

Payday before Mayday: CEO Compensation Contracting for Distressed Firms*

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Abstract: Using detailed information on features of CEO contracts for more than 1,400 US public firms in the period 1998-2016, we examine changes in the structure of CEO compensation contracts when firms become financially distressed. When performance declines, firms face significant changes in liquidity, the need to replace or to retain the incumbent CEO, and the need to align CEO interests with those of shareholders versus creditors, each of which impacts contracting and CEO incentives. We find that distressed firms have lower pay-performance sensitivity if performance is measured against stock or earnings based metrics, but not when measured by cash flow based metrics. Examining the ex-ante compensation contracts, we find that distressed firms increase their overall use of performance metrics, particularly those that are based on cash flows, and set performance targets farther above prior performance. These changes in contracting increase in frequency and magnitude in the years preceding default.

Keywords: CEO Compensation, Contracting, Financial Distress, Default, Creditors

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1. Introduction

A basic tenet in both theory and empirical study is that CEO compensation contracts are used to resolve agency problems by aligning management interests with those of shareholders (Jensen and Murphy, 1990, among many others). The use of performance-based compensation – both grants of equity that tie CEO wealth to stock price performance and the use of performance-based metrics in determining compensation payouts – tie CEO compensation to performance outcomes at the firm. However, as firms become distressed and performance declines, previously negotiated compensation contracts may not adequately incentivize managers to take actions that benefit overall firm value.

For firms closer to default, the continued use of incentive pay and inclusion of objective performance-based metrics in determining compensation payouts maintains transparency and objectivity at a time when shareholders may feel performance does not justify CEO compensation. Objective performance targets guard against potential rent extraction (Bebchuk and Fried, 2003). On the other hand, when firm performance is poor, tying pay to performance-based metrics may not provide adequate incentives to CEOs if the performance targets are unattainable or are noisy measures of the CEO's effort (Holstrom, 1979). In addition, the performance metrics used in CEO contracts prior to distress may not be the appropriate metrics to use as the firm approaches distress, since different actions may be required to maintain firm value. The conflicting theoretical predictions in the setting of distressed firms leads to the main empirical question in our study: how does the use of performance-based pay in CEO compensation contracting change when firms face financial distress?

The popular press captures examples of payouts to CEOs of distressed firms that may be viewed negatively, as indicating suboptimal contracting due to agency problems, or positively, as necessary to retain or reorient managers. As one example, Blockbuster Video filed for Chapter 11 in September 2010, after paying \$775,000 in top executive bonuses earlier that same month. In another, Hasbro historically tied its CEO's incentive pay to performance targets, but “after Hasbro fell well-short of its target levels in

2011, the board lowered its target levels steeply in 2012 to make it very easy for Hasbro to hurdle.”¹ These examples illustrate the potential difficulties of compensation contracting for firms in distress and the lack of understanding of how contracting might be changed in light of poor performance.

In this paper, we examine how CEO compensation contracts change as firms become financially distressed. We use data obtained from firms’ proxy statements to understand the ex-ante nature of CEO contracting, rather than only focusing on ex-post realized payouts based on performance as in much of the earlier literature. For firms facing financial distress, studying realized compensation fail to capture the incentives provided to the CEO because realized compensation is a function of both the ex-ante incentives in place (performance measures and targets) and whether those incentives are met to result in an ex-post payout in either cash or equity. Thus, realized pay may not reflect the true incentives set by the board to motivate CEO behavior. Distressed firms may also change the performance metrics used in contracts, and unless researchers use performance measures that are correlated with those used by firms, this will also dampen the ability to capture the pay-performance relation. This speaks to an extensive literature focusing on the pay-performance sensitivity (PPS), and significant discussions as to why measured PPS tend to be low (Benston, 1985; Murphy, 1985; Edmans, Gabaix, and Jenter, 2017).

Using a sample of more than 1,400 public US firms in the period 1998-2016, we identify firms that become distressed and examine (1) the pay-performance sensitivity of the realized (ex post) pay and (2) the changes in ex ante contracting that occur as performance declines. In recent years, it has become increasingly common to compensate executives based on achieving performance targets as pre-specified in their compensation contracts (Bettis, Bizjak, Coles, and Kalpathy, 2018). Contracts are described at varying levels of detail in proxy statements, and summary information is reported by Institutional Shareholder Services (ISS)’s Incentive Lab dataset. Performance based payouts can be made in cash or equity and are based

¹ WSJ, September 2010; Fortune, June 17, 2014. See also Fortune, 2004, 5 Companies that Pay CEOs Big for a Job Poorly Done: “over and over, corporate boards are caught rewarding poorly performing executives.”

on a number of possible metrics; some metrics, such as stock performance or earnings (which we refer to as “accounting-based” metrics) clearly align CEO incentives with equity holders. Other metrics, such as EBITDA or cash flows (referred to as “cash flow related” metrics), are oriented more towards total firm value and are more clearly aligned with the interests of creditors.

Using this data, we first examine PPS for distressed firms. We find that the previously documented low PPS is concentrated in distressed firms but is largely because of the metric used to measure PPS. In particular, we find that when performance is measured by stock return or operating performance (ROA), PPS is significantly weaker for distressed firms. Once performance is measure by operating cash flow, however, we do not find any difference in PPS between distressed firms and the rest of our sample. This suggests that distressed firms move away from using stock or earning based performance measures toward cash flow based metrics. We then directly examine the objective performance metrics used in ex-ante CEO compensation contracts. We find firms that are clearly financially distressed increase their overall use of performance metrics. Examining the specific metrics used in contracts, we find this increase to be mainly driven by the increased use of cash flow related metrics. This behavior is consistent with shifting CEOs’ attention toward maintaining liquidity and rewarding them based on the most informative indicator for their effort.

The observed shift toward cash flow metrics could also be driven by CEO’s preference to move away from stock or earnings based performance metrics that are likely poor at times of distress. To examine this, we consider whether poorly performing and distressed firms lower target thresholds in their contracts. To the contrary, we find that these firms have a larger gap between target levels and recent measured performance. This result holds both for accounting-based as well as cash flow related performance metrics. This suggests that our findings are not compatible with the rent extraction view of CEO compensation.

Finally, as firms approach distress, objective performance metrics may fail to capture actions needed to maintain firm value and compensation committee may use more discretion in determining CEO pay.

Using ex-post measures of discretionary (non-formulaic) bonus, we do not observe any changes in the level or likelihood of discretionary bonus as firms become distress. This could be due to cash constraints in distressed firms as well as boards avoiding the appearance of paying for extremes of poor performance.

As firms move closer to default and potential bankruptcy, the difficulty in providing adequate incentives in CEO contracts likely becomes most severe. Therefore, we examine how the contracts described above change in event time relative to actual defaults of 99 firms in our sample. An important factor affecting CEO incentives is the risk of dismissal, which becomes substantially higher near defaults: cumulative turnover for the CEO in office 5 years prior to default reaches 50% by the year end preceding default. Further, for many of these firms, compensation contracts from the prior pay period have resulted in lower or zero payouts from performance based pay, exacerbating incentive and retention difficulties. Consistent with our results for the broader sample, firms approaching default increase their overall use of performance metrics in compensation contracts. Relatedly, these firms are significantly more likely to include cash flow related performance metrics in CEO contracts (some of which specifically reference debt reduction), but do not add market (stock price) based or accounting-based metrics. Overall, the changes in contracting increase in frequency and magnitude as firms approach default.

It is unlikely that changes in compensation contracting caused financial distress; rather, we view these changes as a response to the performance decline and other changes as described above. We next consider several non-mutually exclusive motivations for the observed changes in contracting and payouts. One potential channel that explains these contract changes may be the need to motivate and retain the CEO by restoring performance-based incentives, to avoid the loss of human capital would lead to a further decline in firm value.² Firms may adjust contracts to improve retention. A decline in the value of equity holdings will reduce sensitivity of CEO's pay to future stock performance (delta). Delta can fall sharply either

² Distressed firms often describe difficulties in attracting or retaining employees (Brown and Matsa, 2016). Goyal and Wang (2017) and Bharath, Panchapagesan and Werner (2014) both show the pervasive use of key employee retention plans (KERPs) put in place after entering Chapter 11, arguably to retain critical employees through the in-court restructuring.

because the CEO sells shares or because of the decline in the value of shares owned. Similarly, options held by the CEO may be out of the money. Many firms used to respond to the decline in incentives from equity due to stock price declines with stock option repricing (Brenner, Sundaram and Yermack, 2000; Carter and Lynch, 2001); that practice has largely gone away during our sample period both due to the requirement that such programs be approved by shareholders and also because these firms incurred a financial reporting penalty starting in the late 1990s. As a result, firms wanting to restore incentives in the equity portfolio may grant more equity-based pay. Empirically, we find the opposite: when the incumbent CEO has experienced a large decline in delta due to a falling stock price, firms use less incentives based on the stock price or earnings. Though inconsistent with theory that predicts greater use of equity to restore incentives, this suggests that firms address the challenge of a deteriorating stock price by providing less compensation based on stock prices. Consistent with reincentivizing CEOs, we find that the observed contract changes in distressed firms to be stronger for firms whose CEOs have experienced a large decline in their incentives.

A second channel, relevant to firms with positive equity value, is that active shareholders of poorly performing firms seek governance changes including compensation arrangements.³ In our base regressions, we find that the presence of institutional blockholders is associated with higher use of performance based pay. These effects do not appear, however, for the subsample of firms close to an actual default. In such cases, active investors are more likely to purchase debt claims in anticipation of a debt restructuring rather than investing in the firm's equity (Hotchkiss and Mooradian 1997, Jiang, Li, and Wang, 2012). We further examine this mechanism using data from Brav, Jiang, and Kim (2015) and Collin-Dufresne and Fos (2015) for the entrance of a hedge fund or other activist investor, and find that the entrance of an activist is strongly related to the inclusion of performance based metrics. Consistent with an orientation towards improving

³ Morellec, Nikolov and Schürhoff (2012), Favara, Schroth, and Valta (2012) and earlier papers demonstrate that that equity value is often positive in distress and even at default. Brav, Jiang, Partnoy and Thomas (2008) and Fidrmuc and Kanoria (2017) study the relationship between activist shareholders and compensation paid to CEOs.

the stock price, the entrance of an activist into distressed firms is associated with a greater use of accounting-based, but not of cash flow related metrics.

A third channel driving contract changes may be that firms seek to incentivize the CEO to improve cash flows, allowing them to maintain adequate liquidity to continue to operate and aligning incentives with creditors. Further, the fiduciary duties of the board and managers expand to include creditors when the firm is insolvent (Ayotte, Hotchkiss and Thorburn, 2012; Becker and Stromberg, 2012). We find that for poorly performing firms, the use of cash flow based performance metrics increases with proxies for the influence of secured creditors. We also find that distressed firms with high levels of secured debt decrease their use of accounting-based metrics - this may not be surprising given that debt ownership concentration increases substantially when firms are close to default (Ivashina, Iverson, and Smith, 2016).

Regardless of whether contracting changes in response to creditor intervention or to avoid intervention, our results demonstrate the significant changes that occur in response to financial distress. Still, a growing literature suggests that creditors directly influence CEO and board appointments, firm investment, and other corporate decisions when a firm violates debt covenants (e.g. Chava and Roberts 2008; Roberts and Sufi, 2009; Nini, Smith, and Sufi, 2009, 2012; Ferreira, Ferreira and Mariano, 2017). In the context of CEO compensation contracts, Balsam, Gu and Mao (2018) use a regression discontinuity (RD) approach and find that creditor influence after implied covenant violation results in lower levels of compensation and lower risk-taking incentives in the contract. In contrast, our paper examines how firm performance, in particular as firms move closer to financial distress, affects ex-ante contracting and the use of performance based pay. Akins, Bitting, De Angelis and Gaulin(2018) find that after covenant violations, CEO contracts increase CEO leverage through deferred compensation and lower equity delta and vesting duration. Their study also examines the use of accounting-based metrics (as defined by Incentive Lab, and which includes cash flow related metrics) after covenant violations, but find no change on average in their usage. We find, however, firms that violate covenants in fact make significant changes to the performance metrics used in

compensation contracts, moving towards cash flow related metrics and away from accounting (earnings) based metrics. Overall, our tests based on covenant violations show that creditor influence is one potential explanation for the significant changes we observe as default risk increases.

Our paper is most closely related to an earlier study of Gilson and Vetsuypens (1993), with several notable differences. They study compensation changes for 77 firms defaulting on debt in the 1980s that complete a debt restructuring in bankruptcy or an out-of-court restructuring. They find an increase in the sensitivity of pay to stock performance, based largely on the post-restructuring payouts for a subsample of the firms they study, i.e. after the resolution of financial distress. Since the 1980s, there have been significant changes in compensation practices as well as in the nature and characteristics of defaulting firms, suggesting that how firms alter compensation in the face of financial distress is likely to be different. In addition, rather than examining compensation payouts after firms restructure their debt, we focus on the changes in incentives provided in compensation contracts as firms become distressed and approach default. Our work is also closely related to Goyal and Wang (2017), but as noted above, they study a particular aspect of contracting (KERPs) available only after firms enter court supervised bankruptcy proceedings.

While there has been extensive research on how performance influences compensation payouts (that is, the pay-performance relation), there has been relatively little research on how firm performance affects how contracts are set. We contribute to the broader literature on executive compensation by introducing evidence that relates contracting to firm performance, adding as well to our understanding of the effects of financial distress. Finally, research has recently begun to relate compensation contract provisions to either loan pricing or debt contract provisions (Rhodes, 2016; Li, Wang, and Wruck, 2017).⁴ Our analysis sheds

⁴ Rhodes (2016) finds that when pre-existing debt contracts contain earnings-based covenants, compensation payouts are less sensitive to earnings, implying that the use of such covenants in debt contracts substitutes for their use in compensation contracts. Li, Wang and Wruck (2017) examine the use of accounting-based measures in CEO contracts and provide evidence that including such measures is associated with lower borrowing costs in subsequently originated loans.

light on the importance of changes in contracting that reflect the difficulties in providing adequate CEO incentives when firms face financial distress and a high probability of default.

2. Background and Hypothesis Development

Compensation is a mechanism for firms to address the agency problem between executives and shareholders (Jensen and Meckling, 1976). To address the moral hazard problem and encourage executives to act in the best interest of shareholders, contracts are designed to tie compensation to firm outcomes. As a result, executive compensation contracts frequently include cash bonuses that are tied to firm performance, typically accounting earnings measures (Murphy 2000, De Angelis and Grinstein, 2015). Another common mechanism is to pay the executive with equity compensation. Grants of equity, in the form of stock options or restricted stock, increase CEO wealth as the stock price increases, and so may better align incentives of managers and shareholders. Prior research documents that equity grants to CEOs are a function of the incentives already present in his or her incentive portfolio, consistent with incentive alignment as a primary function (Core and Guay, 1999).

Cash bonuses have historically been tied to explicit performance measures. However, firms are increasingly granting equity with greater ties to firm performance by conditioning the vesting of equity grants on achieving pre-specified performance targets (Bettis et al., 2018), related to requirements starting in 2005 in how firms account for equity compensation. These grants increase the pay-performance relation by tying stock-based wealth to the achievement of market-based, accounting-based, or other performance metrics. Furthermore, the inclusion of these performance metrics improve contracting, as the Informativeness Principle states that any measure that provides incremental information on the agent's effort should be included in the contract (Holmstrom, 1979).

While the use of performance metrics in compensation contracts may improve contracting around the moral hazard problem for most firms, it may be more challenging for firms facing financial distress. On the one hand, compensation that is tied to performance outcomes through a pre-determined formula is transparent to investors and allows for objective evaluation of the CEO. Lacking an objective, pre-established measure may allow the CEO to extract rents from the firm (Bebchuk and Fried, 2003). For poorly performing firms, tying compensation to performance outcomes may be particularly important to ensure that CEOs have adequate incentives to act in the best interest of the firm's stakeholders. On the other hand, as the firm becomes financially distressed, performance metrics included in the contract may not be informative of the CEO's effort, and so would not adequately address agency issues (Holmstrom, 1979; Lambert and Larcker, 1987). The use of incentive pay for firms facing financial distress may also impose too much risk on a risk-averse CEO, since missing performance targets in compensation contracts is tied to greater forced CEO turnover (Bennett, Bettis, Gopalan, and Milbourn, 2017). In addition, tax frictions may make it less costly for firms to pay discretionary bonuses (bonuses not tied to pre-determined performance measures) when firms are facing financial distress. Under Section 162(m), firms are able to obtain a tax deduction for compensation above \$1 million only for performance pay. Unprofitable firms may not fully utilize the value of this tax shield. Finally, the actions that the CEO should take to maintain firm value may have less direct correlation with accounting (earnings) or stock price performance, requiring the firm to assert more discretion in determining incentive pay. As a result, firms in distress may appear to have lower pay-performance sensitivity.

Thus, the setting of distressed firms, it is not obvious whether compensation reflects contracting that, ex-ante, determines compensation based on achievement of performance targets, or instead has the appearance of catering to the CEO by not tying pay to performance.

This leads to our first empirical question:

Is financial distress associated with greater reliance on performance based pay, and in particular, an increase in the use of performance based metrics?

To the extent that firms in distress are contracting in performance metrics, they may shift the metrics used. Indeed, what may appear as low pay-performance relations may be capturing shifts away from traditional accounting earnings or market-based performance metrics towards measures that capture improvements in cash flow or measures that directly capture concerns about debt covenants or debt management. Firms can structure compensation to have debt-like features that tie compensation to debt management, such as using defined benefit plans, or deferred compensation.⁵ However, these arrangements are less dynamic as they are typically part of a broader employee compensation and retirement programs and thus firms would have less flexibility in adding them to the CEO's contract as they approach default.⁶ Instead, changes to the contract more directly tied to the need to preserve cash flows are more easily done through performance-based metrics. At the same time, changes to performance measures could reflect catering to powerful CEOs by altering the performance measures to be more likely to result in a favorable payout to the CEO (Morse, Nanda, and Seru, 2011). This leads to our second question:

*Is financial distress associated with performance based pay that relies more on cash flow rather than accounting (earnings) or market-based metrics?*⁷

Besides changing the specific metrics used in contracting, distress may affect how firms set the target levels of these metrics. As performance declines, firms may create greater slack in the targets required to be achieved for payouts, particularly since targets are generally based on the prior year's performance. Increasing the slack to make targets more achievable may help retain CEOs by creating more realistic

⁵ For example, Anantharaman, Fang and Gong (2013) documents that the use of inside debt - compensation that has debt-like payoffs such as pensions, SERPs, and other deferred compensation – is associated with lower yields and fewer covenants in loan contracts, consistent with the theory that debt-like compensation aligns CEOs' interests with outside debt holders.

⁶ Another reason these alternative features are less likely is that the use defined-benefits plans has declined over time (Cadman and Vincent, 2015).

⁷ Given the high rates of CEO turnover for distressed firms, we consider that the contract may also change because there is a replacement CEO. However, we expect the new CEO compensation contract to also reflect the firm's need to improve performance and avoid default. We control for CEO turnover in our multivariate analyses, and also run our tests separately for the subsample of observations where there is no change in the CEO.

expectations of performance.⁸ Considering the target level for metrics used in performance-based compensation, our final question is:

Is financial distress associated with a smaller gap between the target level of performance and prior year's performance?

3. Data

3.1. Sample Selection and Summary Statistics

Our sample includes firms with information on CEO compensation contracts available from Institutional Shareholder Services (ISS)'s Incentive Lab dataset. Incentive Lab collects compensation information from proxy statements including awards from performance based plans. Incentive Lab covers the 750 largest US public firms, but the set of largest firms changes each year; Incentive Lab back fills and forward fills data such that data are available for a larger set of firms. We use Execucomp to complement and verify data on other components of compensation such as salary and bonus, Compustat for accounting information, CRSP for stock return data, and ISS's Governance dataset (formerly Riskmetrics) for data on firms' corporate governance.

Our final sample includes 1,436 firms with data available from 1998 to 2016. For some parts of our analyses, we use capital structure data from Capital IQ (starting in 2000) and Moody's default database for default information. Because the Securities and Exchange Commission (SEC) expanded disclosure requirements for grants of plan-based awards after 2006, some parts of our analysis limit our sample to the period 2006–2016.

[~Insert Table 1 here~]

Table 1, Panel A, summarizes firm-year level variables for the 1,436 firms in our analyses. Because we rely on Incentive Lab for certain contract characteristics, our study is based on larger firms with a median

⁸ Bennett et al. (2017) document that CEOs are less likely to be terminated if they meet performance targets. However, their study considers the incentive effects of established targets rather than how those targets are set.

book value of total assets of \$2,802 million. Firm performance - industry adjusted return on assets (ROA), market adjusted stock returns, and sales growth - is measured at the last reported fiscal year end (year T-1) used to set performance targets for the following pay period (year T), as described in Figure 1 below.

ROA, stock performance, and sales growth can be used to identify firms with poor performance, but do not necessarily identify firms that are financially distressed; for example, a firm with declining sales but low leverage would still have a low risk of default. We construct an indicator variable, *Distress*, to identify observations for distressed firms. *Distress* is equal to one if sales growth is negative in each of the prior two years and the firm is in the top decile of Merton's probability of default (as implemented by Bharath and Shumway, 2008). Prior literature suggests a number of ways to measure financial distress (see Lemmon, Ma, and Tashjian, 2009).⁹ Appendix Table A.1 provides further description of firms in the bottom quartile of industry adjusted ROA relative to remaining sample observations, and observations for firms classified by *Distress*. By construction, firm years indicated by *Distress* have large declines in sales (median -12.7%) and high probability of default, but the table shows they often have negative industry adjusted ROA and stock returns, and often have insufficient operating income to cover interest expense. The incidence of distressed observations is greatest in the economic downturns of the early 2000s and the financial crisis period, as would be expected. Firms that experience distress also may be more likely to be cash constrained; we measure cash constraints using the indicators *No Dividend* and *No Credit Rating*.¹⁰

3.2. Design of CEO Contracts

Firms are required to disclose the details of executive pay as well as the basis of that pay annually in proxy statements (Form DEF 14-A). The variables we use in our analysis are based on five components of total compensation, as reported by Incentive Lab, Execucomp, and in proxies: salary; discretionary cash bonus; time vesting equity grants; performance based cash pay (known as non-equity incentive plans); and

⁹ Similar results are obtained using alternative measures of distress such as negative EBITDA for the prior two years.

¹⁰ Prior literature also suggests a number of alternative measures of cash constraints (Farre-Mensa and Ljungqvist, 2016; Whited and Wu, 2006; and Core and Guay, 1999). Results are also insensitive to the proxy used.

performance based equity pay.¹¹ The value of time-vesting equity grants depends on future stock performance, and is an important component of CEO incentives, but the number of shares granted is not tied to a specific performance metric. Based on the required disclosures, Incentive Lab distinguishes this from performance based cash or equity pay explicitly tied to at least one performance metric; data is provided for the type of grant (cash, stock or options) and the performance metrics (if any) tied to each grant. If available from the proxy, information is also provided for the target level for each metric as specified in the contract, the expected dollar ("target") payout of cash or expected value of stock or options ("the fair value") of each grant, and the vesting schedule (if applicable) of each grant.

Figure 1 provides an example of the timing of contracting, performance measurement, and subsequent payouts to the CEO of Blockbuster Video in April 2009. Performance metrics and target levels are set at the beginning of the pay period (year T) and are typically based on performance in the prior year (year T-1), or sometimes several prior years. Blockbuster filed for Chapter 11 bankruptcy the following year, after paying further cash bonuses to its CEO.

[~Insert Figure 1 here~]

Panel B of Table 1 reports the mean values for CEO contract characteristics overall and for subsamples based on firm performance. For the overall sample, 67.7% of observations use performance based pay tied to at least one performance metric. Additionally, performance metrics can be absolute or relative to a peer group of firms. We therefore construct two additional indicator variables that equal one if the CEO contract includes any absolute or any relative performance metrics, and zero otherwise. Overall, there is a high incidence of firms using absolute performance metrics (66.4% of firm/year observations), and a somewhat lower incidence of relative metrics (19.9%). Appendix Table B.1 shows that relative metrics overwhelmingly (over 80% of observations of relative metrics) are based on stock returns of peer firms.

¹¹ "Non-equity incentive plans" is reported separately from discretionary bonus starting in 2006. Prior to 2006, reported bonus includes both the discretionary and performance based (non-equity incentive plan) cash payout. Salary is not performance based and generally paid out at the fixed contracted value.

We expect the choice of specific performance metrics used in compensation contracts to change for distressed firms, affecting the orientation of the CEO's actions. If the firm suffers from poor stock price performance, using metrics based on the value of the stock may no longer provide adequate incentives. To examine this, we construct a measure, *Market-based*, which equals one if the firm-year has a performance metric (either absolute or relative) based on the stock price and zero otherwise. Poorer performance, based on the lowest quartile of industry adjusted ROA, has a higher incidence of metrics based on stock price, while observations indicated by *Distress* show a lower incidence, likely reflecting the extremely negative stock returns for the more distressed firms (Table A.1).

At the same time that rewarding the CEO based on stock performance may no longer provide adequate incentives, maintaining cash flows becomes increasingly important to avoiding default. Based on the incidence of different metrics observed in CEO contracts as reported in Appendix Table B.1, we construct two measures using only absolute performance metrics.¹² *Cash Flow Related* equals one if a firm-year has a cash flow or debt related performance metric in at least one of the grants awarded and zero otherwise; these metrics include the words EBITDA or cash flow, or words common to loan contracting (based on Dealscan) such as interest coverage, fixed charge, net worth, debt, leverage, covenant, capital structure, credit risk, and/or credit rating. By far, cash flow, specified in various ways, is the most commonly used. Metrics directly referring to terms used in debt contracts are infrequent, but become more important for firms at or near default; we provide examples using such metrics in Appendix B.2. Our second measure, "*Accounting-based*," is equal to one if a firm has any accounting-based performance metrics (most commonly earnings or sales), excluding EBITDA and cash flow, in at least one of the grants awarded, and zero otherwise.¹³

¹²See Wruck and Wu (2017) and De Angelis and Grinstein (2017) for further discussion of the use of absolute versus relative performance evaluation plans.

¹³ Recent literature examining the choice of performance metrics largely focuses on two broad classes, accounting-based measures and market-based measures such as stock returns. We separate out EBITDA from accounting-based measures because the exclusion of significant non-cash expenses such as depreciation and amortization more closely tracks cash from operations than other earnings measures such as EBIT. All results in this paper are insensitive to the classification of sales as an accounting-based rather than cash flow based measure.

Table 1, Panel B shows that 22.8% of observations have absolute performance metrics based on cash flow related targets, and 56.1% have accounting-based targets (individual firms can include both types of metrics in a contract). Poorly performing firms in the lowest quartile of industry adjusted ROA are more likely to have cash flow related performance metrics compared those in the top quartile (25.9% versus 14.6% for those in the top quartile), as are firms indicated by *Distress*. Poorly performing as well as distressed firms are less likely to use accounting-based performance metrics. We note, however, that these statistics are conditional on inclusion of a performance metric. We provide additional univariate analysis in Appendix Table A.2, which shows that poorly performing firms, and to a larger extent distressed firms, are more likely to drop accounting-based performance metrics and add cash flow related performance metrics. At the same time, firms closer to default may be more likely to drop specific metrics of any type, and move towards more non-formulaic pay.

As firms approach distress, objective performance metrics may fail to capture actions needed to maintain firm value. Further, while objective measures provide transparency, they also impose greater risk on the CEO if poor performance makes achieving a specific metric more difficult. This suggests that the compensation committee should have more discretion in determining CEO incentive pay. We create three variables to examine this behavior: *Discretionary Bonus*, which is the log of discretionary cash bonus, *Discretionary Bonus Ratio*, which is the ratio of the discretionary cash bonus to the sum of this plus the target value of performance-based cash pay¹⁴ (non-equity incentive plan), and *Discretionary Bonus Dummy*, which is an indicator variable equal to one if CEO receives any discretionary cash bonus in a given year. These variables are calculated starting in 2006, since prior to that time the reported bonus combines both the discretionary and performance based cash payouts. Further, they are calculated using actual cash payouts, rather than the ex-ante expected payouts at the time of contracting. About 21% of firms pay

¹⁴ The use of target value of non-equity incentive plans as opposed to their actual payout addresses the concern that *Discretionary Bonus Ratio* would be mechanically large if performance targets are not met.

discretionary bonuses, regardless of performance, though the proportion of the total bonus that is discretionary appears somewhat higher for worse performing firms.

Finally, Incentive Lab includes information on target levels for a given performance metric for approximately 40% of reported metrics. Incentive Lab further reports for about 30% of observations that target level information is not disclosed for that firm-year. For the remaining 29%, Incentive Lab provides no information, and we verify that this information has not been reported in proxy statements.¹⁶ We include in our analysis targets for a number of different metrics: EBITDA, cash flow, earnings before interest and taxes (EBIT), earnings before taxes (EBT), earnings, EPS, and sales. We define two sets of measures that compare the target to prior firm performance: *Target Above Performance* is an indicator variable equal to one if the target is set above the prior year's performance (from Compustat) for that specific metric, and zero otherwise; *Target-Performance Gap* is a continuous variable defined as $\frac{\text{target} - \text{past performance}}{\text{abs}(\text{past performance})}$ (winsorized at 1 and 99 percentile).

Because CEO contracts in a given year often are tied to multiple performance metrics, we also compute two aggregate measures, *Gap: Accounting-based* and *Gap: Cash Flow Related*, using the same classification of metrics as described above. There is considerable variation in contract provisions when setting pay based on multiple target metrics (*i.e.* whether all performance objectives have to be met versus each objective independently controls a portion of the award); we aggregate by taking the average of the individual measures (results are unaffected using the minimum or maximum). We also examine the increase in the target relative to the prior year's target for the same performance metric, but do not report results based on this measure because many firms do not disclose target information for the same metric in consecutive years.

¹⁶ Reporting of target levels increases significantly in 2006. Given that firms have some discretion in reporting metric targets, we also examine whether poorly performing firms are less likely to disclose these target values, which would be consistent with allowing more discretion to the compensation committee to determine CEO incentive pay.

Some observed differences in contracts result not from recontracting with the same CEO, but because the contract for a replacement CEO is designed to provide different incentives from those of the former CEO. This is likely to be particularly important as firms become financially distressed and CEO turnover rate becomes substantially higher than the 12.1% of observations for the broader sample. It is also common to compensate first year CEOs with a greater proportion of stock to compensate for the loss of previously unvested holdings (Fee and Hadlock, 2003). Differences in outgoing versus incoming CEO contract terms are not apparent from Appendix Table A.3; we revisit this comparison, however, when we consider the most extremely distressed firms in Section 7 below.

4. Overall use of performance based pay

In this section, we look broadly at the relation between the use of performance based pay and measures of firm performance and distress. We first examine whether sensitivity of ex-post pay to performance is different for distressed firms and/or those with prior poor performance. We then examine whether compensation is contingent on achieving performance targets specified in the ex-ante CEO's contract.

4.1. Sensitivity of pay to performance

Most executives have considerable stock and option holdings in their own firms, which directly tie their wealth to performance of their own firms' stock. Therefore, estimating pay-performance sensitivity (PPS) by focusing on current pay systematically underestimates CEO incentives. With that caveat, estimates of PPS still tend to be low (Benston, 1985; Murphy, 1985). One explanation is that CEOs do not want to bear the risk of tying pay to performance, which could be interpreted as good for CEOs and bad for shareholders. Another explanation is that these estimates pool well performing and poorly performing firms together and also estimate pay-performance sensitivity using ex-post payouts. The challenge with this approach is that well-performing firms will have positive pay-performance sensitivity while poorly

performing firms will not, and not because firms do not tie pay to performance, but because performance does not reach the target to achieve payout. Poorly performing firms may also change the performance measures used in contracts away from accounting earnings. Unless researchers are using performance measures that are correlated with those used by firms, this will also dampen the ability to capture the PPS relation. To examine whether sensitivity of pay to performance is different for poorly performing and/or distressed firms, we first estimate the sensitivity of pay to different measures of performance, and then examine whether those estimates are different for poorly performing and distressed firms. Specifically, we use the following specification:

*Total Compensation*_{it}

$$= \alpha + \beta * Firm\ Performance_{i,t} + \gamma * Poor\ performance\ or\ Distress_{i,t-1} + \delta$$

$$* Firm\ Performance_{i,t} * Poor\ performance\ or\ Distress_{i,t-1} + \theta * \Omega_{i,t-1} + \pi_i + \varepsilon_{it}$$

The coefficient β indicates sensitivity of pay to a contemporaneous measure of performance, which depending on the specification is measured as industry-adjusted ROA, stock market performance over the last 12 month or operating cash flow normalized by total assets. *Poor performance or Distress*_{i,t-1} is an indicator variable which depending on the specifications identifies bottom quartile of industry adjusted ROA, or distressed firms. Ω is a matrix that includes the variable Institutional Blockholder for the presence of an institutional investor owning more than 5% of the stock (from Thomson Reuters), and the two proxies for cash constraints. Ω also includes other firm and CEO characteristics as additional control variables shown in prior literature to be important in explaining the CEO compensation (Murphy, 1999; Edmans, Gabaix, and Jenter 2017). We lag all independent variables except measures of performance by one year to capture the information available to the board of directors at the time of writing the CEO compensation contract. π is a vector of firm fixed effects. Table 2 presents the results of this analysis.

[~Insert Table 2 here~]

Columns 1-3 of Table 2 measure sensitivity of pay to industry-adjusted ROA. Our results in Column 1 implies that one standard deviation increase in industry adjusted ROA is associated with 12 percent increase in CEO's total compensation (coefficient estimate, 0.813, multiplied by standard deviation of ROA, 0.148). In Columns 2 and 3 we find that sensitivity of pay to performance measured by industry adjusted ROA is not different for firms in the bottom quartile of ROA, but is significantly lower for distressed firms. Our estimates in Column 3 implies that while, on average, one standard deviation increase in industry adjusted ROA is associated with 13.7 percent increase in CEO's total compensation, this increase is only one percent for distressed firms $((0.925-0.851)*0.148)$. This indicates not only that CEO pay is almost not sensitive to performance in distressed firms but also that once we allow distressed firms to have a different coefficient estimate, our PPS estimate increases by about 14 percent (0.925 in Column 3 vs 0.813 in Column 1). We find a similar pattern in Columns 4-6 where we measure performance by stock market performance over the last 12 month. However, when performance is measured by operating cash flow in Columns 7-9 we find that PPS is not different in distressed firms from that of the rest of the sample. This is consistent with distressed firms moving away from using earnings-based performance metrics in CEO contracts and toward using cash flow related metrics. We examine this more directly in Tables 3 and 4 by looking at the explicit performance metrics used in ex-ante CEO contracts.

4.2. Use of performance metrics

We estimate a conditional logit model (also known as logit fixed effect model) for the inclusion of performance metrics in the CEO's contract. Specifically, we use the following specification:

$$Performance\ metric_{it} = \alpha + \beta * Firm\ Performance_{i,t-1} + \gamma * \Omega_{i,t-1} + \delta_i + \varepsilon_{it} \quad (2)$$

Depending on the specification, $Performance\ metric_{it}$ is a 1/0 variable indicating the use of a performance measure for firm i at time t . The coefficient β indicates contracting changes based on $Firm\ Performance_{i,t-1}$, which is measured as industry-adjusted ROA, an indicator variable for firms with the top or bottom quartile of industry adjusted ROA, or the indicator $Distress$. Ω is a matrix that

includes the variable *Institutional Blockholder* for the presence of an institutional investor owning more than 5% of the stock (from Thomson Reuters), and the two proxies for cash constraints. Ω also includes other firm and CEO characteristics as additional control variables shown in prior literature to be important in explaining the CEO compensation (Murphy, 1999; Edmans, Gabaix, and Jenter 2017).¹⁷ All independent variables are lagged by one year except *CEO Turnover*.¹⁸ δ_i is a vector of firm fixed effects. Since we are mainly interested in how CEO contracts change as firm performance deteriorates, we include firm fixed effects in all reported specifications, which allows us to focus on within firm variations in CEO contracts. Because we estimate the conditional logit model of Chamberlain (1980), the δ_i coefficients are conditioned out of the model and are not estimated.¹⁹ The z-statistics reported in Table 2 are based on robust standard errors clustered at the firm level.

Table 2 reports the results of these logit regressions. In each panel, the first regression (Columns 1, 4 and 7) includes industry adjusted ROA, and the second regression (Columns 2, 5 and 8) includes indicator variables for firms in the top and bottom quartiles of industry adjusted ROA to measure firm performance. The overall use of performance metrics generally does not change with respect to changes in industry adjusted ROA, with the exception that firms in the bottom quartile of ROA are less likely to use relative performance metrics (which are most always based on stock performance). Regardless of the specification, the use of any metric type is positively related to the prior stock performance. Remembering that our sample consists of large firms, firms that pay no dividend are also significantly less likely to include any performance metrics in the CEOs contract.

¹⁷ Our results throughout this paper are not sensitive to including controls for the Gompers, Ishi, and Metrick (2003) governance index, CEO tenure, and CEO ownership; we report our results without these additional controls as they reduce our sample size.

¹⁸ We use lagged performance because compensation contract features are set at the beginning of the year and therefore only prior year performance can inform any decisions around contract design. See Figure 1 for an example for the timing of contracting and payouts.

¹⁹ A potential concern with the use of fixed-effects logit models, known as incidental parameter problem, is that coefficient estimates might be inconsistent and biased, especially when T, the length of the panel, is fixed and small (Heckman, 1981; Hsiao, 1996; and Greene, 2002). Our results throughout the paper are not sensitive to alternatively using a linear probability model. For brevity, we only report the results of our analysis in Table 2 using a linear probability model in Appendix Table A.4.

The third column in each panel (Columns 3, 6 and 9) includes our indicators for distressed firms. Our regressions indicate that firms are more likely to include performance metrics - largely absolute performance metrics - when they become distressed. We provide further evidence for the choices of metrics within absolute performance metrics in Section 5 below.

[~Insert Table 3 here~]

4.3. The choice of performance metrics

As discussed in Section 2, as firms' performance deteriorates, market-based performance measures may not provide adequate incentives to the CEO. The regressions in Columns 1-3 of Table 4 report conditional logit regressions where the dependent variable is an indicator for the inclusion of *market-based* performance metrics. We include both absolute and relative performance metrics – while relative performance metrics are nearly all based on the stock price, almost 10% of absolute performance metrics are as well. Our analysis shows that neither performance measures based on ROA or our distress measure explain the use of stock price based metrics. Again, these regressions include firm fixed effects, suggesting that although firms may need to restore equity incentives when the stock price declines, they do not appear to do so by adding further market-based metrics, nor do they appear to drop these metrics as they become distressed. The prior stock performance, however, continues to be strongly related to the use of performance metrics including market-based metrics.

[~Insert Table 4 here~]

As firms approach distress and cash flows become more important to avoiding default, firms may adopt cash flow related performance measures and decrease their use of accounting (earnings) related measures in the CEO compensation contract. As explained in Section 3.2, our analysis relating the usage of these metrics to firm performance is based on use of absolute performance metrics.

In Columns 4-6 of Table 4, the dependent variable is an indicator for the inclusion of *cash flow related* performance metrics; in Columns 7-9, the dependent variable indicates the inclusion of *accounting-based*

performance metrics. From Appendix Table B.1, Panel A, debt or cash flow related metrics are observed for 24% of firm/year observations, and generally specify either EBITDA or some definition of cash flow as the metric. The regressions in Columns 4-6 show that firms are more likely to include cash flow related performance measures as operating performance deteriorates and firms become distressed. Importantly, the magnitude of the effect for distressed firms is about three times larger in comparison to the effect for firms in the bottom quartile of operating performance (Column 5 vs Column 6). Thus, although the addition of cash flow related performance metrics are observed for firms experiencing a decline in performance, they become substantially more frequent when firms become distressed.

The regressions in Columns 7-9 examine whether firms change their use of accounting-based performance metrics as performance deteriorates. Accounting-based metrics comprise 56% of firm/year observations, of which 85% are based on net income (EPS, earnings, ROA, ROE, ROIC – see Appendix Table B.1, Panel A). Firms in the bottom quartile of ROA are less likely to include accounting (largely earnings) based metrics. We do not observe any change in the use of accounting-based metrics in distressed firms.

4.4. Performance targets

In addition to changing which performance metrics are included in CEO contracts, firms can also respond to poor performance by modifying the target level of a given metric. We examine how firms set or modify targets as a function of the firm's past performance. We further note that this part of our analysis is conditional on inclusion of a performance metric and disclosure of the target value for that metric. Thus, we first examine whether deteriorating performance affects the likelihood of firms disclosing target values. Appendix Table A.5 reports the results of Heckman models where the outcome variable is an indicator variable for reporting target values for at least one performance metric, and the selection variable is an indicator variable for the use of any metric. We only report the results of the second stage of the Heckman models since the first stage is essentially the same as those reported in Table 4. We find some evidence,

though only marginally statistically significant, that while worse performing firms may continue or even increase the use of performance metrics, they are somewhat less likely to disclose details of the contracted formulas to shareholders.

[~Insert Table 5 here~]

Table 5 Panel A provides an initial description of the individual and aggregate measures for the full sample and based on the performance groups. Based on the aggregate measures, firms in the bottom quartile of prior industry adjusted ROA and distressed firms have a somewhat higher incidence of setting targets above the prior year's performance relative to better performing firms (*Target Above Performance*), particularly for cash flow related metrics. For the continuous measure, *Target – Performance Gap*, the distance between the target level and prior performance (as a percentage of prior performance) appears larger in poorly performing firms across all performance metrics. This suggests that the most distressed firms set targets that require larger improvements in performance for CEOs to receive performance based pay.

We use the aggregated continuous measures, *Gap: Accounting-Based* and *Gap: Cash Flow Related*, for the OLS regressions reported in Table 6. We find that both firms in the bottom quartile of ROA and distressed firms set targets farther above their prior performance for both accounting-based and cash flow related metrics. This analysis, however, is subject to a few caveats. First, firms experiencing losses may be reluctant to set performance measure levels to negative values, leading to an upward bias in target levels relative to prior years. Still, this creates a greater performance hurdle for CEOs to successfully earn this pay. Second, poorly performing firms might drop targets based on metrics they do not expect to meet. Panel B of Appendix Table A.2 shows that firms in the bottom quartile of ROA are more likely to drop a performance metric they already have, especially for accounting-based performance metrics such as EBIT, EBT and EPS. This pattern is even stronger for distressed firms. But, these firms are also more likely to include cash flow related metrics. Further, to the extent targets are selectively chosen to increase the

likelihood of payouts, one might also expect the gap between targets and prior performance to decrease, contrary to our findings in Table 6.

[~Insert Table 6 here~]

4.5. Use of discretionary versus formulaic cash bonus

As discussed before, as firms approach distress, objective performance metrics may fail to capture actions needed to maintain firm value. This suggests that the compensation committee should have more discretion in determining CEO incentive pay. As described in Section 3.2, we construct three measures for discretionary (non-formulaic) cash pay. *Discretionary Bonus*, is the log of discretionary cash bonus. *Discretionary Bonus Ratio* is the ratio of the discretionary cash bonus to the sum of this plus the target value of performance-based cash pay, and measures the proportion of bonus that is non-formulaic. *Discretionary Bonus Dummy* is an indicator variable equal to one if CEO receives any discretionary cash bonus in a given year. Table 7 reports the results of OLS and conditional logit regressions, similar to those in equation (1), using these three outcomes as the dependent variable. In Columns 1-3 we do not observe any changes in the level, ratio or likelihood of discretionary bonus as firms become distress. This could be due to cash constraints in distressed firms. This could also be due to boards avoiding the appearance of paying for extremes of poor performance, or from shareholder or creditor pressure to maintain formulaic-pay practices in these cases.

[~Insert Table 7 here~]

We also examine whether firms with low payouts relative to target pay in the prior year consequently pay more discretionary bonus. We construct three indicator variables to capture firms with low payouts relative to the target pay. *Zero Bonus* is an indicator variable which takes the value of one if CEO was contracted to receive performance-based cash compensation (non-equity incentive plans) but did not receive any payouts from those grants. We also construct ratios of actual payouts to the target values of

performance-based cash and equity grants.²⁰ We define indicator variables *Low Bonus* and *Low Equity* which take the value of one if the payout is less than half of the target values for performance-based cash and equity grants, respectively. Since it is likely for distressed firms to also have low payouts relative to the target grant values and in order to not confound the interpretation of our results, we exclude distressed firms in defining the three indicator variables mentioned above. We find that firms with prior low payouts indeed pay significantly more discretionary bonus and are also more likely to pay such bonuses (Columns 4-12 of Table 7).²¹

5. Compensation Contracts for Firms Approaching Default

Our results to this point demonstrate that contracting and incentives provided to the CEO change significantly when firms become financially distressed. When the probability of default becomes extremely high, CEO career concerns, creditor or shareholder pressure, and potential problems of debt overhang become most severe. For example, intervention by shareholders in the face of weak operating performance may be replaced by intervention by creditors for an insolvent firm. Therefore, in this section, we study changes in the CEO contract in event time for the firms in our sample that experience an actual default. We use information on default events from Moody's default dataset for 99 firms having information on CEO contracts in Incentive Lab in the five year period leading to default. 54 defaults correspond to a Chapter 11 bankruptcy filing, with the remaining firms restructuring out of court or filing for bankruptcy at a later date.

Our focus is on the contracting that occurs close to default rather than in Chapter 11 (as in Goyal and Wang, 2017); still, the prospect of a bankruptcy filing brings uncertainty as to the executive compensation

²⁰ Data are available for both the target and realized cash bonus for approximately 6,000 firm/year observations; for approximately 10% of these observations, the CEO receives (ex-post) no performance based bonus.

²¹ In untabulated analysis we examine whether the observed lower (or lack of) sensitivity of pay to performance is driven by firms in which CEO has received low payouts due to not meeting the performance targets used in the compensation contract. We find that sensitivity of pay to performance in firms with low payouts is not different from the rest of our sample. This indicates that the effect of distress on pay-performance sensitivity is distinct from that of having zero or low payouts.

permitted while under court supervision, and likely affects behavior prior to the filing.²² 80 of the 99 defaulting firms have information reported as of the fiscal year end prior to default.²³ Out of 495 possible firm-year observations (99 default events times 5 years of data for each event), Incentive Lab has missing information on CEO contracts for 80 observations. We hand collect CEO compensation information for 26 firm-year observations that after 2006, the year in which increased SEC disclosure requirements come into effect. We obtain detailed information on CEO compensation in 10-K filings (rather than proxies) for 13 of those 26 firm-year observations.

[~Insert Table 8 here~]

Table 8 provides summary statistics for the defaulting firms. Not surprisingly, performance deteriorates substantially by year -2. Even at year -5, less than half of these firms pay no dividend; the large size of firms in the sample explains the low incidence of no credit rating (16%), and larger firms are also more likely to continue reporting through the fiscal year end preceding default (year -1). The default probability rises sharply to 60% in the last year before default.

Panel B of Table 8 further shows the changes in CEO contracting as firms approach default. These univariate statistics show an increase in the inclusion of *Cash flow related* performance metrics as well as *Cash flow related* performance metrics specifically based on debt reduction or leverage. While such metrics are uncommon for the overall sample, they do begin to appear for the subset of defaulting firms (see Appendix Table B.1. for more details).

We also observe a large increase in CEO turnover in the years leading to default. Not only does this effect the CEO's relevant horizon, as well as other potential difficulties in employee retention, it becomes relatively more important to consider whether the CEO has been replaced when we compare contracts

²² The difficulties in distinguishing whether compensation contract terms are designed to retain management versus incentivize management has been highlighted following the 2005 bankruptcy reforms, which effectively led firms to discontinue the use of KERPs and replace them with Key Employee Incentive Plans (KEIPs). See "Pay for iHeart CEO Rose as Bankruptcy Loomed," *Wall Street Journal*, May 15, 2018; and Elias, 2018.

²³ Ideally this process should leave us with 495 firm/year observations, but because Incentive Lab coverage starts in 1998, we do not have CEO contract information for the full five-year period for default events occurring earlier than 2003.

within firm across years. Panel B reports turnover rate from year -5 to -1 relative to the event of default; cumulatively, over 50% of CEOs in office at year -5 have been replaced by the year end before default. From press releases and SEC filings, we determine that 42% of replacement CEOs are insiders, approximately 20% are appointed as interim CEOs, and about 9% of them are specifically tapped as turnaround specialists.²⁴ Comparing the contracts of outgoing to incoming CEOs (Panel C of Table 8), we observe a greater proportion of stock based rather than cash based compensation for the replacement CEO.

To formally test whether features of CEO contracts change in the years leading default, we use the following conditional logit and OLS regressions for different features of CEO contracts on a time trend variable with respect to the default event:

$$CEO\ contract\ feature_{it} = \alpha + \beta * Year\ w.r.t.\ Default_{i,t} + \gamma * \Omega_{i,t-1} + \varepsilon_{it} \quad (2)$$

where $CEO\ contract\ feature_{it}$ is the feature of the CEO compensation contract for firm i at time t , which, depending on the specification, is one of the following: inclusion of any (either absolute or relative) performance metric; ratio or inclusion of discretionary cash pay; inclusion of *market-based*, *accounting-based*, or *cash flow related* performance metrics; and the expected and actual proportion of performance based compensation paid out in cash. In order to capture non-monotonic changes prior to a default event, we use three indicator variables, *1 Year Before Default*, *2 Years Before Default*, and *3 Years Before Default* that take a value of one if the observation is one, two or three years before the default event, respectively, and zero otherwise. Results are qualitatively the same when we alternatively use a time trend variable that takes values from -5 to -1 (not reported). Ω is the matrix of control variables consisting of firm and CEO characteristics used in our previous analyses.

²⁴ For example, US Airways announced in November 2001, a year before they defaulted on their debt, that they appointed Stephen M. Wolf as the new interim CEO. The press release reads Stephen M. Wolf is “a former head of United Airlines and a turnaround artist in the nation’s troubled airline industry.” As another example, The Great Atlantic & Pacific Tea Company Inc. announced in January 2010, three years before their default, that Ron Marshall will assume the role of the interim CEO and part of the press release reads “he will be the key leader in our turnaround.” The same person, Ron Marshall, then joins Borders Group a year later in January 2009 as interim CEO. The press release from Borders reads “We are confident that Ron Marshall, with his strong financial and turnaround expertise, vast retail experience and specific bookstore background, is the right choice to lead a new management team.”

Table 9 reports these results. As firms approach default, they are more likely to use performance metrics up until the year end just before default (Column 1). Although we do not observe changes in the overall incidence of *market-based* or *accounting-based* metrics, there is strong evidence that firms include *cash flow related* metrics closer to default (Column 6).

[~Insert Table 9 here~]

Changes in the CEO (control variable *CEO turnover*), or using only observations where there is no change in the CEO (not reported), do not explain these results. Overall, these results are consistent with those reported earlier, but show these changes are economically important as the default probability approaches one.

6. Motivations for Observed Contracting Changes

6.1. Realigning incentives

The first motivation for the observed contract changes we explore is whether the changes are associated with the need to realign CEO's incentives. As firms approach distress, the decline in stock price adversely impacts incentives from the CEO's existing equity portfolio. Firms can realign incentives with shareholders by changing other aspects of the compensation contracts. To measure the change in the CEO's equity portfolio incentives, we use data for the portfolio delta provided by Coles, Daniel and Naveen (2006) and Core and Guay (2002).²⁵ Delta is defined as the dollar change in CEO's wealth associated with a 1% change in the firm's stock price. We first create a variable indicating whether the CEO has experienced a large decline in portfolio incentives from year t-2 to t-1, defined as being in the bottom decile of the distribution (which corresponds to a 58 percent decline in CEO's portfolio delta). However, large declines in delta can

²⁵ Brav et al. (2008) document hedge funds' success in curtailing the level of executive compensation and increasing the percentage of CEO pay coming from equity-based incentives. Fidrmuc and Kanoria (2017) similarly find the entry of hedge fund activists results in a decline in the level of CEO pay. Both of these papers report changes in the ex-post payouts to CEOs, whereas our focus is on ex-ante compensation contracting. Though not reported in our paper, we do not observe significant declines in the level of payouts to CEOs as firms become distressed.

be due either to the CEO reducing his or her ownership (selling shares), or to a decline in the stock price (related to distress). We therefore focus on large declines in portfolio delta that are accompanied by extremely poor stock performance. We define extreme poor stock performance as those with raw stock return over the same period being in the bottom decile of the distribution (which corresponds to -40 percent). From these, we construct an indicator variable, *Large Decline in CEO Incentives*, which indicates large declines in delta accompanied only by large declines in price.

To formally test whether declines in equity incentives are related to contract changes as firms become distressed, we use the following conditional logit and OLS regressions for the different features of the contracts:

$$CEO\ contract\ feature_{it} = \alpha + \beta_1 * Distress_{i,t-1} + \beta_2 * Large\ Decline\ in\ CEO\ Incentives_{i,t-1} + \beta_3 * Distress_{i,t-1} * Large\ Decline\ in\ CEO\ Incentives_{i,t-1} + \gamma * \Omega_{i,t-1} + \varphi_i + \varepsilon_{it} \quad (3)$$

where *CEO contract feature_{it}*, as well as the control variables, follows those used in our previous analyses. Results are reported in Table 10.

[~Insert Table 10 here~]

For portfolio incentive declines related to price declines, we observe consistently lower use of performance metrics (Columns 1- 5). However, the need to restore equity incentives would not likely lead to an increased use of cash flow related metrics, consistent with our results in Column 6. Consistent with our findings in Tables 3 and 4, we find that the overall use of performance metrics and the use of cash flow related metrics are increased for distressed firms. The coefficient estimates of the interaction term indicates that the contracting changes that we broadly observe in distressed firms are stronger in those with large declines in CEO incentives. These results strongly suggest that the changes we observe more broadly for our sample are related to the decline in incentives provided by equity holdings. When the decline in delta

is more attributable to selling by the CEO, we largely find the opposite results for overall and accounting-based metrics (untabulated).

6.2. Shareholder Influence

A growing literature demonstrates that active institutional shareholders frequently appear as blockholders when firms under-perform (Brav, Jiang, and Kim, 2010). These investors also have been shown to challenge the level or the pay-for-performance sensitivity of executive compensation.²⁶ We consider the role of active shareholders by including the variable *Institutional Blockholder* in our regressions explaining the changes in compensation contract provisions. From the regressions in Table 5, the entry of an institutional blockholder is significantly positively related to inclusion of both cash flow related and accounting-based performance metrics. One might expect blockholders to benefit most from metrics tied to accounting-based (earnings) measures; but the coefficient on the institutional blockholder variable is similar for cash flow related and accounting-based performance metrics (Columns 1-3 vs Columns 4-6 of Table 4).

We further examine the effect of activist institutional investors on CEO contracting more directly by exploring the changes in CEO contracts following the entrance of activists observed from Form 13D filings.²⁷ For the purpose of this analysis, we focus on the choice of performance metrics. Panel A of Table 11 shows the results of conditional logit regressions where the outcome variables are the use of *Cash Flow* and *Accounting-based Performance Metrics*. The main independent variable of interest is *Activist Shareholder*, which is an indicator variable equal to one if a Form 13D is filed by an activist shareholder within the last two years, and its interaction with measures of performance. We drop firm-year observations that are after the first incident of an activist shareholder entering a firm. Consistent with our findings in

²⁶ Brav et al. (2008) document hedge funds' success in curtailing the level of executive compensation and increasing the percentage of CEO pay coming from equity-based incentives. Fidrmuc and Kanoria (2017) similarly find the entry of hedge fund activists results in a decline in the level of CEO pay. Both of these papers report changes in the ex-post payouts to CEOs, whereas our focus is on ex-ante compensation contracting. Though not reported in our paper, we do not observe significant declines in the level of payouts to CEOs as firms become distressed.

²⁷ We thank Wei Jiang and Vyacheslav Fos for sharing their datasets (ending in 2015) on activist institutional investors.

Table 4, we find that the entrance of activist shareholders is associated with the increased use of performance metrics of any kind. For distressed firms, introduction of an active shareholder is associated with more use of accounting-based metrics, but not cash flow related ones.

[~Insert Table 11 here~]

While we cannot infer causality, these results are consistent with the literature focusing more broadly on the causal impact of institutional investors, and in particular hedge funds, on target companies. As firms become more distressed, the relative influence of shareholders versus creditors should decline. Consistent with this explanation, the coefficient for *Institutional Blockholder* is insignificant for the sample of defaulting firms (Table 9), and the interaction term *Distress * Activist Shareholder* (Panel A of Table 11) is significant for accounting-based metrics which align with shareholder interests.

6.3. Creditor Influence

A growing number of academics and practitioners have argued that senior secured creditors have become increasingly powerful relative to management of distressed firms (Meier and Servaes, 2015; Bharath, Panchapagesan, and Werner, 2014; Gilson, Hotchkiss, and Osborn, 2016). Secured debt of these firms is typically held by banks or by hedge funds which have replaced banks as creditors closer to default. We therefore expect potential creditor influence to be greater for firms with higher levels of secured debt.

In Table 11, Panel B, we explore whether the use of cash flow related performance metrics is associated with firms that have higher levels of secured debt. *High secured debt* is an indicator variable for observations where the ratio of secured to total debt is above its median value for the full sample (using data from Capital IQ starting in 2000). We find that the interaction of the bottom quartile ROA observations and *high secured debt* is significant and positive, but we do not find a similar significant effect interacting *high secured debt* and our distress indicator.

The significant interaction of high secured debt and poor performance, though only weakly significant, could reflect either direct intervention of creditors, or the firm's attempts to avoid creditor

intervention. Intervention by creditors is most likely only when control rights are in fact triggered, as is the case with covenant violations or a default. The transfer of control rights from shareholders to creditors when covenants are violated has been well documented (Nini, Smith and Sufi, 2009, 2012; Chava and Roberts, 2008; Ferreira, Ferreira and Mariano, 2017); default risk increases with these events (Freudenberg, Imbierowicz, Saunders, and Steffen, 2011), though many firms violating covenants are clearly not financially distressed. In addition, loan contracts are often renegotiated multiple times during the life of a loan, perhaps to prevent a covenant violation (Roberts, 2015; Denis and Wang, 2014).

Following the prior literature, we identify implied covenant violations by calculating how far the relevant accounting variables are from covenant thresholds set at the loan origination. For each loan, we obtain covenant threshold information for the following variables: current ratio, net worth, tangible net worth, and debt-to-EBITDA ratio. We assume the firm is bound by these covenants until maturity of the loan. Since a firm can have more than one active loan in a given quarter, we use the minimum threshold (or the maximum for the debt-to-EBITDA ratio) for each covenant across all active loans in a given quarter. We use Compustat information to obtain accounting variables at a quarterly frequency. If the accounting variable is below the covenant threshold, there is an implied covenant violation. In the case of the debt-to-EBITDA covenant, a violation occurs if the accounting variable is above the covenant threshold. We take advantage of the discontinuity around the covenant threshold by using a regression discontinuity (RD) design, as in several recent papers (e.g. Chava and Roberts, 2008; Roberts and Sufi, 2009; Ferreira et al., 2017). We use the following regressions model:

$$\begin{aligned}
 CEO\ contract\ feature_{it} &= \beta * Violation_{i,t-1} + \delta_1 * Distance_{i,t-1} * Violation_{i,t-1} + \delta_2 * \\
 Distance_{i,t-1} * (1 - Violation_{i,t-1}) &+ \gamma * \Omega_{i,t-1} + \alpha_t + \varphi_i + \varepsilon_{it}
 \end{aligned} \tag{4}$$

where *Violation* is indicator variable that takes the value of one if firm *i* breaches a covenant threshold, *Distance* is the minimum distance to threshold across all covenant variables in firm's loan contracts, Ω is a matrix of control variables and α_t and φ_i are time year and firm fixed effects, respectively. The coefficient

of interest is β which represents the impact of a covenant violation on a feature of CEO contract. Because of the inclusion of firm fixed effects, identification of β comes only from within-firm variations for those firms that experience a covenant violation. The inclusion of distance from covenant threshold as a control variable helps isolate the treatment effect at the point of discontinuity. We allow for different coefficients above and below the covenant threshold (δ_1 is the coefficient estimate of distance to threshold below the threshold, and δ_2 is the coefficient estimate of distance to threshold above the threshold).

[~Insert Table 12 here~]

Panel A of Table 12 reports the results of conditional logit and OLS regressions for the different features of CEO contracts on indicators for implied covenant violations. Following an implied violation, firms are less likely to include *accounting-based* performance metrics and more likely to include *cash flow related* metrics in CEO contract (Columns 5 and 6). Using a narrow band around covenant thresholds, yields similar results (Panel B of Table 12).

These results support a causal interpretation of creditor intervention on the inclusion of metrics aligned with creditor interests, consistent with the results of Akins, et al. (2018) and more broadly consistent with literature on the importance of creditor intervention on corporate governance including Ferreira, et al. (2017). Focusing on behavior as firms become financially distressed, we are more agnostic as to whether the changes we document result from or are intended to avoid creditor intervention. Regardless of the interpretation, it is the firm's own poor performance that leads to contracting changes that have an economically important effect on CEO incentives.

7. Conclusion

Using detailed information on features of CEO contracts for more than 1,400 US public firms in the period 1998-2016, we examine changes in the structure of CEO compensation contracts for firms facing financial distress. These firms face unique challenges for which standard compensation contracting with

the CEO may not be appropriate. Distressed firms may have experienced significant stock price declines which reduce the CEO's alignment with shareholders and which may also make equity compensation ineffective for retention purposes. As well, distressed firms may have poor ROA or other measures of accounting performance making the use of an accounting measure both disincentivizing and at odds with the immediate needs of the firm – maintaining adequate liquidity. For these reasons, firms facing financial distress may contract differently with CEOs.

We examine several aspects of the changes in compensation contracts that occur as firms become financially distressed including the overall use of performance based pay versus discretionary (non-formulaic) bonuses, the types of performance metrics included in CEO contracts, and the setting of target performance levels. We find that while discretionary bonuses frequently are used for poorly performing firms, more seriously distressed firms are significantly less likely to do so. As performance declines, firms continue their use of market (stock) based metrics in performance based pay. However, there is a significant switch from accounting (earnings) based metrics to cash-related performance measures as the firm approaches default. Finally, we find that distressed firms have performance targets set farther above prior performance than other firms. Given that performance targets are typically set based on the prior year's performance, one might expect these firms to set lower targets to provide achievable incentives. One explanation for this result may be the difficulty for distressed firms to reduce targets regardless of poor performance, which might not meet with shareholder or creditor approval.

We further find support for several non-mutually exclusive motivations for the contracting changes we document. When the CEO has experienced a large decline in equity incentives (Δ) due to a drop in the stock price, contracts shift away from market (stock price) based metrics, and the expected payouts from performance based pay include a greater proportion of cash. For firms that are distressed but not yet close to default, the entrance of large shareholders is strongly associated with the use of performance based metrics and lower use of discretionary cash pay. However, closer to default, when the influence of creditors

becomes relatively more important, we do not observe this effect. We further find a higher likelihood of moving from accounting-based performance metrics to cash flow related metrics following implied covenant violations, consistent with prior literature demonstrating creditor intervention around these events.

Understanding compensation practices when the probability of default becomes high can shed light on the otherwise controversial pay-performance relation when stock price performance is poor. Unlike criticism that compensation practices for distressed firms are rigged in the CEO's favor, our evidence is consistent with the need to provide greater incentives to improve liquidity, and shows that the economically important changes in contracting reflect the interests of both active shareholders as well as creditors.

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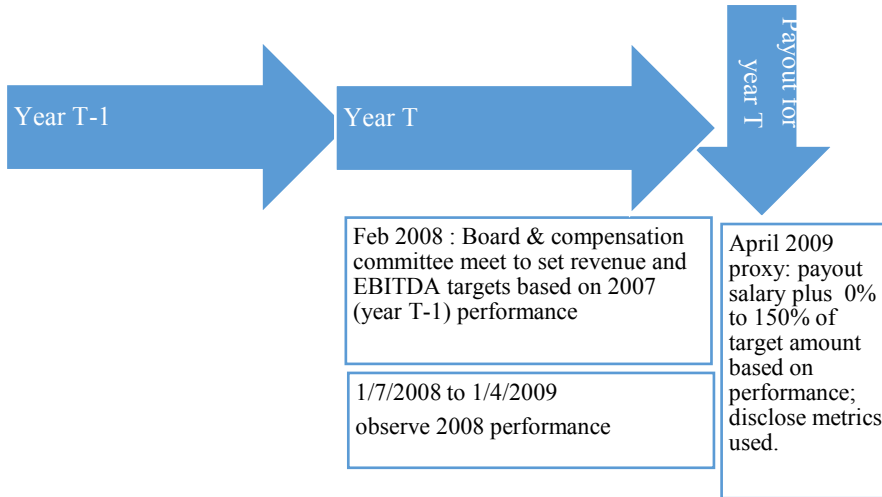
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Figure 1: Explanation of April 2009 compensation for CEO of Blockbuster Video, Inc.

Figure shows the timeline of contracting and payout to the CEO. The April 2009 total compensation payout has three components: 1) Cash salary, shown relative to comparable peers. 2) Two separate long term equity compensation plans for grants of options and/or restricted stock – since shares were granted in 2007 to vest in 2010, no additional grant is given for 2008. 3) “Plan Based” award - the CEO receives 84.3% of a target of \$500,000, paid in fully vested shares.



Appendix B.1. Frequency of performance metrics in CEO contracts

We obtain detailed information on CEO compensation contracts from Institutional Shareholder Services (ISS)'s Incentive Lab dataset. We identify a performance metric as *cash flow related* if Incentive Lab identifies that metric as “EBITDA” or “cash flow”, or we identify a performance metric related to debt and including any of the following keywords: debt, credit rating, capital structure, leverage, covenant, net worth, interest coverage, and fixed charge. *Accounting-based* metrics are often related to earnings. The following table shows the frequency of performance metrics used in CEO compensation contracts in the sample of 1,436 firms for the period 1998-2016 (16,970 firm-year observations).

Panel A. Absolute Performance Metrics							
Debt Related		Cash Flow Related		Accounting-based		Market-based	
Metric	Freq.	Metric	Freq.	Metric	Freq.	Metric	Freq.
Debt Related	156	EBITDA	1,762	EBIT	2,844	Stock Price	1,037
Credit Rating	10	Cash Flow	2,443	EPS	3,757		
Capital Structure	10			Earnings	1,853		
Leverage	21			EBT	821		
Covenant	3			Sales	4,217		
Net Worth	4			Profit Margin	653		
Interest Coverage	0			ROA	389		
Fixed Charge	0			ROE	473		
				ROIC	1,623		
Debt Related	194	Cash Flow Related	3,870	Accounting-based	9518	Market-based	1,037
Overall Absolute Performance Metrics			11,268	Total Number of Observations		16,970	

Panel B. Relative Performance Metrics							
Debt Related		Cash Flow Related		Accounting-based		Market-based	
Metric	Freq.	Metric	Freq.	Metric	Freq.	Metric	Freq.
Debt Related	6	EBITDA	33	EBIT	112	Stock Price	2,697
Credit Rating	0	Cash Flow	62	EPS	183		
Capital Structure	0			Earnings	82		
Leverage	0			EBT	15		
Covenant	0			Sales	277		
Net Worth	0			Profit Margin	76		
Interest Coverage	0			ROA	54		
Fixed Charge	0			ROE	58		
				ROIC	256		
Debt Related	6	Cash Flow Related	97	Accounting-based	868	Market-based	2,697
Overall Relative Performance Metrics			3,369	Total Number of Observations		16,970	

Appendix B.2. Examples of cash flow related performance metrics relating to debt

Example 1. Eastman Kodak Company, fiscal year 2015

A cash award is defined as a percentage of the CEO's base, tied to certain performance metrics including compliance with financial covenants and achieving a minimum level of EBITDA. The proxy reads: "For 2015, we established performance gates as part of the EXCEL program (Executive Compensation for Excellence and Leadership). The award, which provided that no payments under EXCEL would be made unless the performance gates were satisfied. The performance gates for 2015 were: (a) compliance with our financial covenants contained in the September 3, 2013 exit financing arrangements, and (b) Operational EBITDA for 2015 of at least \$110 million. We used these performance gates to ensure that no award would be earned absent financial covenant compliance and a minimum level of Operational EBITDA."

Example 2. The Manitowoc Company, fiscal year 2012

This is an equity-based long-term incentive award that is tied, among other things, to reduction of debt. The proxy reads "Long-term incentive award opportunities for executive officers are provided solely through equity-based awards and are "at risk," since they are only earned if specific performance goals are achieved [...]. The following illustrates the evolution of the Company's long-term incentive awards since 2010":

Award Type	2010	2011	2012	2013
Stock Options	75%	50%	50%	40%
Performance Shares	0%	50%	50%	60%
• Measure #1		EVA (25%)	Relative TSR (25%)	Relative TSR (30%)
• Measure #2		Debt Reduction (25%)	Total Leverage (25%)	Debt Reduction (30%)
• Performance Period		2 years (2011-2012) ⁽¹⁾	3 years (2012-2014)	3 years (2013-2015)
Time-Based Restricted Stock	25%	Not Granted	Not Granted	Not Granted

The proxy later defines "total leverage" as a performance metric in fiscal year 2012 as follows: "Total Leverage, which assesses our performance over the three-year period for growing earnings and reducing debt (equal to Total Debt divided by earnings before interest, tax and depreciation, EBITDA)."

Example 3. Terex Corporation, fiscal year 2013

The CEO's bonus is conditioned on meeting a set of quantitative and qualitative targets including reducing debt and improving capital structure of the firm. The proxy specifies the goal to "Reduce debt by approximately \$250 million and develop plans to improve the capital structure of the Company."

Appendix A. Variable Definitions

Variable	Definition	Source
Abnormal Stock Return	Annual stock return for the fiscal year minus market return.	CRSP
Accounting-based Metric	Indicator variable that takes a value of one if the CEO contract includes at least one grant tied to an accounting-based performance metrics (including EBIT, EPS, earnings, EBT, sales, profit margin, ROA, ROE, and ROIC), and zero otherwise.	Incentive Lab
Activist Shareholder	Indicator variable that takes a value of one if a Form 13D is filed by an activist shareholder within the last two years, and zero otherwise (data provided as in Brav, Jiang, and Kim (2015), and Fos and Collin-Dufresne (2015)).	EDGAR
Bank Debt	Ratio of bank debt to total debt.	Capital IQ
Cash flow Related Metric	Indicator variable that takes a value of one if the CEO contract includes at least one grant tied to EBITTDA, CashFlow, or debt related performance metrics, and zero otherwise.	Incentive Lab
CEO Ownership	Number of shares held by the CEO divided by number of shares outstanding.	Execucomp, Incentive Lab
CEO Tenure	Number of years since the date the manager became CEO.	Execucomp
CEO Turnover	Indicator variable that takes a value of one if a new CEO is appointed, and zero otherwise.	Execucomp, Incentive Lab
Covenant Violation	Indicator variable that takes a value of one if the firm violates at least one of the four covenants (current ratio, net worth, tangible net worth and debt-to-EBITDA) during the year, and zero otherwise.	Dealscan, Compustat
Debt Related Metric	Indicator variable that takes a value of one if the CEO contract includes at least one grant tied to debt-related performance metrics such as reduction of debt or leverage, improving credit rating and improving capital structure, and zero otherwise.	Incentive Lab
Default Probability	The probability of default calculated from the distance to default measure, based on Merton (1974) bond pricing model, as implemented by Bharath and Shunway (2008).	CRSP, Compustat
Disc. Bonus Ratio	Ratio of the discretionary cash bonus to the sum of this plus the target value of performance-based cash pay (non-equity incentive plan), as reported from 2006 onward.	Incentive Lab
Disc. Bonus Indicator	Indicator variable that takes a value of one if CEO receives any discretionary cash bonus in a given year, and zero otherwise, from 2006 onward.	Incentive Lab
Distress	Indicator variable that takes a value of one if sales growth is negative in each of the last two years and the firm is in the top decile of Merton's probability of default, and zero otherwise.	CRSP, Compustat
Gap: Accounting-based	The average gap between target and prior performance across all accounting-based metrics.	Compustat, Incentive Lab
Gap: Cash Flow Related	The average gap between target and prior performance across all cash flow related metrics.	Compustat, Incentive Lab
G-Index (modified)	A modified version of governance index of Gompers, Ishii, and Metrick (2003), which is based on 13 antitakeover provisions that are reported identically before and after changes in ISS (formerly IRRC) in 2006.	ISS
Institutional Blockholder	Indicator variable that takes a value of one if firm has an institutional blockholder, and zero otherwise.	Thomson Reuters
Large Decline in CEO Incentives	Indicator variable that takes a value of one if change in CEO's portfolio delta and firm's stock return are in the bottom decile of their respective distribution in our sample, and zero otherwise.	Execucomp, CRSP
Leverage	Ratio of total debt (long-term debt plus debt in current liabilities) to total assets.	Compustat

Appendix A. Continued.

Variable	Definition	Source
Low Bonus	Indicator variable that takes a value of one if payout is less than half of the target values for performance-based bonus grants.	Execucomp, Incentive Lab
Low Equity	Indicator variable that takes a value of one if payout is less than half of the target values for performance-based equity grants.	Execucomp, Incentive Lab
Market-based Metric	Indicator variable that takes a value of one if the CEO contract includes at least one grant tied to stock price as a performance metric, and zero otherwise.	Incentive Lab
Market Value of Equity	Common shares outstanding times stock price.	Compustat
Market-to-Book	Ratio of market value of assets (total assets plus market value of equity minus book value of equity) to total assets.	Compustat
No Credit Rating	Indicator variable that takes a value of one if firm does not have a credit rating with S&P, and zero otherwise.	Compustat
No Dividend	Indicator variable that takes a value of one if firm does not pay any dividends, and zero otherwise.	Compustat
Overall Use of All Metrics	Indicator variable that takes a value of one if CEO contract includes at least one grant tied to any performance metrics.	Incentive Lab
Use of Absolute Metrics	Indicator variable that takes a value of one if CEO contract includes at least one grant tied to any absolute performance metrics.	Incentive Lab
Use of Relative Metrics	Indicator variable that takes a value of one if CEO contract includes at least one grant tied to any relative performance metrics.	Incentive Lab
R&D	R&D expenses scaled by total assets.	Compustat
Return on Assets (ROA)	Ratio of operating income before depreciation to total assets.	Compustat
Sales Growth	The percentage change in revenue compared to the previous fiscal year.	Compustat
Secured Debt	Ratio of secured debt to total debt.	Capital IQ
Stock Return	Annual stock return for the fiscal year.	CRSP
Stock Volatility	Standard deviation of returns estimated with monthly stock returns.	CRSP
Target Above Performance	Indicator variable that takes a value of one if the target is set above the prior year's performance for a specific performance metric, and zero otherwise.	Compustat, Incentive Lab
Total Assets	Total assets in millions dollars.	Compustat
Zero Bonus	Indicator variable that takes a value of one if CEO was contracted to receive performance-based cash compensation but did not receive any payouts from those grants.	Execucomp, Incentive Lab

Table 1. Descriptive Statistics

This table presents summary statistics for the sample of 1,436 firms for the period 1998-2016 (16,970 firm-year observations). Panel A provides summary statistics of firm characteristics. Panel B reports summary statistics for characteristics of CEO contracts for the full sample and for subsamples sorted by performance. Variable definitions are reported in Appendix A. *, **, and *** denote statistical significance at 10%, 5%, and 1% levels, respectively.

Panel A. Firm Characteristics

<u>Variable:</u>	<u>Obs.</u>	<u>Mean</u>	<u>Median</u>	<u>St. Dev.</u>
<i>Firm Performance:</i>				
ROA (industry adjusted)	16,970	0.051	0.034	0.148
Stock Return (market adjusted)	16,736	0.128	0.016	0.808
Operating Cash Flow	16,927	0.097	0.102	0.117
Sales Growth	16,711	0.127	0.074	0.321
Distress	16,970	0.027	0.000	0.163
<i>Cash Constraints:</i>				
No Dividend	16,970	0.498	0.000	0.500
No Credit Rating	16,970	0.272	0.000	0.445
<i>CEO Characteristics and Governance</i>				
CEO Tenure (years)	16,970	7.152	5.000	6.714
CEO Ownership (%)	15,926	2.990	0.849	6.807
CEO Turnover	16,970	0.121	0.000	0.326
G-Index (modified)	12,600	6.140	6.000	1.864
Institutional Blockholder	16,970	0.864	1.000	0.343
<i>Other Firm Characteristics</i>				
Total Assets (\$ million)	16,970	10,523	2,802	34,320
Market-to-Book	16,970	2.372	1.740	2.761
R&D	16,970	0.040	0.005	0.093
Stock Volatility	16,736	0.119	0.098	0.084
Leverage	16,970	0.259	0.233	0.230
Bank Debt / Total Debt	10,742	0.243	0.057	0.332
Secured Debt/Total Debt	12,235	21.352	0.493	34.750
Default Probability	15,053	0.033	0.000	0.138

Panel B. CEO Contract Characteristics

<u>Variable:</u>	<u>Obs.</u>	<u>Mean</u>	Bottom Quartile of ROA (ind adj)	Top Quartile of ROA (ind adj)	<u>Difference</u>	Distress		
						1	0	<u>Difference</u>
<i>Performance Metrics Included in CEO Contracts</i>								
Overall Use of Any Metrics	16,970	0.677	0.650	0.624	0.026**	0.635	0.678	-0.043**
Use of Absolute Metrics	16,970	0.664	0.636	0.616	0.020*	0.626	0.665	-0.039*
Use of Relative Metrics	16,970	0.199	0.193	0.150	0.042***	0.143	0.200	-0.058***
Market-based Metrics (relative and abs)	16,970	0.189	0.198	0.140	0.058***	0.153	0.190	-0.036**
Accounting-based Metrics	16,970	0.561	0.487	0.544	-0.056***	0.458	0.564	-0.106***
Cash Flow Related Metrics	16,970	0.228	0.259	0.146	0.113***	0.276	0.227	0.050**
<i>Discretionary Cash Pay</i>								
Discretionary Bonus	9,225	\$273k	\$312k	\$150k	\$162k***	\$237k	\$274k	-\$37k
Discretionary Bonus Dummy	9,225	0.213	0.235	0.197	0.038***	0.219	0.213	0.006
Discretionary Bonus Ratio	8,306	0.150	0.190	0.140	0.050***	0.163	0.149	0.014

Table 5. Descriptive Statistics of Performance Targets in CEO Contracts

This table presents the summary statistics of the target values of performance metrics used in CEO contracts as reported by firms. Panel A reports the mean values of a set of indicator variables *Target Above Performance* which are equal to one if the target is set above the prior year's performance for each specific performance metric, and zero otherwise. Panel B reports the median values of a set of variables *Gap: Target - Prior Performance* which measure the distance between the target values and prior year's performance for each specific performance metric, and are defined as $(\text{target minus past performance})/|\text{abs}(\text{past performance})|$.

Metric:	Panel A: Target Above Performance									
	Full Sample		Top Quartile of ROA (ind adj)			Bottom Quartile of ROA (ind adj)			Distress	
	Obs	%	Obs	%	Obs	%	Obs	%	Mean	
EBIT	1,585	69%	342	62%	344	82%	45	69%	0.588	
EBT	343	74%	66	68%	122	82%	13	100%	1.051	
Earnings	660	71%	161	68%	135	76%	6	67%	0.230	
EPS	1,779	79%	469	80%	297	82%	15	80%	1.151	
Sales	1,980	69%	598	74%	353	59%	40	40%	-0.034	
Gap: Accounting Based	4,470	76%	1073	77%	951	79%	92	74%	0.329	
Ebitda	1,163	71%	158	68%	379	80%	50	76%	0.409	
Cash Flow	1,459	32%	277	30%	321	38%	39	38%	-0.195	
Gap: Cash Flow Related	2,381	51%	407	44%	628	63%	76	63%	0.354	

Metric:	Panel B: Gap: Target - Prior Performance									
	Full Sample		Top Quartile of ROA (ind adj)			Bottom Quartile of ROA (ind adj)			Distress	
	Obs	Mean	Obs	Mean	Obs	Mean	Obs	Mean	Mean	
EBIT	1,585	0.110	342	0.058	344	0.531	45	0.588	0.588	
EBT	343	0.170	66	0.118	122	0.511	13	1.051	1.051	
Earnings	660	0.193	161	0.164	135	1.000	6	0.230	0.230	
EPS	1,778	0.204	468	0.177	297	0.570	15	1.151	1.151	
Sales	1,980	0.044	598	0.057	353	0.043	40	-0.034	-0.034	
Gap: Accounting Based	4,469	0.120	1072	0.093	951	0.344	92	0.329	0.329	
Ebitda	1,163	0.127	158	0.082	379	0.323	50	0.409	0.409	
Cash Flow	1,459	-0.211	277	-0.179	321	-0.205	39	-0.195	-0.195	
Gap: Cash Flow Related	2,381	-0.017	407	-0.090	628	-0.173	76	0.354	0.354	

Table 6. Gap between Performance Target Levels and Prior Performance

This table presents the results of OLS regressions for the aggregated measures of gap between performance targets and prior performance. The dependent variables in columns 1-3 and 4-6 are *Gap: Accounting-based* and *Gap: Cash Flow Related*, respectively, which are defined as the average gap between target and prior performance across all accounting-based metrics and cash flow related metrics, respectively. All other independent variables are as defined in Appendix A. All independent variables are lagged by one year except *CEO Turnover*. All specifications include firm fixed effects. Robust standard errors clustered at the firm level are used to calculate t-statistics reported under each coefficient estimate. *, **, and *** denote statistical significance at 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	Gap: Accounting-based			Gap: Cash Flow Related		
ROA (industry adjusted)	-3.773***	-2.134**	-3.544***	-1.413***	-0.829**	-1.373***
	-3.38	-1.97	-3.22	-2.89	-2.25	-2.85
ROA Bottom Quartile		0.633***			0.453***	
		3.41			4.38	
ROA Top Quartile		-0.175			-0.050	
		-1.18			-0.47	
Distress			0.845***			0.309*
			2.74			1.75
Institutional Blockholder	0.173	0.185	0.185	0.069	0.065	0.074
	1.16	1.25	1.09	0.66	0.62	0.71
No Dividend	0.402*	0.365*	0.390**	-0.019	-0.074	-0.016
	1.79	1.63	2.03	-0.13	-0.53	-0.14
No Credit Rating	0.156	0.137	0.204	0.201	0.180	0.199
	0.71	0.62	1.06	1.02	0.93	1.47
Stock Return	0.015	0.014	0.034	-0.023	-0.031	-0.019
	0.18	0.18	0.41	-0.70	-0.93	-0.74
Total Assets (log)	0.495	0.486	0.557	-0.418	-0.262	-0.378
	0.54	0.54	0.73	-0.60	-0.39	-0.67
Total Assets (log) sqrd	-0.010	-0.012	-0.012	0.028	0.016	0.025
	-0.18	-0.22	-0.26	0.59	0.35	0.75
Leverage	0.121	0.127	0.100	0.135	0.116	0.076
	0.28	0.30	0.22	0.30	0.26	0.26
Market-to-Book	0.020	0.007	0.019	0.009	0.023	0.013
	0.40	0.15	0.34	0.17	0.48	0.32
R&D	2.068	2.148	1.961	-0.818	-0.138	-0.959
	0.60	0.65	0.76	-0.17	-0.03	-0.35
CEO Ownership	-0.010	-0.011	-0.011	0.007	0.007	0.007
	-0.38	-0.44	-0.55	0.80	0.83	0.61
CEO Tenure	-0.019	-0.017	-0.019*	0.018**	0.021**	0.018**
	-1.09	-0.99	-1.66	2.10	2.32	2.28
CEO Turnover	0.154	0.146	0.147	0.100	0.083	0.100
	0.82	0.78	1.08	0.73	0.62	1.20
R-sqr	0.310	0.313	0.311	0.525	0.532	0.525
N.Obs.	4,443	4,443	4,443	2,373	2,373	2,373

Table 7. The Use of Discretionary Cash Bonus in CEO Contracts

This table presents the results of OLS and conditional logit regressions for the use of discretionary pay. The dependent variable in columns 1, 4, 7 and 10 is log of *Discretionary Bonus*. The dependent variable in columns 2, 5, 8 and 11 is *Discretionary Bonus Ratio*, which is the ratio of the discretionary cash bonus to the sum of this plus the target value of performance-based cash pay (non-equity incentive plan). The dependent variable in columns 3, 6, 9 and 12 is *Discretionary Bonus Dummy*, which is an indicator variable equal to one if the CEO receives any discretionary cash bonus in a given year, and zero otherwise. *Zero Bonus* is an indicator variable which takes the value of one if CEO was contracted to receive performance-based cash compensation but did not receive any payouts from those grants. *Low Bonus* and *Low Equity* are indicator variables which take the value of one if payout is less than half of the target values for performance-based bonus and equity grants, respectively. All other independent variables are as defined in Appendix A. All independent variables are lagged by one year except *CEO Turnover*. All specifications include firm fixed effects. Robust standard errors clustered at the firm level are used to calculate t-statistics and z-statistics reported under each coefficient estimate. *, **, and *** denote statistical significance at 10%, 5%, and 1% levels, respectively.

	Panel A						Panel B					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Disc. Bonus (log)	Disc. Bonus Ratio	Disc. Bonus Dummy	Disc. Bonus (log)	Disc. Bonus Ratio	Disc. Bonus Dummy	Disc. Bonus (log)	Disc. Bonus Ratio	Disc. Bonus Dummy	Disc. Bonus (log)	Disc. Bonus Ratio	Disc. Bonus Dummy
Distress	-0.003	-0.005	-0.013									
Zero Bonus	-0.01	-0.15	-0.04	0.800***	0.042***	0.673***						
Low Bonus				2.71	2.75	2.52	0.298*	0.012*	0.297*			
Low Equity							1.91	1.70	1.74	0.341**	0.020*	0.367**
Institutional Blockholder	-0.106	0.013	-0.148	-0.310	-0.007	-0.385	-0.304	-0.007	-0.403	1.93	1.90	2.27
No Dividend	-0.57	1.04	-0.84	-1.61	-0.93	-1.53	-1.58	-0.89	-1.61	-0.290	-0.007	-0.445*
No Credit Rating	0.187	0.010	0.157	0.106	0.000	0.119	0.115	0.000	0.119	-0.037	-0.004	0.002
ROA (industry adjusted)	0.80	0.65	0.87	0.41	0.01	0.42	0.41	0.01	0.42	-0.15	-0.26	0.01
Stock Return	-0.059	-0.001	-0.084	0.007	0.007	-0.176	-0.011	0.006	-0.185	-0.157	-0.010	-0.197
Total Assets (log)	-0.26	-0.05	-0.46	0.03	0.55	-0.78	-0.04	0.47	-0.80	-0.64	-0.56	-0.93
Total Assets (log) sqrd	0.884	0.001	0.517	-0.367	-0.012	-0.528	-0.387	-0.014	-0.566	1.127	0.034	1.216*
Leverage	1.35	0.03	0.91	-0.40	-0.26	-0.47	-0.41	-0.30	-0.51	1.55	0.67	1.86
Market-to-Book	0.043	-0.007	0.023	0.149	0.002	0.084	0.143	0.001	0.078	0.088	-0.004	0.073
R&D	0.44	-1.37	0.46	1.44	0.30	1.44	1.38	0.21	1.30	1.06	-1.21	1.54
CEO Ownership	0.319	-0.087	0.809	1.354	0.051	1.421	1.328	0.050	1.361	1.676*	-0.020	1.781*
CEO Tenure	0.37	-1.18	1.03	1.33	1.16	1.29	1.30	1.13	1.23	1.72	-0.30	1.82
CEO Turnover	-0.087	-0.001	-0.121**	-0.124**	-0.005*	-0.138**	-0.123**	-0.005*	-0.135*	-0.153***	-0.003	-0.170***
N.Obs.	-1.61	-0.19	-2.33	-1.96	-1.73	-1.93	-1.93	-1.71	-1.87	-2.51	-0.68	-2.60
R-sqr	-1.54***	-0.121***	-1.255***	-0.986*	-0.039	-1.382*	-0.986*	-0.037	-1.375*	-0.472	-0.067	-0.611
N.Obs.	-2.89	-3.04	-3.06	-1.68	-1.43	-1.86	-1.68	-1.38	-1.87	-0.77	-1.49	-1.15
N.Obs.	-0.099**	-0.002	-0.106**	-0.030	-0.001	-0.047	-0.033	-0.001	-0.049	-0.118**	-0.004	-0.184***
N.Obs.	-2.26	-0.58	-2.40	-0.58	-0.20	-0.84	-0.63	-0.30	-0.88	-2.43	-1.08	-2.82
N.Obs.	-0.346	-0.010	-2.495	-1.183	-0.028	-3.234	-1.316	-0.032	-3.351	-0.371	-0.010	-2.349
N.Obs.	-0.87	-0.08	-1.30	-0.58	-0.31	-0.92	-0.63	-0.35	-0.93	-0.19	-0.11	-0.97
N.Obs.	-0.003	0.002	-0.004	-0.007	-0.001	0.001	-0.007	-0.001	-0.000	-0.018	-0.001	-0.017
N.Obs.	-0.15	1.29	-0.25	-0.34	-0.72	0.05	-0.34	-0.68	-0.00	-0.94	-0.68	-0.77
N.Obs.	0.018	0.002*	0.002	0.015	0.002*	0.005	0.015	0.002*	0.004	0.026	0.002*	0.014
N.Obs.	1.14	1.93	0.20	0.89	1.85	0.25	0.90	1.86	0.20	1.39	1.77	0.79
N.Obs.	1.754***	0.123***	1.223***	1.810***	0.117***	1.493***	1.826***	0.118***	1.510***	1.714***	0.114***	1.431***
N.Obs.	9.56	9.65	11.02	8.12	8.73	9.15	8.19	8.76	9.38	8.20	8.25	9.45
N.Obs.	0.519	0.637	0.477	0.477	0.461	0.476	0.459	0.584	0.694	0.584	0.694	0.709
N.Obs.	9045	8147	9,045	6061	5888	6,061	6061	5888	6,061	7049	6524	7,049

Table 8. Descriptive Statistics for Firms Approaching Default

The subsample contains 424 firm-year observations from 99 events of default in the period 1998-2015 for which we have detailed information on CEO contracts. Panel A reports summary statistics for firm characteristics. Panel B reports summary statistics for characteristics of CEO contracts overall and sorted by time relative to default. Panel C reports summary statistics for characteristics of CEO contracts for the last year of outgoing CEOs and the first two years of incoming CEOs. Variable definitions are provided in Appendix A.

Panel A. Firm Characteristics

Variable	Full Sample			Year w.r.t. Default (-5 to -1)				
	Obs.	Mean	Median	-5	-4	-3	-2	-1
<i>Firm Performance:</i>								
ROA (industry adjusted)	424	-0.036	-0.021	0.003	-0.015	-0.044	-0.062	-0.057
Stock Return (market adj.)	411	-0.156	-0.310	0.087	-0.163	-0.092	-0.266	-0.318
Sales Growth	410	0.141	0.024	0.232	0.189	0.151	0.133	0.007
<i>Cash Constraints:</i>								
No Dividend	424	0.594	1.000	0.520	0.542	0.604	0.620	0.675
No Credit Rating	424	0.130	0.000	0.160	0.157	0.154	0.109	0.072
<i>CEO Characteristics and Governance</i>								
CEO Tenure (years)	424	4.831	4.000	5.920	4.446	4.670	4.379	4.920
CEO Ownership (in %)	379	2.923	0.828	2.692	2.986	2.827	3.901	2.031
CEO Turnover	428	0.151	0.000	0.133	0.157	0.121	0.147	0.195
G-Index (modified)	288	6.285	6.000	6.300	6.206	6.349	6.327	6.234
Institutional Blockholder	424	0.925	1.000	0.947	0.916	0.931	0.933	0.900
<i>Other Firm Characteristics</i>								
Total Assets (\$ million)	424	14,344	3,770	16,891	16,868	13,077	13,225	12,148
Market-to-Book	423	1.703	1.228	1.669	2.576	1.557	1.413	1.336
R&D	424	0.020	0.000	0.021	0.022	0.019	0.018	0.018
Stock Volatility	411	0.184	0.141	0.032	0.033	0.035	0.040	0.057
Leverage	424	0.465	0.419	0.376	0.416	0.436	0.483	0.606
Default Probability	409	0.282	0.030	0.108	0.195	0.200	0.296	0.600

Panel B. CEO Contract Characteristics

Variable	Full Sample			Year w.r.t. Default (-5 to -1)				
	Obs.	Mean	-5	-4	-3	-2	-1	
<i>Performance Metrics Included in CEO Contracts</i>								
Overall Use of Metrics	424	0.701	0.653	0.663	0.722	0.747	0.706	
Market-based Metrics	424	0.208	0.173	0.193	0.244	0.232	0.188	
Accounting-based Metrics	424	0.467	0.493	0.446	0.489	0.474	0.435	
Cashflow Related Metrics	424	0.318	0.240	0.217	0.311	0.411	0.388	
Debt Related Metrics	424	0.029	0.013	0.012	0.023	0.056	0.038	
<i>Discretionary Cash Pay</i>								
Discretionary Bonus	227	\$428k	\$436k	\$232k	\$740k	\$389k	\$266k	
Discretionary Bonus Dummy	227	0.247	0.259	0.233	0.296	0.213	0.236	
Discretionary Bonus Ratio	182	0.188	0.212	0.192	0.217	0.159	0.177	
<i>CEO Replacements</i>								
N. of CEO Turnover			10	13	11	14	17	
N. of Obs.			75	83	90	95	87	
Annual Turnover			13.3%	15.7%	12.2%	14.7%	19.5%	

Table 8 - Continued**Panel C. Contract Characteristics Before and After CEO Replacement**

Variable	Last Year of Outgoing CEO		1st Year of Incoming CEO		2nd Year of Incoming CEO	
	Mean	Median	Mean	Median	Mean	Median
Overall Use of Metrics	0.679	1.000	0.604	1.000	0.795	1.000
Market-based Metrics	0.132	0.000	0.189	0.000	0.250	0.000
Accounting-based Metrics	0.547	1.000	0.377	0.000	0.636	1.000
Cashflow Related Metrics	0.283	0.000	0.264	0.000	0.273	0.000
Debt Related Metrics	0.038	0.000	0.057	0.000	0.023	0.000
Discretionary Bonus Ratio	0.244	0.000	0.425	0.000	0.183	0.000
Discretionary Bonus Dummy	0.760	1.000	0.724	1.000	0.621	1.000
Cash Ratio: Target	0.245	0.207	0.164	0.143	0.330	0.240
Cash Ratio: Payout	0.120	0.000	0.105	0.000	0.147	0.063
CEO Tenure	6.927	5.000	1.000	1.000	2.000	2.000
CEO Ownership (%)	0.502	0.280	1.381	0.129	0.331	0.170

Table 9. Changes in Characteristics of CEO Contracts in Firms Approaching Default

This table presents the results of conditional logit regressions for features of CEO contracts for 99 sample firms in the 5-year periods prior to an event of default. Dependent variables are the characteristics of CEO contracts examined in Tables 3 and 4. *1 Year Before Default*, *2 Years Before Default* and *3 Years Before Default* are indicator variables equal to one for 1 year, 2 years and 3 years before an event of default, respectively. *CEO Turnover* is equal to one if that year is the first year of a new CEO and (unlike prior tables) remains equal to 1 through the year prior to default.. All other independent variables are as defined in Appendix A. All independent variables are lagged by one year except *CEO Turnover*. All specifications include firm fixed effects. Robust standard errors clustered at the firm level are used to calculate t-statistics and z-statistics reported under each coefficient estimate. *, **, and *** denote statistical significance at 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	Overall Use of Perf. Metric	Use of absolute perf. Metrics	Use of relative perf. Metrics	Market- based Metrics	Accounting- Based Metrics	Cash Flow Related Metrics
1 Year Before Default	1.726** 1.95	1.502* 1.65	1.293 0.73	0.864 0.69	0.580 0.94	2.429*** 2.76
2 Years Before Default	2.585*** 2.79	2.317*** 2.53	1.763 1.36	1.437 1.42	0.743 1.51	2.335*** 2.92
3 Years Before Default	1.685*** 3.57	1.411*** 2.57	-0.040 -0.04	0.527 0.88	0.646 1.44	1.264*** 2.86
Institutional Blockholder	-0.086 -0.08	-1.103 -1.11	1.183 0.54	0.523 0.54	-0.153 -0.24	-0.869 -1.39
No Dividend	-3.273** -2.12	-1.467 -0.92	-4.824*** -3.17	-19.325*** -13.27	-1.409** -1.99	0.891 0.80
No Credit Rating	15.608*** 11.57	0.812 0.66	2.397 1.00	-16.391*** -10.39	-0.142 -0.13	-0.384 -0.61
ROA (industry adjusted)	0.558 1.18	0.831 1.59	0.788 0.16	-2.185 -0.55	0.849 1.59	-0.469 -0.99
Stock Return	-0.060 -0.18	-0.172 -0.52	-0.111 -0.19	-0.277 -0.56	0.035 0.15	-0.274 -0.83
Total Assets (log)	0.367 0.05	4.789 0.93	24.001 1.53	38.026** 2.31	1.639 0.55	1.604 0.32
Total Assets (log) sqrd	-0.068 -0.15	-0.294 -1.06	-1.523* -1.73	-2.111** -2.17	-0.099 -0.61	-0.128 -0.46
Leverage	-1.318 -0.51	-0.243 -0.09	7.606 0.99	2.363 0.50	-1.068 -0.67	-2.736 -1.36
Market-to-Book	-0.223 -0.35	0.221 0.32	-2.752 -1.18	1.141* 1.72	0.354 1.12	-0.354 -0.51
R&D	-34.875*** -2.45	-25.528** -2.00	103.235 0.79	104.537*** 2.55	-16.060 -1.53	4.877 0.30
CEO Ownership	0.135 0.85	0.049 0.32	1.140* 1.80	-0.732*** -2.75	0.079 0.51	0.031 0.83
CEO Tenure	-0.059 -0.66	-0.058 -0.73	-0.224** -2.37	-0.220*** -2.69	0.018 0.24	-0.008 -0.12
CEO Turnover	0.034 0.03	-0.050 -0.05	-1.659 -1.10	-1.483 -1.37	0.848 1.10	-0.567 -0.53
N.Obs.	411	411	411	411	411	411

Table A.1. Descriptive Statistics for Subsamples of Poorly Performing or Distressed Firms

This table presents the summary statistics for the subsamples of firms identified as poorly performing or distressed. *ROA Bottom Quartile* is an indicator variable equal to one if industry adjusted ROA is in the bottom quartile of its distribution. *Distress* is an indicator variable equal to one if sales growth is negative in the last two years and firm is in the top decile of Merton's probability of default, and zero otherwise. All other variables are defined in Appendix A.

Variable		Bottom quartile of ROA (ind adj)		Distress	
		0	1	0	1
Sales Growth	Mean	0.143	0.129	0.149	-0.168
	Median	0.088	0.043	0.084	-0.127
Default Probability	Mean	0.016	0.078	0.025	0.353
	Median	0.000	0.000	0.000	0.219
Interest Coverage < 1	Mean	0.021	0.246	0.071	0.299
	Median	0.000	0.000	0.000	0.000
ROA Ind Adj	Mean	0.096	-0.087	0.054	-0.057
	Median	0.062	-0.044	0.038	-0.028
Stock Return	Mean	0.227	0.191	0.227	-0.103
	Median	0.130	0.024	0.117	-0.330

Table A.2. Addition/Dropping Performance Metrics by Poorly Performing or Distressed Firms

This table reports the percentage of firms adding/dropping each type of metric, conditional on having that metric in the prior year, for subsamples based on performance. *ROA Bottom Quartile* is an indicator variable equal to one if industry adjusted ROA is in the bottom quartile of the distribution, and zero otherwise. *Distress* is an indicator variable equal to one if sales growth is negative in the last two years and firm is in the top decile of Merton's probability of default, and zero otherwise. Aggregate reports the percentage of firms that add or drop any of the accounting-based or cash flow related metrics.

Variable	Adding Performance Metrics				Dropping Performance Metrics			
	Bottom quartile of ROA (ind adj)		Distress		Bottom quartile of ROA (ind adj)		Distress	
	0	1	0	1	0	1	0	1
EBIT	5%	5%	5%	7%	14%	21%	16%	26%
EBT	1%	2%	1%	4%	17%	28%	19%	47%
Earnings	4%	4%	4%	5%	27%	29%	27%	59%
EPS	6%	4%	6%	3%	12%	19%	13%	35%
Sales	8%	7%	8%	10%	11%	19%	12%	29%
Aggregate: Accounting-based	18%	17%	17%	22%	7%	10%	7%	19%
Ebitda	2%	5%	3%	6%	11%	15%	12%	18%
Cash Flow	4%	5%	4%	7%	12%	20%	14%	18%
Aggregate: Cash Flow Related	5%	9%	6%	11%	10%	14%	11%	16%

Table A.3. Descriptive Statistics around CEO Turnovers

This table presents the summary statistics of CEO characteristics around turnovers in our sample. The left panel reports the summary statistics for the last year of outgoing CEOs, the middle panel reports the summary statistics for the first year of incoming CEOs, and the right panel reports the summary statistics for the second year of incoming CEOs. We identify the CEO as the person who holds office for the majority of a year.

Variable	Last Year of Outgoing CEO			1st Year of Incoming CEO			2nd Year of Incoming CEO		
	Obs	Mean	Median	Obs	Mean	Median	Obs	Mean	Median
<i>Performance metrics included in CEO contracts</i>									
Overall use of metrics	1,901	0.641	1.000	2057	0.639	1.000	1,771	0.715	1.000
Market-based	1,901	0.173	0.000	2057	0.193	0.000	1,771	0.200	0.000
Accounting-based	1,901	0.535	1.000	2057	0.517	1.000	1,771	0.592	1.000
Cashflow Related	1,901	0.205	0.000	2057	0.216	0.000	1,771	0.254	0.000
<i>Discretionary (non-formulaic) pay</i>									
Disc. bonus ratio	745	0.179	0.000	912	0.295	0.000	903	0.178	0.000
Disc. bonus dummy	914	0.632	1.000	1068	0.689	1.000	1,046	0.627	1.000
<i>Ratio of cash pay</i>									
Cash ratio: target	904	0.293	0.221	1070	0.209	0.162	1,041	0.288	0.223
Cash ratio: payout	1,101	0.193	0.120	1389	0.148	0.032	1,236	0.205	0.165
CEO Tenure	1,625	8.453	7.000	1741	4.182	1.000	1,505	2.215	2.000
CEO Ownership (in %)	1,560	1.539	0.224	1667	0.905	0.097	1,468	0.557	0.088

