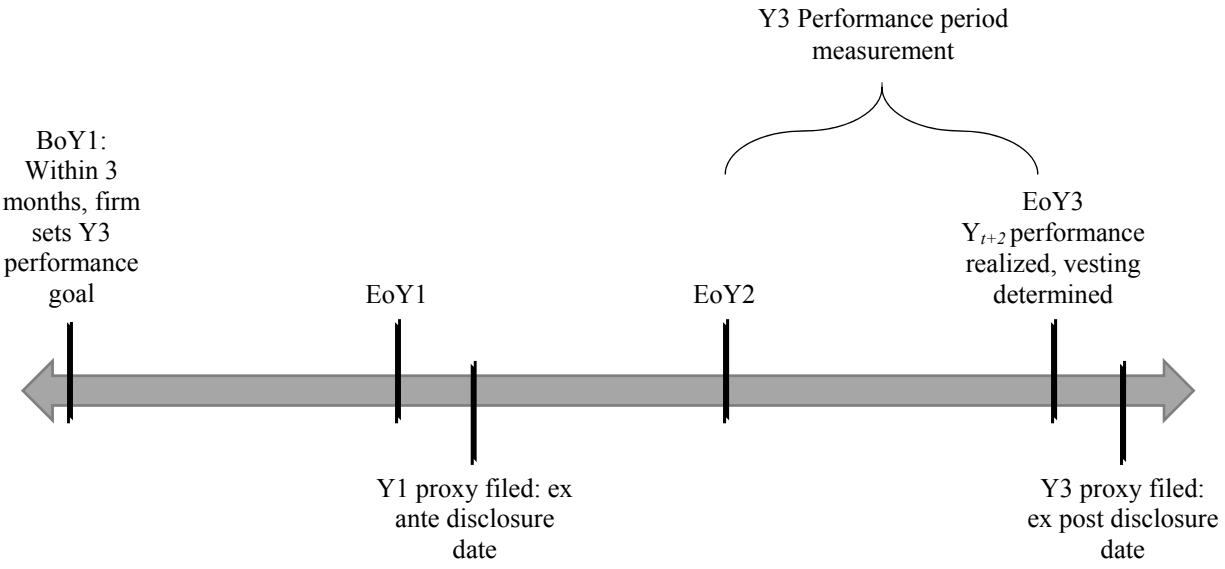
A.3 Last Year of Multi-year Plan (and growth targets)

Under this type of plan, vesting is determined based on performance in the last year of a multi-year performance plan. For instance, a vesting term might specify that EPS must grow 10% from the prior year to the third year of the plan. In this case, only the third year's performance is relevant to determining the payout. As in the cumulative targets, the goal is set at the beginning of the multi-year plan, and disclosed in either the first year's (*ex ante* disclosure) or last year's (*ex post* disclosure) proxy statement (see Figure A3).

The majority of growth targets are set using a compound annual growth rate target which compares the ending year of performance to the starting year. With such targets, interim performance is irrelevant to final award payouts. I therefore assume all growth targets are designed as such unless they specifically state they are based on cumulative or average growth over the period.

For consistency, if the performance period is above three years, I assume it refers to the third year of the plan.

Figure A3: Last year of Multi-year Plan Timeline



Appendix B: Conversion of Heterogeneous Earnings-based Targets to Estimates of Net Income

A major challenge to my study stems from the heterogeneity of the types of plans and how performance targets are set and used to determine payouts. For instance, plans can use any combination of threshold, target, and maximum performance benchmarks. They may interpolate between these levels of performance, or not. Moreover, as in Appendix A, targets can speak to any performance horizon, be of a "one-time hit" nature or require sustained levels of performance. Finally, targets can be based on any number of income-based metric (e.g. EBITDA, EBIT, ROA, ROE, etc.). These differences serve to complicate any cross-firm analysis.

The following is a step-by-step summary of how I convert heterogeneous earnings-based targets into estimates of net income in the third-year following the grant.

B.1 Assigning "Target Performance"

I start by assigning a "target" performance benchmark to each award. If the firm sets threshold, target, and maximum performance goals, I simply use the target goal; likewise if Incentive Lab reports a performance goal only at the target level. If the firm only gives a threshold (or maximum) goal, I use it as the target goal. If the firm uses threshold *and* maximum goals, but no target, then I set target performance as the simple average of threshold and maximum performance.

B.2 Temporal Adjustments

In order to properly adjust targets into a value of net income, it is necessary that I know whether multi-year targets refer to cumulative or average performance. Spot checking about 100 EPS value (i.e. not growth) targets, I find that the majority (around 80%) referred to cumulative achievement. Therefore, I assume all value targets with vesting periods that span multiple years refer to cumulative performance. In addition, I search the METRICOTHER field for the words "average", "cumulative", or "improvement" in order to a) designate average (i.e. per year) targets, b) reaffirm the cumulative designation, or c) identify improvement targets (where the target refers to a value increase above current income).

Where the target is cumulative, I divide by the number of years in the vesting term and use this as the target for the second year in the plan. If the target is average, I use the average as the second-year target. To arrive at first- and third- targets, I apply the compound average growth rate implied by comparing the second-year target to the level of net income before extraordinary items achieved in the year prior to grant. That is, if income in the year before the grant was 1.2 million, and the second year target is 1.4 million, the implied compound annual growth rate is 8%, and the first- and third-year targets would be 1.29 and 1.51 million, respectively.

When I spot checked a similar number of growth EPS targets, I found that the majority referred to compound annual growth targets. Therefore, for all growth targets, I assume they refer to a compound annual growth target (measured by comparing the last year's performance to starting performance) unless searches for "average", "cumulative", or "improvement" suggest otherwise.

From there, I separately analyze performance value targets versus performance growth targets. The goal is to adjust each target so that it may be expressed in terms of net income.

B.3 Targets based on performance value

- Adjustments based on Metric Type

For targets which are based on an absolute, stated level of achievement, I use the metric type given (Incentive Lab variable METRIC) to determine whether to adjust for scalars. For instance, if the metric recorded by Incentive Lab is Profit Margin, I multiply the target performance level by total sales at the end of the most recently-ended fiscal year. If it is ROA, I multiply the target performance level by total assets. I adjust similarly for EPS (shares outstanding), ROE (book value of equity), ROI or ROIC (invested capital[4]).

Next, I adjust for expenses according to the metric type. For instance, if the metric type is Cashflow or EBITDA, then I subtract depreciation expense, based on depreciation expense in the most recently-ended fiscal year. If the metric type is EBITDA, EBIT, or Operating Income, then I subtract interest expense, based on interest expense in the most recently-ended fiscal year. If the metric type is EBITDA, EBIT, Operating Income, or EBT, then I adjust for taxes. I calculate the effective tax rate as 1 minus the last fiscal year's net income divided by the last fiscal year's pre-tax income (1-NI/EBT). If this calculation yields a negative tax rate, I set the tax rate at zero. If it yields a tax rate above 35%, then I use 35%. Lastly, for metrics based on Economic Value Added (EVA), I subtract 10% of total asset values to proxy for cost of capital.

- Adjustments based on Metric comments

Incentive Lab data includes another variable (METRICOTHER) that contains comments related to the metric type and how the metric is calculated. This is relevant, because often the necessary adjustments are not fully expressed by the metric type designation. For instance, if a performance target is based on EBT over Assets, Incentive Lab might designate the metric type as ROA, but note that it is based on pre-tax income in the comments section. In this case, it would be necessary to both adjust for the scalar (multiply by total assets) *and* deduct tax expense to arrive at a net income target. If I only look at the metric type (ROA) I would fail to make the necessary adjustment for taxes.

To account for this, I search for common adjustments in the METRICOTHER field in order make the requisite adjustments. Search terms include:

- "pre" or "before" along with "tax" for pre-tax income
- "after" along with "tax" for after-tax income
- "EBIT" for earnings before interest and taxes
- "EBT" for earnings before taxes
- "Operating" for operating income
- "net of debt" for earnings after interest

[4] I use the Compustat variable ICAPT, which is defined as the sum of: Long-term Debt (total), Preferred Stock (Carrying Value), Minority Interest (Balance Sheet), and Common Equity (total).

- "free" (for cash flow targets) for free cash flow

I subsequently adjust income targets according to the results of these searches. For free cash flow targets I adjust for cost of capital using 10% of asset value.

B.4 Targets based on growth

When targets are expressed in terms of growth benchmarks (e.g. 10% over 3 years), I apply the relevant growth target to the most recent year's income before extraordinary items, regardless of the metric specified.

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Figure 1: Frequency of Months from Target Setting to Disclosure Date (n = 774)

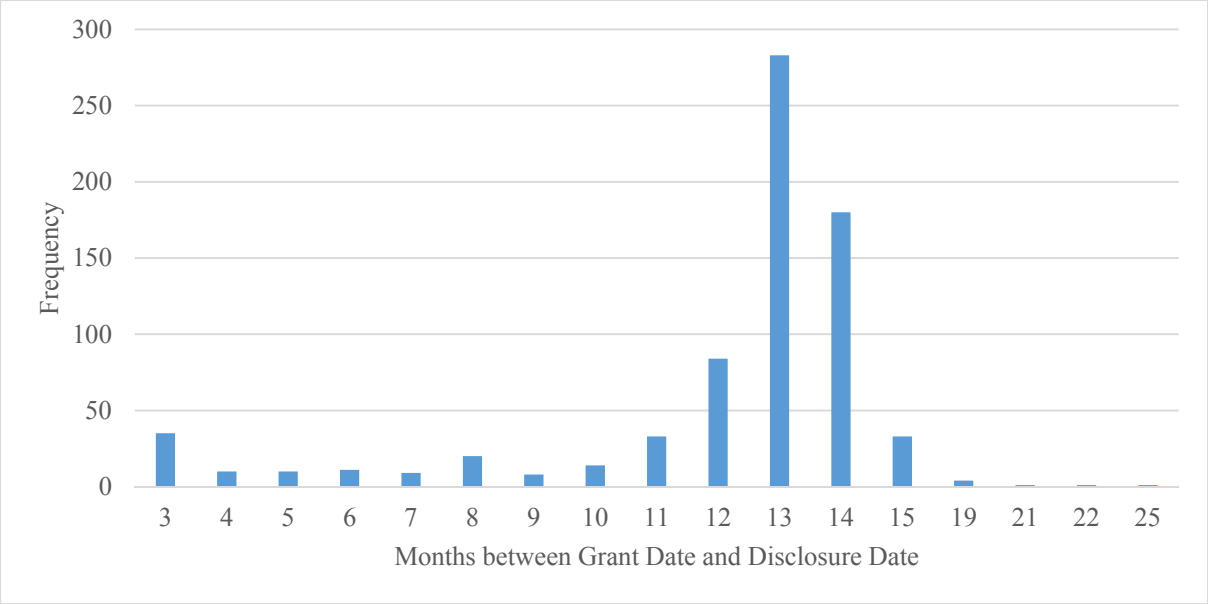

Table 1: Sample

Panel A: Sample Selection

Firm-level year-three earnings-based targets related to Long-Term Cash, Restricted Stock, or Option grants made to Incentive Lab CEOS from 2007 to 2011	1,063	
Delete if missing controls data (e.g. book-to-market, market value, etc.)		(25)
	1,038	
Delete if not disclosed in first proxy following grant		(264)
Full target sample	774	
Sub-sample of targets with three-year earnings data	742	

Panel B: Sample versus out-of-sample Incentive Lab Firm Characteristics

	Sample Firm-years			Out-of-Sample Firm-years			Differences (5) – (2)	
	(1) N	(2) Mean	(3) Std. Dev.	(4) N	(5) Mean	(6) Std. Dev.	(7) Mean	(8) t-stat.
Return on Assets	587	0.056	0.063	5,555	0.034	0.112	-0.022***	-4.57
Return	587	0.098	0.394	5,555	0.108	0.582	0.010	0.41
Loss	587	0.063	0.243	5,555	0.197	0.398	0.134***	8.00
Log(Assets)	587	9.070	1.344	5,555	8.365	1.536	-0.705***	-10.69
Log(Market Value)	587	8.760	1.229	5,555	8.171	1.370	-0.589***	-10.00
Book to Market	587	0.690	0.237	5,555	0.665	0.263	-0.026**	-2.26
Idiosyncratic Volatility	587	0.268	0.129	5,555	0.345	0.178	0.077***	10.24
Y_0 Quarterly Management Forecast	587	0.986	0.116	5,555	0.977	0.148	-0.009	-1.40
Y_0 Annual Management Forecast	587	0.918	0.274	5,555	0.907	0.290	-0.011	-0.86
Long-Range Management Forecast	587	0.361	0.481	5,555	0.291	0.454	-0.070***	-3.51
Pay Residual	587	0.500	4.895	5,555	-0.070	4.532	-0.570***	-2.87
%Institutional Ownership	587	0.752	0.201	5,555	0.751	0.240	-0.001	-0.05
Beat Forecast (% of quarters)	587	0.282	0.167	5,545	0.331	0.188	0.049***	6.09
EPS Increase (% of quarters)	587	0.695	0.118	5,541	0.664	0.131	-0.031***	-5.55
% Equity Financing	587	0.740	0.171	5,552	0.740	0.213	0.001	0.06

This table describes the sample of 774 long-term earnings targets used in this analysis. Panel A describes the sample selection process. Panel B reports descriptive statistics for a sample of 6,142 Incentive Lab firm-years from 2007-2011, of which 587 are included in my sample. *Return on Assets* is equal to income before extraordinary items for the prior fiscal year, scaled by beginning-of-year assets. *Return* is equal to the buy-and-hold annual stock price return in the prior fiscal year. *Loss* is an indicator variable equal to one if net income in the prior fiscal year was negative, zero otherwise. *Log(Assets)* is the natural log of total asset value as of the prior fiscal year-end. *Log(Market Value)* is the natural log of the closing price multiplied by shares outstanding as of the prior fiscal year-end. *Book to Market* is the ratio of the book value of assets to the sum of market value of equity and book value of debt, as of the prior fiscal year-end. *Idiosyncratic Volatility* is the market-adjusted standard deviation of monthly returns during the three prior fiscal years. *Y_0 Quarterly* and *Y_0 Annual Management Forecast* are indicator variables equal to one if the firm issued current fiscal-year quarterly or annual guidance, respectively, in the year prior to grant, zero otherwise. *Long-Range Management Forecast* is an indicator variable equal to one if the firm issues guidance for a fiscal period ending one or more years in the future in the year prior to grant, zero otherwise. *Pay Residual* is the residual from a cross-sectional model of CEO pay (see footnote 2) for the prior fiscal year. *%Institutional Ownership* is the percent of firm equity held by institutional owners as of the prior fiscal year-end. *Beat Forecast* is the percent of quarters (out of all quarters recorded on I/B/E/S) that firm performance met or exceeded mean analyst EPS forecasts. *EPS Increase* is the percent of quarters (out of all of quarters on I/B/E/S) that firm performance met or exceeded performance in the same quarter

of the previous year. *% Equity Financing* is 1 minus the ratio of total debt to asset value as of the prior fiscal year-end. Columns (1) to (3) present statistics for those firm-years that have sample earnings targets. Columns (4) to (6) present statistics for the other Incentive Lab firm-years. Column (7) reports the mean difference between sample and out-of-sample firm-years. Column (8) reports corresponding t-statistics.

Table 2: Target Characteristics

	N	Mean	Std. Dev.	P25	P50	P75
Long-term Earnings Targets:						
Y_3 *Target*	774	0.056	0.078	0.008	0.032	0.090
$(Y_3$ *Target* $- E_0[Y_3]) / \sigma_3$	774	-1.018	2.312	-1.884	-0.683	-0.017
Analyst Forecast Characteristics:						
$E_0[Y_1]$	774	0.068	0.054	0.031	0.059	0.100
$E_0[Y_2]$	774	0.077	0.056	0.033	0.066	0.111
$E_0[Y_3]$	774	0.086	0.064	0.036	0.075	0.125
Disclosure $\Delta E_1[Y_3] / \sigma_2$	774	-0.127	1.305	-0.329	-0.037	0.081
σ_1	774	0.027	0.034	0.009	0.017	0.029
σ_2	774	0.024	0.026	0.010	0.017	0.029
σ_3	774	0.045	0.042	0.016	0.032	0.060
Actual Earnings:						
Y_1 *Actual*	774	0.056	0.061	0.025	0.052	0.093
Y_2 *Actual*	759	0.054	0.063	0.023	0.052	0.092
Y_3 *Actual*	742	0.055	0.058	0.021	0.049	0.085
$(Y_1$ *Actual* $- E_0[Y_1]) / \sigma_1$	774	-0.374	2.873	-0.574	-0.054	0.319
$(Y_2$ *Actual* $- E_0[Y_2]) / \sigma_2$	759	-0.758	3.047	-1.259	-0.279	0.340
$(Y_3$ *Actual* $- E_0[Y_3]) / \sigma_3$	742	-0.447	1.640	-0.856	-0.236	0.228
Management Forecasts:						
Y_3 *Management Forecast (as of target disclosure)*	774	0.087	0.281	0	0	0

This table reports descriptive statistics for a sample of 774 earnings targets used in long-term performance awards granted to CEOs between 2007 and 2011. Y_3 *Target* is target earnings in the third year of the performance plan divided by total assets as of the grant date of the target-based award. $E_0[Y_1]$, $E_0[Y_2]$, and $E_0[Y_3]$ are consensus analyst forecasts in terms of net income for the first, second, and third year of the performance plan, respectively, scaled by assets as of grant date (denoted with subscript 0). *Disclosure* $\Delta E_1[Y_3]$ is the change in consensus analyst expectation of performance in Y_3 from the month prior to the month following the target disclosure date. Values of σ_1, σ_2, and σ_3 are equal to the firm-level standard deviations of 1-, 2-, and 3-year analyst forecast errors (as net income scaled by assets), respectively, over the 10 years prior to grant. Y_1 *Actual*, Y_2 *Actual*, and Y_3 *Actual* are values of actual income before extraordinary items in the first, second, and third years of the plan, respectively, scaled by beginning-of-year assets. Y_3 *Management Forecast* is an indicator variable equal to one if the firm issues guidance for the third year of the performance plan prior to the disclosure date of the target, zero otherwise.

Table 3: Forecast Content of Earnings Targets as of Grant Date

Panel A: Analyst Forecasts and Targets (ex ante test)

	$E_0[Y_3]$	
	(1)	(2)
	Pearson	Spearman
Hypothesis 1:		
Y_3 Target	0.426	0.523

Panel B: Earnings Surprises and Targets (ex post test)

	(1)	(2)	(3)
	(Y_3 Actual – $E_0[Y_3]$)	(Y_3 Actual – $E_0[Y_3]$)	(Y_3 Actual – $E_0[Y_3]$)
VARIABLES	/ σ_3	/ σ_3	/ σ_3
Hypothesis 1:			
(Y_3 Target – $E_0[Y_3]$) / σ_3	0.115***	0.115***	0.111***
	(3.26)	(3.14)	(3.18)
Book to Market		-0.961*	-1.372*
		(-1.91)	(-1.94)
Log(Market Value)		-0.176**	-0.148*
		(-2.09)	(-1.87)
Idiosyncratic Volatility		-0.780	-0.984
		(-0.98)	(-1.16)
Loss		0.814**	0.890**
		(2.44)	(2.54)
Constant	-0.329***	2.036*	
	(-3.79)	(1.96)	
Observations	742	742	742
R-squared	0.027	0.064	0.140
FE	none	none	Year & Industry

This table presents results of *ex ante* and *ex post* tests analyzing the forecast content of a sample of long-term earnings targets granted to CEOs between the years 2007 and 2011. Panel A (*ex ante* test) presents Pearson and Spearman (rank) correlation statistics between targets and consensus analyst expectations for the full sample of 774 targets. Panel B reports OLS regression results estimating unexpected earnings as a function of targets relative to analyst expectations for the sub-sample of 742 targets for which third-year income data is available on Compustat. *Y_3 Target* is target earnings in the third year of the performance plan divided by total assets as of the grant date of the target-based award. *$E_0[Y_3]$* is the consensus analyst forecast in terms of net income for the third year of the performance plan scaled by assets as of grant date (denoted with subscript 0). Values of *σ_3* are equal to the firm-level standard deviations of 3-year analyst forecast errors (as net income scaled by assets), respectively, over the 10 years prior to grant. *Y_3 Actual* is actual income before extraordinary items in the third year of the plan scaled by beginning-of-year assets. *Book to Market* is the ratio of the book value of assets to the sum of market value of equity and book value of debt as of grant date prior year-end. *Log(Market Value)* is the natural log of the closing price multiplied by shares outstanding as of grant date prior year-end. *Idiosyncratic Volatility* is the market-adjusted standard deviation of monthly returns during the three years prior to grant. *Loss* is an indicator variable equal to one if net income in the year prior to grant was negative, zero otherwise. The specification in Panel B, Column (3) includes industry (Fama-French 12) and year fixed effects. For a sample of n=774, correlation statistics above 0.071 have p-values less than 0.05. Robust t-statistics for Panel B coefficient estimates are in parentheses. Standard errors are clustered at the firm level.

Table 4: Forecast Content of Earnings Targets as of Disclosure Date

Panel A: Earnings Surprises and Targets

VARIABLES	(1) (Y_3 Actual – $E_1[Y_3]$) / σ_2	(2) (Y_3 Actual – $E_1[Y_3]$) / σ_2	(3) (Y_3 Actual – $E_1[Y_3]$) / σ_2
Hypothesis 2:			
(Y_3 Target – $E_1[Y_3]$) / σ_2	0.063**	0.060**	0.058**
	(2.23)	(2.20)	(2.14)
(Y_1 Actual – $E_0[Y_1]$) / σ_1	0.203**	0.188*	0.170**
	(2.19)	(1.96)	(2.07)
Book to Market		-0.415	-1.361
		(-0.52)	(-1.27)
Log(Market Value)		-0.311*	-0.351**
		(-1.74)	(-2.09)
Idiosyncratic Volatility		-1.394	-2.780*
		(-1.03)	(-1.96)
Loss		0.808	1.184*
		(1.20)	(1.73)
Constant	-0.593***	2.733	
	(-3.70)	(1.28)	
Observations	742	742	742
R-squared	0.053	0.071	0.149
FE	none	none	Year & Industry

Panel B: Analyst Response to Targets

VARIABLES	(1) Disclosure $\Delta E_1[Y_3] / \sigma_2$	(2) Disclosure $\Delta E_1[Y_3] / \sigma_2$	(3) Disclosure $\Delta E_1[Y_3] / \sigma_2$	(4) Disclosure $\Delta E_1[Y_3] / \sigma_2$
Hypothesis 2:				
(Y_3 Target – $E_1[Y_3]$) / σ_2	0.035***	0.034***	0.037***	0.035***
	(3.43)	(3.63)	(3.36)	(3.38)
Y_3 Management Forecast*			-0.011	-0.001
(Y_3 Target – $E_1[Y_3]$) / σ_2			(-0.80)	(-0.10)
Y_3 Management Forecast			-0.225*	-0.139
			(-1.94)	(-1.57)
(Y_1 Actual – $E_0[Y_1]$) / σ_1	0.175	0.166	0.176	0.167
	(1.60)	(1.49)	(1.60)	(1.49)
Book to Market	0.411	0.687*	0.425	0.685*
	(1.61)	(1.90)	(1.61)	(1.89)
Log(Market Value)	-0.008	0.011	-0.007	0.013
	(-0.19)	(0.30)	(-0.17)	(0.34)
Idiosyncratic Volatility	0.170	0.271	0.170	0.300
	(0.39)	(0.47)	(0.40)	(0.53)
Loss	0.301	0.225	0.297	0.228
	(0.66)	(0.48)	(0.65)	(0.48)
Constant	-0.278		-0.272	
	(-0.59)		(-0.58)	
Observations	774	774	774	774
R-squared	0.182	0.214	0.185	0.215
FE	none	Year & Industry	none	Year & Industry

The table reports OLS regression results estimating unexpected earnings as a function of Y_3 performance targets relative to analyst expectations as of disclosure date for a sample of long-term targets granted to CEOs between the years 2007 and 2011. Panel A analyzes the sub-sample of 742 targets for which third-year income data is available on Compustat. Panel B uses the full sample of 774 targets. *Y_3 Target* is target earnings in the third year of the performance plan divided by total assets as of the grant date of the target-based award. $E_1[Y_3]$ is the consensus analyst forecast in terms of net income for the third year of the performance plan scaled by assets as of disclosure date (denoted with subscript 1). *Disclosure* $\Delta E_1[Y_3]$ is the change in consensus analyst expectation of performance in Y_3 from the month prior to the month following the target disclosure date. $E_0[Y_1]$ is the consensus analyst forecast in terms of net income as grant date (denoted with subscript 0) for the first year of the performance plan scaled by the most recent reported assets. *Y_1 Actual* and *Y_3 Actual* are values of actual income before extraordinary items in the first and third years of the plan, respectively, scaled by beginning-of-year assets. Values of σ_1 and σ_2 are equal to the firm-level standard deviations of 1- and 2-year analyst forecast errors (as net income scaled by assets), respectively, over the 10 years prior to grant. *Y_3 Management Forecast* is an indicator variable equal to one if the firm issues guidance for the third year of the performance plan prior to the disclosure date of the target, zero otherwise. *Book to Market* is the ratio of the book value of assets to the sum of market value of equity and book value of debt as of grant date prior year-end. *Log(Market Value)* is the natural log of the closing price multiplied by shares outstanding as of grant date prior year-end. *Idiosyncratic Volatility* is the market-adjusted standard deviation of monthly returns during the three years prior to grant. *Loss* is an indicator variable equal to one if net income in the year prior to grant was negative, zero otherwise. The specifications in Panel A, Column (3) and Panel B, Columns (2) and (4) include industry (Fama-French 12) and year fixed effects. Robust t-statistics are in parentheses. Standard errors are clustered at the firm level.

Table 5: Robustness of Forecast Content of Earnings Targets

Panel A: Earnings Surprises, Targets, and Cross-sectional Characteristics

VARIABLES	(1) (Y_3 Actual – $E_0[Y_3]$) / σ_3	(2) (Y_3 Actual – $E_0[Y_3]$) / σ_3	(3) (Y_3 Actual – $E_0[Y_3]$) / σ_3	(4) (Y_3 Actual – $E_0[Y_3]$) / σ_3	(5) (Y_3 Actual – $E_0[Y_3]$) / σ_3
(Y_3 Target – $E_0[Y_3]$) / σ_3	0.111***	0.111***	0.111***	0.111***	0.110***
	(3.15)	(3.19)	(3.17)	(3.19)	(3.17)
Pay Residual	-0.019*				-0.020
	(-1.71)				(-1.64)
% Institutional Ownership		0.235			0.277
		(0.33)			(0.38)
Financial Reporting Concerns			0.052		-0.001
			(0.26)		(-0.01)
Long-Range Management Forecast				-0.045	-0.061
				(-0.32)	(-0.43)
Observations	742	742	742	742	742
R-squared	0.143	0.141	0.141	0.141	0.144
FE	Year & Industry	Year & Industry	Year & Industry	Year & Industry	Year & Industry
Controls	Yes	Yes	Yes	Yes	Yes

Panel B: Earnings Surprises and Targets, Interacted with Cross-sectional Characteristics

VARIABLES	(1) (Y_3 Actual – $E_0[Y_3]$) / σ_3	(2) (Y_3 Actual – $E_0[Y_3]$) / σ_3	(3) (Y_3 Actual – $E_0[Y_3]$) / σ_3	(4) (Y_3 Actual – $E_0[Y_3]$) / σ_3
Cross-Sectional Indicator:	*Pay Residual*	*% Institutional Ownership*	*Financial Reporting Concerns*	*Long-Range Management Forecast*
(Y_3 Target – $E_0[Y_3]$)/σ_3	0.116***	0.110***	0.112***	0.113***
	(3.13)	(3.18)	(3.17)	(3.23)
(Y_3 Target – $E_0[Y_3]$)/σ_3 *	0.053	0.005	0.012	0.053
Cross-Sectional Indicator	(0.77)	(0.09)	(0.18)	(0.81)
Cross-Sectional Indicator	-0.146	0.183	-0.016	0.007
	(-1.00)	(0.75)	(-0.10)	(0.05)
Observations	742	742	742	742
R-squared	0.145	0.143	0.141	0.142
FE	Year & Industry	Year & Industry	Year & Industry	Year & Industry
Controls	Yes	Yes	Yes	Yes

This table analyzes the robustness of the forecast content of a sub-sample of 742 earnings targets granted to CEOs between the years 2007 and 2011 for which third-year income data is available on Compustat. OLS regression results are reported in Panels A and B. Y_3 *Target* is target earnings in the third year of the performance plan divided by total assets as of the grant date of the target-based award. $E_0[Y_3]$ is the consensus analyst forecast in terms of net income for the third year of the performance plan scaled by assets as of grant date (denoted with subscript 0). Values of σ_3 are equal to the firm-level standard deviations of 3-year analyst forecast errors (as net income scaled by assets), respectively, over the 10 years prior to grant. Y_3 *Actual* is actual income before extraordinary items in the third years of the plan scaled by beginning-of-year assets. *Pay Residual* is the residual from a cross-sectional model of CEO pay (see footnote 2) for the fiscal year prior to grant. *%Institutional Ownership* is the percent of firm equity held by institutional owners as of the fiscal year-end prior to grant. *Financial Reporting Concerns* is equal to the mean of the standardized values of the following: 1) the percent of quarters (out of all of those recorded on I/B/E/S) that firm performance met or exceeded mean analyst EPS forecasts (*Beat Forecast*), 2) the percent of quarters (out of all of those recorded on I/B/E/S) that firm performance met or exceeded performance in the same quarter of the previous year (*EPS Increase*), and 3) 1 minus the ratio of total debt to asset value as of the end of the fiscal year prior to grant (*% Equity Financing*). *Cross-Sectional Indicator* is equal to 0.5 if the cross-sectional variable listed in each of Columns (1) to (4) in Panel B is above the median value for the given fiscal year, -0.5 otherwise. All specifications in Panels A and B include year and (Fama-French 12) industry fixed effects, along with the following controls: *Book to Market* is the ratio of the book value of assets to the sum of market value of equity and book value of debt as of grant date prior year-end. *Log(Market Value)* is the natural log of the closing price multiplied by shares outstanding as of grant date prior year-end. *Idiosyncratic Volatility* is the market-adjusted standard deviation of monthly returns during the three years prior to grant. *Loss* is an indicator variable equal to one if net income in the year prior to grant was negative, zero otherwise. Robust t-statistics are in parentheses. Standard errors are clustered at the firm level.